

WATER LAW
IN
SELECTED AFRICAN COUNTRIES

(Benin, Burundi, Ethiopia, Gabon, Kenya, Mauritius,
Sierra Leone, Swaziland, Upper Volta, Zambia)

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FOREWORD

This study is intended as a further contribution toward a global inventory of national experiences in the field of water law and administration. In view of its interest in promoting agricultural production, which requires a major consumptive use of water resources, FAO has always been concerned with the legal and institutional aspects of water management. As early as 1950, it initiated the publication of a variety of documents on water law and administration, including country studies on the United States (1950), Italy (1953), Moslem countries (1954/1973), Latin America (1956), ground-water legislation in Europe (1964), Central America, Caribbean and Mexico (1975) and in selected European countries (1975). Similar studies were later contributed by the United Nations Economic and Social Commission for Asia and the Pacific (formerly ECAFP) for most of its member countries (1967-1968) and by the United Nations Secretariat on the legal regime of the abstraction and use of water (1972) and on national systems of water administration (1974).

Through the preparation of such studies and with the benefit of extensive field experience, an Outline was eventually developed for the systematic inventory of national water resources legislative and institutional frameworks. This Outline based on the hydrologic cycle, considers water resources conservation, development and utilization as an integrated whole and treats corresponding legal and institutional aspects accordingly. The Outline, which is given as an Appendix, has been used by FAO for some years and served as a basis for the preparation of the present publication.

In recent years, water laws and institutions have undergone a fundamental process of modification in many countries of Africa. The selection of the country studies in this volume has been made, first of all, on the availability of data in FAO's Legislation Branch and on the basis of geographical characteristics, juridico-political history or institutional organization. It is to be noted that - at present - in many African countries, the situation is in a state of transition and often rapid changes occur in their legal-institutional framework.

The original research of some country monographs or the final preparation of some others have been contributed by individual lawyers in their personal capacity. The following lawyers have prepared the country monographs or completed the essential legal materials (country monographs indicated in brackets): Dr. D. Alhériciére (Surinam, Guinéa), Mr. T. Aptekman (Gabon), Dr. S. Barochi (Zambia), Dr. S. Barochi and Dr. P.W.J. Odaro (Kenya), Dr. C.L. d'Arifat, Q.C. (Mauritius), and Dr. B. Wahlwend (Sierra Leone); the remaining parts of the study (Part One - General Part, as well as Benin, Ethiopia and Upper Volta), have been prepared by Dr. Dante A. Geponera. Mr. R. Darroll has helped with the preliminary preparation of some country monographs and assisted in the editing of all the studies. We would like to record here our appreciation for their contribution and collaboration.

The ten country monographs included in this study may possibly contain omissions or statements based on such incomplete information as was available in some cases. The Legislation Branch will accordingly be grateful to any reader who would point out such deficiencies so that they may be taken into account in any future edition.

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PART ONE -- GENERAL PART

i - INTRODUCTION

1. General Remarks

1. This Introduction 1/ outlines briefly the major problems in the field of water resources law and administration in Africa, stresses their role within integrated water resources planning and identifies the sources of water law and administration in the African region so as to provide a general introductory context within which the individual studies which follow may be more meaningfully appreciated.

2. It is also part of the contribution of the Food and Agriculture Organization of the United Nations to the work being carried out in the field on water law and administration by the United Nations Economic Commission for Africa.

3. The problems or challenges of Africa with regard to the development of its water resources must, at the outset, be seen in the light of the particular history of Africa immediately preceding current times. As from 1950, at which time independent States of Africa were only few (Egypt, Ethiopia and Liberia for instance) their number has increased to almost fifty. This is important with respect to the use of inland water resources shared by two or more States as well as to those economic problems which have arisen from a fragmentation of once wider markets. As a consequence, there has been a widespread awareness among African countries of the need to break down small-scale economic organizations and to move toward a larger regional and continental cooperation. This has entailed the creation of regional, sub-regional, drainage basin and continental organizations with the purpose of pursuing common economic, financial and social goals 2/.

1/ Most of the contents of this Introduction is an amended and updated version of a paper prepared by D.A. Caponera for the UN/ECA Working Group of Experts on Water Resources Planning and entitled "Water Policy Administration and Legislation in Africa", (WRO/CONF/4, 14 May 1970) and of a subsequent Note prepared by the same author for the UN/ECA Regional Preparatory Meeting for the United Nations Water Conference (held at Addis Ababa, Ethiopia, in September 1970) entitled "Legal and Institutional Aspects of Water Resources Development in Africa", FAO Background Paper No. 12 (Legislation Branch), June 1970 (W/RO 15B).

2/ The following are the most important among these organizations: O.A.U. (Organization of African Unity) created in 1963 and composed of the majority of African States for the promotion of unity and international cooperation; C.E.A.O. (Communauté économique de l'Afrique de l'Ouest) created at Bamako, June 1972-1974 and composed of twelve states; Conseil de l'Entente, created in May 1959 and composed of Benin, Ivory Coast, Niger, Togo, Upper Volta; E.A.C. (East African Community) created in 1963 and composed of Kenya, Tanzania and Uganda; O.C.A.M. (Organisation commune africaine et mauricienne) created in 1955 and including ten states; U.D.E.A.O. (Union douanière économique de l'Afrique centrale) created in 1956 and including four states; S.A.C.U. (Southern African Customs Union) created in 1969 and including Botswana, Lesotho, South Africa and Swaziland; U.L.A.C. (Union des états de l'Afrique centrale); E.F.C. (European Economic Community/Associated African and Malagasy States: comprising twenty-two states and formed in 1953). In the more specific field of water resources there are the O.R.V.S. (Organisation pour la mise en valeur du fleuve Sénégal) established in 1972 with three states, the Lake Chad Basin Commission (established in May 1964 among four states) and the Niger River Commission (established in 1963 with eight states), the Senegalo-Gambian Permanent Executive Secretariat (established in 1967) and the Coordinating Committee for the Integrated Development of the Gambia River Basin (established in 1976), and the Electricity Community of Benin (established in 1968 between Togo and Benin).

These regional arrangements may greatly facilitate integrated administration and legislation programmes aiming at approximating, harmonising or unifying national water resources laws and institutions for which such regional arrangements could provide a useful framework. It is, however, the choice of the most suitable type of regional arrangement that presents the greatest problem given different political regimes, languages, legal systems, economic and other motivations constituting unifying or dividing factors. From the results they have achieved, it would seem that basin, or in the case of extremely large basins, sub-basin organisations constitute the ideal framework for the integration of the legal-institutional aspects of water resources at the regional level 1/.

4. The differences in natural conditions prevailing within the African continent also point to the need for wider regional arrangements. Over large parts of the continent, rainfall is marginal or erratic and constitutes a limiting factor to agricultural development. Many governments are now desirous of transferring from shifting cultivation or from cash-crop production to irrigated agriculture, from a subsistence to a market agriculture; all these policies require a more efficient harnessing and management of available water resources. The desire to promote agricultural progress has witnessed the development of various types of agricultural schemes, such as irrigation projects implying the relocation of people on new land 2/, or other large-scale undertakings. Large-scale water resources projects are generally successful only where there is adequate planning, advance knowledge of technical, economic and social factors and appropriate legal-institutional framework. In turn, rational water resources management calls for a corresponding policy supported by adequate legislation and institutions in the organization and implementation of which regional arrangements may also constitute useful frameworks.

5. Another dominant feature facilitating the introduction of a rational water resources administration and legislation in Africa is the existence of traditional customary legal-institutional frameworks. Modern tendencies in water resources policy, administration and legislation require people's participation in the management of water resources, something which is generally achieved where a less individualistic and a more community-oriented approach prevails in respect of the ownership, distribution and use of water as well as within the organization of water users' associations, consortia or cooperatives. Such an approach, which is difficult to introduce in Western types of societies, is, however, congenial to the African environment where the existence of traditional forms of community organizations, associations, resources ownership and right of use, may greatly facilitate its institutionalization; this has already taken place in the case of communal farming and grazing, and in the creation of land users' associations and cooperatives for instance 3/.

1/ The most important examples are the O.N.V.S. (Senegal Basin Authority), Chad and Niger Basin Commissions.

2/ The Gezira cotton, Office du Niger and West-Nigerian settlement schemes and the one million acre settlement scheme of Kenya.

3/ Successful experiences include the Jokolware Kinship groups in Malawi (Nyasaland) and Kenya, the cooperative farms in Uganda, the chumbe collectifs in Mali, and the ujamaa village programme in Tanzania.

While new institutions and laws will, where desirable, progressively replace customary practices in Africa, many of the old traditions and attitudes will survive because cultural backgrounds tend to evolve slowly even in the face of sweeping attempts at reform. In addition, the mere fact that these traditions are long-standing does not mean they do not have aspects of value which should be retained.

2. The Need for Adequate Water Law and Administration

6. Most African governments have recognized the fact that water resources development will continue to provide the foundation for the development of Africa as a whole. The value of water is not unknown to African traditions: one of the greatest civilizations of the world - the Nile civilization - was born of an African river. In West Africa, small temples in honour of the gods of thunder, water, earth and forests testify to the religious reverence for such basic natural resources.

7. The need for adequate water administration and legislation is evidenced by the ever growing demand for water and by the importance of this resource for the social welfare and economic development of any country. In the beginning of the development process, little or no conflict exists among various users and uses of water as they can all be satisfied easily; water legislations and institutions have followed the same development pattern and different legal enactments and organizations have been provided for controlling each type of water use. With population growth and the increase of water use, the demand for water has increased tremendously and conflicts among users and uses have arisen. Priorities and preferences have had to be established: this is one of the objectives of an efficient legislation.

8. Land and water economics, which are closely interconnected, cannot be adequately implemented unless appropriate legal and administrative provisions are established. Irrigation, drainage, flood and pollution control practices are carried on through technical and engineering surveys, schemes, and water development works. The study of their legal and institutional implications needs to be carried out simultaneously. Prior to starting technical works, the legal regime of water ownership and use rights needs to be ascertained. Upon completion of water development schemes, it is then necessary to devise the most efficient water distribution and utilization patterns compatible with local conditions and needs. This is done through the drafting and enactment of legal provisions. Economics requires clear legal rights, clearance and an adequate redistribution of existing rights in order to economically safeguard any financial investment.

9. Damage caused to agriculture by water pollution are equally relevant. Plant, animal and human life needs to be protected by means of adequate legal provisions against water pollution. The effects of water pollution are a matter of extreme concern in European and North American countries, and similar problems should be prevented from reaching the same proportions in African or other developing countries. Although the pollution problem is already present, it is still relatively easy to bring it under control. In the case of international river basins, cooperative action among basin states is necessary.

10. Priorities among different water utilizations can be dealt with more effectively where national and international administrative machineries for water control are set up.

In order to ensure the most efficient use of water, the catchment area of the river basin should be treated as a single economic unit for overall water policy formulation and implementation. This need is recognized by economists, engineers and hydrologists as well as by the most recent theories on international water resources law ^{1/}.

11. The existence in many countries of a large number of legal enactments and water institutions is a hindrance to their clear understanding and effective operation, as well as a restraint on the adoption of the needed policy. Most existing water laws and regulations have been enacted to meet particular situations without much concern for the overall interests and future needs of the country concerned. The number of institutions dealing with water also creates difficulties for the smooth implementation of sound water resources policies.

12. The need for efficient water institutions supported by adequate legislation becomes therefore unavoidable. Due to the fact, however, that these problems are generally encountered not by lawyers, but by water technicians and economists, the exact content, spirit, implications and extent of water administration and legislation are either overlooked or not well known.

13. On the other hand, lawyers, in general, lack in their legal training the knowledge of basic hydrologic, technical and economic data which are indispensable for dealing with water law and, therefore, are generally not equipped to provide those legal and institutional solutions sought by water technicians and economists.

14. The science of water resources policy, administration and legislation is a relatively recent one and necessitates an inter-disciplinary approach. Starting from the technical aspects of water (hydrologic cycle, different types of use, single or multi-purpose projects, etc.) and passing through its economic and financial components, it purports to provide the planner with those legal and institutional tools which are necessary for solving the problems encountered by the technicians and economists in the field of water resources conservation, development and utilization.

15. Modern water resources technology and economics require at an increasing speed that adequate attention be paid to the legal and institutional aspects of water resources planning, development, use and conservation activities so as to facilitate the solution of all the problems and constraints that such aspects represent in the field of water. This is particularly true in the African continent where countries are now faced with the need of accelerating their economic growth due to rapidly changing world economic conditions and increasing population growth.

16. The problems connected with water administration and legislation are being increasingly studied by the U.N. system of organizations for the benefit of Member Countries. FAO started their study in 1960 and has published a good number of studies ^{2/}; the United

1/ Integrated River Basin Development, U.N. Document E/3060; International Law Association, Committee on the Uses of the Water of International Rivers, Report, 28th. Conference (New York) p. 50.

2/ Nile Williams "Water Laws in the USA", FAO Agriculture Development Paper No. 2, Washington, USA, 1951. Dante Caponera "Water Laws in Non-tem Countries", FAO Agriculture Development Paper No. 43, Rome, Italy, 1954/56, re-edited in 1973 as Irrigation and Drainage Paper No. 20/1; M.T. Sandoval "Water Law in Central America, Caribbean and Mexico" - Legislative Study No. 8, FAO, 1975; FAO Legislation Branch "Water Law in Selected European Countries" - Legislative Study No. 10, FAO, 1975. A full list of the FAO publications and studies in the field of water law and administration is included in "A Summary of the Current Activities of FAO as regards the Legal and Institutional Aspects of Water Resources Management", Background Paper No. 2, Rev. 1, by FAO Legislation Branch, Rome, 1975.

Nations, the Economic Commissions for Asia and the Pacific (ECAFP), Europe (ECE) and Latin America (CELA) have all undertaken studies in these fields ^{1/}. Technical assistance is also being provided to many countries wishing to modernize their water administration and legislation and to formulate national water policies.

3. Water Resources Policy, Administration and Legislation and Integrated Water Resources Planning

17. The study of the technical, economic, financial and other aspects of water resources development, conservation and utilization cannot be successfully implemented unless water institutions and legislation at every level - international, national, regional, basin and local - are adequate. Often, water resources projects, though technically and economically well planned and conceived, have been hampered, retarded or subject to failure as a consequence of inadequate water institutions and administration which, in turn, have to be supported by an up-to-date water legislation.

18. Water, together with land, subsoil wealth and human beings is one of the major and basic natural resources on which each government should plan harmonious economic development for its survival and progress. Since water is indispensable to man, animals and plants, it constitutes automatically a limiting factor to such economic development. In view of rapid population growth, technological progress, general improvement of living conditions and the corresponding increase in water demands, available water resources must be protected, conserved and efficiently utilized both in quantity and quality.

19. The overall objective of water resources administration and legislation is to ensure the implementation of clear-cut water policies. A sound and well balanced water resources policy should be viewed, as the case may be, at the national, basin, regional, local or project level. It should be framed according to the situation and requirements existing in any particular State, region or basin, and be concerned with finding ways and means to satisfy existing and future water demands for different purposes on the basis of the availability of water, existing uses, socio-economic requirements, population growth and technical possibilities. Proper policy planning of the allocation and management of available water and financial resources at every level is indispensable: this is what an adequate water administration and legislation is expected to implement.

20. Just as a national water resources policy must be viewed within the context of an overall national development plan, so it may either constitute a catalyst or a barrier to such national plans, a system of water administration as a part of a national infrastructure may act either as a stimulus to or as a constraint upon the national development process. Likewise, water legislation, which constitutes a means to implement water policy decisions, may either facilitate or hinder the rational utilization of water resources.

1/ "Water Legislation in Asia and the Far East", Part I and Part II, Water Resources Series No. 31 and 35, 1967 and 1969 (ECAFPE); "Guidelines for the Drafting of Water Codes", Water Resources Series No. 43, 1973 (ECAFPE); "National Systems of Water Administration", United Nations, 1974; "U.N. Proceedings on Water Resources Administration", New Delhi, India, 1973; "Abstraction and Use of Water: A Comparison of Legal Regimes", United Nations, 1972.

21. In all countries of the world, and those of the African continent are no exception, water resources may be utilized for many beneficial purposes: domestic, municipal, irrigation, livestock watering, industrial, hydro-power generation, transport, fishing and recreation. The same waters, if not properly managed, may cause harmful effects such as floods, poor drainage, overflow, salinization, siltation, waterlogging, soil erosion, etc. Finally, the uncontrolled waste and misuse of water may cause health hazards and pollution. Due to this wide range of water uses, harmful effects and quality aspects, many government ministries, autonomous institutions, private corporations and individuals are generally concerned, interested or users of water. On the other hand, many legal enactments often purport to govern specific water uses, harmful effects or misuses, and each of these laws is administered by a different ministry or department without apparent or enforced coordination. The results of this situation are: overlapping of authority in the field of water, lack of or poor planning and coordination, sectoral approach to water projects, detrimental effects of one project on another, waste of natural, financial and human resources, insecurity in the right to use water and uncertainty as to the successful implementation of projects. In the case of international drainage basins, the lack of adequate institutions and agreements render the development of water resources projects either problematic or, sometimes, a cause of international water disputes 1/.

22. As a consequence, water resources policy must take into consideration the legal and institutional aspects of water, both with respect to their technical and economic implications at every stage of the water problem: planning, construction, operation and maintenance.

II - SOURCES OF WATER LAWS AND INSTITUTIONS 2/

23. Existing water institutions, administrations and laws in Africa are derived from one or more of the following legal systems: African customary law, Roman law, Muslim law, European Civil law and English Common law systems and other systems of law. Their scope and contents is analyzed in the following sections.

1. African Customary Law

24. African customary law has relevance in fields such as land tenure, grazing, cultivation, animal watering and fishing rights, users' associations, land settlement and redistribution, succession, as well as in the procedures relating to the recording, "immatriculation", registration, adjudication and settlement of disputes on such rights.

1/ For a detailed methodological approach to the study of legal-institutional aspects of water resources see "Outline for the preparation of a national water resources law inventory" by D.A. Caponera, FAO (Legislation Branch), Background Paper No. 7, Rome, 1975 and, in the case of international water resources "Outline for the preparation of an inventory on the legal and institutional aspects of international water resources basins" by D.A. Caponera, FAO (Legislation Branch), Background Paper No. 11, Rome, 1976.

2/ This Part II is also based on an amended and updated version of the two papers prepared by D.A. Caponera for the UN/WCA meetings held at Addis Ababa, Ethiopia, in 1970 and 1976 as described in footnote 1 of page 1.

Such customary laws vary from country to country. One of their major characteristics is the "community interest" found in land tenure systems all over the continent 1/. It has a customary origin and is usually unwritten.

2/. Legislation to adjust African customary laws to development needs represents a current policy issue in many new States of Africa 2/. Such African customary laws, particularly with respect to land tenure, grazing rights and cultivation rights, have been specifically recognized in the legislation of many African countries, such as Cameroon 3/, Ghana 4/, Nigeria 5/, Tanzania 6/, Zambia 7/, Ivory Coast and Senegal 8/, Congo 9/, Niger 10/, Upper Volta 11/, Central African Empire 12/, Kenya, Uganda and Sudan 13/, Gabon 14/ (only as "droits personnels"). In Madagascar, such rights are considered as "droits d'usage" 15/. In Tunisia a special "régime" is provided for the so-called "terres collectives" 16/, and in Libya tribal lands are treated as "communal property" 17/. In Senegal, any land not forming part of the public domain or privately held under the "immatriculation" system belongs to the national domain but is handed back to the authorities of the community for redistribution 18/.

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- 1/ The only exception to this general principle is to be found in countries such as Mauritius, Seychelles, Comoros, etc. which were uninhabited before the arrival of the Europeans.
 - 2/ For a survey of the reception of customary law in modern legislations in Africa, see: F.M. Mifund, "Customary Land Law in Africa", FAO, Rome, 1967.
 - 3/ Decree Law No. 2 of 1961.
 - 4/ H.A. Ollera "Principles of Customary Land Law in Ghana", p. 4.
 - 5/ Federal Territory, Section 27 (1) High Court of Lagos Act, Cap. 80; Western Nigeria, Section 12 (1) High Court Law, Cap. 44; Northern Nigeria, Section 34 (1) High Court Law, Cap. 5, as amended.
 - 6/ Tanganyika Land Tenure Ordinance, 1923, Preamble.
 - 7/ The Northern Rhodesia (Crown Lands and Native Reserves) Orders in Council, 1928 to 1956 and the Northern Rhodesia (Native Trust Land) Order in Council, 1947 to 1959; the Northern Rhodesia (Siemba District) Order in Council 1959.
 - 8/ Decree No. 55-580 of 20 May 1955, reorganizing land tenure in French West and Equatorial Africa.
 - 9/ Land Settlement and Registration Ordinance, 1925, Section 11, as amended.
 - 10/ Loi No. 14/63 fixant la composition du domaine de l'Etat et les règles qui en déterminent les modes de gestion et d'affectation.
 - 11/ Loi No. 60-004 du 15.2.1960 relative au domaine privé national, art. 11. Voir aussi: Salané Robert, La servitude égale d'usage en droit malgache écrit et coutumier dans son application à l'hydraulique agricole, Etude de droit africain et de droit malgache, Ougès 12., 1965.
 - 12/ De l'organisation de la propriété foncière en Tunisie, Edsc, Paris, H. Jouve ed. 1903.
 - 13/ F.M. Mifund "Customary Land Law in Africa", FAO, op cit, p. 9.
 - 14/ Loi No. 64/46 du 17.5.1964 relative au domaine national.

26. Under existing African customary law ^{1/}, and in spite of the import of western legislation, private ownership of water has remained generally unknown and, according to communal, tribal or community customary land tenure systems, individuals have only a right to use water. This principle of "community interest" or "ownership" in land and water may greatly facilitate legal and institutional measures for bringing all water resources under centralized State control; furthermore, African communal organizations may also facilitate the organization of water users' associations, a feature of modern systems in which the people themselves participate in water resources administration in a way often consistent with African customary practices.

2. Moslem Law

27. Moslem water law derives from and is an integral part of the whole Islamic religious, political and social system. According to Prophet Mohammed, the gift of water entails a religious obligation deriving from the very nature of water, out of which "every living creature was created" ^{2/}. No one can refuse surplus water without sinning against Allah and against man. The fundamental of Islamic law purport to ensure to all members of the Moslem community the availability of water. These fundamentals derive from the Holy Koran, from the Hadiths (or commentaries) and from the Sunna, or behaviour of the Prophet Mohammed. According to these traditions, all waters are deemed to be the common entitlement of the whole community. This is why in many Moslem countries, water legislation considers water resources as belonging to the State, or the whole community. However, this system of water law and administration reflects also the differences brought about by the different schools existing within Islam, mainly the Sunni School (composed of the Hanifites, Shafiiites, Malakites, Hanbalites), the Shiite School (Ismaelites, Imamites, and the Kharagi School (Zaidites) ^{3/}.

28. In spite of the introduction of written western water laws, the basic principles of Islamic water law are still observed and strictly followed as local customary law by the population of countries such as Algeria, Senegal, Cameroon, Central African Empire, Chad, Egypt, Ethiopia, the Gambia, Ghana, Guinea, Ivory Coast, Libya, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Sierra Leone, Somalia, the Sudan, Tanzania, Togo, Tunisia and Upper Volta.

29. Due to the religious character of Islamic law, any attempt to enact modern water legislation in those countries must consider the existing context even more carefully than usual in order to avoid measures which might offend not only the cultural but also the religious values and institutions present in the country concerned ^{4/}.

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- 1/ There is a large body of recent studies on customary land laws in Africa: Hutchinson and others "Africa and the Law", The University of Wisconsin Press, 1968; Michel Bachelat, Systèmes Fonciers et Réformes agraires en Afrique Noire, Libr. Gen. Droit et Jurisprudence, Paris, 1968; Droits fonciers Coutumiers in Recueil Penant. Revue de Droit des Pays d'Afrique, Janv/mars 1971; L.C. Green "Native Law and the Common Law: Conflict or Harmony"; A.N. Allet "New Essays in African Law", 1970; K.X. Eboe "Droit Africain: ses voies et ses vertus" in Revue Sénégalaise de Droit, Vol. 4, p. 5, March 1970; K. Ojo "Traditional Law under French Colonial Rule", in Verfassung und Recht in Ubersee, Vol. 7, p. 139-153, 1974 and "Evolution du droit foncier en Afrique occidentale", Vol. 6, p. 385-405, 1973; G. Cipariene, Approche anthropologique de la socioéconomie du développement, (cas du Zaïre), in Current Anthropology, Chicago Press, March 1975.
- 2/ D.A. Caponera "Water Laws in Moslem Countries", op cit, (French and English editions).
- 3/ Ibidem.
- 4/ "Evolution and Concepts of Water Legislation" (a comparative analysis of Chinese, Roman, Moslem, Hindu and other systems) by D.A. Caponera, in Annales Juris Aquarum, published by IIA (International Association for Water Law), Mendoza, Argentina, 1968, p. 106.

3. Earliest Roman Water Law Principles

30. Roman water law principles are equally relevant to the African Continent since in the first place they were imposed directly during the Roman Empire and were subsequently introduced indirectly through the continental "Civil Law" systems (such as those of Belgium, France, Italy, Portugal, Spain and the Netherlands for instance, in which Roman water law constituted the fundamental source). The same holds true for African countries which received the "Common Law of England", itself influenced by Roman Water Law principles. In view of its relevance and influence in existing African water law, it may be useful to quote the basic principles of earliest Roman water law 1/.

31. Roman law divided water into three categories:

- (i) private, which was regulated as patrimonial goods by ordinary civil law governing private ownership. This was water springing or flowing within one's privately owned land and could be sold or alienated together with the land on or under which it occurred. This principle gave birth to the so-called "riparian doctrine";
- (ii) common (in Latin communia or res nullius), when unoccupied or without owner, because its nature did not allow any ownership or usufruct (res vacantes). Natural law permitted the use of such waters to everyone without limits or permission. According to the Justinian principle, "air, water and the seashore are common to all" 2/, these waters included rain and non-navigable rivers (aqua profluens - flowing water);
- (iii) public, which included large rivers, canals and lakes which were "navigable". These waters were governed by public law and could not be subject to any servitude or prescription. Their use could only be subject to State or judiciary control, as the State was their owner.

4. Water Law Principles in the Civil Law System

32. The original Roman water law principles were codified and accepted in those "Code Countries" such as Belgium, France, Italy, the Netherlands, Portugal, Spain, etc. and have strongly influenced the water laws and institutions of those African countries where such kind of legal and institutional framework was introduced. According to the principles applying until recently in Civil Law countries, water may be either private or public. Public waters are those belonging to the public or national domain, and their utilisation is or should be subject to government permits, authorizations or concessions. Private waters are those which, not being public nor declared as such, may be freely utilized on the basis of the riparian doctrine. Under this system, one or more basic legal texts (a constitution, public land laws, etc.) define the public domain, including water, and specific legislation regulates the use of private waters (Civil Code, water laws, irrigation laws) 3/.

1/ For a recent study on Roman Water Law, see: "Roman Water Law System" in "Global Water Law Systems" by D.A. Caponera, Valencia Conference, Spain, Colorado State University Editors, 1975.

2/ In Latin: "Et quidem naturalia sunt, aer, aquam et litora maris". Justinian, II C.

3/ For a recent study on similar water law principles, see: "Water Laws in Selected European Countries", EAO Legislative Study No. 10, (see: Belgium, France, Italy, Spain), Rome, 1975.

33. Under the pressure of modern technical and economic demands made on water resources, the category of "private waters" is disappearing in those European countries and a much larger degree of government control on water uses is being introduced. As an example, the Water Code of France of 1964 ^{1/} and subsequent regulations placed all water uses under the control of either the Central Government or an authority having jurisdiction over the basin concerned and water is no longer sub-divided into public and private but into "domanial and non-domanial waters". The obsolete concept of "navigability and floatability" to indicate public waters has been repealed. The same tendency is appearing in other "Code countries": e.g. Belgium, Italy, the Netherlands, Spain.

5. Water Law Principles in the English Common Law System

34. Under this system there can be no ownership in the running water of a stream, river or natural channel. Such water (res nullius), regarded as transient and elusive, is "publici juris" and may be used by the riparian land owner provided such use is reasonable. Only the water which accumulates or falls on one's land and is collected in artificial or natural drains and reservoirs may be privately owned; such a private ownership lasts only during the time of possession. The same principle applies to underground waters which become the property of whom abstracts them and retains them in his possession. The vesting in the Crown of any particular water, river bed or embankment must be so established by law. Similarly, only a court decision or an administrative ordinance or regulation may limit or restrict the right to use water by a riparian owner ^{2/} over and above the limitations inherent in the natural flow and reasonable use criteria.

35. This system of water legislation and administration has influenced the water laws and institutions of those African countries which have derived their legal and institutional system from England. In the countries following this system, many laws, ordinances, regulations or other legal enactments (principal or subsidiary) are issued for administering or regulating specific subjects related to water.

36. As in the case of European civil law countries, the original system in the United Kingdom based on riparian doctrine has been limited in England itself by the Water Resources Acts of 1963 and 1973. These Acts, in centralizing water administration at the national and basin levels have practically subjected all water uses to government control. These Acts have also consolidated all the existing water legal enactments into one comprehensive water code ^{3/}.

6. Other Systems of Law

37. In recent years, other systems of law have had an influence on the customary and other imported water law systems of Africa. Some countries have received socialist systems of law while others have replaced the pre-existing system with a new system of water law. Under these new systems, water resources tend to be recognized as exclusive community or State property and the right to their use is granted to communities,

1/ For a recent study on these countries, see: "Water Laws in Selected European Countries", op cit.

2/ See: England and Wales in "Water Laws in Selected European Countries", op cit, p. 27 and ff.

3/ Ibidem, (for these latest tendencies).

cooperatives or other forms of associations 1/.

III - THE CODIFICATION PROCESS OF WATER LAW AND ADMINISTRATION IN AFRICA 2/

1. General Remarks

38. It is difficult at present to make a thorough analysis of the existing situation with respect to water resources administration and legislation in all the countries of Africa because of: (i) the limited amount of information available, (ii) the rapid political and legal changes taking place in many countries, (iii) the different conditions existing from one country (or group of countries) to another country (or group), and (iv) the presence, in many countries, of a mixture of different local and administrative systems overlapping or merging into each other.

39. Such a study, however, should be undertaken on a comparative basis for the benefit of all countries concerned. Similar studies have already been made by FAO for Moslem countries 3/, Italy 4/, South America 5/, United States of America 6/, Europe 7/, Central America, Caribbean and Mexico 8/, by ECAFE for the countries of Asia and the Far East 9/, by ECLA for the countries of Latin America 10/, and by the UN 11/.

In the following paragraphs, a brief analysis of the procedures followed in most countries for setting up water administrations and for enacting water legislation, has been made. The general patterns followed by groups of countries deriving their water legislation and administration from major common legal and administrative systems is also described.

The methods and procedures by which water laws were codified and water administrations organized varies according to the religious, political, economic and physical conditions of each country or group of countries.

2. Countries Formerly under the Ottoman Empire

40. These are generally those Moslem countries, north of the Sahara, which once formed part of the Ottoman Empire (Algeria, Egypt, Libya, Morocco, Somalia, Sudan, Syria).

- 1/ For a description of the Soviet System of Water Law, see: "Water Laws in Selected European Countries", FAO, Vol. II.
- 2/ This Part III is also an amended and updated version of the two papers prepared by D.A. Caponera for the UN/ECA meetings held at Addis Ababa, Ethiopia, in 1970 and 1976.
- 3/ "Water Laws in Moslem Countries", by D.A. Caponera, *op cit.*
- 4/ "Water Laws in Italy", by D.A. Caponera, FAO Development Paper No. 22, Rome, 1953.
- 5/ "Las Leyes de Aguas en Sudamérica", by G. Cuno, FAO Publication No. 50, Rome, 1966.
- 6/ "Water Laws in the USA", by Milo Williams, *op cit.*
- 7/ "Water Laws in Selected European Countries", Vol. I, *op cit.*
- 8/ "La Legislación de Aguas en América Central, Caribe y México", FAO Legislative Study No. 5, Vol. 1, by M.T. Sandoval, Rome, 1975.
- 9/ "Water Legislation in Asia and the Far East", UN/ECAFE Water Resources Series No. 21, 1967, Volumes I and II, UN, New York.
- 10/ UN/ECLA, "Algunos Aspectos de la Legislación y Administración de las aguas en América Latina", in Annales Juris Aquarum, published by AJIA (International Association for Water Law), Mendoza, Argentina, August-September 1962.
- 11/ "National Systems of Water Administration", *op cit.*, 1974; "U.N. Proceedings on Water Resources Administration", New Delhi, India, 1973; "Abstraction and Use of Water: a Comparison of Legal Regimes", by L. Tecklauff, 1972.

Under the Ottoman Empire during the second half of the 18th century, the "Majelle Code", several articles of which regulated the use of water resources, was enacted. Alongside this Code, Moslem customary water law continued to exist, and even today, it is recognized as an important source of law by the populations of many of these and other African countries. Under this system, water is considered part of the community, to be utilized freely according to the principles of the "Shariah" ^{1/} but subject to government control.

41. With the end of the Ottoman Empire, new decrees, dahir ^{2/}, rules, orders and laws were enacted which either recast or amplified the previous provisions concerning water. In general, (i) all water was declared to belong to the State, the crown or the public domain, substituting itself for the Moslem community; (ii) every new use of water (other than for drinking purposes) admitted under existing legislation of the occupying powers, as well as under the Shariah, came under government control; (iii) water commissions were set up for the recognition or modification of existing water rights, and (iv) a cadastre was established, which, when land and water rights had been recognized, made it possible to register and record them in writing. In the above countries, due to the historical importance of irrigation throughout the centuries, the need of bringing all water used under government control is readily acknowledged.

3. Countries Formerly Under French Administration

42. This group includes those African countries formerly under French West Africa (AOF) ^{3/} and French Equatorial Africa (AEF) ^{4/}, Madagascar, countries which after the First World War came under French trusteeship ^{5/}, and were regarded as French overseas territories or departments ^{6/}. Water administration and legislation in these countries derive from the French legal and institutional system.

43. In these countries the first step was to define the public domain, which included "public waters", (i.e. either those waters being "navigable or floatable" or "non-private waters") and submit them to a regime in terms of which an administrative concession was required for their use. Land laws or legal enactments governing the granting of concessions, or special water laws regulated and controlled the use of public waters. Private waters (i.e. those not being public waters) were governed by the provisions of the French Civil Code. These waters could be freely used subject to certain limitations of a statutory nature (servitudes, rights of way, etc.). However, other legal enactments governed specific aspects of water resources (Code Rural, Legislation on hydro-power, navigation, public health, fishing and forestry).

44. However, no centralized administration for the granting of the right to use water developed, except for those "public waters" belonging to the public domain, generally administered by the Ministry in charge of the public domain, "enregistrement" (generally the Ministry of Economics and/or Finance). Other government administrations responsible for sectorial aspects of water resources development and conservation include: the Ministries of Agricultural Development and Cooperation, Agriculture, Planning, Public Works, Transport and Communications, Public Health, through their Departments of Rural Engineering

1/ "Shariah" is the name given by Moslems to the whole of the divinely inspired, spiritual and worldly commandments which are, from the religious standpoint, the evaluation and regulation of all human actions. But see: "Water Laws in Moslem Countries" by D.A. Capozera, op cit, p. 1.

2/ "Dahir" is the name given to legal enactments in Morocco.

3/ Benin, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Upper Volta.

4/ Central African Empire, Chad, Congo, Gabon.

5/ Cameroon, Togo.

6/ Comoros, Djibouti and Réunion.

(Genie rural), Water and Forests (Forêt Forêts), Fisheries (Pêche), Bridges and Roads (Ponts et Chaussées), Cadastre, Mining, Urbanism and Habitat, Meteorology, Hydraulics, Hygiene and Public Health.

45. Apart from these government ministries and departments other more or less autonomous institutions (government mixed institutions, government autonomous institutions, or private companies) also have been set up for developing particular water utilizations such as municipal or domestic water supplies, power generation and transmission, agricultural development, ports and harbours.

4. Countries Formerly Under British Administration

46. This group includes those African countries formerly under British Administration 1/ or mandate 2/. These countries derive their water administration and legislation from English Common Law.

47. In compliance with the old Roman riparian doctrine which has strongly influenced English Common Law, waters were considered res nullius, belonging to no one; but the riparian owners had the free right to make reasonable use of such waters unless they had been specifically brought under government control through specific legislation or judicial determination. Crown land, as defined in many ordinances, did not, necessarily, include water resources.

48. Consequently, it is generally true that every specific use of water had to be the object of special legislation which resulted in numerous water legal enactments in every country. Furthermore, most of the water legislation enacted was mainly concerned with domestic water supplies, hydro-power generation and transmission, with less emphasis on other uses such as irrigation and agricultural development. However, many other legal enactments were concerned to a greater or lesser extent with resources such as those relating to waterworks, mining, quarrying, railways, local government, land drainage, transport, public health, town and country planning, oil in navigable waters; several provisions of these acts dealt specifically with water.

49. No centralized water organization for allocating or recognizing rights to use water generally exists. In several countries, there are many "water authorities" or "boards" at the central or local levels mainly concerned with domestic water supply. In addition, several ministries or departments are also directly or indirectly responsible or interested in sectorial aspects of water resources. These generally include the Ministries of Agriculture, Public Works, Public Health, Planning, Finance, Transport and Communications, Interior or Local Government, etc. through many departments such as Irrigation, Electricity, Mines, Municipal, City Corporations, Counties, Lands, Forests, Marine and Harbours, etc.

Many autonomous or semi-autonomous authorities are responsible for the survey, planning, development and conservation of water supply, irrigation, drainage, electricity, transportation, etc.

1/ Botswana, Gambia, Kenya, Lesotho, Malawi, Nigeria, S. Rhodesia, Seychelles, Sierra Leone, Sudan, Swaziland, Tanzania, Uganda, Zambia.

2/ Congo.

50. In many countries having this legal and institutional system, there has recently been a tendency to study water legislation and administration and to set up more centralized or centrally coordinated water resources administrations, boards or commissions, the aim being to coordinate activities among water projects at national, basin or local level and centralize regulatory functions with respect to allocation, recognition or granting of water rights 1/.

5. Countries Formerly Under Portuguese Administration

51. These include Angola, Cape Verde, Guinea Bissau, Mozambique, São Tomé and Príncipe. In these countries, the Portuguese system of water administration and legislation has been introduced, itself deriving its principles from Roman/Civil Code system of law. In these countries, there is a sub-division of waters into public and private, with a centralized water administration under the Department of Public Works.

52. The basic water legislation in these countries was enacted in 1946 2/ by a decree regulating the use of public waters in the colonies, as subsequently amended 3/, and implemented by regulations of the local governments.

53. According to this legislation, "public waters" are defined and priorities for their use are established ((i) water supply and hygiene, (ii) irrigation, (iii) other uses). The law establishes also the procedure for the granting of rights to use water: domestic uses, including watering of animals, are free; a simple licence is required for small uses while a concession is needed in the case of large diversions affecting public interests. Special licences for studies, investigations and preferences are also established.

6. Countries Formerly Under Belgian, Italian and Spanish Administration

(a) Ghana, Kwana, Burundi

54. These countries derive their water administration and legislation from Belgian law. In terms of this system, (Belgium is one of the "Code Countries"), waters are divided into two categories: public and private. Public waters are, according to the Civil Code, those which are navigable or floatable, and as such their utilization is subject to government administrative authorization. Private waters are those which may be privately owned and the use of which is unrestricted, provided that the limitations in the Civil Code are respected. The existing system of water resources administration is very similar to that already mentioned in paragraphs 42-45 above.

(b) Libya, Somalia

55. These countries derive their water administration and legislation from Italian law (Italy is also a "Code Country"), which was super-imposed over the local Moslem customary water law then prevailing. Italian law provided that waters could be either public or private. Public waters were those possessing a character of general use in relation to their quantity, quality, and the hydrologic system of which they form a part;

1/ This is the case, for instance, of Kenya, Mauritius, Brazil, Tanzania, Uganda, Zambia.

2/ Decree No. 35.463 of 23 January 1946 (D.A.C. Ia, series, No. 16), regulating the use of, and Decree No. 39.498 of 9 February 1946 regulating the concessions for the use of public waters in the colonies.

3/ "Water Laws in Italy", by D.A. Sagonera, op cit.

Their use for whatever purposes was subject to government permit, authorization or license 1/. The use of private waters was limited only by the Italian Civil Code. A centralized water rights administration existed within the Ministry and the Office of Public Works (in Libya, Somalia and Feitrea).

56. In Libya, however, water legislation has declared all water as State property and a national water authority, committee and office, have been created 2/.

57. Somalia, which was formed by former British Somaliland and Italian Somalia, possessed both Italian and British water legislation existing side by side. Recent developments indicate a tendency to consolidate previous legislation into a water code declaring all water to be government property under the control of a national water administration 3/.

(c) Equatorial Guinea

58. This country derives its water legislation and administration from Spanish law. According to this system, water administration and legislation is centralized at the national and basin levels under the Ministry of Public Works. Based on a water law of 1969 4/, this is one of the most sophisticated and elaborate systems of water administration and legislation as a consequence of old and well established irrigation systems introduced by the Arabs more than 1,000 years ago.

7. Other Countries with Special Systems of Law

59. These are African countries deriving their water administration and legislation from systems other than those mentioned in previous sections 2, 3, 4, 5 and 6 or possessing a combination of two or more of these systems or a system of their own.

(a) Liberia

60. Liberia has derived its water legislation and administration from the Eastern USA, which in turn derives its law from the English Common Law.

(b) Ethiopia, Mauritius

61. These two countries possess a system of water administration and legislation which is atypical from the systems described above. Each one of them represents a combination of two or more different systems.

62. In Ethiopia, customary Ethiopian law, Italian legislation, French legislation, Swiss legislation, and to a certain extent, Anglo-Canon legislation, exist together. The revised constitution has declared "all resources in the water" as Government property 5/ and the Government is studying the enactment of a new water code, together with the establishment of a National Water Resources Board, Committee and Executive Secretariat to serve as the regulatory agency in water matters for the whole country. Recent developments envisage the creation of basin agencies under the umbrella of an overall Valley Development Authority 6/.

1/ "Water Laws in Italy", by D.A. Caponera, op cit.

2/ "Report to the Government of Libya on Water Legislation", FAO, by D.A. Caponera, Rome, 1962; B. Nohlwend "Water Legislation and Administration in the Libyan Arab Republic", FAO Report, Rome, 1973.

3/ "Report to the Government of Somalia on Water Legislation and Administration, with Water Code", FAO, by D.A. Caponera, Rome, 1964.

4/ For a description of the Spanish System, see: "Water Laws in Selected European Countries" op cit, p. 163-207.

5/ "Report to the Government of Ethiopia on Water Administration and Legislation", FAO, by D.A. Caponera, 1965.

6/ VADA, created in 1977.

63. In Mauritius, the legal framework established by the French was maintained after 1810 when the island passed to the British, who undertook to respect the laws, customs and religion of the Mauritians 1/. The English system of law did not substitute but only complemented or attempted to interpret the French legal system. A new centralized water administration has been established and the Government has passed a new law creating a Central Water Authority (and Board) to deal with all matters of water administration, planning, construction, operation and maintenance for all purposes of utilization 2/.

(c) Egypt

64. Egypt, which in 1890 practically detached itself from the Ottoman Empire, though remaining theoretically under its sovereignty, had very ancient irrigation rules and a centralized water administration for water management 3/. During the 19th century many other water laws of English and French origin were enacted bringing water ownership, distribution and use under a centralized water administration 4/.

(d) Nigeria, United Republic of Cameroon, United Republic of Tanzania

65. Special mention should be made of Nigeria and Cameroon and Tanzania by virtue of their federal or decentralized character. According to the Nigerian constitution, water resources are under the jurisdiction of the regions composing Nigeria, and water legislation and administration are organized on a regional basis, while the Federal Government retains certain powers of overall coordination and control over water resources.

66. A similar situation exists in the United Republic of Cameroon.

(c) South Africa

67. This country derives its water administration and legislation from the Roman-Dutch law, a combination of the English and Dutch systems as it existed prior to the introduction of the Civil Code in that country. The use of water is mainly governed by the water code although other legislation also has relevance to water resources. A centralized water authority controls all uses of water. This country possesses also a water court to handle disputes on water rights.

Various autonomous water authorities have been established for developing sectorial aspects of water in specific regions or areas.

1/ Act of Capitulation of 1810, quoted in D.A. Caponera's "Report to the Government of Mauritius on Water Resources Policy, Administration and Legislation" FAO, 1969.

2/ The Central Water Authority Regulations and Orders of 1973 and 1974.

3/ D.A. Caponera: "Water Laws in Cooler Countries", op cit.

4/ For an analysis of the earliest water regulations in Egypt, see: "Earliest Water Law Systems" (Ancient Egyptian Water Regulations and Control) by D.A. Caponera, in: "Global Water Law Systems", Vol. 1, p. 122, Colorado State University, Ed. 1976.

IV - COMPARATIVE REVIEW OF THE COUNTRIES SURVEYED

1. Introduction

68. The countries whose water legislation has been analysed in this study can be divided into two main groups according to their juridico-political histories ^{1/}. Where similarities in such histories occur, water legislation, too, tends to be similar.

(a) Civil law countries

69. The largest group of countries contemplated here are those which in the past were colonized by the powers of continental Western Europe, which have a civil law system based on the Napoleonic Code. Of these Senegal, Gabon and Upper Volta were occupied by the French, Burundi by the Belgians and Ethiopia by the Italians. To these may be added Mauritius which, although occupied by Britain after France, nevertheless retained its basically French legal system.

(b) Common law countries

70. Set against this group are those countries once occupied by Great Britain, with its common law system. Sierra Leone, Zambia and Kenya fall easily into this group with Swaziland also tending toward the same system. The categorization of this last country is not such a clear cut one, however, because the Roman-Dutch system (originated in S. Africa) has strongly influenced Swaziland's water code. For the sake of convenience, this country's law system is classed along with that of the common law countries.

(c) Customary Law

71. The other basic characteristic of most of the countries considered in this study is that the original tribal customary law existing prior to colonization persists alongside the European-derived legal system. Although tribal law tends to apply in the predominantly rural areas and to those subjects whose communities have least been influenced by westernization, it nevertheless cannot be ignored in any serious study of water legislation or in any proposed law reform.

2. Legislation in force

72. Of the countries studied, some have a fairly comprehensive statute on water, while the remainder have only a number of discrete enactments (in some cases these will include a general Civil Code) which either cater for only certain aspects of water management or have an indirect bearing on water use and control. In addition, even in those countries which have a water code, there may be other statutes relating to certain aspects of water, e.g. health, soil conservation and fishing.

^{1/} Countries deriving their water legislation from the Moslem system of law are not included in this comparative review since the country surveys in their case are to be found in the FAO publication 'Water Laws in Moslem Countries', *op cit*. See a similar comprehensive review made for the UN/ECAP region, the contents of some parts of which have provided pointers for the present review; this study is hereinafter cited as ECAP's Comparison.

73. Civil law countries usually have a limited number of articles in their Civil Code which deal in fundamental and general terms with water matters but which cannot be considered as comprehensive legislation, so that many ancillary legislative acts are required and water legislation tends to be scattered amongst a wide number of statutory sources. On the other hand, of the common law countries dealt with in this study, all five have a more or less comprehensive statute providing the bulk of the country's water legislation.

3. Ownership of water

74. Most countries acknowledge a distinction between waters which may be privately owned (private water) and those which may not (public water). Generally, major rivers or lakes which flow through land owned by several owners cannot be privately owned. By contrast, water which can be owned privately usually occurs, or is naturally or artificially collected, on the property of a single land owner.

(a) Public water

75. Some countries consider that public waters cannot be privately owned at all and can merely be used, not owned. Others consider them to be "public property" and, therefore, attribute ownership to the State, the Government or the Crown. Whichever theory is adopted, the net effect throughout the region is to confer ultimate control of public waters on the State.

(i) Civil law countries

76. The concept of "public domain", originally a French doctrine, has been taken over in these countries. Water coming under the public domain, as all things which belong to the public domain, is "inaliénable et imprescriptible".

77. In Benin, Gabon and Upper Volta, public waters are defined as being those waters which come within the public domain, being: fresh water falling on the littoral; watercourses (including, where they are navigable and/or floatable, their banks); lakes, ponds, lagoons and their shores; navigation, irrigation and drainage canals for public use. Burundi has basically the same provision although it differs in points of detail. In Mauritius, all rivers and streams form part of the public domain, while in Ethiopia a similar provision also implies that basically all waters not belonging to any individual person form part of the public domain.

78. With minor exceptions, groundwater in Benin, Mauritius, Ethiopia and Upper Volta forms part of the public domain, whereas in Burundi and Gabon, it is private, belonging to the owner of the land below which it is found.

(ii) Common law countries

79. English common law doctrine acknowledges only usufructuary rights in running water. Ownership or possession of riparian lands carries with it a right to use public water and to have it flow continuously. It does not, however, imply ownership of the water in any sense.

80. This principle applies equally to the State (the "Crown") as to private persons. Theoretically, all title to land is ultimately derived from the sovereign, who originally held all land in his private capacity as feudal lord. This fiction survives either by express acknowledgement or by implication in most common law countries. The "riparian right" to use public waters stems from ownership of the bed and banks of the river, and the right to use the water is superior to that of a non-riparian owner because he merely has access to the flow. This system applies as such in Sierra Leone.

81. In Kenya and Swaziland, the State does not own public water, although the State is the ultimate owner of all land. Zambia's Water Act declares that the ownership of all waters vests in the State although the distinction between public and private water still applies with regard to water use (as opposed to ownership).

82. Groundwater flowing in a defined channel is public water in all five of the common law-based countries considered here.

(iii) Conclusion

83. Countries influenced by the original Roman law merely permit rights to use water. As the State, in this respect, has no more eminent interest than private persons, legislation ensures that the State is given a superior right of use and control.

84. Roman civil law countries acknowledge public waters as belonging to the public domain of the State.

85. In all the countries studied, the tendency is to vest in the State the ultimate right to control public waters.

(b) Private Water

(i) Civil law countries

86. Waters which do not fall within the public domain, such as any rain water and springs, well water, watering places and cisterns, irrigation and drainage canals met with on privately owned land are considered private in Benin, Burundi and Upper Volta. In Burundi private water is any water not declared to be public, i.e. mainly rainwater received on privately owned land and any water remaining there.

87. The difference between public and private water is not clearly defined in Ethiopia but would appear to exist wherever the property concerned is "held and possessed in the name of any person, natural or juridical". The Ethiopian Civil Code also provides that water shall be private property where it is collected in a man-made reservoir, basin or cistern from which it does not flow naturally.

88. Although in Mauritius there is apparently no distinction between public and private water, the possibility of a "canal" (i.e. an artificial watercourse belonging to a corporation or community of riparians) as well as the existence of a private watercourse belonging to an individual are acknowledged.

(ii) Common law countries

89. Zambia acknowledges the public/private distinction only with regard to water use, while ownership of all water vests in the State. The other four common law countries acknowledge water accumulating or falling on private land, or collected in drains or reserves, or underground water not flowing in known and defined channels, as being private water as long as the water remains in the abstractor's possession and is by that taken owned by him.

(iii) Customary law

90. In Benin, Burundi, Gabon, Kenya, Ethiopia, Sierra Leone, Swaziland, Upper Volta and Zambia the customary law of the indigenous tribes still carries some weight. This law emphasizes community interest, and private ownership of water is not recognized except to the extent that the water is owned by the tribe as a whole.

(iv) Conclusion

91. It is generally recognized that water, lawfully reduced into possession in receptacles, such as bottles, tanks or reservoirs, becomes private property. With the possible exception of Zambia and Mauritius and those countries where customary law applies, private ownership of certain other waters is also recognized generally as an adjunct to the ownership of land upon or under which water naturally occurs, this on the principle dominus soli est dominus usque ad coelum, et usque ad inferos.

92. Often private ownership of water applies to those waters naturally occurring on private land, and is restricted to water either collecting naturally or by the exertions of the landowner within the confines of his land. It can only exist over water which no other person could expect necessarily to reach his own land in the normal course of events as an identifiable body of water. Where the private ownership of water concept subsists it is because the public interest in such water is slight, either because the water tends to remain within the boundaries of the owner's land, or because it does not noticeably contribute to major rivers.

4. Rights to use water

93. This chapter refers to the right to use water as opposed to ownership rights, and to the manner in which that right is obtained. Water rights acquired for the purpose of supplying water or power to others are considered elsewhere.

A. Acquisition of water use rights

1. Rights conferred without administrative permit or authorization

94. There may be rights to use either private or public water.

(a) Private water

95. Private water, generally, may be used freely, subject only to the rights of third parties and general legal duties. Such water may be acquired, sold, transferred or inherited in the same way as other private property.

96. In the case of Zambia, and perhaps Mauritius, where no water is privately owned, no administrative sanction is required for the right to use water occurring on one's land for virtually any purpose. In Kenya, a permit is required for the domestic use of water when works are employed and in certain other cases which may concern private water.

(b) Servitudes or easements

97. These may be either granted, purchased from private landowners or conferred directly or indirectly by law.

98. In Benin, riparian landowners of non-navigable and non-floatable waters are subject to a way-leave over an area extending 10 m on each side. Servitudes of passage, water conduits, hydropower, etc., may be imposed on landowners, without compensation.

99. In Ethiopia, servitudinal rights are provided for in the Civil Code.

100. In Kenya and Sierra Leone, servitudinal rights are granted as ancillary to the right to use water. Both are granted by the water authority.

101. In Swaziland, way-leaves are obtainable by agreement from the Water Court or by a decision of the Board of Apportionment.

102. In Zambia the holder of a right to use water may be granted certain ancillary rights by the water authority, and various easements are detailed in the legal provisions.

(c) Public water

103. In a number of countries there are certain limited rights to use public water without administrative sanction.

104. Thus, in Benin, the only rights to public water use without such sanction are those conferred in terms of customary law, while in Surundi rights to public water use of those subject to the customary law are expressly reserved by the Civil Code, where uses for primary purposes are also exempt from the need for authorization requirement except in those cases where a shortage of drinking water is likely.

105. Mauritius and Sierra Leone provide that water for domestic and stock use may be appropriated as long as the appropriation is not mechanized and no trespass is involved. Prescribed rights are also recognized.

106. Kenya allows the use of public water without permit for domestic use provided no works are resorted to. It also allows abstracting groundwater at a certain distance from a body of surface water and, in certain circumstances, taking water from a dam.

107. Swaziland permits the unlimited use of public water for stock watering, drinking, washing or cooking or for a vehicle provided the user has lawful access to a stream. Also certain authorities may take water for roadmaking.

108. In Zambia, the right to take public water for domestic consumption and stock watering is a prior, automatic right, just as is the right to use private water on one's own property - this despite the fact that the ownership of such water vests in the State.

109. No exceptions to the requirement for administrative sanction to use public water appear to exist, from a purely legal point of view, in Gabon, Kenya and Upper Volta.

2. Rights obtained by prior appropriation

110. The "prior appropriation" doctrine that emerged in the western states of the United States of America is a result of the customary law developed by mining activities. The waters used for mining purposes were found by latecomers to have been "appropriated" by earlier settlers. This is at the origin of the prior appropriation doctrine: "first in time, first in law". Often, by posting a notice on a river bank, a person could claim the right to divert a certain amount of water. Provided diversion works were constructed within a reasonable time and the water was actually put to use, the appropriator was deemed to have acquired a right to divert and use the quantity of water claimed at the time of posting his notice. This right was subject to any earlier claims but superior to any later claims. In African countries, the "prior appropriation" doctrine as commonly understood does not seem to apply.

(a) The rights of upper riparian owners

111. Surundi recognizes the riparian doctrine in that the administration when granting rights for the use of public water flowing in a well-defined stream is guided by the actual "distribution" of riparian lands and their owners.

112. Mauritius recognizes the right of riparian owners to use water to irrigate their land. The right is enforceable as against non-riparians but is subject to the restriction that a sufficient quantity of water must be maintained in the river concerned for the needs of all riparians and the public. That being so, there is presumably no preference in favour of upper riparians.

113. Benin, Gabon, Ethiopia and Upper Volta also appear to afford no preference in their laws to upper riparians.

114. In common law countries, unless there is legislation to the contrary, upper riparian owners may use water for domestic and stock purposes but may not deplete the flow of water on any other account.

115. Swaziland confers water use rights on the owner of land contiguous to surface streams or overlying contained groundwater. But these rights may be separated from the land concerned, e.g. when the Minister suspends riparian water use rights without acquiring ownership of that land.

116. Kenya, Sierra Leone and Zambia do not appear to provide for upper riparian rights.

(b) Recognition of prior use rights

117. Many of the countries studied introduced new systems of water administration during the colonial era, at least to the extent that customary law was superseded. In doing so, they often provided machinery for recognizing and confirming vested rights in existence prior to the introduction of the new law. In most countries, some allowance is made either de iure or de facto for pre-existing customary rights. Benin, Sierra Leone and Ethiopia are examples of this. Burundi has made provision for converting customary rights into rights in terms of the written law, and customary legal rights are expressly reserved by the Civil Code. Mauritius recognizes, in its 1863 Rivers and Canals Ordinance, any concessions validly granted before the coming into effect of the legislation, and its 1977 Act protects existing rights, except that the authority is empowered to appropriate water rights, subject to payment of compensation. Swaziland exempts Swazi areas from the operation of its Water Act, thereby preserving prior customary rights.

(c) Prospective recognition

118. This is where all administrative concessions are assigned priority according to the date of application, so that the right to use water (particularly in times of shortage) depends on the date of the original application. This may possibly be the case de facto when permits are issued, but none of the country studies mentions that this type of priority exists as a matter of course.

119. In none of the countries does an administrative concession confer personal rights on the grantee against subsequent grantees. In times of shortage or in the cases required by public interest, it is usual to apply general restrictions through official notifications on existing users.

(d) Conclusion

120. In the African countries studied, no order of priorities seems to exist between different users. Superior rights sometimes attach to lands situated above others, in which case they arise from the physical situation of the land, not from the time of appropriation.

121. Although some countries may give priority to earlier administrative concessions evidenced by the conditions imposed on them at times of water shortage, the general rule seems to be that water is apportioned among all users on public interest considerations.

122. Administrative action generally takes the form of either concession or permit. Concessions create reciprocal obligations between the user and the administration authority and their revocation is hedged in by legal provisions. Permits or authorizations, on the other hand, are revocable at will by the administration.

123. Customary law in Ethiopia, Upper Volta, in the Swazi areas of Swaziland and in the Provinces of Sierra Leone (which account for most of the country) regulates most uses in the relevant areas of these countries. Local officers record, regulate and adjudicate on water claims in some communities, but they are generally customary officers. Several governmental water authorities exist, but their impact in the areas concerned is not yet great (in Ethiopia and Sierra Leone) or is expressly excluded (in Swaziland).

124. In Benin, Burundi, Gabon, Mauritius, Upper Volta and Zambia, an administrative order is necessary before a person is entitled to use public water. In this way the State acts as the grantor of water use rights.

125. Generally, the water administration may impose such conditions and make such by-laws as it deems necessary for the use of water resources. Usually there is an express provision that the authority shall not be liable for any failure to supply water if prevented by drought, force majeure or other unusual circumstances. The administration may cancel rights for non-use, disobedience, non-payment of rates and charges, wastage and improper use, and may resume rights for public purposes. It may determine the amount of water to be taken and the uses to which water may be put.

126. Applications must be made to the appropriate authority on the statutory form together with certain prescribed information. These are then assessed and, if granted, are valid for a stated period. The authorization may attach either to the applicant (e.g. Benin) or to the land (e.g. Kenya and Swaziland); it is subject to terms and conditions and may be cancelled in the event of certain circumstances materializing (e.g. where the grantee fails to adhere to the terms and conditions of the authorization). An obligation may be imposed on the grantee to build specified structures.

127. In urban areas, it is usual for the local authority or a specially empowered corporation to undertake the necessary works for the supply of water to individual consumers. There municipal water supply corporations or authorities exist in most of the countries studied, and the provisions governing urban supply there are very similar. Thus, the individual user served by a municipal corporation or authority can generally obtain water for domestic consumption by making formal application. He may then obtain water supply subject to conditions of use laid down by the authority. The right to receive water continues as long as rates and charges are duly paid and regulations are observed. In most urban areas, water rates will differ according to the type of use - domestic, industrial and agricultural - or the amount of water taken for the purpose.

B. Issuance of permits

1. Procedure

128. Where permits are required for the use of public water (see above) the procedure entails basically an application containing details of the authorization required, an assessment of the application by the authority, some form of publicity for the application, the right of objectors to make their views known and, finally, the consideration by the authority of the authorization in question at a public hearing (e.g. Zambia) or otherwise.

2. Forfeiture or suspension of rights

129. In general, rights may be forfeited or suspended for the following reasons:

(a) Insufficient supply

130. The exercise of rights may be suspended in times of shortage. Generally, various uses are distinguished in creating priorities. Domestic supply is invariably afforded the first priority.

(b) Breach of conditions

131. Failure to observe any condition of a permit, including failure to pay rates and charges, may invalidate rights in Benin, Gabon, Upper Volta, Kenya, Sierra Leone and Zambia.

(c) Breach of the general law

132. Non-compliance with the general requirements of the law may invalidate water use permits in Gabon and Sierra Leone.

(d) Illegal transfer

133. i.e. Where an authorization is transferred to a third party without prior approval of the administration, it may be forfeited (e.g. Gabon and Sierra Leone).

(e) Reasons of public interest

134. Cancellation on these grounds occurs in Upper Volta and in some other countries surveyed.

(f) Failure to make beneficial use of the water

135. Non-use will invalidate permits in Kenya and Zambia.

(g) Endangering public health

136. In Kenya, Sierra Leone and Gabon this renders the permit liable to forfeiture.

5. Order of Priorities

(a) Between different uses

137. There is no legal priority among the different uses of water in the following countries: Benin 1/, Burundi, Gabon 1/, Mauritius 2/, Upper Volta 1/, Zambia

1/ An accepted informal order of priorities does exist, however, viz., drinking, stock watering, irrigation, industry and, lastly, recreation.

2/ The Central Water Authority does, in fact, impose priorities.

and Swaziland confer priorities in terms of the American-based classification of primary (i.e. domestic and animal use), secondary (agricultural use) and tertiary (industrial and mechanical use).

138. Kenya and Sierra Leone recognize domestic use as a priority. Ethiopia accords priority to domestic use and stock watering over irrigation.

(b) Between different rights

139. A possible source of difficulty is the co-existence of customary law and written law. Generally, the written law should in theory have preference but in practice, especially in the more rural, isolated areas, customary law often prevails. Swaziland defines certain areas where this is the case. Ethiopia has a category of vested rights which take in irrigation rights. In many countries (e.g. Swaziland and Sierra Leone) riparian rights are preferred over non-riparian.

(c) Between different areas

140. In practice Senin and Upper Volta grant preference as required by the relative needs of the areas concerned. Consequently, more highly populated areas tend to be preferred over more sparsely populated ones. Special areas may be declared and priority granted to them in Burundi, Kenya, Sierra Leone and Swaziland (the last-mentioned also provides that irrigable lands have priority over uncultivated pasture land).

6. Legislation on beneficial uses of water

(a) Domestic and municipal uses

1. Individual domestic supply

141. Generally, all waters collected by private persons on their lands are their private property.

142. Other water sources are directly available to private persons. In most countries the owner of riparian lands may take public water for domestic purposes without an administrative permit, authorization or concession. This is the case in Burundi, Mauritius, Kenya, Swaziland, Sierra Leone and Zambia, where all citizens may take water from a river for domestic purposes provided there is public access. In all these cases the user is himself responsible for the diversion and conveyance of the water from the source to his land.

2. Metropolitan areas

143. In densely populated or in urban centres, special water authorities usually are set up for the purpose of diverting and distributing domestic water supplies by means of an appropriate network. Every country surveyed has special provision for the supply of water in major urban centres. In countries like Ethiopia and Benin, the legal powers of these water authorities relate primarily to the capital city. In other countries separate water supply agencies may exist in each major city.

144. The agencies or "water authorities" empowered to supply water may be either a central government department, an autonomous statutory company (e.g. Benin's Central Water and Electricity Distribution Company) which may be subject to governmental control (e.g. Burundi's Région and Sierra Leone's Gumu Valley Water Company), the council of the city concerned (in the case of Ethiopia) or even a private person or company (e.g. Kenya's water undertakers).

145. The powers of such agencies generally include the right and duty to construct, maintain and operate water supply and diversion works, lay pipes and distribution works and supply water to consumers in the city and charge for the services and the water so supplied. Usually, these authorities supply all possible metropolitan water requirements, including industrial water, in addition to water for domestic consumption; these water agencies or companies are usually responsible for the municipal sewerage as well.

3. Rural areas

146. In many countries, rural areas are likely to be governed in practice by customary law, in terms of which the tribe or community controls the use of water as a res communis. In Gabon, the Société d'Énergie et d'Eau is responsible for water supplies to villages. Rural centres with independent water supply systems are entitled by customary law to decide for themselves to which domestic uses their water may be put. Mauritius' Central Water Authority is responsible for supplying villages as well as towns.

4. Powers of the water supply authorities

147. Generally the domestic water supply authorities have powers among others, to:

"acquire, construct and maintain diversion and conservation works; acquire any land necessary for these purposes; lay pipes and necessary distribution works and drains; regulate the form, strength, material construction and arrangement of pipes connected to any works of the authority; regulate the construction and inspection of meters or measuring devices; require the cleansing and repairing of apparatus supplying water; regulate the persons who may take water; establish the conditions on which water may be taken; create priorities in times of shortage, prevent the waste, misuse or pollution of water; provide water for fire-fighting and public purposes; levy rates and charges for the supply of water to premises; sell water to consumers other than domestic consumers; make by-laws and rules to carry out their functions more effectively and impose penalties for the breach of these rules." 1/

(b) Agricultural uses

148. Agriculture is by far the largest user of water, with irrigation accounting for the major part of consumption. To supply water for these purposes means that water must be transported over large distances and in greater amounts in order to reach users. The capital outlay for constructing, operating and maintaining irrigation and drainage works is great and generally requires State intervention.

1/ ECAFE comparison, op cit.

1. Individual use

149. Privately constructed irrigation and drainage schemes exist, and irrigation concessions are generally granted to private individuals or corporations. However, the expense of creating diversion works and irrigation channels over long distances is likely to be highly expensive, and for this reason they are usually carried out in cooperation with others or through government subsidies and intervention.

150. In Benin, Gabon and Upper Volta, a landowner wishing to exercise his rights to irrigate may acquire a right of way across intermediate holdings on payment of compensation.

151. In Ethiopia and Kenya, administrative consent is required for the right to use water for irrigation.

152. Detailed provisions regarding the rights of riparians to use the water of a public stream for irrigation are set out in Zambia's water legislation which also provides for the granting by the State of "special water rights" for irrigation.

2. Community supply

153. While the concept of community irrigation schemes (other than under customary law) is largely undeveloped in the civil law countries, common law countries appear to be more aware of the value of this type of legal provision. Kenya, for instance, provides for water users' associations.

3. State works

154. In Benin, Upper Volta and Kenya, the State (either a government department, a quasi-governmental authority or a statutory corporation) is responsible for constructing irrigation works.

4. Private companies

155. Private companies are found in most countries analysed, under the concession system.

5. Powers and duties

156. The use of water for agricultural purposes is generally granted by means of an administrative concession or permit in which all details as to the manner in which water has to be diverted, used and eventually returned is described. Sometimes special irrigation regulations specify the conditions governing such water uses.

(c) Fishing

157. Benin has only scattered provisions dealing with fishing. Burundi has three types of fishing permits: industrial, small scale and individual. There are also detailed fishing regulations in that country. Gabon also requires licences and has extensive provisions for fishing research. Ethiopia's code provides that fishing shall be subject to special laws, but these do not appear to have been promulgated as yet. Mauritius has a Fisheries Ordinance regulating these matters. Upper Volta and Swaziland apparently have no legal provision regulating fishing. Kenya, too, has not yet promulgated its fishing regulations. In Zambia and Sierra Leone, commercial fishing is subject to the requirement of a permit.

(d) Hydro-power

158. Benin and Ethiopia have only scattered provisions; Burundi, Mauritius and Upper Volta do not provide for hydropower in their legislation. Gabon's Ministère des Travaux Publics and Société d'Énergie et d'Eau are responsible for the country's hydro-power needs. In Kenya a permit is required for these purposes. The Electricity Board in Swaziland and the Electricity Corporation in Sierra Leone as their name implies, are responsible for electricity supply and distribution, including hydro-power.

(e) Industry and mining

159. Except Sierra Leone which has an extensive mining legislation, certain countries, namely Benin, Burundi, Gabon, Mauritius and Upper Volta have minimal or no legislation covering these aspects of water use. Such rules as they exist, prescribe concession arrangements for these purposes.

160. In many countries, industry is concentrated in urban and metropolitan areas. Often an authority supplying water for domestic purposes in a city area will also be empowered to supply water for industry. This is the case in Mauritius and Sierra Leone, for example.

161. In Ethiopia, riparians are entitled to apply their water rights to industrial or commercial uses (mining use is governed by a 1977 Proclamation). Kenya requires a permit before water may be used for industrial or mining purposes. Swaziland requires ministerial approval before industrial use is permitted, while mining use requires the approval of the Water and Sewerage Board.

162. In addition, Kenya and Swaziland regulate the discharge of water into public sewers after mining or industrial use and the purification of industrial waste.

(f) Transport

163. No detailed provisions appear to exist in Benin, Gabon, Ethiopia, Mauritius, Upper Volta, Swaziland and Zambia. The studies of these countries either make no comment at all or merely mention the responsible department or describe water rights in connexion with the construction of roads and railways, as opposed to waterways themselves. Where it exists at all, water navigation is unimportant in many of these countries.

164. In Kenya and Sierra Leone, an annual ministerial licence is required for commercial navigation on inland waterways. Burundi has a Navigation Policy and Survey Ordinance, but this is mainly technical and not really relevant to navigable waters. Freedom of navigation is protected by the Criminal Code.

(g) Medicinal and thermal use

165. None of the countries studied has significant legislation relating to these uses.

(h) Recreational use

166. The Swaziland Water Act empowers the Minister to proclaim a Water Sport Control Area, while in Ethiopia the right to sail on rivers and lakes is subject to special laws. These are the only two countries that have any legislation on the subject.

(i) Other beneficial uses

167. Burundi has special legislation governing the processing of mineral waters, as does Kenya in relation to dredging.

7. Legislation on harmful effects of water

168. This chapter considers legislation on flood control, overflow and bank protection, soil erosion and siltation, drainage and sewerage, salinization and other harmful effects.

169. Benin's and Upper Volta's flood control provisions deal mainly with financial implications. Flood control works may be ordered by the Executive after an enquiry and the recommendation of the technical department concerned. Forest landowners may not clear such areas if this would encourage erosion or flooding. Drainage of ponds and marshes may be ordered for public health purposes.

170. Protective forests may be proclaimed in Ethiopia and Sierra Leone to control floods, erosion and siltation. The Addis Ababa Water and Sewerage Authority may requisition water courses during periods of emergency, e.g. floods and droughts. Several provisions of the code impose detailed requirements regarding drainage and sewerage.

171. The Central Water Authority in Mauritius has powers to formulate policy in this regard.

172. In Kenya the relevant minister may construct flood control works. Plant cover and livestock numbers are regulated so as to ensure minimum soil erosion. Additional detailed provisions apply, including those prescribing the construction of soil conservation works. Extensive provisions also exist in Sierra Leone with regard to drainage and sewerage. Salinization prevention measures exist specifically with regard to ground-water exploitation, oil prospecting and mining.

173. Zambia governs these matters in terms of the Natural Resources Conservation and Forests Acts, respectively. The Minister may require owners to protect watercourses and to control flood waters or may do so himself. Extensive erosion control measures including drainage control are also met with.

174. The other countries surveyed have little or no legislation on the harmful effects of water.

8. Legislation on water use, quality and pollution control

(a) Waste and misuse of water

175. Kenya and Sierra Leone deal with wastage and misuse problems mainly by means of imposing penalties on parties guilty of such conduct. Thus, wells may be sealed or fines imposed and the installation of control and measurement devices required.

176. Burundi, Swaziland and Zambia have a general prohibition against water wastage and specific penalties therefor.

177. The remaining countries have no significant legislation on these aspects.

(b) Health preservation

178. The Health Ministries of Benin and Upper Volta may enact health regulations to control drinking water and providing for well and washing-place inspections, waste disposal and cesspool standards. Burundi has several detailed provisions designed to protect the public health. The Gabonese health authorities deal with this aspect under specific legislation for this purpose. Ethiopia's Municipal Public Health Rules have extensive regulations designed to secure compliance with health requirements regarding water. Mauritius' Public Health Ordinance requires the Sanitary Authority to take the necessary steps for preventing dangers to health, while provisions specifically govern washing and bathing. Kenya and Sierra Leone have specific prohibitions against health-endangering water pollution and penalizing activities that encourage mosquito breeding. Swaziland's health legislation deals with this subject, where the Water Act is silent.

(c) Pollution

179. Legislation promulgated during the colonial era in French West Africa provides to some extent against pollution in Benin and Upper Volta. Anti-pollution protection zones have been established around urban drinking water sources. No provisions governing pollution control in rural and pastoral areas are in force. The Upper Volta study distinguishes between domestic, animal, agricultural and industrial pollution. Only the second (and, possibly, the fourth) type appear to be adequately dealt with in both Benin and Upper Volta.

180. Burundi has a general prohibition against water pollution, and polluted effluents may be discharged only under permit.

181. Ethiopia has concentrated on non-pollution measures for domestic use. The Water Rules and the Code contain provisions, and the Addis Ababa Water and Sewerage Authority has certain powers, in this regard.

182. Mauritius' Central Water Authority is responsible for preventing pollution, although the Rivers and Canals Ordinance includes special prohibitions designed to prevent pollution. A special anti-pollution injunction is also available.

183. Kenya has extensive anti-pollution legislation, mainly applied by the Water Affairs Board, local water undertakers and local health authorities.

184. Water pollution is an offence in Swaziland. The Water and Sewerage Board has considerable authority to act in matters of pollution prevention. The Minister is empowered to make water pollution control regulations.

185. Zambia and Sierra Leone have extensive anti-pollution legislation which imposes responsibility for prevention either on private individuals or, where this is inappropriate, on the Government both central and local. The existing legislation specifies when the responsibility is an individual one. The Minister of Health also has responsibilities in this regard.

(d) Environmental protection and other control measures

186. Ethiopia's constitution charges its government to conserve the country's natural resources, including water. Burundi has a national commission to study environment protection. In Sierra Leone, Water Authorities are under an obligation to indicate the probable effects of their proposed development schemes.

5. Legislation on groundwater resources use

187. Benin and Upper Volta regulate groundwater use by specific orders relating to the water concerned. All mechanized groundwater extractions require prior authorization and waterworks are subject to a declaration of public utility. In certain cases groundwater extraction may be prohibited.

188. Ethiopian legislation requires permission for drilling over 100 metres. The Addis Ababa Water and Sewerage Authority has certain rights regarding groundwater works within its jurisdiction.

189. Apart from existing rights, in Mauritius groundwater vests in the State, and licences are required for its exploitation in any form. Licences are granted by the Central Water Authority subject, however, to Supreme Court appeal.

190. Kenya legislation *inter alia* requires drillers to be licensed by the Water Affairs Board (WAB). A permit or authority from the WAB is required for any groundwater works within 100 yards of surface water or half a mile of another well.

191. The remaining countries do not seem to have significant provisions relating to groundwater.

10. Legislation on the control and protection of waterworks and structures

192. All works undertaken in connexion with a watercourse in Benin and Upper Volta require prior authorization. Owners of mechanized waterworks are required to provide specified details to the administration and such works are subject to inspection by State officials.

193. Permit holders occupying the Gabon public domain are often obliged to construct certain waterworks. Ethiopia provides for the construction of works on waterways flowing between the properties of private landowners. The Addis Ababa Water Authority also has certain powers in this regard.

194. Mauritius, too, has legislation applicable where one riparian wishes to construct waterworks on a river where the land on the opposite bank is held by another. Irrigation works are generally privately owned and are the owner's responsibility. Domestic, commercial or industrial waterworks fall under the jurisdiction of the Central Water Authority. It is an offence to interfere with the flow of the water affected by these works.

195. Kenya and Sierra Leone have extensive provisions relating to waterworks. In Kenya, they must be carried out under Water Affairs Board Authority and drainage works fall under the jurisdiction of the local health authority. Water undertakers, however, seem to have autonomous powers in this regard. A few provisions deal with the protection of existing waterworks and structures.

196. Swaziland's Water Minister may construct any state waterworks, and entrust an irrigation board with the maintenance of waterworks. Dams more than six metres deep are regulated under the Building Act 1968.

197. The remaining countries surveyed have no significant legislation on this aspect of water law.

11. Legislation on the declaration of protected zones or areas

198. This section of the studies considers legislation enabling the authorities to set aside certain areas for special treatment in relation to their water resources.

199. Benin has no specific legislation in this regard, but areas surrounding state water schemes may be subject to special regulation. Pollution control areas around drinking water sources are also provided for.

200. Burundi provides for special areas in relation to fishing, water sports and high population density areas or water shortage areas. Drinking water supply basins are also subject to special restrictions.

201. Gabon provides only for reforestation or plant restoration areas, in which certain measures affecting water may be taken, whereas Ethiopian law recognizes protective forests (soil conservation or flood control).

202. Mauritian legislation provides for a "planning area" specifically in relation to waterworks construction and pollution prevention.

203. Areas in Upper Volta where water schemes have been implemented are protected in the sense that water use in such areas is determined by local committees.

204. Kenya recognizes protected catchment areas and groundwater conservation areas which are so declared by the Water Resources Minister after consultation with the Water Resources Authority. Within these areas various restrictions apply. In addition, a water undertaker may establish special control areas to protect his water supplies against pollution.

205. The legislation of Sierra Leone and of Swaziland provides for different types of special areas to facilitate the regulation of water use with regard to the control of public water use, dam construction, irrigation, subterranean water control, water port regulations and the control of the flow of a public stream to prevent silting or flood damage and for related purposes.

206. Zambia recognizes special areas for fishing and the preservation of existing water resources.

12. Government water resources institutions and administration

207. Under this chapter, the studies attempt to describe as concisely as possible the institutional framework and operation of the water resources administration at every level and the interrelation of various government ministries and agencies and the degree to which their operations are decentralized.

(a) At the national level

208. Most of the country surveys give an indication of ministerial and departmental responsibilities in water matters but it is not possible to compare here the administrative structures except in the broadest terms.

209. Generally, the administration of water resources at the national level is vested in one or more ministries or departments. It is to be noted that, in each country, the designation of such ministries or departments differs, as do the functions exercised by them. Here, short of a detailed account of the distribution of functions in each of the surveys, some generalization is necessary.

210. The following ministries or departments exercise major control over different aspects of water resources management in the countries studied: public works, agriculture and irrigation, rural development, rural engineering, transportation and communications.

211. Other ministries or departments which exercise incidental powers include: finance, fisheries, forestry, health, housing, interior, meteorology, mining and soil conservation.

212. In Benin, Burundi, Ethiopia, Mauritius, Upper Volta, Sierra Leone and Swaziland, the central government ministries or departments exercise functions such as those just described and are actively engaged in water administration though there is no great degree of delegation of responsibilities to intermediate (regional) or local (municipal) authorities.

213. The only exception is municipal supply in the capital cities, where control may be exercised by the municipality or other special statutory authority.

214. Only Kenya appears to have a central government department headed by a cabinet minister dealing specifically with water.

215. Benin and Gabon have a specific Ministry of Water and Forest Services but the responsibilities with regard to water appear to be shared with other ministries. Ethiopia's Department of Public Works and Water Resources does have comprehensive jurisdiction over major action relating to water affairs. Other countries, i.e. Mauritius, Upper Volta, Kenya, Swaziland and Zambia have a type of Government Water Board or a semi-Governmental Agency responsible for water affairs. Burundi has also a Central Water Department.

(b) At the intermediate level

216. In Gabon, Ethiopia, Kenya and Zambia, the central Government may either delegate some of its functions to provincial, regional or municipal authorities, or may confer autonomous powers on such lower level authorities. In the former case, it is usual for the central Government to retain close supervisory and controlling functions over the local authority; in the latter case, the autonomy is sometimes considerable.

217. In general, intermediate or local authorities have most autonomy in relation to specified uses of water resources within a particular area.

218. Also, at the inter-basin or inter-provincial levels, and where major rivers or major programmes are involved and these may affect the water available in more than one locality, or the economic development of several regions, the central Government usually retains ultimate control.

(c) At the local level

219. Water users' associations are generally of two types: voluntary and compulsory.

220. Voluntary associations are those in which the landowners of a particular community voluntarily band together for the purpose of improving water supply and distribution to their lands. Sometimes these remain informal communal associations, but sometimes, once formed, they may be recognized by statute and given explicit powers.

221. Compulsory water users or other community associations are those established by the Government sometimes at the instance of the parties concerned. These may be either true associations, in the sense that all water users are members and exercise responsibilities, or they may become local quasi-governmental bodies with managing committees that include persons appointed from among or elected by the users themselves.

222. In Burundi, Gabon, Ethiopia, Kenya, Swaziland and Zambia local water users' associations are specifically provided for in the laws and their rights and duties to a greater or lesser extent defined.

223. In most countries surveyed, local customary law recognizes a practice whereby those engaging in water or land use in a particular area band together to exercise community control over those activities. The rights and obligations of individuals within the community are governed by local custom, and a local official is appointed for the administration of water and for the settlement of disputes and conflicting claims over water, land and other resources.

(d) At the international level

224. International rivers cross or delimit a part of the territories of all the countries surveyed. The most relevant international water resources agreements and corresponding institutional arrangements have been reported under this item in the respective country studies.

13. Special and autonomous water resources development agencies

225. Autonomous State corporations with a certain degree of responsibility for water affairs at the national level exist in Benin, Burundi, Ethiopia, Gabon, Kenya, Mauritius and Zambia, while similar corporations with more limited areas of jurisdiction exist in Ethiopia, Sierra Leone and Kenya.

226. These organizations may be set up for several purposes. They may be created to supervise, plan or construct works for one particular purpose, e.g. municipal water supply, generation and distribution of electricity, irrigation or soil conservation; or they may be instituted as multipurpose authorities responsible for the overall development

of a particular district or river basin. In this case they will often have powers to build development and conservation projects, undertake river improvement, flood control, reclamation and soil conservation works, generate electricity, supply water and educate the community in agricultural techniques. Again, they may be specifically set up to coordinate and implement a national development of all water resources, as in Mauritius.

227. The criteria on which many of these organizations can be distinguished from the administrative arm of the Government are not easy to discern with any degree of accuracy. In almost all cases these agencies are distinct bodies corporate and, therefore, have a juridical status that sets them apart from a ministry or government department. Some, like the Water and Electricity Company of Benin or the River Development Authority of Kenya, appear to be indistinguishable from an ordinary corporation, except for the fact that the State may be the major shareholder. In most other cases, despite corporate identity, the management of the authority will include members of the Government, or will be appointed by the State. Special financial relationships are created with the State and, usually, a Government Minister has ultimate management responsibility.

228. In those countries where a permanent civil service exists and the composition of a department is not greatly affected by a change of Government, there do not appear to be important practical reasons for creating separate statutory corporations to administer public utilities. The tradition of having such corporations is a long-standing one, however, and may be based on sound reasons of efficiency. 1/

14. Legislation on water resources development financing

229. Benin, Sierra Leone and Upper Volta have no special legislation on State financial participation regarding water. Investments are financed out of credits from the State budget. International loans are resorted to for large-scale works. Only municipal use appears to involve payment of fees. Burundi has a number of revenue raising devices which are presumably applied inter alia to the financing of waterworks. Gabon's Government is active in providing financial assistance for water resources development as well as underwriting foreign loans for this purpose. Tax relief is also granted to the Société d'Énergie et d'Eau du Gabon. Revenue for water development is derived from a tax on the use of the public domain.

230. In Ethiopia the State also acts as underwriter for foreign loans. Fees for water use are determined on a cost and value-to-the-consumer basis. The Kenyan Government assists State water schemes and sanctions expenses for certain autonomous, semi-autonomous or State water authorities. The State is empowered to impose rates on those benefiting from water schemes, whether State or local, and also national or irrigation schemes.

1/ Sections 226 and 227 are taken from "Water Legislation in Asia and the Far East", op cit, p. 194.

231. The Swaziland Government provides all the necessary finance for its water resources development other than loans and in those cases where a local institution finances itself from water rates.

232. In Mauritius, the Central Water Authority receives financial aid from the Government and is entitled to levy rates for the various water uses.

233. In Zambia and Sierra Leone, the general policy of the Government with regard to water charges is that in urban centres the consumer should pay according to the production costs and the amount of water used. In rural areas, the Government subsidizes the production costs and the consumer is generally charged on the basis of a flat annual or monthly rate per household.

15. Water law implementation

(a) Juridical protection of existing water rights

234. The exact meaning of water right is not always clearly defined. Sometimes, the term refers to an ownership right, at others to a right of use. In some countries, no such distinction is made.

235. The protection of existing rights to water stems from general legal principles protecting private rights from invasion by others (in the case of ownership rights) or from the administrative provisions regulating the use of water resources (in the case of water use rights) ^{1/}. Sometimes, statutory declarations define the exact status of rights to water. These basic principles protecting personal property are incorporated either in a constitution or civil code, or in more special legal enactments such as land or water or similar legislation. Often, specific principles may also be codified. The Ethiopian Civil Code, for instance, contains references to the functions and powers of the courts in water disputes.

236. In common law countries the basic guarantees applicable to ownership rights are not always embodied in statutes but derive from the recognition by the courts of certain fundamental (although unwritten) principles of law. For example, when interpreting a statute, a court will presume that in the absence of an express provision to the contrary a given legal enactment does not entail a derogation from the principle of general law that existing rights are protected.

237. There is a further presumption that laws are not intended to have retroactive effect. While the promulgation of retroactive legislation is not precluded, the principle that is generally observed is that vested property rights will not be prejudiced. If such rights must be adversely affected in the public interest as, for example, where whole villages are to be flooded by a new dam, it is usual for the legislator to make express provision for adequate compensation.

238. Often legislative controls over water use expressly provide for the protection of existing or customary rights or rights acquired under previous legislation. This is the case in most countries surveyed.

^{1/} Ibidem, as regards sections 235-247.

239. The doctrine of prescription also provides for a similar protection in some countries. In such cases, a peaceful and open enjoyment of an easement over water or land for a period of a number of years creates an absolute right.

240. Legislation again often provides that the State or a water authority may acquire private land or easements over private land against adequate compensation. Similarly, where authorities exercise statutory powers to enter land in order to carry out surveys or works they must compensate the owner for any damage incidental to their activities. Sometimes the authority is entitled to assess compensation and an appeal lies from its decision to a higher administrative body. More often a final right of appeal exists to a properly constituted court of law.

241. The protection of existing rights against other persons generally varies according to the legal nature attributed to the status attaching to the water. Where water is privately owned, the law invariably gives protection to a person who is aggrieved in its regard by the activities of a third person. The exact limits of such protection are defined by the general law in each country. Where the water is publicly owned, the question often arises as to whether private persons may maintain actions against others who interfere with the exercise of these rights. The old common law permitted a riparian owner to bring action against any dominant owner who unpaired or diminished the supply of water. In civil law countries, recourse to courts is always permitted in these cases.

242. Whenever the State is the grantor, generally rights are conferred among individual users. Where a user is injured by the act of another, which prevents him from exercising his right to take water, the proper procedure is for him to seek administrative redress by the responsible authority. The latter may then prosecute the offender or take other appropriate administrative action.

243. In countries where the State acts as registrar of rights, private rights are enjoyed by consumers as against one another. In most countries, where the time of appropriation confers priority, an individual may enforce his right against others.

(b) Modification, termination and reallocation of water rights

244. Different rules apply to the modification, termination and reallocation of water rights. In most countries, especially where the State is the grantor of rights to use water, terms and conditions are imposed. Invariably, the authority retains the right to revoke a permit or a concession in the public interest or for non-compliance with the terms and conditions attaching to the permit. There is also commonly a declaration that the authority is not liable for failure to supply water. Where rights are modified in the public interest, often no compensation is paid for the loss of the right itself. In many cases, however, compensation must be paid for the works or improvements carried out by the landowner in reliance on the right, and a modification or reallocation of right entails the provision of an alternative supply of water.

245. Provision is frequently made for appeal against administrative decisions to terminate or modify a water right or against a decision not to issue or renew water licenses or concessions. In most countries, even where a statute declares that the Minister's administrative decision is final, the courts have jurisdiction to review, on law grounds, such administrative action.

(c) Water tribunals, courts or other judicial water authorities

246. Kenya and Swaziland recognize a special court system for the enforcement of water rights. In other countries, protection is afforded within the normal courts system. The powers of an administrative agency in deciding whether to grant, cancel

or renew concessions often appear to be judicial as much as administrative powers. In all such cases, there is a right to appeal either to a senior administrative officer or to the proper court. Where the senior administrative officer exercises final powers of decision in an appeal, his function is certainly quasi-judicial. As explained previously, many countries permit an independent judicial review of such proceedings.

(d) Penalties

247. All countries surveyed have enactments imposing penalties for offences connected with water use. These penalties are so numerous and varied that it is impossible to list them exhaustively.

248. Penalties are sometimes provided for in a statute for specific statutory offences. In addition, legislation usually empowers the responsible executive officer to promulgate regulations with respect to matters under his control, and such regulations invariably contain penal provisions. Local or municipal authorities or even irrigation associations, may, in certain countries, promulgate bylaws imposing penalties. Again, non-compliance with the terms and conditions of any permit or concession may result in a penalty in addition to administrative sanctions.

249. Penalties generally include fines, imprisonment and often revocation of the administrative permit or concession. These penalties vary according to the gravity of the offence.

16. Customary water law and institutions

250. Although this is a separate heading in the study due to the difficulty of ascertaining customs and any written sources, no detailed survey of customary water law (which applies to a greater or lesser extent in all the countries studied) appears to have been made.

251. Most of the studies of the countries where customary law is significant in relation to water mention this fact in the respective introductions. Generally, customary law is based on the community principle that land and water belong to the local community and, therefore, cannot be subject to individual rights of ownership or use except by virtue of membership in that community.

252. Benin, Burundi, Gabon, Kenya, Swaziland, Upper Volta, Sierra Leone and Zambia have a dual system of written legislation (former colonial as well as post-independence) and customary law, which is frequently unwritten, its contents being determined in accordance with local custom and such principles as are generally accepted by the community concerned.

253. In Benin, customary law is operative only insofar as it is not in conflict with public policy. Burundi has established a commission to codify custom and, although there is no specific written authority for the practice, the courts have applied customary law in matters not governed by written law, so that authority for this procedure has been established. Swaziland's Water Act specifically excludes from its operation royal rivers, sacred pools and water relating to land owned by Swazis, the water in question being governed by unwritten customary law. The latter is applied extensively in Ethiopia with regard to water and the study gives extensive details of its application.

PART TWO - COUNTRY STUDIES

BENIN 1/

I - INTRODUCTION 2/

(a) Population and location

The People's Republic of Benin (formerly the Republic of Dahomey), occupies a narrow strip of land in West Africa. Situated between the 6th and 12th parallels, the country stretches northward 670 kilometers from a narrow corridor on the Gulf of Guinea as far as the Niger River and its tributary the Mékrou River, which together form its boundary with Niger. With a width of over 300 kilometers at the northern end and about 100 kilometers at the southern tip, Benin has an area of 113 048 square kilometers, and a population estimated in 1974 to be 3 029 000 3/ inhabitants whose distribution is uneven, over 70% of the total population being concentrated on the southern regions. The country is among the most densely populated in West Africa. Benin borders Upper Volta and Niger on the north, Togo on the west, Nigeria on the east, while the total length of the southern end forms a coastline on the Gulf of Guinea.

(b) Climate and topography

Benin may fall into two climatic zones: the south and the north. The southern part of the country has a hot and humid equatorial climate, most typical along the coast, with two wet and two dry seasons. Temperature here is high and annual rainfall is about 1 300 mm. Proceeding inland from the coast, the dry months increase until a tropical climate is encountered over the northern half of the country. There is a long dry season (December-March) when the hot and dry harmattan winds are blowing, followed by a heavy rainy season (March-July); then a short dry season (July-September) and a short rainy season (September-November). Annual rainfall increases from nearly 800 mm in the south-west to over 1 300 mm in the central part. In the north, a dry season alternates with one rainy season (May-September). Here, the annual rainfall averages 1 000 mm and the harmattan winds blow throughout the dry season with an average monthly temperature of 21-25°C throughout the year. Vegetationwise, Benin is a savannah zone where the savannah extends as far as the sea.

The coastline in the south is made up of sand-bars pounded by surf on the seaward side, and of large lagoons and former shore lines on the landward side, limiting access to the sea. Rivers flow into these series of lagoons with the Lakes Abéomé and Nokomé as estuaries for two rivers whose entry into the sea is obstructed by the sand banks. The Ouémé River, which empties its waters into one of these lagoons, is the longest in Benin, and is navigable over a distance of 200 kilometers. Another river, the Couffo, drains into Lake Abéomé. The Mono River, which forms part of the southwestern boundary with Togo, is subject to torrential floods and, therefore, it is barely navigable.

1/ Prepared by Dante A. Caponera, Chief, Legislation Branch, FAO, Rome.

2/ For a general introduction see: J.N. Koulan Zinsidoboue's declaration made to the UN Water Conference, Mar del Plata, March 1977 and "L'eau et les problèmes de l'eau en République populaire du Bénin" by the Interministerial Water Commission, UN Water Conference, Mar del Plata, March 1977.

3/ Europe Yearbook, Africa South of the Sahara, 1976/1977, p. 156.

To the north of the coastal sand banks, there is a plain of lateritic clay soil which is highly fertile and where most of the oil palms are grown. The land rises gradually towards the north western Atacora mountains, reaching a height of about 1 000 meters. North of Lake Nokoué, the Ouémé River has a wide marshy delta with considerable agricultural potential. Further on lies the Terre de Barro 1/, a fertile and intensely cultivated region predominantly of clay soil. North of the Terre de Barro, the seasonally flooded lagoon swamp is to be found, difficult to reclaim due to the peaty soil nature. Further to the north, areas comparable to the Terre de Barro are to be encountered.

In the northern half of the country, the land ranges between 90 and 150 meters in elevation, falling gradually towards the Niger Valley. This region is drained by rivers flowing northwards to the Niger River. The following northern rivers: M'apou, Alibori and Sota (tributaries of the Niger) and the Pendjori (tributary of the Volta - in Ghana) are all too turbulent and rocky to be navigable. Towards the northern borders sandstone are found which are extremely infertile.

In general, most of Benin is underlain by precambrian rocks with occasional bare dolerites, lateritic cappings and poor soils, and 80 percent of its territory has no groundwater resources.

The country's economy is dependent on the agriculture sector of a subsistence scale, and there exists a low level of "modern" productive activity 2/. Principal food crops are maize, cassava, millet, sorghum and yam, with oil palm, cotton and coffee constituting the main cash or export crops. Rubber production is increasing in importance but it is still at a low level. Fishing is undertaken as a supplement to domestic food supply. Benin is not rich in mineral resources, however, offshore oil as well as inland phosphate and uranium explorations are under way. The unexploited iron ore reserves in the north are of poor quality (30-40 grades). The sole mineral exploited so far is limestone which supplies the 200 000 tons capacity cement factory. The country has also foreign exchange earnings from the use of its ports. Benin has the reputation of having a very high standard of education, which has contributed to the existence of a large pool of élite.

(1) Juridico-political history

During its pre-colonial history, Benin was composed of a number of states; it also had an outstanding civilisation ranking among the most brilliant ones in Africa 3/. The principal nationalities, such as the Fon and Yoruba had their own states and kingdoms for many centuries until they were at last disrupted by the advent of French, English and Dutch slave traders who encouraged feuds between neighbouring kingdoms. Although the French built a port at Cotonou as a centre of slave trade and subsequently the Portuguese established Fort-Nevo in 1482, Benin continued to be the sphere of competition among European powers until it was ultimately declared an area of French jurisdiction towards the turn of the 19th century.

Despite continuous and fierce resistance by the various kingdoms to French occupation (e.g. Kingdom of Abomey under the leadership of King Behanzin) 4/, they all were eventually conquered. Thus, Benin was effectively occupied in 1891. The formation of French West Africa started in 1891 and, after several constitutional changes, the capital of French West Africa was established at Dakar in 1904 5/. Following the

1/ Ibidem, p. 156.

2/ Ibidem, p. 162.

3/ Ibidem.

4/ Ibidem, p. 157.

5/ Ibidem, p. 156.

political developments in British West Africa (1946-56), France passed the Loi Cadre in 1958 ^{1/} establishing a local government for the constituent colonies. The Franco-African Community was created with the coming to power of de Gaulle in May 1958, and on 1 August 1960 Benin gained independence.

As an integral part of what was collectively known as the French West African territories Benin has a juridical history comparable to that of Ivory Coast, Upper Volta, Congo, etc. At the time of independence, the country was laden with colonial legal legacy characterized by the dualism of French and customary law coupled with a dual court system. As a consequence, the aims of legal development in these West African countries have been geared towards working out a legal system compatible with development requirements of a newly independent country. Since independence, Benin has had four constitutions. In 1974, the present military government declared that the country would follow a socialist road of development by adopting Marxism-Leninism as the official guiding philosophy ^{2/}.

Benin's source of law falls into two categories: (i) legislation (of the colonial era), and (ii) customary law ^{3/}. The colonial laws imported from France and adapted to local conditions remained in force even after Benin gained independence. To date, the customary law systems of the various nationalities in the country provide the most fundamental source of law as regards civil matters ^{4/}. According to the colonial legislation, a customary rule was operative insofar as it was not in conflict with public policy ^{5/}. As far as land and water resources are concerned, the prime maxim of African customary law is centred on the principle of community interest, and private ownership of water has remained unknown to African customary law ^{6/}. In African native law and customs, land and water are considered essential factors, and the discretion for its use, apportionment and administration is given to the community as a whole and not to individuals. This principle was recognized by the colonial administration through Decree No. 55-810 of 1955, ^{7/} as long as said customs are not repugnant to "justice and morality" ^{8/}.

Independent Benin has inherited the colonial legal and administrative machinery and has adopted a dual legal system where both the European code system and customary laws operate.

1/ Ibidem, p. 160.

2/ Africa Contemporary Records, Vol. 7, Annual Survey and Documents, 1974/1975, p. 136.

3/ Jeswald W. Salacuse, Legal Studies of Africa Series, French-Speaking Africa, Vol. 1, Africa South of the Sahara, p. 75.

4/ Ibidem, p. 75.

5/ Ibidem, p. 79.

6/ D.A. Caporera, Legal and Institutional Aspects of Water Resources Development in Africa, Legislation Branch Background Paper No. 10, F.A.O. Rome, 1976, p. 7.

7/ Frank A. Mafaud, Customary Land Law in Africa, F.A.O. Legislative Series No. 7, Rome, 1967, p. 3.

8/ Ibidem, p. 7.

II - LEGISLATION IN FORCE

In the Republic of Benin, legislation governing the ownership, use, development and conservation of water resources is as follows:

1. The Civil Code, arts. 640 - 645.
2. Decree on Health Protection in French West Africa of 14 April 1904.
3. Decree establishing the public domain and the principle of state control of all water resources in French West Africa of 23 October 1904.
4. Decree determining the powers of the authorities, dated 1 April 1906, changed with appearing on behalf of the public domain (including the public domain of the colonies in French West Africa).
5. Governor-General's Circular of 21 November 1916 relating to domain matters.
6. Decree of 5 March 1921, defining the procedure for the submission and examination of applications for the granting of permits and concessions.
7. Decree of 8 October 1925, establishing a method of securing land rights of the indigenous peoples of French West Africa.
8. Circular of 18 November 1925, regarding the decree cited under 7 above.
9. Decree of 21 March 1926 in the same terms as 6 above.
10. Decree of 29 September 1928, regarding the public domain and public utility servitudes in French West Africa, as amended by the decrees of 7 September 1935 and 3 June 1952.
11. Decree of 24 November 1928, regulating application of the Decree of 29 September 1928 as amended by the Decree of 11 December 1939 regarding the planning and expansion of farms.
12. Decree of 25 November 1930, regulating expropriation in French West Africa, as amended by the decrees of 26 August 1935 and 9 February 1949.
13. Decree (French West Africa) of 25 November 1930, regarding the right to appropriate water.
14. Decree (French West Africa) of 24 August 1933, regarding the right to appropriate water.
15. Decree of 6 July 1933 concerning forestry in French West Africa.
16. Decree of 30 October 1933, concerning the protection of drinking water.
17. Decree of 15 November 1933, concerning the public domain in French West Africa.
18. Circular No. 313 SB of 7 December 1933, regarding the regulation of the public domain.
19. Circular No. 842 TP of 17 September 1942, establishing procedures for the delimitation of the public domain.
20. Circular No. 700 TP of 13 December 1943, concerning the declaration of public utility.
21. Law No. 27/1629 of 29 August 1947, conferring powers on the territorial assemblies to grant agricultural and forestry concessions.
22. Decree No. 407 AGRD of 2 October 1949 on agricultural inspection.
23. Comments on Circular No. 170 of the Ministry of Public Health dated 24 November 1954.
24. Order TP of 8 January 1955 governing the organization and control of the electric power lines in Dahomey.
25. Decree No. 55/490 of 5 May 1955, regulating groundwater.
26. Decree No. 55/580 of 20 May 1955, reorganizing land and domains in French West Africa and French Equatorial Africa.

27. Specifications concerning the concession to the CCB (Central Company for Water and Electricity) for the territory of Dahomey of the provision, treatment and distribution of water supplied for the town of Cotonou and its surroundings, dated 12 July 1955, and successive conventions.
28. Convention of concession between the Government of Dahomey and CCB dated 12 July 1955.
29. Decree No. 9625 KP of 15 December 1955, extending the public domain over groundwater.
30. Decree No. 51-110 of 13 November 1955, amending the regime of mineral resources in external territories, Togo and Cameroon, and supplementing and amending Decrees Nos. 1-617 of 30 May 1955 and 57-212 of 26 February 1957, in turn amended by Decree No. 17-59 of 13 July 1957.
31. Charter of UODATER (National Society for rural development in Dahomey), which was created on 12 January 1960.
32. Ordinance 90/PR/ALRO/SF of 25/1/1966 governing fishing in Dahomey's territorial waters.
33. Decree 103/PR/ALRO of 27 April 1966, implementing the ordinance concerning fishing in Dahomey's territorial waters.
34. Decree No. 514/PR/AR of 27 December 1966, amending Decree 63-1/PR/AR of 14 January 1965 concerning the reorganization of the Ministry of Agriculture and Cooperation.
35. Decree No. 356/TR/ATF of 17 October 1967, establishing the Directorate of Hydraulics.
36. Constitution of the Republic of Dahomey of 3 April 1960 (Ordinance No. 20 PRCO of 1 April 1960).
37. Decree No. 231 PR/AS of 16 August 1960, establishing the services attached to the Presidency of the Republic and determining the responsibilities of the members of the Government.
38. Decree 59/61 PR/SPAS of 19 February 1960, reorganizing the Ministry of Public Health and Social Affairs.
39. Decree No. 91,22 CP/AS of 10 February 1971, establishing the Directorate of Public Domain, Records and Archives.
40. Decree No. 11,219 of 10 November 1971, establishing the Directorate of Mines, Geology and Hydrocarbons.
41. Ordinance 74,20 of 11 March 1974, establishing and publishing the charter of the Water and Electricity Company of Benin.
42. Decree No. 12,60 of 5 March 1974, providing for the setting up, functions, composition, organization and operation of the National Commission for Pollution and Environment protection.
43. Decree No. 74/83 of 1 April 1974, reorganizing the water service.

INTERNATIONAL AGREEMENTS

44. Exchange of notes constituting an agreement between the United Kingdom and France relating to the border between their possessions from the Gulf of Guinea to Niger, signed in Paris on 19 October 1906, in which it is stated that the inhabitants of border villages shall retain "the right to use ... wells and water points for the watering of animals as these have been used up to present".
45. Interstate agreement concerning the Niger River dated 26 October 1961 and 25 November 1964.
46. Agreement between Dahomey and Togo of 27 July 1968 setting up the Electric Community of Benin.

III - CONCEPTS ON WATER JURISDICTION STATUS OF WATER RESOURCES

In the Republic of Benin, almost all water resources, whether surface or underground, form part of the public domain of the state.

(a) SURFACE WATER RESOURCES

(1) Public water

The first enactment to establish the public status of surface waters dates back to 1904 ^{1/} but this was abrogated in 1935 ^{2/}. However, the Decree of 1928 ^{3/} which sets out Benin's water ownership legislation and dates from the French colonial era in French West Africa, is still in force. This decree provides that the following water resources (including underground water) within former French West African colonies and territories fall within the public domain:

- (a) the seashore up to the highest tidal limit plus an additional 100 meters inland;
- (b) navigable watercourses and watercourses used for floating objects (e.g. timber) within the limits of their normal banks together with a 25-meter two-path zone on either side and around the edge of any islands existing in such watercourses;
- (c) non-navigable and non-floatable springs and watercourses to the extent of their natural banks;
- (d) lakes, ponds and lagoons within the limits of their highest water level together with a 25-meter two-path zone on either side and around the edge of any islands existing in such waters;
- (e) navigation canals (including their two paths), irrigation and drainage canals and aqueducts built for public utility purposes, including all appendages of these;
- (f) water conduits, sewers, harbours, marinas and fluvial dykes.⁴

(ii) Private water

Waters which do not fall within the public domain, such as rain water and springs, are considered as being private. Water contained in wells, watering places and cisterns which individuals have built on their own private land are excluded by implication from the definition of public water.

Private water also includes irrigation and drainage canals as well as waters forming intermittent streams in them. All these waters are regarded as private and are regulated by the Civil Code.

^{1/} Decree of 23 October 1904.

^{2/} Decree of 11 November 1935.

^{3/} Decree of 29 September 1928, art. 1.

(3) Groundwater Resources

The 1921 Decree 1/ on the status of water in French West Africa is silent as regards groundwater while the 1926 Decree on the same subject 2/ merely gave a limited list of the type of water resources, which form part of the public domain of the state, without mentioning specifically groundwater. Groundwaters were, therefore, considered as private until 1955. Since that date, however, underground aquifers of whatever origin, nature or depth, form part of the public domain 3/.

(4) Mode of acquisition

Public water cannot, therefore, be acquired since the public domain is inalienable and not subject to prescriptive rights. However, although the principle of public domain is officially in force, the population of the areas concerned often act as if they had lawful title to the water, i.e. as if they were individually or collectively owners of the water and not just entitled to its use. This is particularly true in rural and pastoral areas where the impact of legislation is not felt because they are too far from urban centres for strict and frequent controls, and customary principles of water law are still followed.

(5) Servitudes

Riparian landowners of non-navigable and non-floatable waters are subject to a servitude of passage over an area extending 10 meters on each side. In addition, all lands, buildings or other immovable private property are subject to many servitudes concerning, water use, passage of persons, of water conduits, of hydropower communication lines, sewerage and drainage conduits, as well as to other servitudes as may be required by hygiene, amenity, public safety, etc. No indemnity is due to the owners as a consequence of the imposition of these servitudes 4/.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of acquisition

The right to use water, or water right, is acquired in a different way according to the legal nature of water.

(1) Private Water

Private water, whether surface or underground, may be used merely by the landowner or occupier of the land where the private water is located, without the need of any permit, authorization or concession. The right to use private water may be therefore acquired by gift, sale, inheritance or by virtue of any other lawful contract. Such rights are alienated or extinguished in terms of the relevant legal provisions relating to the transaction in question.

1/ Decree of 1 March 1921.

2/ Decree of 29 September 1926.

3/ Decree No. 35/580 of 20 May 1953 and Decree No. 9929 TP of 15 December 1955.

4/ Decree of 29 September 1926, arts. 2 - 5.

(ii) Public water

Public waters, both surface and underground, as defined by law ^{1/} may not be appropriated nor utilized without prior authorization, permit or concession of the State, since they form part of the public domain.

(b) Water use authorizations, permits or concessions

As a consequence of the situation whereby almost all water resources in Spain form the public domain, the State has the power to grant the authorization for their use ^{2/}.

Various Government administration departments are responsible for granting water use permits, authorizations or concessions for various purposes, such as: Agricultural uses (Administration of Rural Engineering-Hydraulics); deforestation and soil and embankment conservation (Waters and Forests Administration); Fisheries (Fisheries Service); industrial uses (Mines Department); transport (Public Works Department); town water supplies (Municipalities, Prefectures), and rural water supplies (Department of Rural Engineering). Finally, since waters belong to the public domain, the Administration of the Public Domain is also competent to grant water use permits ^{3/}.

Anyone wishing to use public water is required to fill in an application specifying, *inter alia*, the nature of the proposed waterwork, its purpose and the expected duration of use ^{4/}. Applications are assessed before they are granted, and, if so granted, they are valid for a period not to exceed 20 years. The authorization is personal to the applicant and may not be alienated or transferred by him without the transferee making a fresh application and receiving an authorization in his own right. The grantor is bound by the terms and conditions of the authorization which include provisions reserving third-party rights, a specification of the period of the authorization and a clause providing for cancellation in the event of certain events occurring. For example, a concession may be cancelled by the administration in the public interest or if the grantee has not abided by its terms or conditions (unless this was due to circumstances beyond his control).

(c) Customary water rights

Apart from the existence of written legal texts governing water resources, there are also customary water laws and institutions which are followed at the local level by users to whom these rules are well known. These water rights are administered by locally recognized and respected customary authorities ^{5/}. Customary water laws relate to fishing, watering, and domestic water rights.

Often, two distinct jurisdictions are present at the same time, one traditional and the other codified.

^{1/} Decree of 29 September 1928 and Decree No. 55/190 of 6 May 1930 (for groundwater).

^{2/} Decrees of 25/11/1930 and 26/6/1933.

^{3/} For an analysis of the difficulties arising out of this situation, see: D. Caponera, Duboney, *Politique, administration et législation des eaux*, F.A.O. Report, EA-57/CAE 2, (33/8885), Rome, 1969, p. 9 (2).

^{4/} Decree of 5 March 1921, Chapter 2.

^{5/} D. Caponera, *op.cit.*, p. 30 (7).

V - ORDER OF PRIORITIES

(a) Between different uses

There is no legal order of priority for different water uses. No text gives more importance to one water use than to another. There is, however, an accepted order of priority based on the ranking of the various water uses. The following uses are namely in order of importance: potable water supply for humans; water supplies for livestock; irrigation or watering for agricultural purposes; industrial use and, finally, recreational use.

(b) Between different existing rights

The order of priority between existing rights is established by law. However, there is the question of possible rivalry between customary water rights and those rights of use which have been granted on the basis of the existing legislation.

(c) Between different areas

There is also no legally recognized order of priority between different areas. In practice, the order is dictated by relative needs of the areas concerned. Consequently, the more highly populated areas tend to be preferred over the less well populated areas of rural or pastoral regions. The effect is that urban populations are more fortunate than rural populations, who tend to be obliged to obtain their water supplies from "quaisards" (wells).

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Domestic use

While customary water law recognizes the principle of the preference of the use of water for drinking and watering of animals, domestic use of water generally seems not to have ever been established in the written water legislation. Such legal provisions as do exist are extremely limited. There is a provision, by implication, to the effect that a community or district having control of a drinking water supply is entitled to keep the surroundings of such supply clear of any sources of pollution and, if need be, to cover such supply in order to prevent pollution. In addition, it is also legally possible to acquire all or part of a drinking water supply by a declaration that it is in the public interest. ^{1/}

^{1/} Decree of 14 April 1904 on the protection of public health in French West Africa.

(b) Municipal use

The supply of drinking water in towns and municipalities is undertaken by the National Water and Electricity Company of Benin ^{1/} (for Cotonou and its surroundings), and the Departments of Hydraulics, Rural Engineering, Water and Forests, Public Health, Interior, Prefectures.

Consumption by way of public street-fountains and hydrants is metered and billed to private persons by the Water and Electricity Company of Benin. In no case the water of public fountains may be used for industrial purposes.

Maintenance and renewal of any facilities situated on the public highway are the responsibility of the National Water and Electricity Company of Benin. Maintenance costs are governed by an agreement between that company and the public administration.

(c) Agricultural use

The works relating to the agricultural uses of water are undertaken by the Departments of Hydraulics, Rural Engineering, SUSAAR, the Prefectures and other agencies. While no specific legislation regulates the use of water for agricultural purposes, servitudes are available on the basis of the law. Thus, any landowner wishing to avail himself of his right to use water for the irrigation of his land, either in accordance with the provision of the Civil Code or in conformity with the terms and conditions of his concession or authorization, may acquire a right of way for his water through intermediate landholdings, provided a fair compensation is paid to the owners of the lands so crossed ^{2/}.

(d) Industry and Mining use

The rare right of way may be acquired by the owner of a mine leading to use, for mining activities, the water to which he has a right on the basis of a concession authorization ^{3/}.

Industrial water use is under the control of the Departments of Mines, of the Public Domain and of the Hydraulics.

(e) Transport

Water matters relating to river navigation fall under the Ministry of Public Works, Transport, Posts and Telecommunications ^{4/}.

(f) Other uses

Other beneficial uses of water, such as for fishing, hydro-electric generation, medicinal or thermal purposes, for instance, are regulated by scattered provisions in the existing legislation.

^{1/} Established by Decree 22-20 of 11 March 1962.
^{2/} Decree of 5 March 1961, Title III, art. 33 et seq.
^{3/} Ibidem.
^{4/} Ibidem.

VII - LEGISLATION ON HAZARDOUS EFFECTS OF WATER

(a) Flood control

The few legal provisions concerning flood control are mostly concerned with the financial implications of such control. Diking and flood control measures, including tidal waterworks, may be ordered by the Deputy-Governor upon consultation with the Administrative Council or in his own name, following an inquiry and the recommendations of the technical department concerned; such waterworks may then be partially or totally implemented at the cost of such persons who benefit from them ^{1/}.

(b) Soil erosion

Owners of woods and forests are entitled to exercise their ownership rights within the entire land surface covered by their woods and forests but may not be granted any authority to clear such areas, or any part of them, if this would result in prejudice to protection of the soil against erosion and/or flooding ^{2/}.

(c) Drainage

The drainage of ponds and marshes may be ordered for public health purposes as may also be the improvement and extension of cultivated land ^{3/}.

The relevant legislation also sets out administrative and financial provisions governing such waterworks.

Any landowner or tenant wishing to reclaim his land by drainage or by any other means may dispose of unrequited water either by surface or underground drainage through landholdings which fall between his land and a watercourse, or to any other user of water, provided fair compensation is paid to the owners of lands so crossed. The latter may, however, avail themselves of any drainage waterworks constructed by the upstream landowner, but in that case the cost is to be shared among all beneficiaries ^{4/}.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

There are no regulations or legislative provisions controlling the waste or misuse of water, nor does any regulation fix a maximum daily consumption per head.

^{1/} Decree of 5 March 1971, Title IV, art. 42.

^{2/} Decree of 4 July 1915 on the status of forests in P.W.A., Title II, art. 20.

^{3/} Decree of 5 March 1971 on the status of water in P.W.A., Chapter 2, arts. 43-46.

^{4/} Decree of 5 March 1971 on the status of water in P.W.A., Chapter 3, arts. 49-53.

(c) Health protection

According to the existing legislation 1/, the Ministry of Public Health is empowered to enact health regulations designed to control potable water supplies and to provide for the inspection of wells and washing places, the disposal of waste and the conditions to be met by cesspools 2/.

A pollution-free zone may be established, wherever required, when a land appropriation declaration for public utility purposes in connection with the tapping of a spring is made by order. Unless an authorization has been issued by the Administration or the Mayor, the spreading of human night soil and the sinking of wells within such a protected zone is prohibited; the same provision extends to wells and underground galleries supplying drinking water from aquifers.

The right to use drinking spring water entails, for the local government or community possessing it, the right to clear, cover and protect the sources of such drinking water from any cause of pollution but not to divert its course by means of pipes or drains 3/.

Similarly, the discharge of refuse, domestic wastes, rocks, gravel, wood and the like, in the neighbourhood or along public domain watercourses, lakes, ponds or lagoons and streams is prohibited as is the discharge of infected or harmful effluents into them 4/.

All measures against the harmful effects of water can be considered also as aiming at the protection of public health. Besides the immediate advantage brought to agriculture by the drainage of ponds and marshes 5/ or by the reclamation of wet lands 6/, these measures result in the improvement of public health by virtue of the eradication of malaria-bearing mosquitoes.

(c) Pollution

Colonial legislation applying to ex-French West Africa in general contains a few provisions for the control of water pollution originating mainly from domestic, animal, agricultural and industrial sources.

Protection zones have been established around the sources of drinking water supplied for cities and towns, in order to limit inorganic and organic pollution of underground aquifers. Such potentially polluting undertakings as grazing, sinking dead wells and discharging untreated industrial effluents (the bacteriological level whereof may cause the pollution of aquifers) are specifically prohibited in these zones 7/.

1/ Decree of 14 April 1906, art. 7; Decree of 5 March 1921, Chapter II, art. 7 al. 1.
2/ Ibidem, Chapter 1 (e).
3/ Decree of 14 April 1906, art. 7.
4/ Decree of 5 March 1921, Chapter 2, art. 7.1.
5/ Ibidem, Chapter 2, art. 43-46.
6/ Ibidem, Chapter 3, arts. 49-53.
7/ Decree of 14 April 1906, art. 7.

There are no water provisions governing pollution control in rural and pastoral areas. In towns, if the quality of the water distributed does not conform to existing standards, the Sonin's Water and Electricity Company is held responsible if such failure to conform can be traced to the company's negligence.

In all other cases, the administration is required to proceed, if necessary, against the persons responsible for any pollution. If purification facilities prove inadequate, the necessary work must be performed by the Company at the expense of the administration.

There are no regulations concerning rubbish tips and no rules forbidding boreholes in polluted areas.

Herds are not allowed to foul the water of ponds ^{1/} and must be brought to certain watering points. There is, again, a provision to the effect that herds must not be allowed to approach nearer than 50 meters from agricultural water-supply structures.

The old decree, concerning cultivation near watering points and establishing measures for their protection, is still applicable ^{2/}.

(d) Industrial pollution

As far as industrial pollution is concerned, the health regulations lay down rules relating to all types of deterioration in the quality of the human environment caused by factors such as air or water pollution, industrial waste, noise, side-effects of pesticides, water stagnation or poor water conservation conditions ^{3/}.

(e) Environmental protection

In 1972, a National Commission for the control of pollution and the protection of the environment was established ^{4/}. Its composition, functions and powers are such that a more stringent control over polluting activities with a view to enhancing the environment is now possible.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Until 1955, groundwaters could also be privately owned and were governed by the provisions of the Civil Code. In that year it was decreed that all underground waters would form part of the public domain irrespective of their origin, nature or depth ^{5/}.

^{1/} Decree No. 431 Agre of 4 October 1949, art. 5; Decree No. 9929 LP of 15 December 1955, art. 3.

^{2/} Decree of 14 April 1934, art. 7.

^{3/} Ibidem, Chapter I (F).

^{4/} Decree no. 34-60 of 8 March 1974.

^{5/} Decree No. 35-490 of 5 May 1955.

Their use, however, is regulated by specific orders relating to the water concerned 1/. All groundwater exploitation works, wells, boreholes, galleries and the like must be equipped with mechanized lifting devices and the supplying of existing waterworks with such new equipment and all groundwater extractions, mechanical or not, require the prior authorization of the Administration. In addition, all existing underground waterworks equipped with mechanized lifting devices or tapping artesian waters are subject to a declaration of public ownership. However, groundwater works not fitted with mechanized lifting devices (unless they are artesian drilled wells) are exempt from the same authorization requirement.

The Administration may prohibit any individual groundwater extraction (even when a mechanized lifting device is used) in the following cases:

- (a) when the aquifer is tapped for the supply of drinking water to cities and towns and has limited reserves;
- (b) when an aquifer tapped for human consumption of water needs to be protected against organic pollution;
- (c) when the aquifer is already polluted and the use thereof is likely to harm public health, and
- (d) when any other public interest requires so 2/.

Basic groundwater research, preparation of hydrogeological maps, drafting of groundwater legislation, conservation of water reserves and all geodological and mineralogical observations resulting from research or engineering work connected with groundwater, all fall under the Directorate of Mines, Geology and Hydrocarbons 3/.

X - REGULATION OF THE CONTROL AND PROTECTION OF WATERWORKS AND WATERWAYS.

All works undertaken in, over or across a watercourse (whether the course is modified or not) and all temporary or permanent diversions of public domain waters (irrespective of the mode or purpose) require the prior authorization of the Administration 4/.

Similarly, underground water exploitation works equipped with mechanized lifting devices require prior authorization if they are mechanized lifting devices or any fixed or mobile equipment fitted on or near the waterwork which require other than human or animal driving power and are of a capacity of more than ten cubic metres per day 5/.

The owner of mechanized waterworks must file a declaration stating his first and family names, title, profession and the purpose for which he wishes to extract water. In addition, he is required to make a statement describing the location of the waterworks, the type of lifting devices, the average daily extraction rate together with a diagram of the waterworks, lifting devices, drainage works and works for the disposal of waste water.

1/ Order No. 9329 -P of 15 December 1915.
2/ Loi, art. 1.
3/ Decree No. 71-27 of 10 November 1911.
4/ Decree of 5 March 1921, art. 6.
5/ Order No. 9329 -P of 15 December 1915, art. 2.

Provision is made for waterworks and structures to be supervised by the various officials duly commissioned and sworn for the district in which they are serving, and especially by employees of the Agriculture Service, who report infringements of the relevant legislation 1/.

XI - LEGISLATION ON THE REGULATION OF PROTECTED ZONES OR AREAS

While no specific legislation exists which empowers the government to declare special zones or areas, some scattered provisions relate, incidentally, to these questions. Here, the use of water and land in areas where water schemes have been implemented under the procedure referred to in the regulations 2/ is decided in each specific case by local committees composed of important persons from surrounding villages and user communities or, if applicable, from villages which helped to build the structures and provided cover by the "cercle" commander or his deputy. The latter is required by law to have the assistance of a representative of the Crops, Livestock and Forestry Services expressly appointed by the heads of these services 3/.

The demarcation of the area concerned also involves the reservation of zones for crops and plantations, the creation of tracks and roads used by people and animals for fetching water and regulations concerning, inter alia, the purpose and amount of water utilized 4/.

Another provision concerns pollution control areas around and along drinking water supply sources 5/.

XII - GOVERNMENT WATER RESOURCES ADMINISTRATION AND INSPECTIONS

In the People's Republic of Senegal, several ministries, departments and other agencies or agencies have direct or indirect responsibilities for the administration of, and guardianship over, water resources ownership, development, utilization and conservation.

(a) At the national level

1. Ministry of External Affairs (State Department)

Under article 3 of Decree No. 234 RA/506 of 16 August 1968, this Ministry is empowered to formulate and implement the foreign policy of the government. It is to be noted that Senegal is a riparian state of four international river basins: the Niger, Senegal, Volta and Guinée.

Because of the international hydro-geographic situation of these river basins, the Ministry of External Affairs of Senegal is directly concerned with matters of water policy, administration, and distribution as well as in the laws governing the country's water resources.

- 1/ Decree No. 401 Agro of 4 October 1949, Art. 6.
- 2/ In particular, General Order 1523 SET of 23 March 1949.
- 3/ Ibidem, Art. 1.
- 4/ Ibidem, Art. 2.
- 5/ Decree of 14 April 1904; Order 9929 TP of 15 December 1955.
- 6/ An Interministerial Commission has been established for the purpose of studying the problems of coordination among water activities and institutions.

2. The Ministry of the Economy and Finance

This ministry is responsible, inter alia, for financial, credit and monetary affairs as well as for the economy in general and has a very particular interest in financial aspects directly or indirectly connected with the management, conservation and distribution of water resources which, under the existing legislation, belong to the public domain. On the other hand, this ministry plays an important role in the financing of enterprises managing the water resources of the country for all types of use. The Direction des Domaines, de l'Immatriculation et du Litige (Public Domain, Registry and Survey Office) is responsible for the administration and financing of the state public and private domain, including land and water resources.

This Ministry also oversees all government agencies or joint industrial/commercial and government bodies directly or potentially connected with water use.

3. The Ministry of Rural Development and Cooperation

As this ministry is concerned with all matters pertaining to agriculture, i.e. both crop and animal production, and with waters and forests 1/, it has prime interest in problems raised by use of water for irrigation, watering of animals and fisheries as well as in soil and water-resources conservation, etc.

Under its authority there are three major services in charge of water resources under different headings:

(i) The Agricultural Engineering and Land Improvement Service

This service is responsible for experimentation in agricultural water management 2/; for research and for executing or having executed under its control programs and projects for the utilization of water for agricultural purposes, in particular those for land reclamation, drainage and irrigation; for supplying rural communities with drinking water, and for assuring control over the use and the upkeep of works of all types installed during the realization of these water use projects. It also has another function, i.e., the representation of the interests of different professions involved in agricultural production and rural development in the study of projects for large public works capable of altering conditions for water use in agriculture.

It also participates in research on, and applications of, soil conservation methods.

This service comprises a national office with three departments (agricultural water management, agricultural mechanization and rural habitat) and six departmental divisions.

(ii) The Waters and Forest Service

This service is responsible, inter alia, for the protection of soil against erosion, for flood control, for the protection of springs and wells of water and for public health 3/. It issues administrative licences for forest clearing and environment protection.

(iii) The Fisheries Service

This service is responsible for the prescribing and administration of rules and regulations governing inland waters fisheries of Benin: in rivers, streams, lakes, ponds, marshes, canals and lagoons. It is charged with issuance of permits recognizing customary fishing rights or authorizing new fisheries.

1/ Decree 232/PR/SGG of 16 August 1966.

2/ Decree 522/PR/SGG of 29 December 1966, art. 14 and Decree 74/85 of 1 April 1974.

3/ Decree of 4 July 1975, art. 13.

(iv) The Stock Raising Service

This service is responsible for securing the watering of animals.

4. The Ministry of Equipment

This Ministry has, under its direct responsibility the Direction de l'Hydraulique (Water Management Department), which deals with matters pertaining to the development of water management resources and problems of research, production and utilisation of energy resources 1/.

5. The Ministry of Industry and Craftsmanship

This Ministry also has responsibilities for the study and planning of domestic water supplies.

6. The Ministry of Forward Planning

This Ministry is empowered to frame a planning policy and implement it 2/. Since policy making and planning for water resources use are necessary at the national, basin and local levels, they are included in the terms of reference of this Ministry with a view to organising management within the widest context of national planning.

7. The Ministry of Justice and Legislation

This Ministry which, under its terms of reference it may be authorized to draft bills of law, decrees and acts of general scope in all fields, plays an important role in the revision of all water laws. Moreover, because of its judicial authority, it is called upon to arbitrate any disputes on the subject of water use.

8. The Ministry of Public Works, Transportation, Posts and Telecommunications

The competence of this Ministry covers the following domains: public works, mineral prospecting and mining, topography and cadastral survey, city planning and habitat, water management and meteorology; all these functions are administratively directly or indirectly linked with the water use, management and distribution 3/.

This Ministry is charged with the management of groundwater resources and - although this does not appear in the decree establishing the functions of the different ministries - it in principle supervises the company holding the concession for water distribution and handles any problems raised by energy generation and distribution in Benin.

9. The Ministry of Public Health and Social Affairs

This Ministry is charged with the elaboration and the implementation of a public health policy. It has under its authority the Direction de la Santé Publique (Department of Public Health) which, through its Service de l'Hygiène (Hygiene Service), is responsible for sanitation and hygiene in respect of waters 4/.

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- 1/ Decree 358/PR/MTP of 17 October 1967.
 - 2/ Decree 234/PR/SOG of 16 August 1968.
 - 3/ Decree 234/PR/SEE of 16 August 1968.
 - 4/ Decree 69/45 PR/MSPAS of 17 February 1969.

Art. 2 of Decree 69/45 of 17 February 1969 created the Direction de la médecine et de l'hygiène publique (Department of Preventive Medicine and Public Health), while Article 10 entrusts it with the organization and the enforcement of public health and sanitation measures and control over public hygiene. This service controls the digging of wells and the provision of water supplies to cities and villages. Furthermore, jointly with the Ministry of Public Works, it supervises the water distribution company.

10. The National Commission for Pollution Control and the Environment Protection

This Interministerial Commission was created in 1974 1/.

(c) At the intermediate level

There do not seem to be any organizations responsible for water management at the intermediate level in Benin.

(a) At the local level

Locally, there are some associations of water users for agricultural purposes: irrigation, fisheries and stock raising. Recently "Centers for Regional Action for the Rural Development" CARDER have been established at the level of each Province. These centers are assisted by technicians of the Central Government and undertake directly the construction of small hydraulic works.

(d) At the international level

The People's Republic of Benin is a basin State of the Niger, the Volta, the Mono, the Ouémé, and the Yowa River basins. While there is a large number of treaties primarily dealing with matters of frontier demarcation 2/, the country is also a party to a few international treaties bearing specifically on the conservation, development and utilization of her international inland waters:

1. The Niger River Basin

The Niger River constitutes the boundary between Benin and the Republic of Niger, and has three main tributaries: the Gota, the Alibori and the Mékroun. Benin is a member of the International Niger River Commission 3/.

2. The Mono River Basin

The Mono, about 350 kilometers long, rises in Togo and forms part of the boundary between Benin and that country. It is navigable for 100 kilometers. Studies are in progress for the joint management of this basin with Togo, for the production of energy and

1/ Decree 74/60 of 8 March 1974 on the creation and functions of this commission.

2/ These treaties are reported in "Systematic Index of Treaties governing International Water Resources", Legislative Study No. 15, FAO Legislation Branch, Legal Office, Rome, 1978, hereinafter, MO Index of Water Treaties.

3/ Exchange of notes of 19 October 1966 between the United Kingdom and France, signed in Paris, on the frontiers between the possessions of the two countries from the Gulf of Guinea to Niger. Interstate agreements on the Niger River dated 26 October 1963 and 25 November 1964 establishing the Niger River Commission.

for irrigation in the lower part of the Mono River 1/.

3. The Volta River Basin

The Pendjari River, which in the territory of Benin goes round the Atacora Mountains, is a tributary of the Volta River and forms the boundary with Upper Volta.

In addition, Benin is a Party to the African Convention on the Conservation of Nature and Natural Resources 2/. The Convention provides, inter alia, a) for the conservation, development and utilization, including the prevention and control of water pollution, of the drainage basins of international significance to the signatory states; and b) for the establishment of ad hoc inter-state commissions charged with the implementation of the Treaty provisions.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

1. The Water and Electricity Distribution Company - SDEE

The Central Water and Electricity Distribution Company - CCDEE was a Government body until 1954. The Concession Convention of 12 July 1955 and its articles did, in fact, abolish this agency and set up a new "concession" system, though no decree or act to that effect can be found published in the Official Gazette 3/. This private company became, in 1974, the Water and Electricity Company of Benin 4/. It is responsible for the production of electricity and the distribution of water and of electric power in the city of Cotonou and other cities and territories.

2. The SONADER

The Société nationale pour le développement rural (National Society for Rural Development) of Dahomey was a mixed economy (semi-governmental) agency created on 1 January 1962, which took over the Sector palmeraie Ouémé (Ouémé Palm Plantations). It was expected to be either one of several instruments, or the preferred instrument, of the Government for the conduct of rural development operations. Its work embraces land development, urbanism, well digging, education in the cooperative movement and manpower training for positions of responsibility.

3. The SONIAH

The Société nationale d'irrigation et d'aménagement hydroagricole plans the development of irrigation in the Ouémé Valley and in the lower Mono Valley.

4. The SONAPECHE

The Société nationale de pêche is responsible for the development of fisheries.

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- 1/ Agreement between Benin and Togo of 27 July 1968, establishing the Benin's Electricity Community.
 - 2/ These agreements have been signed between the Volta River Authority of Ghana and the Benin Electricity Community for Togo and Benin.
 - 3/ For an analysis of the judicial status of the CCDEE, see Dante A. Caponera, op. cit., p. 6.
 - 4/ Act 74-20 of 11 March 1974 promulgating the statutes of the Water and Electricity Company of Benin (SDEE).

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

With regard to financial and economic aspects of water legislation, the rational management and development of water resources requires the investment of large capital sums, which, in turn, necessitates an adequate legal-institutional framework. Both the investor and the water user need security of rights in terms of water quantity and quality ^{1/}.

(a) Government financial participation and reimbursement policies

The Republic of Benin has no special legislation on state financial participation, reimbursement policies relating to the conservation, development and use of water resources. Investments are financed out of credits from the state budget.

For larger scale work, recourse is had to foreign capital provided either under bilateral aid or by international agencies, e.g. the European Development Fund, the French Aid and Cooperation Fund (FAC), the IBRD, the African Development Bank, etc.

(b) Water rates and charges

Conventional use of the water of lakes, rivers, springs, wells, cisterns and canals and all water points not forming part of public works programmes is not subject to the payment of tariffs or charges. Water rates for municipal water supplies are decided by the President of the Republic after consideration by the Council of Ministers upon a proposal by the Management Committee of the Compagnie nationale des eaux et de l'électricité (Water and Electricity Company).

^{1/} For an analysis of this situation, see: Dante A. Caponera, op. cit., p. 12 and 13.

BURUNDI 1/

I - INTRODUCTION

(a) Situation and population

Burundi is a landlocked mountainous area located in central-east Africa some 1,000 miles from Africa's east coast with a population of about 3,500,000 people and a surface area of 27,384 square kilometers (10,546 square miles). It is one of the most densely populated countries in Africa. Most of the borders of the country follow rivers, the one with Rwanda including Lakes Kivu and Cyohoha, those with Zaïre and Tanzania being partly drawn by Lake Tanganyika 2/.

(b) Water resources

Africa's two greatest river basins, the Zaïre 3/ and Nile basins, are divided from north to south through western Burundi at an average elevation of 2,600 meters (8,000 feet).

The main rivers are the Kuvubu River in south-central Burundi, the Kanyaru River with its headwaters in Rwanda, the Ruguzi River flowing to Tanzania, and the Muragarazi River coming from and flowing to Tanzania.

Rainfall increases with altitude to a maximum of 1,500 mm. in the highlands. June, July, and August are relatively dry months.

There are large ground water resources 4/.

(c) Political-Juridical history

In the sixteenth century the Batutsi (a tall Nilotic people) invaded the region which now includes Burundi, and established the two feudal kingdoms of Rwanda and Urundi in which the less numerous Batutsi formed the ruling class while the Banyarwa held a position similar to serfs. Both kingdoms remained isolated from European contact until the end of the nineteenth century when they were annexed as part of German East Africa as "residencies" each continuing to be ruled by its traditional king, the Mwami, under the supervision and direction of a German Resident. In 1915, during the first world war, Belgian troops from the Congo occupied the two kingdoms and in 1923 the League of Nations granted a mandate to Belgium to administer the two territories. After World War II it became a United Nations Trust Territory under Belgian administration 5/.

1/ Based on the study prepared for the EAO Legislation Branch by Dominique Alhéritière, docteur en droit, Paris, France (original French).

2/ The longest in the world and the world's deepest lake after Lake Baïkal (U.S.S.R.).

3/ Previously called the Congo River.

4/ United Nations, Les eaux souterraines de l'Afrique, ST/ECA/167, New York, U.N., 1971, p. 65.

5/ Jewald W. Salacuse, An Introduction to Law in French Speaking Africa, Vol. I Africa South of the Sahara, The Michie Company, Charlottesville, Virginia, 1969 pp. 517-12.

Burundi attained independence on 1 July 1962. Unlike Rwanda, Burundi attained independence as a Kingdom, not as a republic. Strife between the Tutsi and Hutu soon broke out, however, and the long struggle culminated in a bloodless coup by Captain Michel Micombero who proclaimed a republic with himself as head of state on 26 November 1965 1/.

In addition to the law imposed under Belgian administration, Burundi's legal sources include legislation enacted since independence, general principles of law and equity, and customary law. Although neither the Constitution nor the new legislation on the judicial system recognizes customary law or directs the courts to apply it, there is authority for its application in matters not governed by written law. In civil matters the vast majority of the population (i.e. non-immatriculés) remain subject to customary law. In criminal matters, customary law no longer applies. Burundi has established a commission to modify custom but in the meantime the courts are adapting the customary law to meet modern conditions 2/.

As in Zaïre and Rwanda, Burundi's water administration and legislation is derived from Belgian law, a system based on the Napoleonic Code and therefore close to the French system.

The major part of water law in Burundi is derived from Belgian law as it applied to Burundi in 1962 3/. By virtue of an act adopted on 29 June 1962 4/, laws and regulations passed by Belgium before Burundi's independence, remain in force in Burundi until expressly repealed by it. All powers attributed to the Belgian administration (except those given to the Administrateurs of Territory) are transferred to the appropriate Ministry of the Burundi Government 5/.

(d) General

Burundi has mainly a subsistence agricultural economy, Bujumbura with a population of 70,000 inhabitants being the only urban and industrial center. Fishing in Lake Tanganyika yields around 70,000 tons per year. Lake Tanganyika, the most important trade route of the country, bears 80% of Burundi's foreign trade. Electrical power is partly obtained from a hydro-electrical plant at Bukavu in Zaïre but there is the possibility of a hydro-electric project being constructed along the Kuvubu River near Gitega 6/.

II - LEGISLATION IN FORCE

1. Agreement between the Belgian Government and the Government of the United Kingdom of Great Britain and Northern Ireland regarding water rights and the boundary between Tanganyika and Rwanda-Urundi, signed at London, 22 November 1933, C.L.B. 29 7/
2. Civil Code, Livre II, ss. 16-20, 26, 27, C.L.B. 37
3. Criminal Code, s. 166, C.L.B. 180
4. Judiciary Code, ss. 137, 149, C.L.B. 221

1/ Salacuse op.cit. pp. 566-7.

2/ Dante Caponera "Water Policy Administration and Legislation in Africa", WCD/Conf/4, Addis Ababa, E.C.A.C. 1975 p. 12.

3/ Belgium passed new water legislation in 1955 recognizing thereby the unsatisfactory character of its previous water law.

4/ An Act for the Application of Laws and Regulations passed by Belgium, 29 June 1962, C.L.B. 2.

5/ Ibidem, s. 2.

6/ Except as otherwise stated, all the general information is abstracted from: Gordon G. McDonald (ed., co-author), Area Handbook for Burundi, DA Pam No. 730-81, Washington, D.C., U.S. Government Printing Office, 1969, XIV, 207 pages.

7/ The mark "C.L.B." refers to René Bailon et Pierre Delfosse, Codes et Lois du Burundi contenant toutes les dispositions législatives et réglementaires en vigueur, avec références et notes de concordance et de jurisprudence, Bujumbura, Ministère de la Justice 1970, xi, 1092. The number following the mark "C.L.B." refers to the page of the volume. The English text of the Agreement can be found in: United Nations, Legislative Texts and Treaty Provisions concerning the Utilization of International Rivers for Other Purposes than Navigation, ST/LEG/Ser. 2/12, New York, United Nations publication, pp. 97-99.

5. Legislative Ordinance 409/TP/U.R., 30 November 1963, Inquiry Commission on Rivers and Lakes Navigation, C.L.B. 839.
6. Decree-Law 1/196, 2 October 1965, Regidese, C.L.B. 703.
7. Order of 9 August 1893, Sale and Renting of Public Ownership, n. 7, C.L.B. 953.
8. Order of 12 July 1932, Fishing Grants Regulations, c. 1, III, C.L.B. 616.
9. Order of 27 April 1937, Hunting and Fishing, c. 17, III, C.L.B. 636.
10. Order of 3 January 1949, Sales Taxes, no. 3, C.L.B. 939.
11. Order of 6 May 1952, Servitudes on Ground Waters, Rivers and Lakes, and Respecting Their Uses, C.L.B. 692.
12. Order of 6 May 1952, Rivers and Lakes Waters Administration and Grants, C.L.B. 694.
13. Ordinance, 17 October 1911, Packaging, Preparation and Manufacture of Foods, C.L.B. 528.
14. Ordinance 127/6, 15 June 1913, Regulation Respecting Buildings in Urban Areas, C.L.B. 629, no. 1-16, 31.
15. Ordinance of 1 July 1914, Rivers, Lakes, Sources Pollution and Contamination, C.L.B. 698.
16. Ordinance 5/TP of 25 December 1920, Lakes Navigation Policy and Survey, C.L.B. 836.
17. Ordinance 79/A.E. of 2 October 1930, Mineral Waters, Lemonades, Extracts or Syrups for Drinking or to be mixed with Waters in order to produce Lemonades, C.L.B. 700.
18. Ordinance 375/Hyg. of 10 October 1940, Health, C.L.B. 741.
19. Ordinance 52/442 of 21 December 1952, Local Associations provided for in Decree of 6 May 1952 dealing with Servitudes respecting Rivers, Lakes and Underground Waters, C.L.B. 696.
20. Ordinance 52/443, 21 December 1952, Provisions in order to preserve Sources, Aquifers, Lakes and Rivers, to prevent Water Waste and Pollution, to control Use rights and Granted Occupancy rights, C.L.B. 699.
21. Ordinance 64/560 of 22 December 1956, Navigation Policy and Survey - Measures of Waterways, Works and Harbour Structures Conservation, C.L.B. 839.
22. Ordinance 44/139 of 11 March 1959, Rates respecting Lands, Mines, Water-flow, and Registry of Land Titles, C.L.B. 302, s. V.
23. Ordinance 42/12 of 9 January 1959, Private Properties Measure and Marking out, C.L.B. 98.
24. Ordinance 74/135 of 26 June 1959, Public Health in Urban Communities, C.L.B. 738 annex.
25. Rwanda-Urundi Ordinance 41/76 of 28 May 1956, respecting Unhealthy and Dangerous Buildings, C.L.B. 716.
26. Rwanda-Urundi Ordinance 5520/186, Ruizi Fishing Regulation, C.L.B. 619.
27. Rwanda-Urundi Ordinance 221/259 of 13 December 1958, Water Sports Regulation, C.L.B. 643.
28. Rwanda-Urundi Ordinance 114/23 of 18 January 1961, Drinking Water Supply Restrictions, C.L.B. 741.
29. Minister's Ordinance 050/269 of 27 May 1967, International Navigation on Lake Tanganyika with Burundi Flag, C.L.B. 843.
30. Minister's Ordinance 040/76 of 13 June 1969, Water and Housing Electricity Sale Price, C.L.B. 899.
31. Ministerial Order 050/44 of 16 December 1964, Fishing Regulation in Lake Tanganyika, C.L.B. 618.

III - OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

Water as such cannot be subject to appropriation and is considered a res communis when there is no ownership of the land on which the water is located ^{1/}. Under water law principles in "Code Countries", water may be either private or public as in the case of Roman law from which it is derived. Public waters are those which have been classified as being in the public domain; the criterion for determining public waters being therefore a formal one, based on State intervention.

(a) Surface water resources

Surface waters are subject to a dual system of ownership (i.e. ownership of private waters and ownership of public waters). Private waters are those which have not been declared as being public. The landowner has the right of ownership over rain-water received on his land and any water resting upon it. Running water is considered a res communis, but its uses are subject to the riparian doctrine. The high water line (without the ten meters band referred to below) marks the limit of the encroachment of riparian lands upon non-navigable and non-floatable waters ^{2/}. Public waters are mainly waters declared as being navigable waters.

The bed of any navigable lake or watercourse, whether floatable or not, is part of the State Domain ("Domaine public") or public property. The sandbank of a navigable or floatable lake or watercourse also belongs to the State ^{3/} as does the island merging from the bed of a navigable lake or watercourse, whether floatable or not ^{4/}. The shores of such lakes and watercourses are public property for a width of ten meters, the baseline being the high water line of seasonal floods ^{5/}.

(b) Groundwater resources

According to the early Roman principle "Dominus auli est dominus usque ad coelum et usque ad inferos", the owner of the land is the owner of waters underlying his land. This is confirmed by the Civil Code ^{6/}, but an amendment to this section was passed in 1952 providing that the landowner has no ownership on waters subject to mining legislation. However, minor sources of underground water may be appropriated by the landowner under which such sources exist ^{7/}.

(c) Mode of acquisition

Public waters are those declared navigable by the State and those situated on public land. The former are acquired by state declaration, the latter being acquired as private waters, i.e. state purchase of the land by exchange, inheritance or donation. The State may acquire land and water on this land by expropriation and receives escheated estate. All lands and waters acquired by expropriation, default of heirs or by any other mode of acquisition of private property, are generally in the private domain of the State, subject

^{1/} Civil Code, book II, n. 15.

^{2/} Ordinance 42/12, 9 January 1950, Private Properties Measure and Marking out, n. 9, C.L.B. 95.

^{3/} Civil Code, book II, ss. 17 and 26.

^{4/} Ibidem, n. 27.

^{5/} Ibidem, n. 17 (3); Order of 9 August 1893, Sale and Renting of Public Ownership, n. 7, C.L.B. 952.

^{6/} Ibidem, n. 16.

^{7/} Civil Code, n. 12 (1), C.L.B. 69.

to the same rules as private ownership, but the State may classify them as being in its public domain and so withdraw them from private law.

Private waters are acquired by acquisition of the land on which such waters are to be found according to any mode of acquisition known in private law: purchase, inheritance, exchange, etc.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of acquisition

The right to use private water is an attribute of land ownership and as such is acquired when the land is acquired. Burundi, like many other African states, attained independence with a dual system of land tenure (i.e. tenure in terms of the written law and tenure in terms of customary law). In an attempt to abolish the dualism an Edict was passed to the effect that all land not held by virtue of written law belonged to the State, although in most instances the holders of customary rights were allowed to exercise them. Persons enjoying customary rights of occupancy could then apply for a certificate converting such rights into rights of ownership in terms of the written law. In 1967, the government established a commission to draft a new law-decree on the real property system ^{1/}.

The right to use public water is obtained by way of an administrative permit or is granted by the State. In the case of water running in definite streams, rights are distributed on the basis of the riparian doctrine. Rights of using public water may be granted by ordinance or by decree ^{2/}, the latter procedure being required when (a) the water use is by way of machinery having a capacity of more than 5,000 horsepower; or (b) the rate of water use is more than 25 cubic meters per second ^{3/}. The right to use public water may also be customary and the rights of those subject to the customary law are expressly reserved by the Civil Code ^{4/}. In certain cases the extent of customary rights has to be established by an inquiry, e.g. the fishing rights of persons subject to the customary law ^{5/}.

(b) Water use authorizations, permits or concessions:

Since 1968 the "Regidoso", a governmental agency created by a Decree-Law, has been entrusted with water development and supply services ^{6/}. This institution has been given monopoly for controlling and administering all the water and electricity supplied throughout the country ^{7/}. The Ministry of Public Works may confer power on the Regidoso and determine the conditions subject to which such powers are to be exercised ^{8/}.

Several uses, other than power generation, require permits: e.g. the Government issues fishing permits for which fees are fixed. Generally, any person who wishes to use water must have an authorization from the Minister if this use is in an area declared as "saturated", by virtue of its population density or the amount of water consumption existing within it. Uses for primary purposes are not subject to this authorization ^{9/}, except when

^{1/} Salsouze op. cit. pp. 558-9.

^{2/} C.L.B. n. 10.

^{3/} Ibidem, n. 15.

^{4/} Ibidem, n. 12.

^{5/} Order of 12 July 1932, Fishing Grants Regulations, art. 6, C.L.B. 616.

^{6/} Decree-Law 1/196, 2 October 1968, Regidoso, n. 1, C.L.B. 703.

^{7/} Ibidem, n. 3.

^{8/} Ibidem.

^{9/} Ordinance 52/443, 21 December 1952, Provisions in Order to Preserve Sources, Aquifers, Lakes and Rivers, to Prevent Water Waste and Pollution, to Control Use Rights and Granted Occupancy Rights, n. 1 (b), C.L.B. 699.

the Minister is of the opinion that difficulties in the provision of an adequate supply of drinking water can occur and that regulation of the use of such water is, therefore, necessary 1/. Such regulation may be imposed throughout the national territory and not only in special areas. An authorization is also required before disposing of any polluted effluent 2/.

V - ORDER OF PRIORITIES

Some uses and some areas, as well as existing rights, receive priority rights to use water. An obstruction of freedom of navigation is strictly punished 3/, navigation appears to be a privileged use in navigable waters (i.e. a priority in a special area) this priority being set out in an international treaty concerning boundary water ratified by the Government in 1934 (i.e. a priority of existing rights).

The Government may determine protected areas in order to preserve sources, lakes and rivers the waters of which are used for the supply of drinking water 4/. In these areas, water use for drinking receives absolute priority. The Minister may designate special areas in order to prohibit all boats and to reserve these areas for swimming 5/. As stated above, customary rights are expressly reserved by section 12 of the Civil Code.

There are two types of servitudes: natural servitudes and legal servitudes. The first type is the servitude of receiving waters naturally flowing from upper land. The second type refers to the right of conducting water from one's own land through or over a neighbour's 6/ and to other rights such as the easement of abutment 7/, the easement of flooding 8/ and the right of receiving or discharging water over another's land 9/.

These legal servitudes include auxiliary servitudes such as the servitude of way and access. The relevant Order also provides that any person may exercise the rights conferred by a servitude until this servitude is registered in the cadastre of sources, lakes and watercourses 10/.

VI - LEGISLATION ON BENEFICIAL USES OF WATER

The legislation on beneficial uses of water is not comprehensive. The "Regduno" provides water and electricity supply. Concerning domestic uses, the use of drinking water may be regulated if any need for this arises 11/. The only other significant provisions affect fishing and navigation. Fishing permits are granted by the Ministry of Agriculture and Stock-farming 12/. There are three kinds of fishing permits, one for industrial fishing, another for small scale fishing and the third for the practice of

- 1/ Rwanda-Urundi Ordinance 111/23, 16 January 1961, Drinking Water Supply Restrictions, n. 1, C.L.B. 741.
- 2/ Ordinance 52/44, 21 December 1952, Provisions in Order to Preserve Sources, Aquifers, Lakes and Rivers, to Prevent Water Waste and Pollution, to Control Use Rights and Granted Occupancy Rights, n. 2.
- 3/ Criminal Code, n. 142.
- 4/ Ordinance, 1 July 1952, Rivers, Lakes, Sources Pollution and Contamination, n. 1, CLB 695.
- 5/ Rwanda-Urundi Ordinance 221/259, 12 December 1956, Water Sports Regulations, n. 1, CLB 243.
- 6/ Order: Servitudes on Ground Waters, Rivers and Lakes, and Respecting Their Uses, C.L.B. 594, n. 2.
- 7/ Ibidem, n. 6.
- 8/ Ibidem, n. 7.
- 9/ Ibidem, n. 5.
- 10/ Ibidem, n. 17.
- 11/ Rwanda-Urundi Ordinance 111/23, C.L.B. 741.
- 12/ Ministerial Order 350/44, 16 December 1961, Fishing Regulation in Lake Tanganyika, n. 2, C.L.B. 518.

fishing by an individual 1/. An order passed in 1937 prescribes fishing regulations 2/ dealing with fishing seasons, protected areas, preserved species, etc. Customary fishing rights are also reserved 3/.

The Navigation Policy and Survey Ordinance 4/ is mainly technical and not really relevant to navigable waters. Freedom of navigation is protected by the Criminal Code 5/. Only ships flying the Burundi, Rwanda, Zaïre, Tanzania or Serbia flag are admitted into the territorial waters of Burundi 6/.

An ordinance concerning the processing of mineral waters was passed in 1930 and this lays down standards for the industry 7/.

As regards uses for navigation, an Inquiry Commission on Rivers and Lakes Navigation was established in 1943. Its functions are to inquire into navigation accidents 8/.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

For different reasons, neither Belgium nor Burundi have serious problems of flood control. There is no flood control legislation and legislation on the harmful effects of water generally is limited. Hardly any provisions are noteworthy.

Anyone who plans to undertake works or to use lands in a manner which can have an effect on the flow of water must, before commencing such operations, obtain an authorization from the Minister 9/.

Water sewage works have to meet governmental standards and every work in public streets has to provide ancillary facilities to accommodate the flow of rain-water 10/.

Fishing in the Ruzizi Rivers is prohibited 11/. This prohibition was imposed at the commencement of the dam and hydro-electrical plant operation on those rivers in order to avoid accidents caused by unexpectedly high floods.

1/ Ibidem, s. 3.

2/ Hunting and Fishing, C.L.B. 506.

3/ Ibidem, s. 59.

4/ Ordinance 64/560 of 22 December 1956, Navigation Policy and Survey-Measures of Waterways, Works and Harbour Structures Conservation, C.L.B. 839. The same observation may be done on Ordinance 6/79, 15 December 1924, Lakes Navigation Policy and Survey, C.L.B. 535.

5/ Criminal Code, s. 144.

6/ Minister's Ordinance 060/269, 22 May 1967, International Navigation on Lake Tanganyika with Burundi Flag, s. 1, C.L.B. 843.

7/ Ordinance 79/A.E., 2 October 1930, Mineral Waters, Lemonades, Extracts or Syrups for Drinking or to be Mixed with Waters in order to Produce Lemonades, C.L.B. 700.

8/ Legislative Ordinance 409/TF/UN, 30 November 1943, Inquiry Commission on Rivers and Lakes Navigation, C.L.B. 832.

9/ Ordinance 52/443, s. 1 a), C.L.B. 699.

10/ Ordinance 127/6: Buildings in Urban Areas Regulations, ss. 7-16, 31, C.L.B. 629.

11/ Rwanda-Urundi Ordinance 5520/166, Ruzizi Fishing Regulations, s. 1, C.L.B. 519.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

The Ordinance on Provisions in order to Preserve Sources, Aquifers, Lakes and Rivers and to Prevent Water Waste and Pollution, contains a general prohibition on wasting water 1/.

(b) Health preservation

Health regulations require all persons to keep their houses and the land surrounding it clear in order to avoid the collection of standing waters. The same provision applies in connection with the process of building a house 2/. All brushwood, dirt and refuse likely to impound waters within a fifty-meter radius along the land or the house concerned, has to be removed 3/ and domestic effluents are controlled 4/. The Appendix of the Ordinance on Public Health in Urban Communities 5/ prescribes severe standards for preserving public health with regard to stagnant waters which may constitute a health hazard. For health preservation, packaging of mineral waters is regulated 6/.

Other provisions concern the supply of drinking water and seek to avoid health hazards (e.g. the prohibition of lead pipes, etc.) 7/. Such works, factories and plants as are enumerated in the appendices of the Ordinance on Unhealthy and Dangerous Buildings 8/ may operate with an authorization of the Ministry only, this authorization being subject to a public inquiry when these establishments are classified as being of a size and nature as to fall into the first class as defined in the appendices 9/. For Burundi, noteworthy establishments affected by the Ordinance are coffee processing mills and shoe factories. These provisions were directed against specific types of industries in order to preserve public health as well as to prevent air and water pollution.

(c) Pollution

A general prohibition against the pollution of water is set out in the Civil Code 10/. Discharging polluted effluent is prohibited except with a ministerial permit which may be revoked at any time. This permit is granted after obtaining the advice of the Water Resources Commission 11/.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Burundi's legislation on underground waters does not appear to be particularly comprehensive. As already mentioned, the Civil Code provides that a landowner has no right to waters which, by virtue of mining legislation, are subject to a concession (i.e. mineral waters) 12/.

Minor sources of underground water may be used only by the owner of the land under which the water is located 13/.

1/ See n. 3.

2/ Ordinance 375/Hyg., 10 October 1940, Health, s. 1 (4), C.L.B. 741.

3/ Ibidem.

4/ Ibidem, ss. 3-4.

5/ Ordinance 74/335, 25 June 1959, C.L.B. 735.

6/ Ordinance, 17 October 1911, Packaging, Preparation and Manufacture of Foods, C.L.B. 546.

7/ Ibidem, s. 4.

8/ Rwanda-Urundi Ordinance 41/78, 25 May 1956, C.L.B. 716.

9/ Ibidem, s. 1, 5.

10/ See n. 20 Book II.

11/ Ordinance 52/443 of 21 December 1952, n. 2, C.L.B. 699.

12/ S. 16 (2); and see III (b) above.

13/ Civil Code, s. 18.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

There is no legislation warranting mention under this head except the "Regidese" authority for hydro-electric production and electricity supply, which gives to that body certain powers to control and protect waterworks and structures falling under its jurisdiction 1/.

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

Protected areas for fishing purposes are governed by the Hunting and Fishing Regulations, 1937 2/. Special areas can be reserved for water sports 3/. In regions with high density population or where there is a water shortage that is critical, the use of water, except for primary purposes, is subject to an authorization from the Minister 4/. Finally, basins supplying drinking water are subject to special restrictions insuring their protection and the preservation of sources of water for this purpose.

XII - GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

(a) At the national level

Legal provisions conferring powers governing water use and administration upon the Government often do not specify which Minister in particular is in charge of the overall policy and planning of water resources 5/. "The Minister" is responsible for granting authorizations for the disposal of polluted effluents and it is the Minister of Public Works who in fact exercises this power 6/. The authorizations are granted after receiving the advice of the Water Resources Commission. This Commission was established in 1952 7/. Three of the eight members of the Commission are appointed by the Government, the five others being representatives of the Departments of Agriculture, Public Works, the Legal Office and the Land-Title Office. The Commission acts as an advisory board for the Government 8/ and as a controlling body for surveying and imposing controls on waterworks in order to avoid the waste of water and to increase water use efficiency 9/. Following the granting of a polluted effluent disposal permit, the Minister may determine any compensation to be awarded to any riparian owner adversely affected by such disposal and may prescribe any sewage treatment to be implemented in order to improve the quality of the effluent 10/. The Government may acquire, sell, rent or let any work for using water 11/. It may implement any measure to control water-use rights and rights of occupancy 12/, undertake any improvement on existing private waterworks in order to preserve public safety 13/ and expropriate any land necessary to effect these improvements 14/.

(b) At the local level

The persons entitled to the right of using common waters, (whether this right is accessory to a property right or to a right of occupancy, or was obtained in any other way),

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- 1/ Decree-Law 1/196 of 2 October 1950, Regidese, s. 1.
 - 2/ C.L.B. 606.
 - 3/ C.L.B. 823.
 - 4/ C.L.B. 599.
 - 5/ See, for instance, Rwanda-Urundi Ordinance 111/23 of 10 January 1951, s. 1 C.L.B. 741.
 - 6/ Ibidem, s. 2.
 - 7/ Order of 5 May 1952, Rivers and Lakes Waters Administration and Grants, s. 1, C.L.B. 697.
 - 8/ Ibidem, s. 4 (1).
 - 9/ Ibidem, s. 4 (2).
 - 10/ C.L.B. 699, s. 2.
 - 11/ C.L.B. 697, s. 6 p. 2^e.
 - 12/ Ibidem, s. 5, paragraph 1.
 - 13/ Ibidem, s. 8, paragraph 2 (b).
 - 14/ Ibidem, s. 8, paragraph 2 (d).

may form an association with the object of draining, irrigating or taking flood control measures 1/. These local associations may acquire a legal capacity upon complying with the conditions set out in the special Decree passed in 1952 2/.

(c) At the international level

Burundi is a basin state of the two major river basins of Africa: the Nile and the Zaire (formerly Congo) River.

There is a large number of international treaties relating to sectoral aspects of water utilization of these two river systems. These deal mainly with questions of commerce, trade, sphere of influence on and around the rivers, navigation, boundary demarcation, etc. 3/.

As regards agreements relating specifically to the use, conservation and administration of water resources, these are the following:

(i) Zaire (ex-Congo) River Basin

The General Act of the Conference of Berlin respecting "Freedom of trade in the basin of the Congo navigation of the Congo" of 26 February 1885 4/; as amended by the:

- Agreement regarding water rights on the boundary between Tanganyika and Rwanda-Urundi, signed between Belgium and the United Kingdom on 22 November 1934 in London 5/. In this Agreement, section 1 is a transposition of the riparian rights doctrine into international law; section 2 confirms the priority of navigational uses in international waters; section 3 pays attention to important water quality aspects (i.e. the prohibition of pollution of a mining or industrial nature in common or successive waters of both Tanganyika and Rwanda-Urundi); sections 4 and 5 express the principle of a quantitatively equal division of boundary waters. No permanent board was created by the agreement to administer and control its provisions.
- Convention revising the General Act of Berlin and of the Declaration of Brussels, of 2 July 1890, a multilateral treaty 6/.

(ii) Nile River Basin

Several treaties exist affecting Burundi's international position in respect to the Nile River basin 7/. Those among such treaties which bear more specifically on the conservation, development and utilization of the Basin waters are:

- the Treaty regarding the Boundary between Tanganyika and Rwanda-Urundi 8/.

1/ Ordinance of 6 May 1952, Servitudes on Groundwaters, Rivers and Lakes, and respecting their uses, C.L.B. 694.
2/ Ordinance 52/442 of 21 December 1952, Local Associations provided for in Decree of 6 May 1952 dealing with Servitudes regarding Rivers, Lakes and Underground Waters.
3/ An exhaustive list of these treaties appear in Systematic Index of Treaties governing International Water Resources, Legislative Study No. 15, IAO, Legislation Branch, Legal Office, 1978.
4/ 17 Hertslet, C.T., 62.
5/ 190, LNTS, 103.
6/ 8 LNTS, 25.
7/ The treaties can be found in Systematic Index of Treaties governing International Water Resources,
8/ Signed in London, 22 November 1934 (190, LNTS, 95; 139, HSPF, 748).

and the Agreement regarding water rights on the boundary between Tanganyika and Rwanda-Urundi 1/. Both treaties regulate the three countries rights in their common water bodies; and,

- the Agreement for the Establishment of the Organization for the Management and development of the Kagera River Basin 2/. Under the Agreement, Burundi, Rwanda and Tanzania have joined in dealing with the responsibility for, inter alia, the conservation, development and utilization of the Kagera River basin's water resources 3/.

Finally, Burundi is a Party to the African Convention on the Conservation of Nature and Natural Resources 4/.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

In 1968, a Decree-Law created the Regidese, a governmental agency with a large degree of autonomy entrusted with water exploitation and supply services 5/. This institution has been entrusted with the monopoly of water and electricity supply throughout the country 6/. The Regidese Administrative Council is composed of six members, four of them being representatives of the four Ministere most concerned with water (Public Works, Finance, Planning and Public Health), one representative of industrial users and one representative of individual consumers from Bujumbura 7/. The Minister of Public Works may delegate powers to the Regidese 8/ subject to conditions imposed by him.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

Certain provisions determine the rates to be paid for permits entitling the holders to use water for a specific purpose. An industrial fishing permit costs 20,000 Belgian Francs and one for small scale fishing costs 1,000 Belgian Francs 9/. The Government may fix the charges to be paid by anyone benefiting from the services provided by a governmental water work 10/. Water supply taxes are imposed by the Regidese Administrative Council subject to the approval of the Minister of Public Works 11/. Water and electricity selling prices are periodically determined by ministerial ordinance 12/. Mineral waters are subject to a sales tax in terms of the Sales Tax Order 13/. The rates are determined

- 1/ Signed in London, 22 November 1934, (190 LNTS, 103; ST/LEG/SER.B/12, 97; 139, BPSP, 746).
- 2/ Signed in Ruanda, 24 August 1977, (Communication from the Ministry of Foreign Affairs and cooperation of Rwanda).
- 3/ Ibidem, Art. 2.
- 4/ Signed in Algiers, 15 September 1968, cit.
- 5/ Decree-Law 1/196 of 2 October 1968, Regidese, s. 1, C.L.B. 703.
- 6/ Ibidem, s. 3.
- 7/ Ibidem, s. 6.
- 8/ Ibidem, s. 3.
- 9/ Ministerial Order 050/44 of 16 December 1961, Fishing Regulations in Lake Tanganyika, s. 4, C.L.B. 618.
- 10/ Order of 6 May 1952, Rivers and Lakes Waters Administration and Grants, s. 8 a), C.L.B. 697.
- 11/ Decree-Law 1/196 of 2 October 1968, Regidese, s. 9 d) C.L.B. 703.
- 12/ Minister's Ordinance 040/78, 13 June 1969, Water and Housing Electricity Sale Price, C.L.B. 899.
- 13/ S. 1, paragraph 4 (a), C.L.B. 939.

by the same Order 1/.

When a fishing permit is granted in areas where customary fishing rights exist, the permit fees paid by the permit holder are entirely or partly distributed among those who have these customary fishing rights 2/.

XV - WATER LAW IMPLEMENTATION

In Burundi, the juridical protection of existing water rights, water disputes and the modification and reallocation of water rights, follow normal judicial process and court procedure, and conform to general legal principles. However, there are some special provisions in the Civil Code in this connection 1/; e.g. when a watercourse flows in a new bed, this bed becomes public property, subject to payment of compensation to the land owners suffering loss from such new flow. The amount paid takes into account the value of the old bed left by the watercourse. The District Court has power to create and determine the scope of servitudes 4/.

Some special procedural rules are set out in the Code of Procedure 5/; any person not of Burundi nationality can be sued before Burundi tribunals in cases of collision in foreign waters if his ship is in Burundi waters at the time of the writ of summons 6/; any lake or any watercourse used as a border between two judicial districts is considered as being part of both districts 7/.

There are numerous penal provisions which may be classified according to the following major types of offences: a) acts done without a permit when such a permit is necessary 8/ (the fines range from one to 2,000 Belgian francs and/or imprisonment from seven days to two months); b) acts prohibited by the relevant legal provisions (boating in areas reserved for swimming is punished by a fine of 2,000 Belgian francs and/or imprisonment of two months) 9/; c) offences against navigation regulations (the hindering or obstructing

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- 1/ Ibidem, n. 4bis.
 - 2/ Hunting and Fishing, nn. 59, 63, C.L.B. 606.
 - 3/ Book II n. 1', C.L.B. 69.
 - 4/ S. 19, C.L.B. 694.
 - 5/ Code of Procedure n. 149, C.L.B. 227.
 - 6/ Ibidem, n. 149 (110.) C.L.B. 221.
 - 7/ Ibidem, n. 137, C.L.B. 226.
 - 8/ Ordinance of 1 July 1954, Rivers, Lakes, Sources Pollution and Contamination, n. 1, C.L.B. 696 (special protection of potable waters; fine of maximum 200 Belgian francs and/or imprisonment of seven days);
Ordinance 52/443 of 21 December 1952, Provisions in Order to Preserve Sources, Aquifers, Lakes and Rivers, to Prevent Water Waste and Pollution, to Control Use Rights and Granted Occupancy Rights, n. 1 (c) (high density population areas or water supply crisis regions: maximum 1,000 Belgian francs fine and/or imprisonment of 15 days);
Rwanda-Urundi Ordinance 44/78 of 25 May 1956, respecting Unhealthy and Dangerous Buildings, C.L.B. 716 (fine of maximum 2,000 Belgian francs and/or imprisonment of one month);
Rwanda-Urundi Ordinance 111/23 of 10 January 1961, Drinking Water Supply Restrictions, n. 2, C.L.B. 741 (fine of maximum 200 Belgian francs);
Hunting and Fishing, n. 69, C.L.B. 605 (concerning fishing: fine of maximum 100 Belgian francs and/or imprisonment of one month; may be doubled if offences occur in a protected area or by certain persons specified in the Decree).
 - 9/ Water Sports Regulations 271/259, n. 3, C.L.B. 243.

of freedom of navigation constitutes an offence and a person convicted is liable to a fine of up to 500 Belgian francs and/or imprisonment for up five years ^{1/}; and the captain of any boat coming into Burundian territorial waters with a flag other than one recognized by Burundi may be convicted and sentenced to a fine of up to 2,000 Belgian francs or to imprisonment for two months ^{2/}; finally, d) the failure to maintain legally required conditions to prevent the collection of standing water in the vicinity of a private property also attracts a penalty of a fine up to a maximum of 2,000 Belgian francs and/or imprisonment for two months ^{3/}.

^{1/} Criminal Code, s. 144, C.L.B. 180.

^{2/} Minister's Ordinance 060/269 of 22 May 1927, International Navigation on Lake Tanganyika with Burundi Flag, s. 9, C.L.B. 843.

^{3/} Ordinance 14/339 of 26 June 1959, Public Health in Urban Communities, s. 10, C.L.B. 739.

ETHIOPIA 1/

I - INTRODUCTION

Ethiopia is the homeland of many cultures; the Semitic and Hamitic, the Nilotic and tribal, the pagan and the Muslim, the Judaic and the Christian and there are no less than eight distinct language groups. The country has an area of about 1 250 000 square kilometers and an estimated population of 27 million. It is located in the eastern part of Africa between 3°30' and 18°12' north and 32°41' and 46°21' east. Its major neighbours are Sudan, Kenya and Somalia. Its coastline (consisting of the territory of Eritrea) lies along the Red Sea, which forms the north eastern border of the country.

(a) History

The history of Ethiopia probably began in Arabia. The original settlers are said to have come from there in the first millennium before Christ and were an off-shoot of the Sabean civilization of south-west Arabia. It is not necessary for the purpose of this study to trace the country's history; suffice it to say that the confusion in which the country found itself in 1930 was terminated by Ras Tafari, who was crowned emperor in that year, using the crown name, Haile Selassie. His rule lasted until 1974, surviving the Italian occupation of 1935 and the Second World War, during which the emperor took exile in England. A military coup eventually deposed him, suspended the Constitution, dissolved Parliament (on 12 September 1974) and established the Provisional Military Government of Socialist Ethiopia.

In 1973-1974 disastrous droughts were experienced throughout the country and the Government, with the assistance of friendly countries and international organizations, has undertaken a rehabilitation and settlement programme 2/.

(b) Geography

Ethiopia's shape approximates that of an equilateral triangle with an expanding bulge in its base. The great Rift Valley which runs from south-west to north-east divides the country into two plateaus forming the smaller eastern highlands (an oval area in the centre of the country), the eastern and the longer western highlands (taking up roughly the western half). The eastern highlands slope to the south-east towards the Indian Ocean and

1/ Based on the study prepared by Dante A. Caponera, Chief, Legislation Branch, FAO, Rome.

2/ Economic Commission for Africa, United Nations Water Conference African Regional Meeting, Addis Ababa; 20-25 September 1976, Ethiopia Country Report, p. 1, (hereinafter referred to as Ethiopia Country Report).

the western highlands slope in a generally north-westerly direction towards the Sudanese Plain. The dry lowlands of the Kola occupy the eastern and southern parts. The varied topography offers an extremely wide range in altitude from the Danakil Depression at 330 ft below sea level to the highest point at 13 000 ft above sea level. These differences in altitude and relief contribute to a wide variation in climate and annual rainfall in the various regions, assisted also by Ethiopia's geographical location. Average annual rainfall ranges from below 200 mm along the eastern border and the coastal areas (both low in altitude) to more than 200 mm in the higher regions of the centre and south-west 1/.

There are three main climatic divisions: the dega (the high and cold region); the weyna dega (a lower cool region) and the kola (low and hot region). The dega lies mostly in the northern half of the plateau from 7 500 to 15 000 feet where precipitous valleys isolate district from district and even village from village. The temperature is cool and equable, varying from 68° F to some degrees of frost at the highest points although at midday and the early afternoon, even at 10 000 feet, it can be quite hot. The eastern high country is bleak and barren, while towards the west it is fairly well wooded. This is cereal country where oats, barley, wheat and cattle breeding occur with cultivation generally ending at about 9 000 feet but sometimes carried on at a higher altitude. The plateau has the advantage of a heavy rainfall of an average of 45 inches a year or more, lasting mainly from July to September and then continuing for the following six months.

The weyna dega, ranging from a temperate to sub-tropical climate and lying to the north, is the most attractive area climatically and also in appearance and fertility. The valleys are more open, the hills more gentle (between 5 000 and 7 500 feet in height) and there is more forest. European and Mediterranean fruits and vegetables are grown as well as harder cereals in the higher points and maize and coffee which grow wild in the Kaffa forests. Both temperature and rainfall are more moderate than in the north, the latter ranging between 31 inches (for Harar) and 70 inches (in the west). The climate of this zone is usually considered to be the predominant one of Ethiopia since it covers the largest climatic regions and has the highest population density 2/.

The kola or hot region is the dry and desert country at the south and eastern edges of Ethiopia. About one third of Ethiopia's surface area is desert or semi-desert. Much of Eritrea, with the Danakil, the Somali and Ioran country falls within the kola. Mostly below 5 000 feet, the land consists of poor, infertile sands. The temperature is rarely below 65° F. The coastal areas rank among the hottest in the world, especially during the season of the hot wind (khared). Rainfall never exceeds 10 inches and then only in the higher areas. The kola includes the Galla-Somali plain which leads like a vast platform from the low hot desert edge in the east to the south-western point; a pastoral region, it produces fat-tailed sheep and camels for meat, milk and transport. Nomadism varies according to rainfall and pasturing. If the low rainfall in this region falls below normal in any of the two rainy seasons during the year (April-May and October-November) the effect on the livelihood of the inhabitants is immediate and severe 3/.

1/ Ibidem, p. 1.

2/ Ibidem.

3/ Ibidem.

Throughout the country there is a pronounced and often lengthy dry season. Consequently, there is a great need for water conservation for both water supply and directly productive purposes ^{1/}. As a result of Ethiopia's physical features and the concentration of precipitation within a few months of the year, the distribution of run-off becomes highly uneven - there is an abundance of water at the time when needs are minimal and less when its needs are greatest - so that systematic water resources control and development is of the earnest importance.

(c) Water Resources

The water resources of Ethiopia consist of 14 basins, each one of them having the following drainage area in square kilometers and annual run-off in $m^3 \times 10^9$:

1. Red Sea (44 000 square kilometers);
2. Danakil (69 000 square kilometers);
3. Awash (113 700 square kilometers);
4. Gulf of Aden (2 000 square kilometers);
5. Ogaden (71 900 square kilometers);
6. Kabi Shebelle (205 400 square kilometers and 2.5);
7. Juba (Female-Dam, 168 100 square kilometers);
8. Central lakes (54 900 square kilometers);
9. Gibe-Omo (77 200 square kilometers and 16.1);
10. Baso-Akobo (75 100 square kilometers and 13.4);
11. Blue Nile and tributaries (196 500 square kilometers and 33.0);
12. Atbara-Tekese (87 800 square kilometers and 4.0);
13. Mareb-Dash (25 500 square kilometers and 0.6);
14. Barka (41 400 square kilometers);

for a total drainage area of 1 233 200 square kilometers ^{2/}.

The rivers are, generally unnavigable with some exceptions, as in the case of the Sobat River, a tributary of the Nile, which is navigable for part of the year and for a short distance into Ethiopia.

The flow, topography and soils related to the country's rivers provide a significant potential for the development of irrigated agriculture, although major works have been undertaken only in the basin of the Awash Valley situated in the Rift Valley which contains a chain of lakes (Stefanie, Abaya, Chazo, Zwai).

Due to Ethiopia's topography and rainfall levels in the center and west of the country, there is also considerable potential for the development of hydro-electric power ^{3/}.

^{1/} Ibidem, p. 2.

^{2/} Ibidem.

^{3/} Ibidem, p. 7.

Groundwater resources are also present and in the last 25 years over 1 000 boreholes have been dug 1/.

(d) Legal history

On 16 July 1931, a few months after Emperor Haile Selassie's coronation, the first written constitution in the 3 000 year old history of Ethiopia was promulgated. On 4 November 1955, a revised constitution was introduced providing for a constitutional monarchy.

The constitution of 1931 partly resembled that of the Japanese Empire of 1889 which in turn had followed the 1871 constitution of the German Empire. The revised constitution of 1955 was a liberal modification of the earlier constitution with the addition of many modern concepts such as that of checks and balances, with the bill of rights and the establishment of an independent judiciary 2/. This constitution was suspended on 12 September 1974, but is to some extent still in force except whenever inconsistent with the requirements and aims of Socialist Ethiopia.

Ethiopia has four types of statute law. An "Order" is the form for legislation within the power of the Executive; a "Proclamation" is substantive legislation passed by Parliament and approved by the Executive; a "Decree" is when the Executive promulgates substantive legislation "in cases of emergency that arise when the Chambers are not sitting" and a "Legal Notice" is used mainly for the publication of rules or regulations and municipal law, authority for which has been delegated to various government officials 3/.

II - LEGISLATION IN FORCE

Water resources development, conservation and use in Ethiopia need to be governed, directly or indirectly, by the following legal enactments:

1. Revised Constitution of Ethiopia of 1955, p. 145, art. 130.
2. The Civil Code, Proclamation No. 165 of 1960, arts. 1228-1256.
3. Decree No. 1 of 1942 on Municipalities, art. 9.
4. The Ministers (Definition of Powers) (Amramoni) Order 1966, arts. 16-34. (See also Order No. 1 of 1943 defining the powers and duties of the Ministries).
5. Legal Notice No. 82 of 1945 establishing fees payable for water and licences for services rendered by the Addis Ababa municipality and further amendments of General Notice No. 98 of 1946, Legal Notices No. 112 of 1947 and No. 167 of 1948 also called "Addis Ababa Water Rates, Licences and fees amendment Order 1952".

1/ Ididem, p. 4.

2/ Prof. K. Redden, et al., The Law Making Process in Ethiopia, 1966, pp. 2 - 3.

3/ K. Redden, et al., op cit, p. 5.

6. Legal Notice No. 91 of 1945 (creating "Water Authorities").
7. "Water Rules 1945" issued by the Minister of the Interior pursuant to art. 9 of the Municipalities Proclamation 1945 (No. 12 of 1945).
8. Public Health Rules 2/13 (1943) rule 3.
9. Public Health Proclamation 6/12 (1947) Part I - 2 (ii) and 2 (iii), and Part II - 7 (i).
10. Municipal Public Health Rules 10/1 (1950) rules 2, 3 and 6.
11. Legal Notice No. 146 of 1953 called "Municipal Rules regarding waters".
12. Proclamation No. 115 of 1951 creating the "Imperial Highway Authority".
13. Order No. 12 of 1953 called "Our Maritime Order".
14. Charter creating the Ethiopian Electric Light and Power Authority 15/7 (1956) G 213, art. 3.
15. Malaria Eradication Order 18/6 (1959) art. 5 (3).
16. The Electricity Proclamation 4/6 (1962) p. 20, art. 2 which defines "works" as including inter alia dams and other objects of whatever description required to supply electrical energy.
17. Industrial and Agricultural Development 21/1 (1962) 3299, being the Charter of the Awash Valley Authority published by General Notice No. 299 of 1962 and Proclamation No. 298 of 1972.
18. Livestock and Meat Board Proclamation 23/13 (1964) arts. 3 (1) and 3 (5).
19. State Forest Proclamation 24/17 (1965) preamble.
20. Private Forest Conservation Proclamation 24/17 (1965) art. 5 (d).
21. Protective Forests Proclamation 24/17 (1965) art. 4.
22. Institute of Agricultural Research Order 25/8 (1966) O.42, arts. 3 (2) (a) and (f).
23. Planning Commission Order No. 63 of 1970.
24. Addis Ababa Water and Sewerage Authority Order No. 65 of 1971; Proclamations Nos. 298 and 306 of 1972, and Regulations in Legal Notice No. 432 of 1971.
25. Mining Proclamation of the Empire of Ethiopia No. 282 of 1971, arts. 4 and 6 (a).
26. Water Resources Commission Order 1971, creating the Ethiopian Water Resources Agency.
27. Proclamation No. 31 of 1975 to provide for the Public Ownership of Rural Lands.
28. Legal Enactment creating the Ethiopian Valleys Development Authority - VADA 1976.

III - OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

(a) Surface water resources

The provision of the constitution to the effect that the natural resources of, and in, the subsoil of Ethiopia, including those beneath its waters, are State Domain and that the natural resources in the waters, forests, lands, air, lakes, rivers and ports of Ethiopia are regarded as being a sacred trust for the benefit of present and succeeding generations of the Ethiopian people 1/, would seem to imply that water is not a natural resource for the purpose of the relevant article. However, the Constitution also provides that all property not held and possessed in the name of any person, natural or juridical, (including all land in escheat and all abandoned properties, whether real or personal, as well as all products of the subsoil, all forests and all grazing lands, water courses, lakes and territorial waters) is also State Domain 2/ and from this it would seem that water, insofar as it is not owned by any person, is State Domain.

The difference between public and private waters is not clearly defined nor is it clear whether the provision relates to appropriated or non-appropriated waters, or both. However, the Civil Code and other legal enactments do recognize the existence of privately owned waters 3/.

The Civil Code provides that water shall be private property where it is collected in a man-made reservoir, basin or cistern from which it does not flow naturally 4/. The other Civil Code's provisions are only a sketchy codification of law on the ownership and use of water 5/. Inter alia, it provides that nothing shall affect the provisions of the Code relating to the collective exploitation of irrigation and drainage areas and that nothing shall affect any special laws and administrative regulations, whether of general or local application 6/.

1/ Revised Ethiopian Constitution promulgated on 4 November 1955, art. 130 (a) and (b).

2/ Ibidem, art. 130 (d).

3/ D.A. Caponera's Report to the Imperial Government of Ethiopia on Water Control and Legislation, F.A.O. Report No. 550, October 1956. (Hereinafter called: D. Caponera, F.A.O. Report, 1956).

4/ The Civil Code, Proclamation No. 163/1960, art. 1229.

5/ Ibidem, art. 1230 (2).

6/ Ibidem, art. 1230 (3). For a critique of the illusory quality of the codification mechanism generally, see A.T.V. Mehren, The Potential and Limitations of Codification, 5 J. Eth. L. 195 (1972) in which the writer also addresses himself to the Ethiopian Civil Code; for a historical review of the Code see R. David, Sources of Ethiopian Civil Code, 4 J. Eth. L. 347 (1967). He states that "rules were borrowed from the former Turkish Civil Code (Madjalle), and from the Iranian Civil Code concerning the ownership of water (p. 345)". He also states that rules governing water rights (inter alia) are "original" in that they are based neither on Ethiopian customs nor on provisions of foreign legal systems. In relation to water legislation "it was thought imperative to establish rules, but Ethiopian customs did not offer a solid basis.... and the regulations found in western countries were unsuitable".

In 1975 the Public Ownership of Rural Lands Proclamation ^{1/} was promulgated providing that all rural lands shall be the collective property of the Ethiopian people. This will have consequential effects upon the ownership of private water in rural areas.

(b) Groundwater Resources

In general, underground accumulations of water and underground rivers form part of the public domain. There is little legislation on the subject of groundwater.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of Acquisition ^{2/}

The right to use water is acquired either through possession or occupation of the land on which the water is located or through the granting of a concession, permit or authorization from the competent authority.

A number of concessions for utilizing water have been granted to private corporations or individuals. These concessions are granted to applicants either directly by the landowners or by one or more Ministries or Agencies, and contracts, called by such names as contract of concession, lease concessions, joint investment agreements, etc. are entered into. Generally, no specific reference is made in concession to the amount of water for diversion and use. Some of them, however, mention that the concessionaire may use such quantities of water as are necessary to irrigate that are included in the land grant ^{3/}.

The Civil Code provides that the community shall have priority in the usage of all running and still water and that such water shall be controlled and protected by the competent authority ^{4/}. The conditions on which water may be appropriated or used and the rights of use or servitudes to which it may be subject shall be as laid down in the Code ^{5/}.

An owner who wishes to use water which does not cross or border his land for domestic, irrigation or other purposes, may apply to the court for permission to bring such water through another person's land against payment in advance of a fair compensation ^{6/}. The Court takes into account all the circumstances of the case for determining the siting and nature of the pipes which are to be installed so as to reduce to a minimum any damage to owners whose land they cross and shall, as far as possible, avoid land on which there are buildings, gardens or yards. Owners whose lands are crossed by pipes are entitled to compensation, the amount of which is to be fixed in the light of the value of the land or which the owners are permanently deprived and the inconvenience caused to an owner by the installation and maintenance of the pipes ^{7/}.

^{1/} No. 31 of 1975.

^{2/} Legislation on this point is somewhat patchy. Although the relevant provisions are described in this section, reference should also be made to the section on customary law in XVI below.

^{3/} D. Capocera, *op cit*, F.A.O. Report 1956, p. 7.

^{4/} Civil Code, art. 1278.

^{5/} *Ibidem*, art. 1270 (1).

^{6/} *Ibidem*, art. 1252.

^{7/} *Ibidem*, art. 1253.

(b) Water use authorizations, permits or concessions

There is no centralized or administrative system for recognizing or granting the right to use water. There is also no definition of procedures for the recognition of existing water use rights and for the granting of water use permits, authorizations or concessions 1/, although these are granted from time to time.

In Eritrea, the use of public water is possible only after a water right has been granted by the Government. The water right stipulates the conditions to be followed by the concessionaire for diverting public water. The concessions are granted by the Public Works Department, Directorate of Economic Affairs. Regional applications, including survey at the expense of the applicant, may grant a concession for diverting or utilizing water. These concessions may be renewed or withdrawn for various reasons and at their expiration the relevant works may become the property of the State.

Local uses and customs with regard to the watering of animals and to the use of water for domestic purposes are recognized and respected insofar as they are not in conflict with the provision contained in the relevant water legislation.

V - ORISH OF PRIORITIES

(a) Between different uses

A landowner having water in excess of his domestic needs is under an obligation to give his neighbours the water indispensable for their domestic use where they cannot get water elsewhere except at an excessive cost 2/. The landowner concerned is entitled to regulate this right in a reasonable manner and may require fair compensation where his rights are notably reduced or impaired by the neighbours' exercise of their right 3/.

Domestic use and the watering of cattle supercedes the right of irrigation 4/.

The Addis Ababa Water and Sewerage Authority is empowered to establish priorities as to uses and categories of users of water and the system of sewers 5/.

(b) Between different rights

Vested rights take priority over irrigation. Where the use of water for irrigation is or may be detrimental to persons downstream who use such water for non-domestic purposes such persons may, on showing the existence of vested rights to their benefit, object to the water being used for irrigation. Such vested rights are deemed to exist where apparent or noteworthy works for installations have been effected with a view

1/ D.A. Caponera, Report to the Imperial Government of Ethiopia on Water Resources Policy, Administration and Legislation with particular reference to the setting up of a National Water Resources Council, Commission and Secretariat and to the strengthening of the Awash Valley Authority, F.A.O., Rome, 1969. (Hereinafter called D. Caponera, F.A.O. REPORT, 1969, p. 7 - 8.

2/ Civil Code, art. 1233 (2).

3/ Ibidem, art. 1234.

4/ Ibidem, art. 1236 (2).

5/ Proclamation 298 of 1972, art. 4 (8).

to using the water for such purposes 1/. On proving such rights, the court must order works or installations done on the land upstream to be dismantled or rendered ineffective to the extent that they are incompatible with such vested rights 2/. In this case the upper owner is entitled to compensation, fixed in accordance with equity, having regard to all the circumstances of the case and, in particular, the decrease of the land value resulting from any prohibition and any profit derived therefrom by any downstream holder of the vested right 3/.

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Domestic and household uses

A landowner may use the water on, below, running through or bordering his land for his personal use, that of the persons living with him and for watering his cattle 4/. A landowner who has water in excess of what he requires for domestic purposes shall give his neighbours the water indispensable for their domestic use where they cannot get water elsewhere except at an excessive cost 5/.

(b) Municipal uses

Very important municipalities (e.g. Addis Ababa, Anzera, Harrar, Gimma, Dessié, etc.) have direct and autonomous responsibilities and services in connection with municipal water supplies. They are, therefore, important and autonomous water users directly involved in any national or basin water programme or activity 6/.

The municipalities have been given responsibility for control and jurisdiction, (through the kantibas (mayors) and the municipal officials) over the construction, maintenance, and repair of waterworks, for the diversion, utilization, and distribution of water supplies in towns and municipalities 7/.

(c) Agricultural uses

An owner whose land is crossed or bordered by running water may use such water for irrigating his land, provided such right is not exercised to the detriment of those downstream for their domestic use or to water their cattle 8/.

Many rights to use water for irrigation are given by way of concessions 9/. However, these concessions do not specify the exact volume of water. As a consequence, as soon as the total area of the lands included in a concession is put under extensive cultivation, every concessionaire will be in need of all the waters bordering or crossing his concession and water rights conflicts are likely to arise.

1/ Civil Code, art. 1237.

2/ *Ibidem*, art. 1238.

3/ Civil Code, arts. 1239 and 1240.

4/ Civil Code, art. 1232 (1).

5/ *Ibidem*, art. 1232 (d).

6/ D.A. Gaponera, *F.A.O. Report, 1969, op cit, p. 5.*

7/ Decree No. 1 of 1942, art. 9, paragraph 74. Also Municipalities Proclamation No. 74 of 1945.

8/ Civil Code, art. 1236.

9/ See IV above.

A summary of the most important concessions as they existed in 1956 has been reported ^{1/}. Along the streams of Ethiopia there is a large number of flour mills utilizing water. The Ethiopian law provides for their registration in the Ministry of Industry and Commerce but not for recognizing or granting the rights to use waters. Often, the water use by these mills created a large number of conflicts or water rights in respect of other agricultural users.

The Minister of Agriculture is responsible for encouraging and undertaking, in cooperation with other ministries and public authorities concerned, irrigation and drainage works designed to foster and improve agricultural development ^{2/}.

The Livestock and Meat Board is empowered to construct, own, lease and operate stock pens and to demarcate and establish livestock routes with watering points and reserved grazing areas ^{3/}.

(d) Fishing

The Civil Code provides that the right to fish and to sail on rivers and lakes shall be subject to the provisions of special laws ^{4/}. The Minister of Agriculture is responsible for the promotion and development of fisheries. He is also responsible in cooperation with other ministries and public authorities concerned, and in accordance with established procedures, for negotiating and concluding inter alia fishing concessions ^{5/}.

(e) Hydropower

The mountainous character of Ethiopia together with the many opportunities for harnessing water affords a potential for the production of a large amount of hydropower ^{6/}.

Only those undertakings which have been granted a concession by the competent authority may do work on rivers with a view to distributing, carrying or selling hydro-electric power ^{7/}. The relevant legislation contains no express reference to hydro-electric power. However, "works" are defined as including dams, pipelines, buildings, machinery, and other objects of whatever description required to supply electricity ^{8/}.

(f) Industrial and mining uses

(1) Industrial

The owner of land which is crossed or bordered by water may use such water for industrial or commercial undertakings such as watermills, wash-houses or mining establishments. He shall ensure that the water flowing from his land is unspoiled and fit for the uses to which it may normally be put ^{9/}. Where he prevents the flowing of water

^{1/} D.A. Cameron, FAO Report, 1956, op cit, p. 7-9 (2). Note that this study was made in 1956. Some of these concessions involve uses for other than irrigation purposes, but they are mentioned here for the sake of convenience.

^{2/} Ministers (Definition of Powers) (Amendment) Order 1966, art. 27.

^{3/} Livestock and Meat Board Proclamation 23/13 (1964) art. 3 (1) and 3 (5).

^{4/} Civil Code, art. 1256.

^{5/} Ministers (Definition of Powers) (Amendment) Order 1966, art. 27.

^{6/} Country Report, op cit, p. 6.

^{7/} Civil Code, art. 1254.

^{8/} Electricity Proclamation 1/6 (1942).

^{9/} Civil Code, art. 1242.

from his land or the water flows spoiled or unfit for certain uses, the provisions of the Code regarding the use of water for irrigation, apply 1/ but he shall not be entitled to any compensation except for the works or installations prohibited by the Court which have been constructed in good faith without the persons downstream objecting 2/.

(ii) Mining

A 1971 Mining Proclamation contains comprehensive provisions to facilitate the development of mineral resources. It applies to and governs the conduct of mining activities in Ethiopia (including the sea bed and subsoil of the submarine areas beneath the high seas contiguous to its territorial waters) relating to the prospecting of, exploration for and the mining, storage, processing, transportation and disposal of minerals (including mineral water and thermal water). A mining right shall not be superimposed on other mining rights except as regards inter alia mineral water and thermal waters 3/.

(iii) Recreational uses

There does not appear to be any major regulation governing recreational uses. The only relevant provision is apparently the one that the right to sail on rivers and lakes shall be subject to special laws 4/.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

(a) Flood control, overflow and bank protection

Nearly 180 000 million cubic metres of water cross Ethiopia's borders annually. The major part of this flow occurs during a relatively short period. Floods, as a consequence of high concentration of precipitations and other physical features cause heavy damages to the modest traditional developments along the river channels 5/.

The Protective Forests Proclamation 6/ provides for the declaration of a "protective forest" by the Minister of Agriculture when the creation of permanent vegetative cover on the land is deemed indispensable to insure inter alia the control of floods.

Also, the Addis Ababa Water and Sewerage Authority has wide powers, in case of emergency as determined by it, to take appropriate measures to control water shortages; however, the possibility exists that these powers may also be used in times of flood 7/.

1/ Idem, art. 1241 (1). For such provisions see "Irrigation" under V above.

2/ Idem, art. 1241 (2).

3/ Mining Proclamation No. 289/1971 (Negeril Gazette of 12 March 1971, p. 65), arts. 2 (a), 4 and 5 (a).

4/ Civil Code, art. 1256. See also VI (d) above.

5/ Country Report, op cit, p. 7.

6/ Proclamation 24/VI (1965) p. 227 art. 4.

7/ Addis Ababa Water and Sewerage Authority Order No. 66 of 1971.

(b) Soil erosion and siltation

The Preamble to the State Forest Proclamation 1/ states that the "conservation of forests is necessary to protect the soil from erosion, deflation and desiccation and to balance its water regime."^{1/} The Private Forest Conservation Proclamation 2/ prohibits the denial of a forest exploitation permit by the Agricultural Ministry except where maintenance of the forest is necessary for inter alia the conservation of the soil and its protection from erosion, deflation or desiccation and the protection and continued existence of springs and water courses.

In the same provision already described in (a) above, the Protective Forests Proclamation 3/ provides for the declaration of a "protective forest" by the Minister of Agriculture where the creation of a permanent vegetative cover on the land is deemed indispensable to assure inter alia the conservation of the soil and its protection from erosion, deflation or desiccation and the conservation or improvement of the water regime through the protection or development of watersheds, catchment areas, springs, watercourses and water reservoirs.

(c) Drainage and Sewerage

The owner of a building is obliged both to build the roof of it in such a way that rainwater from it fall on his and not his neighbour's land and to make such gutters or pipes as may be necessary to bring the water to public sewers 4/. The owner of land on a low level is obliged to accept the flow of water from land on a higher level where such water flows naturally and not artificially and it is specifically provided that he may not set up a dike to prevent such flow 5/. On the other hand, the owner of the upper land may not increase the responsibilities of the landowner below 6/.

Where the owner of the upper land constructs drainage works on his land, the landowners below are obliged to accept without compensation the water flowing from them, although the upper landowner must construct such works in such a way as to reduce to a minimum the potential damage to lower landowners. Where the water would normally run on land on which buildings are erected or on gardens or yards related to such buildings, a lower landowner may require that the water be evacuated by means of underground pipes 7/. This also applies where the upper landowner creates springs on his land by boring or underground works 8/.

The Addis Ababa Water and Sewerage Authority is empowered to regulate the disposal of sewage and in particular to require owners to make connections to the system of sewers provided by it 9/.

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- 1/ Proclamation 24/17 (1965) p. 225.
2/ Proclamation 24/17 (1965) p. 226, art. 5 (d).
3/ Proclamation 24/17 (1965) p. 227, art. 4.
4/ Civil Code, art. 1245.
5/ Ibidem, art. 1266 (1) and (2).
6/ Ibidem, art. 1246 (3).
7/ Ibidem, art. 1247.
8/ Ibidem, art. 1248.
9/ Proclamation 298 of 1972, art. 4 (7).

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL.

(a) Health preservation.

The public health services are defined as including sanitation which, in turn, is defined as including "the surveillance of foodstuff and beverages and of the methods employed for the water, wells, drainage, garbage and sewerage systems"; the duties of the Ministry of Public Health include the study of "the sanitary conditions throughout our Empire" 1/. A medical officer of health may require any well to be closed if, in his opinion, such well is or about to become dangerous to public health 2/.

No person may offer to the public for drinking any unsafe water or water from an unsafe source, or water from a source which in the opinion of the Municipal Public Health Office is liable to become unsafe. The discharge of sewage into the natural watercourses crossing the town is prohibited without the prior issue of a permit by the prescribed authority. The discharge of sewage into any cesspool or abandoned well more than ten metres deep, is prohibited 3/.

The Minister of Public Health is empowered to drain swamps, pits, ponds, lakes or other bodies of water for eliminating breeding places for malaria-carrying mosquitoes 4/. He is also competent to inspect waterworks and to take appropriate measures in order to prevent the spreading of communicable disease. It is a criminal offence to wash in or contaminate the source of a water supply 5/.

(b) Pollution

The first provisions for pollution control refer to water quality for domestic use. The Water Rules 6/ make it a criminal offence to wash in or to contaminate a source of water supply. The Adolfo Abata Water and Sewerage Authority 7/ is obliged to supply potable water for drinking and other domestic purposes, to conserve underground water to safeguard it from exploitation and prevent its contamination, and to ensure the sanitary disposal of sewage. It also has the power to provide for the protection of water against pollution, contamination and wastage, "to regulate the disposal of sewage and in particular to require owners to make connections to the system of sewers provided by it" 8/.

It has been noted that abatement and control of pollution and of water-borne or related diseases such as malaria, schistosomiasis, etc. are not adequately connected and coordinated between the Ministry of Health and other water resources institutions 9/.

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- 1/ Public Health Proclamation 6/42 (1947) p. 91, Part I, 2 (ii) and (iii) and Part II, 7 (i).
 - 2/ Public Health Rules 2/11 (1943) L. 25 Rule 3 (p. 1053).
 - 3/ Municipal Public Health Rules 10/1 (1950) L. 146 Rules, 2, 3 and 6 (pp- 1061-2).
 - 4/ Malaria Eradication Order 18/6 (1959) art. 8 (d) p. 1097.
 - 5/ Public Health Proclamation No. 91 of 1947, s. 7; Public Health Rules L.N. No.156 of 1957, p. 6 (c).
 - 6/ Water Rules 1945, issued by the Minister of the Interior.
 - 7/ Ibidem.
 - 8/ The AWSA Order of 1971, art. 5.
 - 9/ The AWSA Proclamation of 1972, art. 4 (6) and (7).

A person entitled to use a well, spring or other water, whether running or still, may object to the construction of any work such as a sewer or latrine, capable of polluting the water used by him, and may require any such work done in disregard of his rights to be destroyed 1/.

(c) Environmental protection

In terms of the Constitution the Government is charged with the duty of taking appropriate measures to conserve the natural resources of the country, including water and to prohibit exploitation of them otherwise than in conformity with legally established principles of conservation 2/.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Underground water forms part of the public domain 3/. No person may without permission undertake on his land any drilling exceeding one hundred metres in depth 4/. The Addis Ababa Water and Sewerage Authority may grant permission to any person to dig waterwells for personal use within its jurisdiction after the Authority has obtained and registered the structural and site plan of the well and has decided on its propriety. The Authority may prohibit the extraction of underground water, the digging of wells, or the use of water from wells if it determines that the water therefrom is either to be used for commercial purposes or is contaminated or polluted and, in the latter cases, may order the closure of such wells 5/.

In some parts of Ethiopia, the digging of wells by hand is traditional, and their use is governed by customary law 6/.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

Only a few provisions regulate, indirectly, the control and protection of waterworks and structures. An owner who requires water bordering on his land for irrigation or other purposes may build the works necessary for the taking of water, also on the neighbouring riparian land. He is entitled to have access to the neighbouring land for constructing or maintaining such works. The neighbour is entitled to compensation where the works constructed on his land deprive him permanently of part of his land and/or where he is unduly or unreasonably inconvenienced as a neighbour by the size or duration of such works 7/.

1/ Civil Code, art. 1235.
2/ Constitution, arts. 130 (b) and (c).
3/ Civil Code, art. 1255 (1).
4/ Ibidem, art. 1255 (2).
5/ Proclamation 298 of 1972, art. 5.
6/ See Part XVI.
7/ Civil Code, arts. 1249 and 1250.

The owner on whose land works are to be constructed shall bear one half of the costs of the building and maintenance where such works are for his own benefit. Where the owner of land wishes to use such works to his own benefit during construction or after completion, he shall bear the costs arising from any change in the works required to adapt them for his use 1/.

The Addis Ababa Water and Sewerage Authority has the power to construct, manage, maintain and develop waterworks and sewerworks 2/.

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

(a) Protective Forests

The Protective Forests Proclamation 3/ provides for the declaration of a "protective forest" by the Minister of Agriculture when the creation of permanent vegetative cover on the land is deemed indispensable to ensure soil conservation, the protection of water sources or works, the control of floods or the protection of sea sand.

(b) Defined Areas

In terms of the "Water Rules" defined areas under the jurisdiction of water authorities may be established within which special regulations may be applied, prohibiting washing, bathing and throwing foreign matters in waterworks or catchment areas 4/.

(c) Collective Improvement Zones

These are zones where the rules of the Civil Code normally applicable to the use of irrigation or drainage works are supplanted by the provisions of the Charter of the relevant Association of Land Owners 5/.

(d) Emergencies

The Addis Ababa Water and Sewerage Authority is also empowered, in case of emergency as determined by it, to requisition springs, rivers, wells, or other sources of water and any supply equipment or material necessary to cope with the emergency and use them only for the period of emergency provided, however, that the owner of such facilities, supplies, equipment and materials shall have the right to request just compensation for the requisition and use of said facilities and for any damage to other properties during the period of emergency 6/.

1/ Idem, art. 1251.

2/ Order No. 68 of 1971, art. 6 (d).

3/ Proclamation 24/17 (1965) p. 227 art. 4.

4/ Water Rules 1945, issued by the Minister of the Interior, pursuant to art. 9 of the Municipalities Proclamation 1945 (No. 74 of 1945).

5/ Civil Code, art. 1501 et.

6/ Proclamation No. 10 of 1972, art. 4 (3).

XII - GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

(a) At the national level

Government Ministries

Various ministries, departments and other governmental agencies are vested with responsibilities relating to water control and jurisdiction ^{1/}. These are the following:

1. The Ministry of Agriculture and Forest Development

The Minister of Agriculture is empowered to make regulations and orders to undertake irrigation and drainage works, to grant agricultural concessions, to conserve forests and parks, fisheries and wildlife, and to undertake meteorological works in the interest of agriculture ^{2/}.

Since Ethiopia's economy is mainly agricultural, the major water uses are confined to the development of agriculture. This why the interests of this Ministry in respect of water use and distribution are predominant and the conflicts on water rights are referred to it.

2. The Ministry of Public Works (and Water Resources) ^{3/}

The Minister of Public Works and Water Resources is empowered to make regulations and to construct, manufacture and repair government roads, bridges, and waterways and to supervise the operation of all water-borne traffic and control tariffs ^{4/}.

This Ministry is responsible for hydraulic works construction, maintenance and repair; and the Ethiopian Committee for Lake Tana also falls under it.

The Ministry has a vice-Minister in charge of its Water Resources Department, responsible for aerial surveys (mapping, hydrology, inventory of water resources), river basin surveys (the Nile, Wabi Shebelle, Takkaze-Setit, Gibi-Omu), as well as community water supplies (e.g. well drilling in remote areas for supplying water to rural communities; construction of stock ponds in dry and waterless areas for watering of animals). The Order defines the duties of the Minister as having to "prepare and implement, in cooperation with other Ministries and Public Authorities concerned, plans for the development and exploitation of the water resources of the nation". Another Order ^{5/} provides that the then Water Resources Department of the Ministry of Public Works and Water Resources should

^{1/} In general, see Country Report, op cit, pp. 14-15, and D.A. Caponera FAO Report 1956, op cit, pp. 5-7; D.A. Caponera FAO Report 1959, and T. Workie Report on Water Resources Administration in Ethiopia, presented to the C.B. Interregional Seminar of current issues of water resources administration, New Delhi, 7-16 December 1971, pp. 18-21.

^{2/} Order No. 1/1945, arts. 18 and 39.

^{3/} From the Country Report, op cit, p. 15, it would appear that the responsibilities on water resources of this Ministry have been transferred to the Ministry of Mines, Energy and Water Resources.

^{4/} Order No. 1/1943.

^{5/} National Water Resources Commission Order No. 75 of 1971, art. 22.

become the Executive Organ of the Commission and be known as the "National Water Resources Commission Executive Organ". 1/

3. The Ministry of Commerce and Industry

This Ministry is empowered to promote the industrial development of the country and to record certificates of property rights 2/. The two most important concessions existing in Ethiopia have been granted by this Ministry in cooperation with the Ministry of Agriculture.

The Ministry of Commerce and Industry has a water resources department which is concerned with the drilling of wells and the preparation of other water development projects. It is required to promote industrial and commercial development and projects and, therefore, is interested in the use of water resources for commercial and industrial purposes. Since pollution may be caused by industrial uses of water, the Ministry also has a direct interest in this aspect of water conservation activity.

4. The Ministry of Foreign Affairs

The Minister of Foreign Affairs is empowered to negotiate with foreign countries 3/. Since twelve of the major Ethiopian waterways are international in character and nearly 100 000 million cubic meters cross Ethiopia's borders annually 4/ and in view of Ethiopia's geographic position, any schemes for developing the hydraulic resources of those rivers require reference to this Ministry to consider the diplomatic aspects of the scheme in question. It is noteworthy that, as of 1969, Ethiopia did not participate in the Nile Commission and there is also a lack of other internationally mixed water commissions with neighbouring countries.

The Minister is a member of the National Water Resources Board of Commissioners.

5. The Commissioner of Planning

The Commissioner of Planning (once the Minister for Planning) is attached to the Prime Minister's Office. Being in charge of coordinating and planning all economic sectors of the country, he automatically has responsibility in the planning aspects of resources activities at the national level.

6. The Ministry of National Community Development and Social Affairs

The construction, operation and maintenance of rural water supplies for domestic, municipal and livestock purposes are included in many projects carried out by this Ministry causing it to be concerned with certain aspects of water development 5/ although there is no specific reference to water resources in its terms of reference. The scope of enumerated activities is sufficiently comprehensive, however, to suggest some identification with water requirements e.g. programmes of self-help and mutual aid; programmes of assistance for victims of natural and other disasters; programmes to provide recreation and other facilities to the youth of the nation; and programmes to encourage the creation of cooperative societies.

1/ Idem, art. 11 (1).

2/ Order 1/1943.

3/ Idem.

4/ Country Reports op cit, p. 6.

5/ The Ministers (Definition of Powers) (Amendment) Act Order 1966, art. 16.

7. The Ministry of Land Reform and Administration

This Ministry, in its land reform projects, has indirect responsibilities connected with water resources development and conservation although there is no specific reference to water resources in the Order prescribing its duties ^{1/}. Since the drafting of a water code is expected to be closely related to patterns of land tenure, its duties are to reform land tenure, to regulate the relations between landlord and tenant, to administer all Government lands where power has not been legally delegated to another authority, to implement approved land reform programs, to propose land resettlement programmes and provide land for them, to establish land registers, to conduct cadastral, mapping, topographical and other land surveys (except where power for it has been delegated elsewhere), to expedite land ownership claims, to make recommendations to the Finance Ministry concerning land taxation and to classify land for tax and other purpose.

8. The Ministry of Transport and Communications

This Ministry has certain responsibilities with respect to water transport and navigation. The relevant Order ^{2/} directs the Minister to "regulate and control transport on inland waterways and territorial waters, to supervise and operate the port, harbour and navigation facilities of the nation", and to provide for "the establishment and maintenance of meteorological services" ^{3/}. This service has an important role in water development programmes.

9. The Ministry of Mines, Energy (and Water Resources) ^{4/}

The prospecting and development of mineral resources has important implications concerning the use of underground waters. As a consequence, this Ministry is also interested in water resources activities. In the Order of 1966, the regulation and supervision of "explorations for and development of mineral resources" would seem to involve some degree of water resources administration related to alluvial mineral deposits and the processing of ores ^{5/}.

10. The Ministry of Finance

This Ministry is responsible for collecting taxes and dues relating to lands and to administer some Government properties ^{6/}. Since in many parts of Ethiopia the ownership of land also entails ownership of the water located on it, this Ministry is concerned with water control and administration having an important role to play in the economic and financial aspects of water resources development and conservation activities.

11. The Ministry of Interior

The Governors-General of the provinces are empowered to appoint "water authorities" in their respective provinces and to manage and supervise waterworks and the supply of water in a definite area.

^{1/} Ibidem, art. 16.

^{2/} Ibidem, art. 10 (c), (d) and (h), p. 57.

^{3/} For a subsequent realignment of functions see Imperial Ethiopian Institute of Public Administration, Administrative Directory of the Imperial Ethiopian Government (March 1972) at 28-30 showing the structure of the Ministry of Communications, Telecommunications and Posts.

^{4/} From the Country Report, op cit, it would appear that this Ministry has taken over the functions over water resources previously under the Ministry of Public Works. See (7) above.

^{5/} The Ministers, (Definition of Powers) (Amendment) Act Order 1966, art. 21.

^{6/} Ibidem.

The Governors-General are in turn empowered, subject to the approval of the Minister of Interior, to make rules in respect of the control and manner in which water may be supplied, metre rents, the prevention of waste, the inspection of waterworks and the form and the manner of all notices to be given or sent under these rules ^{1/}. This Ministry seems to have major responsibility for water resources development since through its control over the Governors and the Municipalities, it is charged with programmes and projects for domestic, municipal and rural water supplies. It is principally responsible, in cooperation with other Ministries and Public Authorities concerned, for the control and protection of inland waters, such as lakes and rivers ^{2/}.

12. The Ministry of Public Health

The Minister of Public Health is empowered to take any appropriate steps and enact regulations for controlling water quality and pollution ^{3/}.

This Ministry is also responsible for the health aspects of water resources, pollution abatement and control, water-borne diseases control and abatement and for all type of water use.

13. The Ministry of National Defence

The Ministry of National Defence is empowered, through the Maritime Department, to control all water-borne traffic, communications and fishing ^{4/}, although similar functions are also vested in the Ministries of Public Works and Communications and of Agriculture.

This Ministry is also carrying on a programme of well-drilling. In this capacity, it has a direct interest in water resources activities.

The Maritime Order provides that the Minister shall enforce all maritime laws and all treaties, conventions and international obligations of the nation in the field within its competence. The Minister is also principally responsible, in cooperation with other Ministries and public authorities concerned, for the control and protection of the islands, archipelagos and territorial waters of the nation ^{5/}.

14. The Ethiopian Water Resources Board

For the purpose of coordinating the activities of the various ministries and other agencies in the field of water resources conservation, development and administration, the Ethiopian Water Resources Board was created in 1971 ^{6/}.

This Board is the policy and decision-making body of the Ethiopian Water Resources Agency (an autonomous para-governmental agency) ^{7/}, and is composed of representatives from the ministries and public authorities most intimately involved with water. The members are the Minister of Public Works and Water Resources (Chairman), the Ministers of Agriculture, Interior, Public Health, Communications, Telecommunications and Posts, Land Reform and Administration, National Community Development and Social Affairs, Foreign Affairs, Head of Planning Commission, General Manager of the Executive Organ. In addition, the General Manager of any Water Authority may be appointed as a member. The former Water Resources Department of the Ministry of Public Works and Water Resources has become the Executive Organ of the Agency.

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- ^{1/} Legal Notice No. 31 of 1945.
 - ^{2/} *Ibidem*, art. 26 (j). See also Water Rules 1945.
 - ^{3/} Municipal Health Rules Regarding Water, Legal Notice No. 126 of 1950.
 - ^{4/} "Our Maritime Order" Order No. 12 of 1953.
 - ^{5/} Order 1966, art. 25.
 - ^{6/} Water Resources Commission Order No. 75 of 1971, creating the Water Resources (Commission) Agency.
 - ^{7/} See part XIII, (a) 4 of this study.

(b) At the intermediate level

Higher level "peasant associations"

The Public Ownership of Rural Lands Proclamation provides for peasant associations to be established at "higher levels" to coordinate the functions of lower peasant associations (see "local level associations" below). In this way, Woreda peasant associations are created to coordinate local peasant associations and Awraja peasant associations are designed to coordinate the functions of Woreda peasant associations 1/.

(c) At the local level

1. Peasant Associations

The Public Ownership of Rural Lands Proclamation establishes peasant associations to carry out the provisions of the Proclamation. One of the functions of these associations is to administer and conserve any public property within the area of its responsibility especially the soil, water and forest 2/. A tenant (any person who, at the time the Proclamation was promulgated, personally cultivated land rented from a landowner or from any person who has a right to lease such land), a landless person, a hired agricultural worker or a landowner may become a member.

2. Water Authorities

These are persons appointed by the Governors-General responsible for waterworks and supplies for and in defined areas which may be municipalities or towns (and also for the supply of water to such other areas outside defined areas as may be authorized by Governors-General 3/. The "Water Rules" define a fairly comprehensive scheme for the administration of domestic water supplies through "waterworks" used or constructed by the Government and managed or supervised by a "water authority". The rules prescribe the detailed duties of the water authority with respect to maintenance and fixing of rates, etc. and authorize the subsidiary rules to be published in the Negarit Gazette.

(d) At the international level

Ethiopia shares the following international drainage basins with her neighbours: Awash (with the Republic of Djibouti), Barka (with the Sudan), Juba/Webi Shebelle (with Somalia), Nile (with the Sudan), Rudolph Lake (with Kenya), Stefania Lake (with Kenya), Wadi Karora (with Sudan) and Weima (with Djibouti).

In almost all of these basins, Ethiopia is geographically an upstream state. While many agreements relate to these basins 4/, those having major relevance for the use of the

1/ Public Ownership of Rural Lands Proclamation, No. 33/1975, Ch., Art. 11.

2/ Ibidem, Ch. 3, Art. 10 (3).

3/ Administrative Regulations Decree (No. 1 of 1942) Art. 74 (e); Municipalities Proclamation No. 74 of 1945, Sections 9 and 10; the Water Rules 1945 (L.N. No. 91 of 1945) pp. 2 (ii), 4 and 5.

4/ For an exhaustive list, see: P.A.C., "Systematic Index of Water Treaties", op cit.

water resources of these river systems are the following:

- (i) Awash: Treaty between France and Ethiopia of 20 March 1897; 1/ - Treaty between France and Italy regarding their interests in Africa, dated 7 January 1935; 2/
- (ii) Burka: Exchange of notes approving the agreement for the rectification of a section of the Eritrea-Sudan frontier, between Italy and the U.K., of 19 May/ 18 June 1924, signed in Rome; 3/
- (iii) Wadi Keroba: Agreement for determining the Italo-Egyptian Frontier in the North of the Colony of Eritrea of 7 December 1898 signed in Asmara between Italy and Egypt; 4/
- (iv) Weina Basin: Protocole sur la delimitation des possessions respectives sur la cote de la mer Rouge, signed between Italy and France on 10 July 1901 in Rome; 5/ - Treaty regarding their interests in Africa, between France and Italy of 7 January 1935 signed in Rome; 6/
- (v) Juba: The only agreements relating to this basin are those concerning the boundary demarcation between Gambia and Kenya, signed by Italy and the United Kingdom; 7/
- (vi) Rudolf Lake (internal) Basin: Most of the agreements concerning this basin refer to questions of boundary demarcation between Ethiopia and Kenya; 8/
- (vii) Stefania Lake (internal) Basin: In this case also, most of the agreements concerning this basin refer to questions of boundary demarcation and have been signed between Ethiopia and Kenya; 9/
- (viii) Nile: Among the treaties affecting Ethiopia's international position in respect to the Nile River Basin, that which more directly bear on the conservation, development and utilization of that basin's water resources is: the Exchange of Notes respecting certain British and Italian interests in Abyssinia 10/, whereunder Ethiopia's rights in the waters of the Blue and White Nile and their tributaries have been defined vis-à-vis Sudan's.
- (ix) Gash: "Exchange de notes concernant l'utilisation des eaux de la rivière Gash" 11/, integrated by the subsequent Exchange of Notes respecting the Regulation of the Utilization of the Waters of the River Gash 12/. These acts regulate Ethiopia's rights in the waters of the Gash River vis-à-vis Sudan's.

Finally, Ethiopia is a party to the African Convention on the Conservation of Nature and Natural Resources 13/.

1/ 2 Martens N.R.G. Sec. III, 120.

2/ 139 BSFP, 948.

3/ 28 LNTS, 497.

4/ 3 Horslet, Map of Africa by Treaty, 1110.

5/ 2 Martens N.R.G. Sec. III, 831.

6/ 135 BSFP, 948.

7/ A list of these treaties appears in the RAO, "Systematic Index of Water Treaties", op cit.

8/ Ibidem.

9/ Ibidem.

10/ Signed in Rome, 14 and 20 December 1925, (50, LNTS, 281; 121 BSFP, 805).

11/ Signed on 12 December 1924 (UN/E/TEE/136, 197).

12/ Signed in Rome, 12/15 June 1925 (38, LNTS, 189; ST/150/SER.B/12, 128; 121, BSFP, 798).

13/ Signed in Algiers, 15 September 1968, cit.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

(a) At the national level

1. The Ethiopian Water Resources Agency

The Order which created the EWRA 1/ is a broad charter which gives the Agency a virtual carte blanche in the field of water resources planning, development, management and administration. The Agency (originally called the National Water Resources Commission) is also entitled to draft and issue regulations for the proper carrying out of the provisions of the Order creating the EWRA 2/. The Agency was created "as an autonomous organ of the Government" and has broad powers to supervise "all plans and proposals relating to the investigation, use, control, protection, management and administration of water prepared by any person...". The Agency has as a matter of priority the task of formulating and placing before the Council of Ministers a draft Proclamation for national water legislation. Such a project is under way 3/. Once national legislation covering licensing and the collection of rules is passed, the Agency will issue regulations to carry these into effect 4/. The administrative structure of the Agency encompasses three major subdivisions: the Board 5/, the Executive Organ and the various Water Authorities. Plans have been made for the establishment of nine Regional Water Offices of the EWRA 6/, which will be responsible, inter alia, for the construction, maintenance and operation of water supply schemes in the areas of their competence. EWRA is also preparing a master water development plan.

2. The Ethiopian Electric Light and Power Authority - EELPA

This Government-controlled but autonomous institution has received wide powers for the generation and transmission of electricity and power, including hydro-power, in all of the Ethiopian territory. It has, therefore, important responsibilities in this sectoral field of water resources management 7/.

3. The Ethiopian Valleys Agricultural Development Authority - VADA

This autonomous authority, established in 1976, should be responsible for studying and coordinating plans as well as for executing programmes of integrated rural development, including water resources development in all major Ethiopian basins such as the Nile, Juba, Nebi Shabelli and other basins where other and special valley development authorities might be created.

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- 1/ Water Resources Commission Order No. 75/1971.
2/ Ibidem, art. 13.
3/ Country Report op cit, p. 14.
4/ T. Workie, op cit.
5/ See XII, (a), 14 above.
6/ Country Report, op cit, p. 9.
7/ D.A. Caponera, FAO Report 1969, op cit, p. 3.

4. The Livestock and Meat Board

This Board is responsible for the maintenance of stock ponds and watering points, in livestock routes 1/.

5. The Institute of Agricultural Research

This Institute is responsible for the study of irrigation practices, research in water and soil conservation 2/.

6. The Ethiopian Highway Authority

This Governmental agency is empowered to divert and expropriate lands and waters and to fix the compensation, in connection with its main task of building and maintaining roads 3/.

(b) At the regional or basin level

1. The Awash Valley Development Authority - AVDA

This authority has been created as an autonomous public authority in terms of its Charter 4/. The purpose of the Authority is, inter alia, to administer and develop the natural resources of the Awash Valley and includes surveys, development plans, coordination of the activities of the other authorities responsible for the area, authorize the construction of waterworks, administer water rights, collect fees and promote other enterprises in the Awash Valley 5/.

The Board of the Authority consists of seven members comprising the General Manager, one representative each from the Ministries of Agriculture, Commerce and Industry, Interior and Public Works and Communications, all of whom shall be appointed by the Ministers concerned, and two members to be appointed by the Prime Minister 6/. It reports directly to the Prime Minister and to the Minister of Finance. It is statutorily competent exclusively in relation to water matters within the watershed area of the Awash River Basin 7/.

(c) At the project or local level

1. The Addis Ababa Water and Sewerage Authority - AAWSA

The AAWSA was established in 1971 8/ with jurisdiction over all areas within the limits of Addis Ababa and adjacent non-municipal villages and to all catchment areas. The purposes of AAWSA are (1) to supply potable water for drinking, domestic purposes in general,

1/ Country Report, op cit, p. 15.

2/ Ibidem.

3/ Proclamation No. 115 of 1931.

4/ General Notice No. 299 of 1962.

5/ Ibidem, art. 4.

6/ Ibidem, art. 14.

7/ T. Workie, op cit, p. 21.

8/ By Order No. 68 of 1971 (Regarit Gazette Year 30 No. 10 - 26 February 1971).

street cleaning, sewage disposal, fire-protection, industrial and commercial uses, public parks, swimming pools and similar services; (2) to conserve underground water and prevent its contamination; and (3) to ensure the sanitary disposal of sewage. ANSA is entitled to issue regulations approved by the Water and Sewerage Board 1/. The Kurultia of Addis Ababa subsequently issued comprehensive regulations for the operation and maintenance of the system, including a schedule of installation and service charges and rates for water and disposal of sewerage 2/.

2. Customary or other Water Management Institutions

There are, in Ethiopia, a number of important concessionaires, to which the right to use water has been granted for different purposes. Other important and smaller customary water users also divert and utilize waters for domestic, irrigation, agricultural, industrial and other purposes without any legal or crystallized grant, concession or lease 3/.

Local customary water administration institutions also exist in various parts of the country 4/.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government Financial Participation

The Ethiopian Government has guaranteed repayment of a US\$ 10 800 000 World Bank loan to finance the Addis Ababa Water and Sewerage Authority Project, made on 2 May 1972 5/. The Authority is, in general, empowered to borrow from foreign sources in terms of the Constitution, to borrow domestically up to one million Ethiopian dollars per annum 6/.

(b) Water Rates and Charges

The Addis Ababa Water and Sewerage Authority may fix, impose and collect fees for supplying water, rendering sewer services, pumping sewage from cesspits, installing and repairing the sewerworks and waterworks connecting and reconnecting the water system and for other services provided by it. Such fees are fixed upon a uniform basis and reflect as nearly as possible the cost and value of the services and the facilities being provided to the users, having due regard to the need to expand and finance the expansion, maintenance, and improvement of such services and facilities 7/.

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- 1/ Proclamation No. 298 of 1972 (Negasit Gazette Year 31 No. 12 - 16 March 1972).
 - 2/ Legal Notice No. 432 of 1973 (Negasit Gazette Year 32 No. 15 - 24 April 1973).
 - 3/ E.A. Caponera, FAO Report, 1956, op cit, p. 3.
 - 4/ See part XVI of this study.
 - 5/ Proclamation No. 306 of 1972 (Negasit Gazette, Year 31, No. 30, 5 July 1972).
 - 6/ Order No. 298 of 1972, art. 4 (1).
 - 7/ Proclamation No. 292 of 1972, art. 4 (2).

The Authority also administers the AAWSA fund ^{1/} which consists of all fees collected by the Authority and all proceeds obtained from sales of property, any donations and grant-in-aid made to the Authority and any other receipts. The fund is lodged in a separate bank account in a bank designated by it and applied in terms of an annual budget ^{2/}.

The Awash Valley Authority is entitled to fix fees and charges for the use of water, land and other facilities ^{3/}.

The establishment of water rates in rural areas is still under study, and in view of the amounts required for investment and operation, government subsidies for water supply in small towns and other rural areas appear unavoidable ^{4/}.

XV - WATER LAW IMPLEMENTATION

(a) Judicial protection of existing water rights

Court decisions must be regarded as constituting a minimal component in the overall body of Ethiopian water resources law. The Civil Code contains only scattered references to the functions and powers of the courts in water disputes ^{5/}. In deciding on a dispute arising between two persons to whom water may be of use, the court is obliged to reconcile the conflicting interests with due regard to ownership rights. Unless otherwise provided by law, any infringement of rights of ownership gives rise to compensation ^{6/}. Any dispute arising out of provisions of the Civil Code and involving the interference of rights to water by way of the erection of works or installations, shall be settled by the Court in whose jurisdiction the immovable on which such works or installations are situated are contemplated or have been completed.

(b) Modification, termination and reallocation of water rights

Various methods of settling water rights disputes exist ^{7/}:

(1) Customary Law. In the arid and semi-arid zones of the country, particularly the Kola region, disputes concerning the use of wells, conflicts on grazing rights of the nomadic or semi-nomadic tribes, water distribution or maintenance of waterworks, etc., are often settled by the local tribal or religious chiefs. The ancient customary law of the tribe or the religion to which the parties belong is applied in these cases ^{8/}.

When conflicts between different tribes endanger public order and security in a particular area, the conflicts are in some cases handled by officials not belonging to the groups or tribes concerned.

^{1/} Order No. 68 of 1971, art. 6 (f) and (j).

^{2/} Ibidem, art. 10.

^{3/} General Notice No. 299 of 1962.

^{4/} Country Report, op cit, p. 9.

^{5/} Ibidem, p. 14.

^{6/} Civil Code, Proclamation No. 165/1960, art. 1231, which is headed "Power of the Court".

^{7/} D.A. Caponera, FAO Report, op cit, 1956.

^{8/} For an analysis of this customary law see D.A. Caponera, Water Laws in Koslen Countries, FAO, 1973.

(ii) Other judiciary or administrative procedures. Conflicts arising in connection with water ownership, distribution and use can also be referred to local administrative officials. Appeals against their decisions may be made (in terms of the Code of Civil Procedure) to the regional courts or regional governors, to the Minister of Agriculture, or to the High Court in Addis Ababa.

Conflicts concerning private water rights may be referred to the regular courts, which issue judgements in terms of the Civil Code. Any conflict arising after the granting of a right to use public water is referred to the regular courts which issue judgements in accordance with principles set out in the relevant legislation.

XVI - CUSTOMARY WATER LAW AND INSTITUTIONS

The adequacy and availability of water supplies in the various drainage basins have shaped local uses and customs relating to water ownership, distribution and use, so that local uses and customs differ widely in the three different climatic and vegetative regions of Ethiopia ^{1/}.

In the Dega Region (cold region) water is abundant during the rainy season, but minor conflicts in regard to water rights occur during the dry season.

The right to use water belongs to the owner or tenant of the land, and cannot be alienated to non-riparian owners or tenants without the consent of the other neighbours and co-owners of the same water system. Water rights attach to the land on which the water is located and are acquired through the construction of or the participation in waterworks or by inheritance, gift, sale, acquisition or donation of the land. Written titles of land ownership may mention a particular right to use water, but these are seldom recorded by a local judge, governor or other authority.

Water distribution is generally ensured by agreement between the users. Conflicts seldom arise and even then only during the dry season. Water distribution is usually made by rotation on the basis that the total amount of water supplied is allocated to one user at a time.

The water administration is supervised by the users themselves, and sometimes during the dry season special "shabagtas" or guards are appointed to patrol diversion points and the canals.

Compensation in money or in water may be given to the owner of the intermediary lands through which water flows. Water is seldom sold except in special cases where waterworks have been constructed to store water supplies.

Waterwork maintenance is the responsibility of the users concerned and damages can be claimed by persons suffering loss through failure of the users concerned to fulfill any such obligation.

The local judge, police official or governor is the responsible authority for the settling of disputes. If he is unable to do so, recourse is made to the appropriate local tribunal from which an appeal to the central authorities is available.

^{1/} Customary water law in Ethiopia as described in this section, derives from D.A. Caponera, FAO Report, op cit, 1956, pp. 10-12.

The Weyna Daga Region (temperate region) is the most populated area and irrigation is practiced in many places, although rainfall is less than in the Daga Region.

Local uses and customs in relation to water ownership and distribution are similar to those of the Daga Region, although, because of greater water scarcity and larger irrigation requirements, water disputes occur more frequently here than in other parts of the country.

Similar provisions to those in the Daga Region prevail with respect to land and water ownership. Since water does not respect legal or administrative subdivisions of land, disputes often arise in connection with water distribution and maintenance of waterworks, especially when there is an increase in the demand for water.

The Kola Region (hot region) is a rain-shy area; desert and thorn shrub vegetation and savannah forests are found here.

Local customs in relation to water ownership, distribution and use differ from those of the other two regions. These lowlands are inhabited for the most part by people who follow the Islamic customs of the Sufiite Shafi'it, Malikite and Mamkite sects ^{1/}.

Little irrigation is practiced except along a few perennial watercourses or from wells, and the major water utilization activities are related to the cultivation of small gardens, cattle, grazing, date palm growing, and domestic water supplies.

Water ownership may be acquired independently from land ownership through inheritance, participation in the construction of waterworks, donation, sale or acquisition. Wells may be privately owned or may belong to a tribe or a group of individuals.

In some areas, written records of such ownership exist and are kept by local chiefs and interested parties.

Once a watering point has been constructed by a group or a tribe, the right to use such water remains with those who have built or participated in the construction of such works.

The method of distribution varies widely from district to district depending on the nature of the water supplies. Wells are constructed by specialists who either assume ownership of them or are paid by the person who employed them. Special kinds of deep wells can be found in Boran, dug in the shape of an inclined tunnel from which water is withdrawn by persons stationed at intervals along the incline who pass zebra skins of water to the surface.

Water reservoirs for the watering of animals generally exist alongside the wells of this area. The price of water depends on the daily demand as well as on the availability of water in the wells. In Ogaden the price is calculated per "drum" (approximately one hundred litres), which is the amount of water a camel drinks at one sitting.

^{1/} For an analysis of this customary law, see D.A. Cigonera, Water Law in Naxos Countries, op cit, 1954 and new 1973 editions.

Privately owned water is administered by the users, whereas in the case of collectively owned water either the local chiefs or specially appointed individuals, have administrative responsibilities.

Waterworks and well maintenance rests with the water users or the contractors, as the case may be. Customary rules are strictly respected and disputes settled by the users themselves. Few, if any, significant water disputes are referred to government officials.

The need for water is so great, and the value of it so relevant that disputes sometimes arise as a result of different tribes prospecting for water in the same area. In these cases government officials arbitrate between them.

One of the fundamental works of Ethiopian legal literature is the Fetha Negest (Legislation of the Kings) which still retains its value and practical importance in Ethiopia. It forms the basis of much of the customary law in some regions and has also inspired some of the civil and penal law enacted in Ethiopia. It has influence in ecclesiastical circles although the central courts administer the new legal enactments and in everyday life customary law itself remains of primary relevance ^{1/}.

The process of giving due recognition to local customs in the system of justice administration and law enforcement is complicated by the difficulty of ascertaining these customs, and of their possible articulation into writing. With the exception of what described above, no systematic study of customary laws as it relates to water appears to have been made. However, the Civil Code recognizes customary law to the extent that it corresponds to a profound sentiment of the Ethiopian people and conforms to that which is felt by them as being just.

XVII - CONCLUSION

While the above study has been compiled from the sources available, it must be stressed that at the time of writing, the legal-institutional framework is in a state of transition.

^{1/} E. Ullendorff: The Ethiopians. An Introduction to Country and People. 3rd. ed. 1971, pp. 147 and 148. See also J. Van der Linden: An Introduction to the Sources of Ethiopian Law from the 13th to the 20th Century.

GABON 1/

1 - INTRODUCTION

(a) Situation and population

The Republic of Gabon is situated across the equator occupying an area of 267 000 square kilometers. According to a 1970 estimate, Gabon has a population of 950 000, giving an average population density of four persons to the square kilometer which is among the lowest in Africa. The three urban centers, viz: Libreville (the capital), Port-Gentil (the center of the petroleum industry), and Francaville/Moundou (the mining center) account for 20 percent of the country's population. The size of Gabon's population has been one of the limiting factors against agricultural development in the potentially rich forest zone. The Republic is bordered by Equatorial Guinea and Cameroon on the north, the Congo (Brazzaville) on the east and south, and the Atlantic on the west.

Gabon has a truly equatorial climate with uniformly high temperatures and relative humidity. The mean annual rainfall ranges between 1 500 mm and 3 000 mm. The country possesses vast forests covering nearly 70% of its surface area, while grassland vegetation is limited to the coastal sand zone south of Port-Gentil and parts of the Nyanga, Upper M'Gounié and Upper Ogooué Valleys.

(b) Water and other resources

The Republic of Gabon comprises the entire drainage basin of the Ogooué River, which flows westward, along with the basins of several coastal rivers such as the Nyanga and the Congo. The coastal zone is low with narrow strips in the north and south but is broader in the estuary regions of the Ogooué and Congo. This coastal zone is marked by numerous lagoons such as the M'Dogo, M'Goze, and M'Komi which are located south of the River Ogooué, with cretaceous sedimentary rocks forming the floor and yielding oil at a shallow depth.

The hinterland consists of precambrian rocks which are eroded forming a series of plateau surfaces ranging in height from 400 to 600 meters. The plateaus are traversed by the river system with the formation of distinct blocks such as the Crystal Mountains, the Kouabi Uplands and the Chaillu Massif 2/. This area is considered to be one of Africa's richest mineral resources zones with its substantial deposits of gold, diamonds, manganese, uranium and high quality iron ore.

1/ Based on the study prepared for the FAO Legislation Branch by Vito T. Anticran, licencié en droit, LSP, Rome, Italy (original French).

2/ Europa Yearbook, Africa South of the Sahara, 1976/1977, p. 329.

"Wrapped in its dense tropical rain forests, with less than a million inhabitants, Gabon is Africa's third richest country - per head of the population - after Libya and South Africa"^{1/}. Nevertheless, Gabon's overall economic picture is characterized by an extreme form of economic dualism where highly capital intensive and export oriented industries of mining and forestry operate alongside an agricultural sector on a subsistence level^{2/}. Although 50% of the country's population depends on subsistence agriculture for its livelihood, the government's economic policy in the first decade after independence has been devoted mainly towards encouraging development in the timber and mining sectors of the economy which constituted the principal sources of growth in that period. Thus, with only 0.3% of Gabon's land cultivated and livestock production almost non-existent, agriculture's role in the economy has dwindled to a level where it was not even able to meet local food demands, and as a consequence large quantities of agricultural and dairy products are imported. Lately, though, more attention has been given to the agriculture sector. The principal export crops are palm oil, cocoa and coffee.

Gabon's surface transportation system is inadequate and up to now air transportation has been the key link between the hinterland and the coast. The government has a plan to construct the 700 kilometers Trans-Gabon Railway and a network of massive feeder roads. The railway, as planned, is due to be completed by 1979^{3/}, and will then give easy access to the timber reserves, the Belinga iron ore mountains, the Moukata uranium mine and the Moango manganese mine, all of which are located in the interior.

(c) Political-Judicial history

The origin of French colonialism dates as far back as 1839 when by a treaty that was concluded between Bouët-Willaumez and the local chief, Louis Dewé, a trading port was established on the Gabon coast^{4/}. Subsequently the fort of Annale was erected in 1843, and the town Libreville, which later became the administrative center for the 1850 Gulf of Guinea Settlement scheme, was founded in 1849^{5/}. Exploration of the interior part of the country followed the 1850 settlement by French naval expeditions, the earliest being the one led by Lieutenant-Commander Aymes in 1857^{6/}. Subsequent expeditions include that of Bouvier Marché and the Marquis of Compiègne who sailed up the Ogooué, Savorgnan de Brazza's first expedition (1875-1878) and the second expedition (1879-1882). Brazza signed a treaty with Makoko (king of Tété) in an attempt to block Stanley's advance beyond the Congo River^{7/}.

Accession of new territory to French rule demanded administrative adjustments. In 1881 the powers of the commander in charge of Gabon were extended, and Brazza became the Commissioner for the Government in West Africa, regrouping all the acquired territories under his authority in 1882. On 26 June 1906, the Federation of French Equatorial Africa was created by the alignment of Gabon, the middle Congo and Oubangui-Chari-Chad. Therefore, although the pacification of the indigenous peoples was rather a lengthy and difficult process, these equatorial territories were effectively colonized by the turn of the 19th century.

In 1946 the Constitution of the Fourth Republic of France was enacted, and together with the French Union, it created assemblies in its overseas territories (to which for the first time indigenous Africans were elected) to deliberate on financial and communal matters^{8/}.

1/ Colin Legum, (ed), Africa Contemporary Record, Vol. 7, Annual Survey and Documents, 1974/1975, London, 1975, p. B557.

2/ Europa Yearbook, 1976/1977, p. 233.

3/ Legum, op. cit., p. B594.

4/ Europa Yearbook, 1976/1977, p. 230.

5/ Ibidem.

6/ Ibidem.

7/ Ibidem.

8/ Ibidem, p. 233.

The decade 1946-1956 provided substantial experience in parliamentary practice, giving rise to national consciousness on the part of the Africans.

The loi cadre (enabling law) was enacted in 1956, and General de Gaulle's election in 1958 brought along with it the Constitution of 1958 which refuted the so-called principle of unity and indivisibility between France and its colonies. Thus, the former notion of French Union was replaced by the new concept of French Community. The Community granted the territories full internal self-government, retaining, of course, the power of control over foreign affairs, general economic policy and other related matters ^{1/}. As a member of the Federation of French Equatorial African territories, Gabon acquired internal autonomy status in November 1958. The country became independent on 17 August 1960 and promulgated its first constitution in 1961.

The juridical history of Gabon has to be seen in the light of pre-colonial traditional customs and the colonial era which brought along with it not only new technology, but also new legal systems and administrative rules and regulations. As a result, the development of the present legal system of the country has its origin in both the customary laws of the various ethnic groups in the country, and the colonial legislation, which by and large is imported from the metropolitan country but modified and adapted to suit local conditions when necessary. The sources of Gabonese legislation are, therefore, Gabonese customary law and French legislation, making Gabon a "Code Country". Likewise, the categories of land and water are governed by legislation from the same sources.

II - LEGISLATION IN FORCE

1. Colonial legislation of former French Equatorial Africa (Afrique Equatoriale Francaise - AEF).
2. Law No. 6/60 of 6 May 1960 creating collective farms.
3. Decree No. 1152/PR-MTP of 7 September 1962 establishing the functions of the public works administration.
4. Law No. 14/63 of 5 May 1963 establishing the public domain and laying down rules and regulations governing its management and alienation.
5. Law No. 10/64 of 5 June 1964, amending Law No. 6/60 of 5 May 1960 creating collective farms.
6. Decree No. 173/PR of 2 June 1967 prescribing rules and regulations governing the occupation of public domain.
7. Ordinance No. 32/65 of 23 July 1965 establishing an authority to supervise operation of production farms.
8. Decree No. 0030 of 24 January 1966 reorganizing and assigning new functions to the Ministère des eaux et des forêts (Ministry of Waters and Forests).
9. Decree No. 260 of 14 November 1968 laying down rules and regulations governing quarrying in the Republic of Gabon.

1/ Ibidem.

10. Law No. 28/68 of 20 December 1968 organizing the municipality of Libreville.
11. Ordinance No. 65/69 of 6 October 1969 organizing the fisheries administration.
12. Ordinance No. 13/70 of 5 March 1970 establishing the Caisse nationale de crédit Rural (National Agricultural Credit Fund).
13. Ordinance No. 44/70 of 12 August 1970 organizing the fisheries administration.
14. Ordinance No. 43/70 of 5 October 1970 by which Government approved several projects of the Société d'énergie et d'eau du Gabon (Gabon Energy and Water authority).
15. Decree No. 03976/PR Min. Agric. of 15 October 1970 instituting farmers' associations, cooperative-oriented groups and cooperatives.
16. Ordinance No. 5/71 PM of 5 February 1971 authorizing the Government of Gabon to contract a loan of 2 million CFA francs from the Caisse centrale de coopération économique (Central Economic Cooperation Fund) for electrification and water supply to rural centers.
17. Ordinance No. 49/71 of 4 September 1971 prescribing the manner in which saw logs of okoumé and other timbers are to be recovered.
18. Ordinance No. 39/72/PA of 17 April 1972 authorizing the Government to contract a loan from the Caisse centrale de coopération économique.
19. Decree No. 00662/PR of 5 July 1972 prolonging schedule 1/B of the Code for investments granted to the Société d'énergie et d'eau du Gabon.
20. Decree No. 00205/PR of 9 August 1972 establishing an interministerial council.
21. Decree No. 1165 of 11 November 1972 reopening the fishing season for three species of crocodile existing in Gabon.
22. Ordinance No. 41/73 of 27 July 1973 authorizing the ratification of the underwriting agreement between the Republic of Gabon and the IBRD for the project of bringing in a water supply to the city of Libreville.
23. Decree No. 1146/PA of 3 October 1973 fixing the structure and composition of the Government.
24. Ordinance No. 26/74 of 26 March 1974 providing for the setting up of rural associations and administrations.

III - OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The principle underlying ownership of water resources is that all stagnant or running water, all streams, whether floatable, navigable or otherwise, whether natural (up to flood stage) or man-made and all canals, dikes or dams affecting water use or the use of lakes or marshes are part of the public domain ^{1/}. Accordingly, the following are excluded from the public domain - rainwater, springs, well water, and watering points or cisterns built by private landowners on their own property. This also holds true for irrigation canals and drainage canals constructed by private landowners on their own lands, all such water being private property.

Furthermore, since groundwater is not mentioned as belonging to the public domain, it can be deduced that it comes not under public law but under private law.

^{1/} Law No. 14/63 of 8 May 1963 establishing the composition of the public domain and laying down rules and regulations governing its management and alienation, art. 109.
Decree No. 173/PR of 2 June 1965 governing the occupation of the public domain, art. 3.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of acquisition

Water belonging to the public domain cannot be acquired by private persons. In fact, public domain assets are inalienable and not subject to prescription ^{1/} although rights to the use of public waters may be acquired by acquiring permits for occupying the public domain ^{2/}.

On the other hand water described as being private in paragraph III may be the object of transactions between private parties.

(b) Water use authorizations, permits or concessions

Concessions may be granted for the use of public water in mines, commerce, crop growing, stockraising or industry in the manner and under conditions set by the Council of Ministers ^{3/}.

In fact authorization to occupy public domain may be granted by decree of the Council of Ministers on the proposal of the Minister in charge of management of the public domain. Such authorization is essentially temporary, being revokable at any time in the public interest by decree of the Council of Ministers. No indemnity is granted in case of withdrawal of such rights except in the case of incomplete amortization of structures, the installation of which is deemed to be clearly in the public interest.

The duration of such permits or licences is established in each case by a special decree granting such authorization, but generally may not be for a period of over 20 years. Exceptionally, such authorization may be granted for a period of over 20 years, but never under any circumstances exceeding 50 years. Such latter authorization is granted only for erection of structures deemed to be definitely in the public interest, which require investment in the land that is both too large for amortization over a 20-year period and which will allow normal utilization of the works. The only valid reason for granting authorization for occupying public domain rivers or streams is for navigation purposes or for the erection of either warehouses, industrial or commercial plants or private facilities for which proximity to river banks is essential. Any request for authorization must be submitted in four copies, one on legal stamped paper and must specify the purpose for which the water is to be used as well as the requested period for which the authorization is required. The applicant must furthermore state his full name, his place and date of birth, his place of domicile and profession; his nationality; the exact purpose of the enterprise and the amount of capital he proposes to invest. He must attach to his application four copies of an accurate map of the property (one on legal stamped paper) and the design and estimated cost of the waterworks or structures to be built on the property. The application must be addressed to the prefect who displays it for 15 days in the district offices or the city hall as well as on the property concerned. The file containing the application, any directions or other observations of third parties resulting from the display of the notice and the official opinion of the prefect, is then transmitted by the latter to the minister in charge of the public domain, for possible issuance of a permit to occupy. Of course, occupation of public land entails

^{1/} Law No. 14/63 of 8 May 1963 establishing the public domain, art. 65.

^{2/} Ibidem, art. 110; Decree No. 173/PR of 2 June 1963 governing occupation of the public domain, art. 4.

^{3/} Law No. 14/63 of 8 May 1963 establishing the public domain, art. 110.

payment of annual taxes; in case of non-payment by the deadline set, a notice requiring payment is sent to the permit holder and if after the three-month deadline from the notification date he fails to make such payment, the permit is withdrawn. The occupant is obliged to build the authorized structures or installations by the deadline specified in the permit to occupy. Nevertheless, before such structures or installations commence operations, they must be inspected and approved by way of a certificate issued by the public works administration. The permit to occupy may be withdrawn before its normal date of expiration in the following cases: if the occupant fails to meet all obligations imposed upon him; if he uses the structures or installations for purposes detrimental to the health or safety of the public or for purposes other than those for which the permit to occupy was granted him; if the occupant cedes his authorization to a third party without prior sanction by the administration; if the occupant disobeys police rules and regulations, or rules governing the conservation and utilization of the public domain, or road traffic police regulations, or disregards servitudes for public utilities or military servitudes.

Local prefects may also issue permits for the occupation of streams in the public domain outside cities or villages for the storage of felled timber provided this does not involve any construction or permanent installation.

Three copies of the permit to occupy must be submitted to the public domain office in charge of establishing appropriate fees and for collecting taxes for such use 1/. Lumber of okoumé and other tree species found floating in inland waters may only be recovered if prior authorization has been granted by decree of the President of the Republic on the proposal of the Minister of Finance and Budget. Applications for such authorization must be submitted to the public domain office in three copies, the original one being on legal stamped paper 2/.

7 - GRADE OF PRIORITIES

There is no law expressly providing for the preference of one use of water over another, just as there is no text providing that certain women have prior rights to others.

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Municipal and Household Use

The Ministry of Public Works, and in particular its public works office is responsible for water supply, waterworks and reclamation work. Within this ministry, the urban waterworks and buildings department is responsible for administering and providing the supply of water as well as for research, the impounding and distribution of water, and the regulation of and control over water distribution 3/.

- 1/ Decree No. 173/PR of 2 June 1965 governing occupation of public domain, arts. 4, 5, 6, 7, 8, 10, 11, 13, 15.
- 2/ Ordinance No. 49/71 PR/RRZ/MSF of 4 September 1971 governing ways and means for recovery of logs of okoumé and other timbers washed up on shore or floating in territorial or inland waters, arts. 3 and 4.
- 3/ Decree No. 1152/PR-47P of 7 September 1962 prescribing the functions of the public works office, arts. 1 and 2.

The Société d'énergie et d'eau du Gabon, a semi-governmental authority, is responsible for delivering drinking water to cities, towns and villages. It is also responsible for the maintenance or extension of water supply networks to all towns and cities and rural villages 1/. Rural centers with independent water supply systems, are entitled by customary law to decide for themselves as to which domestic uses their water may be put.

(b) Municipal uses

The Ministère des travaux publics (Ministry for Public Works) and, in particular its public works service, is responsible for land reclamation projects but it is the Société d'énergie et d'eau du Gabon which supplies water required for fire hydrants, for street washing and cleaning of slaughterhouses and for city sewage systems 2/.

(c) Agricultural uses

Gabon produces very few crops other than rubber and cocoa so that the law relating to the agricultural use of water is somewhat restricted in scope. Canals, dikes, dams and waterworks drawing on streams, lakes or marshes are part of the non-rail public domain, and a permit to occupy the public domain must be required before using such water 3/. On the other hand any landowner who for irrigation purposes wishes to use water to which he is entitled either under the civil code or by virtue of an administrative authorization may obtain permission to conduct such water over other holdings on condition that he pays in advance appropriate compensation to the landowners across whose land the water is conducted 4/.

(d) Fishing

Sea fisheries are governed by more elaborate rules and regulations than are either freshwater fisheries or pisciculture. Only vessels fishing in territorial waters are required to obtain a fishing licence. However, the Minister for Waters and Forests is responsible for keeping an inventory of the biological resources of streams belonging to the public domain. He may suggest research experiments and development operations capable of enhancing and improving river fisheries. In particular, he is responsible for the conduct of technical surveys in connection with applications to the Caisse nationale de crédit rural for obtaining equipment loans for fisheries or pisciculture 5/. There are open and closed seasons for catching crocodiles in restricted reserves (where sound hunting and fishing rules and regulations are in effect), in boundary rivers or portions of rivers 6/.

(e) Hydro-electric power

The Ministère des travaux publics and especially its public works office, is responsible for the production and distribution of electricity. In this office it is the urban works and buildings service that is concerned with research, works projects and the regulation

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- 1/ Decree No. 00662/PR of 5 July 1972 prolonging Schedule 1/B of the Code of Investments granted to the Société d'énergie et d'eau du Gabon.
 - 2/ Decree No. 1152/PR of 7 September 1962 prescribing the functions of the Public Works Office, arts 1 and 2.
 - 3/ Decree No. 173/PR of 2 June 1965 governing occupation of the public domain, art. 1.
 - 4/ Law No. 14/63 of 8 May 1963 establishing the composition of the public domain and rules and regulations governing its management and alienation, art. 110; decree No. 173/PR of 2 June 1965 governing occupation of the public domain, art. 14.
 - 5/ Ordinance No. 44/70 of 12 August 1970 organizing the fisheries administration, arts. 2 and 3.
 - 6/ Decree No. 1163 of 11 November 1972 on the reopening of the fishing season for three species of crocodile in Gabon.

and control of electric power distribution 1/. On the other hand, the Service d'Énergie et d'eau du Gabon is specifically responsible for power utilities, electrification of un electrified towns and cities, the expansion of existing electricity networks in towns and cities, the installation of new power stations and for increasing the installed capacity of hydro-electric power stations 2/.

(f) Transport

The Ministère des travaux publics and, in particular, its public works office, is in charge of the development, construction and equipping of communication and river transport facilities. Within the public works office the marine waters and rivers department is concerned with river port installation, i.e. with research, new port works and port maintenance, river navigation and the regulation, control and research of navigation requirements 3/.

(g) Other beneficial uses

Other beneficial uses of water e.g. for medicinal purposes and at thermal resorts, for industry and mining, as well as for leisure activities, are not governed by any laws, rules or regulations.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

There are no laws on this subject. The Ministry for Waters and Forests is responsible for taking measures to protect and restore the soil on uncultivated land in line with its policy to conserve such land under its comprehensive soil conservation policy. Together with other services, it is also responsible for research into soil conservation, the implementation of whatever protection or improvement measures are deemed necessary, for delimiting reforestation or plant cover restoration districts and for works projects in this connection 4/.

VIII - LEGISLATION ON WATER USE, WATER QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

This subject is not directly provided for in the legal system of Gabon. However, permits to occupy public domain lands may be withdrawn before their normal expiry date in the following cases: where the occupant fails to comply with his obligations or where he uses whatever installations there are in a manner inimical to the public health or safety or for purposes other than those for which the permit to occupy was granted him; if an occupant

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- 1/ Decree No. 1152/PR-MTP of 7 September 1962 on functions of the public works office, arts. 1 and 2.
 - 2/ Decree No. 30662/PR of 5 July 1972 prolonging Schedule 1/B of the Code of Investments in the Service d'Énergie et d'eau du Gabon, art. 1.
 - 3/ Decree No. 1152/PR-MTP of 7 September 1962 on the functions of the public works office, arts. 1 and 2.
 - 4/ Decree No. 3030 of 24 January 1966 reorganizing and defining the functions of the Ministère des eaux et forêts, art. 1.

cedes his permit to a third party without the prior authorization of the public administration; and if an occupant commits an act contrary to police regulations or does not obey soil conservation and public domain use regulations 1/.

(b) Health preservation and pollution control

The protection of human health from waterborne diseases and the pollution control measures are dealt with in the health legislation; this legislation is administered by the health authorities (Ministère de la Santé publique).

(c) Other control measures

For the sake of water protection it has been ruled that diggings and excavations of quarries must be defined and are not to extend horizontally within 10 meters of streams, canals, wells, irrigation ditches, water conduits and ponds or marshes open to public use 2/.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Since groundwater is governed by private law, it may be used by the landowner without prior authorization if the authorizations and arrangements between private parties for its use are valid 3/.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATER WORKS AND STRUCTURES

Dams, dikes and dams and other waterworks which convey or control water from streams, lakes or marshes that are part of the man-made public domain may only be constructed or altered by the public domain service and at its expense. Nevertheless, any person who obtains a permit to occupy public domain land for crop growing, stockraising, industry or commerce is obliged to build such installations as were duly authorized before the expiration of the deadline set in the permit to occupy.

Before actually commencing the operation of such installations, they must be inspected and approved by a certificate issued by the public works office 4/.

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- 1/ Decree No. 173/PR of 2 June 1955 governing occupation of the public domain, art. 13.
2/ Decree No. 659 of 14 November 1958 governing quarrying in Gabon, art. 24.
3/ Law No. 14/63 of 5 May 1963 establishing the public domain, art. 109.
4/ Decree No. 173/PR of 2 June 1955 governing occupation of the public domain, arts. 1 and 11.

AI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

There are no laws, rules or regulations containing provisions pertaining to the declaration of reserves or protected zones for water preservation, control or use. However, the Ministère des eaux et forêts may proclaim certain areas as reforestation or plant restoration districts in which certain measures affecting water may be taken.

XII - GOVERNMENTAL WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

(a) At the national level:

Authority to issue permits to occupy public domain land is vested in the Conseil des ministres (Council of Ministers) which does so by decree at the instigation of the Minister for the Public Domain. The Council of Ministers may also, if it is deemed in the public interest, revoke such permits at any time by decree 1/.

The Conseil interministériel (interministerial Council) at the behest of the Head of State is responsible for investigating and suggesting to the Government appropriate solutions for matters of concern relating to two or more ministerial departments. It is composed of a president (appointed by the Head of State) and members of the Government concerned with the matters in question, as well as the chairmen of commissions of the policy bureaus of the democratic party of Gabon 2/.

The Ministère des eaux et forêts is responsible for measures regulating the flow of public streams; general care of the country's water resources; water research (jointly with other services); the implementation of measures deemed necessary for the protection or improvement of matters relating to water; the conservation, development, reforestation, and administration of public domain forests and other forests not privately owned; the delimitation of reforestation or plant cover restoration districts and for all works projects connected therewith; the implementation of soil protection and restoration measures on uncultivated land in terms of an overall policy of soil conservation; and the organization and surveillance of river fisheries. As far as river fisheries is concerned, the Ministère des eaux et forêts is responsible for inventorying the biological resources of public domain streams, conserving such resources, and regulating fisheries. In order to promote small-scale fishing and pisciculture, he is responsible for proposing research, experimental and developmental measures designed to increase fish catches and improve river fisheries. This ministry also conducts research of a technical nature in connection with applications for credit submitted to the Caisse nationale de crédit rural for loans required to equip fisheries or for pisciculture 3/.

The Comité suprême des pêches (Higher Committee on Fisheries) is responsible for laying down a national policy for fisheries and providing guidelines for, and coordinating, both governmental projects and private enterprise ventures.

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- 1/ Decree No. 173/PK of 2 June 1965 governing occupation of the public domain, art. 4.
 - 2/ Decree No. 00915/PK of 9 August 1972 creating an Interministerial Council, arts. 2 and 3.
 - 3/ Decree No. 0030 of 24 January 1968 reorganizing and defining the functions of the Ministère des eaux et forêts, art. 1; Ordinance No. 44-70 of 12 August 1970 organizing the fisheries administration.

This Committee is chaired by the Vice-President of the Government and is composed of the following ministers, or their deputies: Planning and Development, Public Works and Transport, Economic Affairs, Commerce, Industry and Rural Economy, Waters and Forests, Agriculture and Stockraising as well as the President of the Chamber of Commerce, Agriculture, Industry and Mining or his deputy 1/.

The Ministère des mines, de l'industrie de l'énergie et des ressources hydrauliques (Ministry of Mines, Industry, Energy and Water Resources) 2/ and the High Commissioner attached to the Minister for Mines, Industry, Energy and Water Resources responsible for energy and water resources 3/, also have certain responsibilities in this regard.

The Ministère des travaux publics, des transports et de l'aménagement civil (Ministry of Public Works, Transport and Civil Amenities) and especially its public works office is in charge of the development, construction and equipment of roads and communication facilities and river transport, water supply and waterworks, reclamation and pollution abatement works and the production and distribution of electric power. The director of public works jointly with services in other interested ministries, is responsible for drafting general legislation as well as by-laws governing public transport and administrative transport, the organization and functioning of public utilities services for transportation, water supply, electricity production and distribution, and public domain and riparian servitudes. The public works director is assisted in the exercise of these duties, inter alia, by the urban works and building service that is responsible for water supply (research, water impounding and distribution works, rules and regulations, supervision of public water supply systems) and for the production and distribution of electric power (research, works, rules and regulations and control over distribution). He also has the assistance of the Maritime Waters and Rivers Service, which is responsible for river port facilities (research, construction of new works and maintenance of old works, rules and regulations, operation), as well as river navigation (rules and regulations, supervision, research and works for improvement of navigation) 4/.

The Minister for Public Health and Population 5/ is empowered to take certain measures concerning public waters insofar as they affect health and the people generally.

(b) At the intermediate level

Gabon is divided into nine regions, each under the authority of a prefect. Each region is divided into several districts or subprefectures each under a subprefect.

At the regional level the functions of the Ministère des eaux et forêts are performed by regional services, i.e. in each region the regional service of that ministry is responsible for maintaining an inventory of the biological resources of public domain rivers, promulgating regulations for the conservation of fish stocks and conducting research and experimentation on methods for increasing or improving fish stocks and enhancing pisciculture productivity 6/. The duties of the director of public works at the regional level are delegated to a public works engineer, or assistant engineer, who is responsible for executing or supervising the execution of research and public works,

1/ Ordinance No. 56/69 of 6 October 1969 organizing the fisheries administration, arts. 3 and 6.

2/ Decree No. 1116/PR of 3 October 1973 establishing the composition of the Government, art. 1.

3/ Decree No. 1119/PR of 3 October 1973 on appointment of the High Commissioner.

4/ Decree No. 1152/PR-MTP of 7 September 1962 establishing the functions of the public works office and the organization of services and agencies attached thereto, arts. 1 and 2.

5/ Decree No. 1116/PR of 3 October 1973 establishing the composition of the Government, art. 1.

6/ Ordinance No. 44-70 of 17 August 1970, organizing the fisheries administration, arts. 2 and 6.

whether they be State or private enterprise undertakings 1/. He is also responsible for assisting the prefect and is at his disposal with regard to all public works matters.

(c) At the Local level

(i) Local water rights institutions and administration

Each district of Gabon consists of a rural community that has legal personality and is governed by a council, the decision-making body for all acts involving the property of the rural community. Some expenditures for which these rural communities are responsible are mandatory (e.g. water tanks and slaughterhouses). It is up to the head of the rural community to decide jointly with the council over which he presides on methods for the most suitable application of the funds available in terms of the council's budget. He works in collaboration with the subprefect who acts as a technical consultant 2/.

There are also six autonomous communities: Libreville, Port Gentil, Oyem, Dikou, Mouila and Cambaéné that are not included in these rural communities. Each of them has a municipal council headed by a mayor who, upon appointment, submits to the President of the Republic a list of candidates for posts as his assistants. These assistants are also appointed by presidential decree. Certain of them have a particular responsibility for public roads, garbage disposal and public health, although their specialities do not exclude them from participation in the overall management of community affairs 3/.

(ii) Water users' associations

Before a cooperative has become established, a committee is set up in order to determine, inter alia, what investments are required and what resources are available, as well as to draw up a practical programme of matters to be dealt with. Such pre-cooperative committees must be constituted by a private declaration, signed by at least seven persons and stating the official name of the association, its capitalization and its head office. Only committees approved by a special committee for this purpose may obtain loans from the Caisse nationale de crédit rural. The special committee for cooperatives is presided over by the Minister for Rural Economy and consists of the Minister of the Interior and the directors of the following services: agriculture, waters and forests, rural economy, stockraising, fisheries and the Caisse nationale de crédit rural 4/.

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- 1/ Decree No. 11-2/45-75 of 7 September 1962 establishing the functions of this office, arts. 1 and 2.
 - 2/ Law No. 8/60 of 6 May 1960 on creation of rural communities, arts. 1, 2, 3, 25, 17, 35.
Law No. 10/64 of 3 June 1964 amending Law No. 8/60 of 6 May 1960, art. 1.
 - 2/ Law No. 20/66 of 20 December 1966 on the organization of the municipality of Libreville, arts. 2 and 3.
 - 4/ Decree No. 00975/PR Min. Agr. of 15 October 1970 setting up producers' associations, pre-cooperative committees and cooperatives, arts. 3, 4 and 11.

(d) At the international level

Gabon shares various river systems with its neighbours. The Benue (with Equatorial Guinea), the Campo (with Cameroon and Equatorial Guinea), the Nyanga (with Congo), the Ogooné (with Cameroon, Congo and Equatorial Guinea) and the Rio Mouni (with Equatorial Guinea).

Most of the various agreements which refer to these river systems deal with questions of boundary demarcation, commerce and navigation ^{1/}, and apparently, no other conventions exist which relate to the use of the water resources of these river systems other than the African Convention on the Conservation of Nature and Natural Resources ^{2/}, to which Gabon is a party.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

(a) The Régie d'exploitation des fermes de production (the authority administering production farms), which is responsible for production and marketing of agricultural commodities of both plant and animal origin, is empowered to make appropriate agreements or conventions with any agency specializing in agricultural research or any financing body and in general, to undertake all commercial, industrial, real estate and financial operations or transactions compatible with its aims. It is a governmental agency under the Ministère de l'agriculture (Ministry of Agriculture) and possesses both civil personality and financial autonomy. It is administered by a Board of Directors. The funds necessary for its investments and its functioning are provided from the following: budget appropriations, government approved funds and subsidies, technical, economic and social assistance agencies, (whether national or international), and from the proceeds arising out of the sale of its commodities ^{3/}.

1/ For an exhaustive list, see: Systematic Index of Treaties governing International Water Resources, IAC, op. cit.

2/ Signed in Algiers, 15 September 1968, cit.

3/ Ordinance No. 32/65 of 23 July 1965 establishing an authority for the operation of production farms, arts. 2, 3, 4, 5 and 6.

(b) The Caisse nationale de crédit rural (National Agricultural Credit Fund), another public agency with legal status and financial autonomy, is a government banking society specializing in agricultural credit. Its function is to promote, facilitate, organize and develop credit lines and operations for persons deriving their livelihood from rural resources 1/.

(c) The Conseil supérieur des transports (Higher Council on Transportation) is a public agency with civil status and financial autonomy under the Minister for Transportation. It is empowered to advise on all matters of transportation or any other matters put before it by at least one-third of its members. It transmits its advice to the Minister for Transportation whose decisions are final. Should the Minister not accept the advice of this council, the matter must be referred back to the council for reconsideration 2/.

(d) The Société d'énergie et d'eau du Gabon is a mixed economy or semi-governmental authority with particular responsibility for energy distribution and water supply but not for energy production or the fixing of water rates.

XIV - LEGISLATION ON WATER RESOURCE DEVELOPMENT FINANCING

(a) Government financial participation and reimbursement policies

The Government of Gabon has assisted in the financing of the expansion of pipelined conveying drinking water in Libreville. It has unconditionally underwritten the loan concluded between the Société d'énergie et d'eau du Gabon and the International Bank for Reconstruction and Development. It has also agreed to take all measures deemed advisable by the bank to ensure repayment to any other lending agency (including the immediate provision of any funds that may be required) whenever there is good reason to believe that the funds available from the bank will not be sufficient to cover estimated expenditures for completing the project. Finally, it has granted the municipality of Libreville a subsidy for execution of the project 3/.

The Government has contracted several loans from the Caisse centrale de coopération économique (Central Economic Cooperation Bank) for water supply purposes and for the electrification of towns, cities and rural villages 4/. It also underwrites any loans

- 1/ Ordinance No. 13/70 of 5 March 1970 creating a national agricultural credit fund, arts. 1, 2 and 3.
- 2/ Ordinance No. 31/72 of 17 April 1972 establishing the Conseil supérieur des transports, arts. 1 and 2.
- 3/ Ordinance No. 41/73 of 27 July 1973 authorizing the ratification of the underwriting agreement between the Republic of Gabon and the IBRD for the project for water conduction to Libreville, art. 1.
- 4/ Ordinance No. 23/72/PR of 17 April 1972 authorizing the Government of Gabon to contract a loan from the Caisse centrale de coopération économique, art. 1. Ordinance No. 5/71/PR of 5 February 1971 authorizing the Government of Gabon to contract a loan of UFAS 5 million from the Caisse centrale de coopération économique for electrification of and water conduction to rural villages, art. 1.

that the Société d'énergie et d'eau du Gabon contracts directly with the Caisse centrale de coopération économique and in addition, underwrites promissory notes up to certain amounts floated by various enterprises in order to pay for either works or supplies required for projects undertaken by the Société 1/.

The Société d'énergie et d'eau du Gabon has undertaken to proceed with the electrification and bringing of water supplies to villages and to expand existing facilities. In view of this the Government of Gabon has granted the Société fiscal relief in the form of a reduction of customs duty on material supplies, machinery and tools directly required for the Company's activities in this regard and tax relief in the form of exemption from (i) the tax on domestic business turnover to the extent that it relates to the supply of electric power and water to all centers other than Libreville and Port Gentil and (ii) real estate taxes on all property of the company attributable to such activities. This tax relief has been granted as from 11 May 1972 for a period of 10 years 2/.

When it underwrites any financial obligations of the Société d'énergie et d'eau du Gabon, the Government of Gabon exacts a commission of 0.5% which commission is paid to the Caisse autonome d'amortissement (Autonomous Amortisation Fund) 3/.

(b) Water rates and charges

Annual taxes are levied on any public domain used for habitation, commerce, crop growing, stockraising or industry. However, as an exception and only provided it is found to be in the public interest, either total or partial exemption from such annual taxes may be granted. These taxes are collected in advance by the public domain service and accounted for in the budget under the heading of "Income from the public domain" by the public domain service. In any instance where the tax is not paid, the person in whom the authorization to occupy public domain has been granted is given three months notice to make payment, failing which his rights under the authorization lapse 4/.

XV - WATER LAWS IMPLEMENTATION

(a) Juridical protection of existing water rights

Rights of use to public domain waters are protected by the special decree under which authorization to occupy the public domain is granted.

(b) Modification, Termination and reallocation of water rights

Water use rights may be annulled for several reasons, i.e. if the person to whom they are granted fails to comply with all obligations imposed upon him; if he uses the installations

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- 1/ Ordinance No. 53/70 of 5 October 1970 giving government backing to various operations to be carried out by the Société d'énergie et d'eau du Gabon, art. 1.
 - 2/ Decree No. 30662/PR of 5 July 1972 prolonging schedule 1/B of the Code of Investment for the Société d'énergie et d'eau du Gabon, arts. 1, 2 and 4.
 - 3/ Ordinance No. 53/70 of 5 October 1970 by which the Government underwrites certain operations of the Société d'énergie et d'eau du Gabon, art. 2.
 - 4/ Decree No. 193/PR of 2 June 1965 governing occupation of the public domain, arts. 9 and 10.

or structures in a manner inimical to public health or safety or for purposes other than those for which the authorization to occupy was granted him; if he cedes his rights to a third party without prior approval of the administration; if he disobeys police rules and regulations or does anything contrary to conservation of the public domain or its correct utilization; if he commits any infraction of traffic regulations; or if he fails to exercise correctly any servitude for the public benefit or military servitude. His authorization may also be revoked by decree of the Council of Ministers for any reason considered by them to be in the public interest 1/.

(c) Water tribunals, courts and other judiciary water authorities

Disputes over water rights are settled by water tribunals or courts or, if they have not been constituted, by the appropriate administrative agencies or civil law courts.

(d) Penalties

The Ministère des eaux et forêts and in particular its Hunting, Fishing and Pisciculture Service, is responsible for punishing infractions of the laws governing hunting, fishing and wildlife protection 2/. Violations of other appropriate legislative provisions are punishable in the normal course.

1/ Decree No. 173/PR of 2 June 1965 governing occupation of the public domain, arts. 13 and 4.

2/ Decree No. 0030/PR of 24 January 1968 reorganizing and specifying the functions of the Ministère des eaux et forêts, art. 13.

KENYA 1/

I - INTRODUCTION

(a) Geophysical-climatic conditions

Kenya is situated on the east coast of Africa straddling the Equator, extending approximately from 4°N to 4°S latitude and 34°E to 41°E longitude. It occupies about 583,000 square kilometers and is bounded on the east by the Indian Ocean, to the north by Ethiopia, Sudan and Somalia (also to the north-east), to the west by Uganda and to the south by Tanzania. The population is over 13,400,000 2/. This population is not, however, evenly distributed over the land area due to variations in physical and climatic conditions. There is concentration on the coast, the Lake Victoria area and the highlands in the centre. That is to say, at least 75 per cent of the people staying on 10 per cent of the land. From another angle, it can be said that the northern portion of the country accommodates about half of the total population.

The physical features of the country consist of a very extensive erosional plain dented across by crystalline rocks of Precambrian period, rising systematically from the lowlands at the coast to the enormous undulating plateau and mountains of the south-west, reaching 1,500 metres above sea level. The lowlands include a narrow belt of tropical vegetation. The heights of these highlands had been increased by the outpourings of lavas from volcanic activity; vivid examples exist: Mt. Kenya (17,058 ft) and Mt. Elgon (14,178 ft). The Rift Valley, which runs from the north to the south the whole length of the country, separates the highlands into east and west. The Rift Valley houses a string of lakes from L. Turkana in the north to L. Magadi in the south. In the west, the plains dip under L. Victoria, and in the east they extend below a basin formed of sediment.

Though Kenya straddles the Equator like Zaire or the Amazon Basin, yet it has nothing near the equatorial vegetation of these regions due to altitude and monsoons, resulting in variation in rainfall pattern. So it is not a hot and well-watered country generally as would be expected. Roughly 4/5 of Kenya can be said to be semi-arid or arid. This covers all the area from the scrub of the coastal region to the northern semi-deserts. The coastal belt along the 400-kilometer coast is composed of narrow belt of lowland of which rarely over 30 kilometers in width is below 750 metres altitude which would be hot and the southern portion of which has an annual rainfall of up to 1,000 mm. The heaviest falls are during April and May when the monsoons from the Indian Ocean hit the land with much ferocity. 3/

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- 1/ Based on the study prepared for the PAO Legislation Branch by S. Burchi, Dottoressa in Giurisprudenza, Rome, Italy; LL.M. (Harvard, U.S.A.); M.S. (Michigan, U.S.A.), and revised in December 1978 by P.W.J. Odaro, Legal Advisor to Water Board, Republic of Kenya, in Rome, Italy.
- 2/ According to 1975 population study: Quarterly Economic Review, Kenya Annual Supplement 1975, Economist Intelligence Unit, London, 1975.
- 3/ I.D. Carruthers, "Impact and Economics of Community Water Supply", Wye College, Ashford, Kent, 1973, pp. 4 and 5.

Moving inland from the coast, the land rises and the climate ranges from sub-tropical to temperate. Grasslands are in the middle altitudes while in the plateau and upland areas with altitude of 1,500 - 2,800 metres some of the best farming land in Africa is found. These south-west highlands have a wet climate with the bulk of the area receiving over 1,000 mm of rainfall annually. Rains are most abundant during the hottest seasons, but temperatures are tempered by the high altitude. The highlands west of the Rift Valley have one long rainy season, whereas around Lake Victoria and east of the Rift Valley, there are two distinct seasons: (i) long rains, March to May; and (ii) short rains, September to October.

The north-east is basically lowland below 750 metres and most of the northern part is lowland, hot and dry. The Chalbi Desert is here. It is south-east of Lake Turkana with sparse vegetation, thorny shrub and average rainfall of under 500 mm. River beds in this region, Uaso Nyiro, Turkwell and Kerio, are dry for most of the year except after occasional heavy rains when they may be raging torrents.

(b) Water and related resources

Rainfall is not, in a sense, really sufficient except in the highland areas. It is both erratic in relation to its mean and poorly distributed over the year.

Kenya is predominantly an agricultural country with the vast majority of its people dependent on agriculture as their source of income. About 1/2 of the agricultural output is at subsistence level with little irrigation. The main crops include coffee, tea, sisal, maize, wheat, sugar, pyrethrum, cotton and other grains. Dairy and meat products are exported to Central Africa and Europe. Fishing is expanding on the Indian Ocean and on the inland lakes. Minerals are not abundant but some, like soda ash, fluor spar, kyanite and graphite are exploited. 1/ In addition, a 2,000,000-ton lead and silver reserve has been discovered at Kinungoni, north of Kombasa. 2/ Forest resources are largely restricted to the upper range of the Kenyan highlands. Kenya has a fairly adequate network of roads which facilitates travel, though some are not all-weather roads. Tourism contributes a significant share to the country's economy as well as earning foreign exchange. In recent years it has only been second to coffee.

There are important lakes in the country, numerous of which are in the Rift Valley: Lakes Turkana, Naivasha, Elementaita, Nakuru and Magadi. Lake Victoria is west of the Rift Valley. The largest rivers are the Tana and Galana, both flowing south-easterly into the Indian Ocean. In 1974 the Tana River Development Authority 3/ was created to co-ordinate development projects in the Tana River Basin.

Since annual precipitation is maldistributed in both time and space, conservation of run-off has been an important aspect of water resource management. Much has been achieved and over 8,000 dams of varying capacity and type are existing. Techniques have been adopted to suit local conditions and innovations have been successfully introduced. In this regard the Soil Conservation Unit of the Ministry of Agriculture and the Dam Construction Unit of the then Water Department, and now the Water Conservation Section of the Ministry of Water Development have been very active. As demands for water increase, especially with need for more irrigation, so does the need for creating new sources.

1/ UNDP Report on the "Living Conditions in Kenya", UNDP/ADM/POST/REN/REV. 4, 19 September 1974, Nairobi, p. 7.

2/ Europe Yearbook: "Africa South of the Sahara", 1976/1977, p. 436.

3/ Tana River Development Authority Act, Cap. 493A, Laws of Kenya.

Many of the dams built so far are earth dams; but there are also methods that are labour-intensive and more suited to rural areas especially with the upsurge of the self-help ("harambee") spirit in building water schemes. Sub-surface dams on sand rivers, rock-catchment storage on and around in-selbergs that are found in parts of the country, and underground tanks fed by artificial catchment aprons are examples. The protection of springs and swamps is also significant.

(c) Politico-judicial history

Kenya's pre-colonial history is characterized by numerous lightly governed small-scale communities, with highly localised trade, mainly exchanges between cattle-breeders and cultivators. Such was the way of life of the Luo and Luhya of the Lake Victoria Basin; the Kikuyu of the east, the pastoral Masai of the central highlands and the Kamba who lived towards the coast. However, with the advent of the Arabs and Persians in the eighth century A.D. and the introduction of slave trade, a change in the life-style of the local populace occurred. The Portuguese arrived in the 16th to 18th centuries. But they withdrew when the Sultan of Muscat established his authority over this area. In 1645 a German missionary, Ludwig Krapf, traversed the highlands and made a report on Mt. Kenya and Mt. Kilimanjaro. In 1888 the Imperial British East Africa Company established trading posts throughout what later became Kenya and thereafter a railway line was constructed from Mombasa to Lake Victoria at Port Florence (now Kisumu) which was then Uganda. In 1895 the British Government took over I.B.E.A. Company and Kenya was made a British Protectorate. White settlement started in 1902 in the highlands and despite resistance by the Africans, much of Masai area and part of Kikuyu land was alienated to the settlers. In 1907 a Legislative Council was created consequent upon settler agitation, spearheaded by Lord Delamere. It excluded Africans. In 1920 Kenya was made a Crown Colony save a 10-mile wide strip at the coast which was the domain of the Sultan of Zanzibar, which remained a Protectorate. On 12 December 1963 Kenya gained independence and on 12 December 1964, it became a Republic within the British Commonwealth. It has a Constitution with a multi-party provision but de facto it is a one-party State. It has a unicameral legislature but before the Republican Constitution it was bi-cameral, with a Senate and a Lower House of Representatives.

Land tenure system is conditioned by tribal practices which considered land as being communal. But the modern history has been influenced by white settlement which provided separate systems of substantive law for Africans and settlers. 1/ It was evident that the aim of the colonial Government was to start and manage a political and economic structure which would enable the settlers to retain power through legal and constitutional arrangement. The colonial apparatus with all the courts and administrative structures, legal systems, and land tenure policy was designed to realize this fundamental objective of protecting at all costs the interests of the settlers. Before 1959 the substantive conveyancing law for the Europeans was the Indian Transfer Property Act augmented by Ordinances locally promulgated with a background of English Common Law as received in Kenya on 12th August 1897, provided always that "the common law, doctrines of equity and the Statutes of General Application shall be in force..... only as the circumstances of the colony and its inhabitants permit and subject to such qualifications as local circumstances render necessary." 2/ It was about this time that the idea of Africans owning land within the "White Highlands" was accepted. The legal system provided for individual leasehold or freehold tenure in the European settlement areas. In African areas

1/ Hutchison: "Africa and Law: Developing Legal Systems in African Commonwealth Countries", Madison/Wisconsin, 1968, p. 75.

2/ Government Notice No. 337 of 1921.

land tenure law provided that the individual African had usufructuary rights of land occupied by him which could be inherited on death. But pastureland, forests, watering points and salt licks could only be used by the individual in common with other members of the tribe. The native communal tenure system was perpetuated by the creation of Native Reserves. The reserves in the final analysis became inadequate to accommodate the populace and uneconomic fragmentation of the holdings resulted due to the customary inheritance system. By 1906 there were five native reserves. Alienations continued under the Crown Lands Ordinance, 1902. Pressure by Africans gave birth to the Crown Lands Ordinance, 1915. ^{1/} This law had the merit of incorporating under its ambit as reserves all native land and thereby halting further alienations.

The Kenya Government has so far elected to operate within the non-indigenous constitutional framework of the colonial era. As regards land, normative law is adopted but various native laws and customs are still operative. However, these are being progressively eliminated by the application selectively of the Registered Land Act. ^{2/} It follows therefore that the sources of Kenya's land and water legislation policy and administration are the colonial English Common Law and the various tribal customary laws.

Every town in Kenya has a piped water supply. About 20 per cent of the total Kenyan population is served by a modern water service, more than double the percentage typical of developing countries; ^{3/} and the number is growing annually with many water schemes being built on a self-help basis.

In 1951 the Water Act ^{4/} was enacted. In October 1974 a Ministry of Water Development was created by Presidential Decree. Hitherto water resources had been managed by the Water Department of Ministry of Agriculture, which was a successor to the Hydraulic Branch of Ministry of Works.

II - LEGISLATION IN FORCE

The basic texts of legislation noted in this work are:

1. The Water Act, Cap. 372.
2. The Water (General) Rules, 1953 (Under Water Act).
3. The Water (Catchment Board) Rules, 1968 (Under Water Act).
4. The Water (Undertakers) Rules, 1953 (Under Water Act).
5. The Water (Water Development Department) (Amendment) Regulations, 1971, (Under Water Act), Legal Notice 214/1971.
6. The Water (Water Development Division) (Communal Water Points) Regulations, 1971 (Under Water Act), Legal Notice 32/1971.
7. The Water (Water Development Department) (Wastaore) Regulations, 1975 (Under Water Act), Legal Notice, 18/1975.

^{1/} No. 12 of 1915.

^{2/} Cap. 300, Laws of Kenya, which is a unified system.

^{3/} I.D. Garruthers, *op. cit.*, p. 7. See also WHO "The Organization for Water Development in Kenya", 1963, p. 4, where the estimate then was a mere one eighth.

^{4/} Cap. 372, Laws of Kenya.

8. The Water (Water Development Department) (Tariff) Regulations, 1975 (Under Water Act), Legal Notice 94/1975.
9. The Water (Water Development Department) (General) (Amendment) Regulations, 1975 (Under Water Act) Legal Notice 95/1975.
10. The Irrigation Act, Cap. 347.
11. The Public Health Act, Cap. 242.
12. The Public Health (Drainage and Latrine) Rules, 1965 (Under Public Health Act).
13. The Agriculture (Basic Land Usage) Rules, 1965 (Under the Agriculture Act, Cap. 316).
14. The Lakes and Rivers Act, Cap. 409.
15. The Ferries Act, Cap. 410.
16. The Malaria Prevention Act, Cap. 246.
17. The Mining Act, Cap. 306.
18. The Fish Industry Act, Cap. 378.
19. The Electric Power Act, Cap. 314.
20. The Electric Supply Lines Act, Cap. 315.
21. The Tana River Development Authority Act, Cap. 191A.
22. The City of Nairobi (Water Supply) By-Laws, 1974 (Under the Water Act), Legal Notice 123/1974.

III - OWNERSHIP OF WATER RESOURCES

The Water Act provides that "the water of every body of water is vested in the Government". 1/ This is made subject, however, to any rights of user acquired in accordance with any law in force. This extends to both surface and underground waters. The control of the waters shall be exercised by the Minister for Water Development; and the right to use water vested in him. 2/

Kenyan Law has groundings in the English Common Law as has been outlined. The English Common Law itself is having origins in Roman Law in which there is no ownership or property right in public water, that is, water running in a stream, river or other natural channel including subterranean waters flowing in known channels which are defined. Such water is "publici juris" in the sense that it is public or common to anyone having a right of access. Only water which accumulates or falls on private land and which is collected in drains or reserves or underground water not flowing in defined and known channel is privately owned, but only while the water remains in the abstractor's possession, and not otherwise. 3/

1/ Section 3, Water Act.

2/ Ibidem, ss. 4 and 5.

3/ "Water Law in Selected European Countries", FAO, Legislative Studies, No. 10, Vol. I.

Under customary law, watering points, etc. belong to the community and can be used by all.

IV - WATER RIGHTS

(a) Mode of acquisition

The control of water resources is exercised by the Minister for Water Development; any right to use water is vested in him unless it is the exercise of a right legally acquired prior to coming into force of the current Water Act, i.e. licence or sanction. 1/ However, it is open to either sanction-holder or licensee to apply to the Water Apportionment Board 2/ for this right to be converted into a permit; 3/ and it is highly doubtful if there are persons still exercising sanction or licence.

Accordingly, a right to use water can only be acquired under the Water Act, be it for domestic, public, irrigation, industrial, power generation or any other approved purpose. 4/ This is by way of permit issued by WAB, on behalf of the Minister. The permit would state the class of project, and clauses can be seen in the Water Act. 5/

But there are circumstances when a permit is not required. 6/ One instance is the use of water for domestic purposes by a person having lawful access thereto and without application of "works". 7/ Secondly, when works for development of groundwater are not situated within 100 yards of any body of surface water or half mile of another existing borehole and are not within a "Conservation Area" 8/. The third case is the storage of water in, or abstraction from a dam built in a channel or depression declared by WAB not to be a watercourse. 9/

Fishing in territorial waters is subject to a licence; but this does not apply to a person catching fish for his domestic consumption alone 10/; and exclusive rights of fishing may be granted to a person by licence. 11/

(b) Water use permits

Permits for the diversion or abstraction of a specified quantity of water for a specified purpose are issued by WAB if it is in the public interest so to do. The permits vary in duration: for purely domestic purposes they are granted for 25 years. Where it is for irrigation, or is for another purpose combined with irrigation, WAB limits the duration to 5 years, on the expiry of which a review is done on application for renewal by the permit-holder and if it is determined that, inter alia, beneficial use is still being made of the water, a further 5-year period is granted, and so on.

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- 1/ Sections 4 and 5, Water Act.
 - 2/ Hereinafter designated as "WAB" or "The Board".
 - 3/ Section 46, Water Act.
 - 4/ Ibidem, s. 35.
 - 5/ Sections 39-44.
 - 6/ Section 38, Water Act.
 - 7/ Ibidem.
 - 8/ Ibidem, ss. 70 and 74.
 - 9/ Ibidem, s. 38.
 - 10/ Section 9, Fish Industry Act.
 - 11/ Ibidem, s. 8 (b).

The WAB is not obliged to renew, but will take into account the water demand situation and may renew with/without modifications. Water for industrial use, e.g. coffee processing, is granted for 25 years. Where a permit is sought for road construction or compaction or for a similar project which by its nature is of limited duration, two years is allowed. But the period is in the absolute discretion of the WAB. For instance, in 1976 it granted a permit for 50 years for domestic purposes to the Director of Water Development for the Sabaki Water Scheme which is massively funded by the World Bank and is designed to supply Mombasa and its environs. 1/

Procedure for issue of water permit is as follows: an application in triplicate is filed with WAB, with a plan showing clearly where on the applicant's land water is to be diverted from, route for pipeline (if any), location of pump (if any) and point of use. If any property affected (by way of easement) or road is to be crossed by pipeline, this must be shown and authority for roadcrossing be obtained from Ministry of Works. If the application is brought to WAB headquarters direct, a copy of it shall be sent to the Water Bailiff of the area where works are situated, who shall inspect the place and verify all information, table it before the Catchment Board for the area which shall make recommendation thereon to WAB. This recommendation does not bind WAB but it is always taken into account. Meanwhile the application is advertised, but only when it is in "the public interest" so to do. In practice, however, all applications are advertised and objections thereto are entertained within 30 days. There would be a public enquiry and a final decision is thereafter taken by WAB. 2/

It is worth pointing out that there is nothing like "conditional approval" in practice. No public enquiries are ever held. The furthest WAB goes is to look at the application, the objection and reply thereto, and if necessary, call both parties to argue their points before it.

If the application is approved (and refusals are rare indeed), WAB grants "Authorization" to commence construction of works (but in numerous cases applications are to legalize existing works). Upon satisfactory completion of works and a report to that end filed by the Water Bailiff after physical inspection of the works and certificate that they are in accordance with plans as submitted, water permit may now be issued. 3/

In exceptional cases, water permits for up to one year may be issued by WAB without the normal procedure except that WAB must consider extent of interference with other users' domestic requirements before proceeding. 4/ WAB has in practice defined these cases: (i) Public water supplies; (ii) construction of dams which may be to catch rains when they come or machinery may be in the vicinity; (iii) loans to be granted by Agricultural Finance Corporation for farm development which may only be approved with firm evidence that a water right will be secured after all and (iv) watering nurseries.

It is noteworthy that in practice there is no limitation to one year and these powers are exercised by the Chairman of WAB, generally, when such matter is taken care of between meetings.

1/ Vide passim, ss. 49, 95 and 102, Water Act.

2/ Ibidem, s. 84.

3/ Ibidem, ss. 78-88, Water Act; regulations 36, 38, 45-47, Water (General) Rules.

4/ Section 47 (f), Water Act.

Water permits are issued subject to the terms and conditions that W&B deems in its discretion to be necessary. 1/ These include: (i) installation of controlling and measuring device at intake; 2/ (ii) limitation to 60 per cent of the tested safe yield in case of groundwater; (iii) the passing over of waste or surplus water; (iv) keeping canal (if any) clear of weeds to allow unobstructed passage of water; (v) anti-pollution measures being installed to the satisfaction of W&B; and (vi) (in the case of coffee processing) used water not returned to the watercourse. W&B may impose any condition as circumstances require.

Any permit may be varied, revised, or even cancelled by W&B due to circumstances which include: (i) shortage of water needed for domestic or any other purposes which in W&B's opinion should have priority; 2/ (ii) non-compliance by the permit-holder with terms and conditions endorsed on the permit; 3/ (iii) water not used beneficially; 4/ (iv) irrigation of land within or close to a township, whenever this endangers public health. 5/ The Water Resources Authority may require any person, and W&B any holder of a permit, to keep a record of water diverted, abstracted or stored. 6/ No public record is apparently required by law to be kept, although W&B has a very accurate record, and this data is now being computerised. As far as practicable, a water permit is to be declared by W&B to be appurtenant to the land or undertaking for which it has been issued as was shown on the plan during application; and it should pass with any disposition of the land or the undertaking. 7/ However, the permit must be surrendered to W&B for the endorsement thereon of the name of the new landholder. 8/ In practice, the new landholder has to apply to W&B for transfer of the permit to himself, which may be done with/without assignments.

V - ORDER OF PRIORITIES

(a) Between different uses

The Water Act gives domestic uses of water precedence over any other use, and entitles W&B to reserve such part of the flow of a body of water as may be required for domestic purposes. 9/ In addition, W&B may revise or vary any existing water permit whenever shortage of water for any purpose which deserves priority occurs. 10/

Priorities for use of groundwater may be established by W&B in each area which constitutes a separate source of supply. 11/

1/ Ibidem, ss. 28, 73 and 95 (1); regulations 58 and 69, Water (General) Rules.

2/ Section 98 (1), Water Act.

3/ Ibidem, s. 99 (a); regulation 56 (2), Water (General) Rules.

4/ Section 99 (b), Water Act.

5/ Section 157 (1), Public Health Act.

6/ Section 21 (2), Water Act; regulation 88, Water (General) Rules.

7/ Section 48, Water Act.

8/ Ibidem.

9/ Section 82 (2), Water Act.

10/ Ibidem, s. 98 (1) (a).

11/ Ibidem, s. 77.

(b) Between different areas

Under the Water Act the Minister for Water Development may order that excess domestic water in an Area be supplied to other areas hit or threatened by a deficiency of water for essential domestic purposes. Compensation is provided for such water so supplied. 1/

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Domestic and household uses

The provision and distribution of water supplies for domestic and other uses is done by public or local authorities or persons or bodies duly appointed as Water Undertakers by the Minister for Water Development, after consultation with the Water Resources Authority. 2/

It may be pointed out that the Director for Water Development himself is a significant water undertaker. He manages most of the public water schemes. Also, WRA ceased to function in 1968, and though it exists in legal theory, all its functions are being discharged by the Director for Water Development. Residual duties are done by WAB. All this is done without legal delegation of powers.

Local Authorities or other persons need not be appointed water undertakers when supplying water for domestic uses to less than a fixed number of households or below a fixed quantity of gallons per day, but no such Authority or body may so act without the written permission of the Water Undertaker for the area. 3/ In fact, for one to erect his own works to supply himself with water, the Water Undertaker under whose jurisdiction he falls (if any) must give him a letter of "no objection" to bring to WAB before his application for water permit may be processed.

When a proprietor or occupier of premises requires a supply of water for domestic uses, he must submit an application to his Water Undertaker who must approve the same before the applicant can lay the necessary service pipes and make the requested payments. 4/

When this is done, the applicant is then entitled to receive a supply of water sufficient for his domestic needs 5/ and the Water Undertaker must lay and maintain drains and necessary communication pipes and connect these with the service pipes. 6/ Charges for the water and services rendered are provided for in the regulations or by-laws (if a Local Authority) to be made by each Water Undertaker. 7/

The regulations or by-laws provide also for technical requirements of water fittings to be used for alteration, repair, or replacement thereof. 8/ By separate regulations or by-laws, the undertaker may provide for the prevention of pollution of water supplied by him. 9/

1/ Ibidem, s. 17.

2/ Hereinafter designated as WRA. Section 124 (1), Water Act; regulation d, Water (General) Rules.

3/ Sections 124 (4), (5), Water Act.

4/ Water (Undertakers) Rules, regulation 25.

5/ Ibidem, regulations 16 and 17.

6/ Ibidem, regulations 15 (1); 26 (1); 29.

7/ Ibidem, regulation 30; section 143 (1), Water Act.

8/ Section 143 (2), (3), (3A), Water Act.

9/ Ibidem, s. 145 (1), (7), (10).

Water undertakers are empowered to disconnect supplies on (i) breach by the consumer of the provisions of the law or regulations; (ii) on non-payment of water charges due. 1/

Where there is or is threatened a shortage of water for domestic uses, the undertaker may prohibit or restrict any use of water supplied by him; 2/ or the Minister for Water Development may direct that supplies of water in excess of one's domestic requirements be supplied to the area/persons hit/threatened by the deficiency. 3/

A water undertaker operates within a defined and gazetted area. However, water may be supplied to premises situate without these limits with prior approval of the Director of Water Development. 4/

Amalgamations or transfers of undertakings may be done with the prior approval of the Minister. 5/ Where the undertaker is in default, the Minister may transfer to himself the undertaking, and through the Director of Water Development, discharge the functions; he may likewise transfer to another undertaker. 6/

The distribution and utilization of water supplies may also be provided by Communities or Associations of Operators, subject to the approval of WAD. Rules of the Association must be approved by WAD and must provide, inter alia, for tariffs and democratic management. 7/

(b) Municipal users

Municipal authorities or other bodies may undertake and operate or maintain projects for the supply of water to municipalities, townships, trading centres or other urban communities. These are "urban" projects and may be issued with water permits. The Authorities then, become Water Undertakers and are governed by the law relating thereto as has been shown.

Within urban areas, the Water Undertakers are obliged by law to make water available for fire-fighting purposes. 8/ The fire authority needs to make the request and shoulder the expenses, whereupon the water undertaker affixes and maintains fire hydrants at convenient points for fire extinguishing. A proprietor or occupier of premises may on like terms benefit. 9/ Water for cleaning sewers and drains and watering roads may be provided by the undertaker by agreement with the public authority. 10/

1/ Water (Undertakers) Rules, regulation 33 (1).

2/ Section 142 (1), Water Act.

3/ Ibidem, s. 17 (1).

4/ Ibidem, s. 128. The title of Chief Hydraulic Engineer converted to Director of Water Development.

5/ Section 125, Water Act.

6/ Ibidem, s. 136 (1).

7/ Ibidem, ss. 98 (2); 144 (1), (3); Water (General) Rules, regulations 12-19.

8/ Water (Undertakers) Rules, regulations 19 and 20.

9/ Ibidem, regulation 21.

10/ Ibidem, regulation 24.

(c) Agricultural uses

The right to use water for irrigation requires a permit from W&B. There are two heads: minor irrigation, which covers up to two acres, and general irrigation, which covers over two acres. 1/

Permit-holder for irrigation must provide for efficient drainage of the land and for the return of residue of unused or used water to a watercourse by efficient drainage works. Where the drainage works are inadequate or the irrigator does not otherwise comply with these requirements, his permit may be cancelled whereupon he becomes guilty of an offence for maintaining unauthorized works. 2/

Additional provisions safeguard public health. The Minister for Health may, after consultation with the Minister for Agriculture, prohibit the cultivation or irrigation of land in an urban area or up to three miles therefrom if the practice is "unhealthful or insanitary"; and the water permit may be cancelled. 3/

Specific regulations may be made by the Minister for Water Development to govern the use of water on lands declared to be "national irrigation schemes". 4/

Other specific rules apply to the use of water within irrigation areas situated on State land 5/, and Trust Land. 6/

(d) Fishing

Fishing falls under the ambit of the Fish Industry Act 7/. It empowers the Minister for Natural Resources to make regulations for reorganizing, developing, and regulating the industry. 8/ The Minister has made extensive and comprehensive regulations in this regard to cover nearly all major aspects of fishing. Inland trout fishing is governed by the Trout Act. 9/

1/ Section 35 (e), (f), Water Act.

2/ Ibidem, s. 45.

3/ Section 157, Public Health Act. But it is suggested that the Ministers may have to call on W&B to do this because otherwise they have no legal authority.

4/ Section 27 (1) (c), Irrigation Act; The National Irrigation Board, which manages national irrigation schemes was transferred from Ministry of Agriculture to Water Development late November 1978.

5/ Government Lands (Irrigation Areas) Rules, regulations 8 (1) (e) and 26, made under Government Lands Act.

6/ Trust Lands (Irrigation Areas) Rules, made under Trust Lands Act.

7/ Cap. 378.

8/ Section 7.

9/ Cap. 380.

(e) Power

The right to provide and employ water for hydro-electric power generation is subject to a permit, which permit may be cancelled where it is in the public interest to exploit to the optimum the power potential of the site and the operator has not done this despite direction from WAB. 1/ However, such past operator is entitled, like every one else, to be supplied with power therefrom. 2/

The generation and supply of hydro-electric energy in bulk, and the distribution, are subject to separate licences issued by the Minister for Power and Communications under the Electric Power Act. 3/ These permits are valid within the limits of a n assigned area of supply. Duration of the permits vary, but could be as long as 50 years for the generation and supply of electricity and of unlimited duration for the distribution of power. 4/ Local generating licences may also be granted to authorized distributors for distribution requirements. 5/

Revocation of such licence may be done when the licensee is insolvent, or where the undertaking can only be carried on at a loss, or with the consent of licensee. 6/ Where revocation may lead to termination of supply, the Minister may himself, presumably through the Government-owned East African Power and Lighting Company Limited, operate the enterprise to ensure continuity of supply. 7/

The installation of electrical apparatus in, under, or across rivers and canals, requires an authorization while "permission" is required for the laying and connecting on third parties' land of electric supply lines. Both of these emanate from the Minister of Power and Communications.

(f) Industrial and mining uses

Industrial and mining uses of water need to be authorized. 8/ Involved legal provisions pertain to disposal of the industrial waste waters. Such water needs to be returned to the body of water from which it was taken or to any other body of water sanctioned by WAB. However, this water must be treated to acceptable standards of purity acceptable to WAB and it must be suitable for use by downstream users before it is legally returned. This is a common law right of riparian owners. Water from coffee processing needs to be screened so that coffee berries do not enter the watercourse. 9/ In fact, WAB has devised "recirculation" system whereby a given quantity of coffee-processing water is used several times over and finally disposed of by way of seepage pits and should not under any circumstances reach the watercourse. WAB has a condition endorsed on all permits for industrial uses, that "anti-pollution measures shall be taken to the satisfaction of WAB" and in cases of coffee processing, there is a further clause that "recirculation system shall be installed." Mining water must be carefully watched to avoid harmful accumulation of sand, stones, silt, or drift in any body of water 10/. The recycling of water in hulling, pulping and washing of coffee reduces water used to only 1/4 of what was originally being used.

1/ Water (General) Rules, regulation 56.

2/ Ibidem.

3/ Cap. 314.

4/ Sections 10 (1), (2); 18 (1), (2), (3); (41) (1), Electric Power Act.

5/ Ibidem, s. 34 (1).

6/ Ibidem, ss. 117-120.

7/ Ibidem, s. 121, (1).

8/ Section 35 (d), Water Act; ss. 14 (a) (iv); 47 (b) (v), Mining Act.

9/ Water (General) Rules, regulations 72 and 74.

10/ Ibidem, regulation 73.

(g) Transportation

Masters of all steam vessels on lakes and rivers shall take out licences for the vessels, which licences shall run up to December 31st next following. 1/ This is, therefore, an annual affair. They are apparently granted by the Minister for Power and Communications, who may in addition make detailed regulations to govern these matters. 2/ Where regulations are flouted the licence may be revoked, especially when dredging is involved. 3/

Dredging operations must be conducted under the direction of a duly appointed inspector and the operator must have provisions for preventing or remedying any damage to navigation or to the navigability of the dredged river or lake due to siltation or obstruction. 4/

Dredging licences which are valid for one year only, do not entitle holders to dredge for minerals or precious stones. 5/

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

(a) Flood control, overflow and bank protection

Only scanty legislation relate to flood control. It is provided that the works for the disposal or control of flood water may be constructed by the Minister for Water Development on the advice of the Water Resources Authority. This is only so if it is in the public interest. 6/ Also, flood prevention measures must be taken by a landholder on whose land there is an obstruction to the natural flow of water. 7/ The WAB applies to the Minister for action in this regard.

Legal provisions apply generally for the protection of watercourses, their banks and beds. In exercising the duty of the Minister to control water resources, WAB has a right of entry, with/without notice, to any property to inspect any water resources thereon and to take such measures as it may think fit for the protection of banks and bed of a watercourse, prevention of pollution, etc. 8/ Written authorization is required for the cultivation of the soil, or cutting down of vegetation or depasturing by livestock of any land within a specified distance from a watercourse. 9/

(b) Soil erosion and siltation

The prevention and control of soil erosion is taken seriously and is ensured through controlling or prohibiting cultivation of, the destruction of vegetation on, and depasturing of livestock on any land with gradients over 12 per cent. Authorized officers enforce this requirement. 10/

1/ Section 10, Lakes and Rivers Act.

2/ Ibidem, s. 11.

3/ Ibidem, ss. 5 and 9.

4/ Ibidem, 5th Schedule, regulations 1, 2, 6-8.

5/ Ibidem, 3rd Schedule.

6/ Section 9 (1) (b), Water Act.

7/ Ibidem, s. 13 (3), (4).

8/ Ibidem, s. 166 (1).

9/ The Agriculture (Basic Land Usage) Rules, 1965, regulation 6.

10/ Ibidem, regulations 3, 4 and 5.

Erosion by run-off is dealt with particularly. Where ditches or channels are constructed for this purpose, improper use thereof is punishable and removal of water and prevention of erosion from water flowing into adjoining canals is the duty of the landholder affected.

1/

Soil conservation works may be carried out on arrangement with the Minister for Water Development either directly or in conjunction with the Water Undertakers. 2/ As a matter of practice, WSD has it as a condition that after the approval of an application, no water permit shall be issued unless a certificate is tendered by the applicant signed by the District Agricultural Officer certifying that adequate soil conservation measures have been undertaken where irrigation is involved.

There appears to be no direct legislation on siltation. But as has been seen above, whoever has a licence for dredging or mining water-permit-holder has to take measures to avoid dangerous silting in any body of water. Same goes for discharge of waste water into a body of water. 3/

(c) Drainage and sewerage

Drainage is treated in relation with reclamation of marshy lands and sewerage provisions relate to sanitation of inhabited premises under the Public Health Act.

Drainage: Reclamation of swamp may be undertaken by a person or Authority by getting a permit from WSD unless the swamp has been declared not to be a watercourse. 4/ However, those applications are very few indeed, possibly only one in 12 months.

Existing state schemes for drainage of lands take precedence over all other such schemes. 5/

The Minister has legal authority to direct a landowner to drain away a swamp or obstruction to the flow of water which causes diminution in the quantity of flow. The person may be paid compensation for this work. 6/ Where drainage of swamp has been done, prior rights existing shall not be jeopardized; alternative supply of water must be given, or compensation paid, or permit-holder consents to deprivation. 7/ Where the person acquiring a permit to drain a swamp anticipates to use the conserved water, he must make an application for water use permit in this regard, and he must take gaugings to determine the quantity. 8/

A system of drainage for the removal of water to prevent or deter the outbreak of malaria may be constructed by a Local Authority; and should this be so, the construction and connection of drains into other drains or canals or streams under the control of the Authority would require a permit granted by it. 9/

1/ Ibidem, regulation 7.

2/ Section 141, Water Act.

3/ Water (General) Rules, regulations 72, 73; Schedule, regulation 8, Lakes and Rivers Act.

4/ Sections 27, 37, 40 (1), 41, 42, Water Act.

5/ Ibidem, s. 33 (5).

6/ Ibidem, s. 13 (1).

7/ Water (General) Rules, regulation 5d.

8/ Ibidem, regulation 52.

9/ Sections 3 and 7, Malaria Prevention Act.

Sewerage: The law applicable, which is the Public Health (Drainage and Latrines) Rules, enjoins all proprietors/occupiers of buildings to provide suitable drains which must be laid with the consent of and to the satisfaction of the Local Authority who will be running the sewers anyway, and the work can only be undertaken by duly licensed plumbers or drainlayers. The drains must empty into public sewers if these are available at a suitable level, or otherwise into a suitable receptacle, like a cess-pool. 1/ Connection of drains to public sewers must have prior approval of the Local Authority. 2/ But connections for industrial sewage can only be made if there is capacity after accommodation of domestic sewage. 3/ Direct or indirect introduction into sewers of objectionable matters may be prohibited by the Authority: in any case such action would be an offence. 4/

In disposing of sewage effluent, dampness to premises or pollution to water supplies must be guarded against. 5/

Water-logging may be tackled by WAB in exercise of powers of control of water resources by the Minister. 6/ To prevent malaria, the clearing of vegetation from drains may be required by the Local Authority in charge of drains. 7/ Finally, by-law provisions relating to domestic sanitation: refuse disposal, drainage, sanitary conveniences, sewers, etc. have been set out as a model for adoption by municipal or county councils. 8/

(d) Salinization

The prevention of salinization is expressly provided for in the Water Act in relation to groundwater. Where a well encounters salt water, i.e. "Defective well", it must be sealed off to prevent such water from spreading into any other water-bearing strata or to the surface of the ground; works on defective wells only to be undertaken with permit from WAB and under its control. 9/ Where salt water is encountered during oil prospecting or mining operations, the operator is enjoined by law to drain the water into suitable receptacles and dispose of it pursuant to directions given by the competent authority. 10/

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- 1/ The Public Health (Drainage and Latrine) Rules, regulations 4 (1), 6 (1) and 9. There are detailed technical rules as to construction of drains, regulations 28-37; soil pipes, regulations 38-46; waste pipes, regulations 45-47; water closets, regulations 50-61; septic tanks etc., regulation 62.
 - 2/ Ibidem, regulations 21 (1) and 24.
 - 3/ Ibidem, regulation 17.
 - 4/ Ibidem, regulations 15 and 16.
 - 5/ Ibidem, regulation 64; s. 62 (1) (f), Water Act.
 - 6/ Section 166, Water Act.
 - 7/ Section 6, Malaria Prevention Act.
 - 8/ Local Government (Adoptive By-Laws) (Building) Order, 1966.
 - 9/ Sections 58-65, Water Act.
 - 10/ The Oil Production Regulations, 2nd Schedule, Part II, Regulation 27; Part III, regulation 44.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

Wastage and misuse of water are discouraged by the prescription of penalties for non-compliance. Controlling and measuring devices are required to be installed at intake in all waterworks. There are also provisions of the law to cover other aspects of misuse and waste.

A general prohibition against wasting water diverted or abstracted under a permit is enforced by the cancellation thereof and/or a fine 1/, whereas specific prohibitions: (i) against allowing groundwater to run to waste from a well, or (ii) to waste more than 20 per cent of groundwater led through conduits, are enforced by the sealing of the well concerned and/or a fine. 2/

Measuring and controlling devices may be stipulated for by W&S in a permit. 3/ In fact, in all permits a condition is endorsed that the operator shall instal a controlling and measuring device at point of intake. Water fittings for the measurement of water supplied or for the detection of waste and prevention thereof may be provided by a Water Undertaker and affixed to the mains, communication and service pipes and on the consumer's premises. A consumer may provide a meter at his own expense if he wants a private connection provided the water undertaker agrees. 4/ It is an offence to unduly interfere with the fittings. 5/ The fittings provided by the water consumer must be of such material, and must be kept in such a condition as to prevent any water wastage or misuse. 6/

(b) Health preservation

Health protection is dealt with under legislation in respect of human and/or domestic consumption of water supplies and in respect of standing waters.

Both the impairing of purity of such water supplies by polluting its source or any receptacle thereof, and any collection of standing waters facilitating the breeding of mosquitoes or the parasites of non-domestic animals are statutory nuisances and are dealt with accordingly. 7/ The removal of such nuisances is the responsibility of the person permitting the water to be stagnant etc. If he does not comply after a public health officer has served him with notice, a complaint is made to a magistrate who would issue necessary orders. 8/

Additional measures apply in respect of the prevention and destruction of mosquitoes etc., bred in standing waters (e.g. premises must be kept free of potential water receptacles, wells must be covered, gutters must be perforated, etc.) 9/ and in respect of the preservation of the purity of the water supplies (e.g. water fittings must not contaminate water before domestic use thereof 10/), and sewage must be disposed of in such a manner as not to endanger the purity of any supply of water. 11/

1/ Section 157, Water Act.

2/ Ibidem, s. 57.

3/ Ibidem, s. 28 (1), (3).

4/ Water (Undertakers) Rules, regulations 44 and 45.

5/ Ibidem, regulation 40.

6/ Ibidem, regulations 38 and 49.

7/ Sections 118 (1) (d); 136 (a), (b), Public Health Act.

8/ Ibidem, ss. 119-122.

9/ Ibidem, ss. 137; 139; 141.

10/ Water (Undertakers) Rules, regulations 39 (1); 49 (1).

11/ The Public Health (Drainage and Latrine) Rules, regulation 63.

(c) Pollution

Kenyan anti-pollution legislation is adequate. In the first instance, any application for the diversion or abstraction of water submitted to WAB must, whenever the intended activity is liable to give rise to pollution of waters, include details of the planned water use and measures envisaged for the disposal of, or purification of effluents. 1/

In any event, WAB must be satisfied that waste water effluents will not endanger public health, livestock or crops or impair subsequent beneficial downstream uses of the body of water receiving such effluents. 2/

Specific legal provisions apply to the prevention of groundwater pollution. For example, effluents or drainage from any premises must be so organized that existing groundwater resources are not impaired. 3/

Domestic and drinking water supplies must be protected against pollution and, if polluted, must be purified by every Local Authority by taking all practicable means and by enforcing rules prohibiting or regulating, among other things, bathing in, or washing of clothes or animals in, or in places draining into a discharge of any noxious matter into any such water supply, although due regard must be had for the interests of agriculture or any other industries. 4/

Detailed provisions may be set forth, and works (drains, sewers, etc.) may be carried out, by each duly appointed Water Undertaker in order to prevent the pollution of water supplied by them. 5/

Anti-pollution measures may be taken by the WAB and each local health authority in respect of water supplies for human and/or domestic consumption 6/; polluting such water supplies constitutes an offence in respect of which penalties are imposed. 7/

1/ Water (General) Rules, regulations 38 (c), 48, 80.

2/ Ibidem, regulations 72 and 75.

3/ Section 6B (1), Water Act.

4/ Sections 129 and 130, Public Health Act.

5/ Ibidem, ss. 145 (1), (7); 149 (2).

6/ Ibidem, s. 166; Public Health Act, s. 129.

7/ Water Act, ss. 158, 160 (2) (b). Separate penalties apply in respect of the introduction into any body of water of matter harmful to fish (Water (General) Rules, s. 77).

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

(a) Licensing of drillers

The construction of boreholes and all drilling operations may be lawfully carried out only by contractors duly licensed by the W&B, but landholders drilling on their own holdings need not be licensed. 1/ This is to ensure safety and compliance with the provisions of the Water Act.

(b) Exploration and exploitation licences

In order to prevent interference with existing bodies of water, and/or with existing rights thereto, both the exploration and the exploitation of groundwater resources require either a permit, if the relevant well lies within 100 yd. of any body of surface water, or an authority, if the well lies within half a mile of another well. Both permits and authorities are granted by the W&B 2/. In addition, the consent of the Director of Water Development is required for the construction of wells within the limits of supply of a Water Undertaker 3/. In any event, the construction of any well for groundwater exploration and/or exploitation must be notified in advance to the W&B which may require the keeping of a record of the works progress, and may both inspect at any time any defective well (suspected of containing salt water) and issue instructions for the dealing with it 4/. Specific legal provisions apply in respect of such defective wells, in order to prevent the salinization of underground water resources. 5/

Specific legal provisions deal also with the prevention of: (i) groundwater wastage, by requiring, for example, that no more than 20 per cent of groundwater conducted through any conduit be lost between the points of appropriation and of beneficial use 6/; (ii) pollution of groundwater resources by requiring (in addition to several other provisions) that all returned or waste water be disposed of by means other than returning it into the well 7/; (iii) malaria, by requiring that wells be properly protected against the entrance of mosquitoes. 8/

(c) Groundwater resources protection measures

In order to prevent the depletion of aquifers, measures must be taken by a groundwater operator in respect of: (i) preventing higher aquifers uncontrolled during groundwater exploration or exploitation operations from flowing down into lower aquifers, if such flow is proved to be detrimental to the groundwater resources of the area 9/, and (ii) artesian wells, which must be so fitted as to stop at any time the flow therefrom to the surface and to prevent the wasting of groundwater when through the strata of the sub-soil 10/.

1/ Water Act, ss. 71, 72.
2/ Water Act, ss. 38 (b), 50 (1) (2), 53, 67.
3/ Ibidem, s. 66.
4/ Ibidem, ss. 51, 62.
5/ Ibidem, ss. 58 to 65. See also Ch. VII, (e).
6/ Water Act, s. 57. See also Ch. VIII, (a).
7/ Water Act, s. 68. See also Ch. VIII, (c).
8/ Public Health Act, s. 139. See also Ch. VIII, (b).
9/ Water Act, s. 69.
10/ Ibidem, s. 70.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

(a) Legal and administrative provisions

All water is placed under the control of the Minister for Water Development ^{1/}. This legal provision is, in respect of waterworks, enforced by placing their construction under the authority of the Minister, who exercises this control through the Water Apportionment Board.

Any works for carrying, providing or utilizing water must be carried out under WAB authority according to duly approved detailed technical plans. The WAB may inspect any authorized works during their construction. The maintenance and repair of such works are the responsibility of the operator thereof. ^{2/} In addition, dams may be constructed only by contractors duly licensed by the WAB. ^{3/}

Similarly, works for draining premises are subject to the approval of the local health authority after the person proposing such drainage has given due notice and submitted plans of the activities contemplated. However, if the health authority fails to deliver its decision to the applicant in due time, the works may be proceeded with despite the health authority's subsequent disapproval. ^{4/} Additional provisions apply in respect of waterworks affecting anti-malaria measures. The permission of the local health authority is required for: (i) the carrying out of any works interfering with existing drains so as to obstruct the flow of water out of or into them, and (ii) the construction of new drains or their connection into existing ones or into canals or streams under the control of such authority. ^{5/}

On the other hand, works constructed by a Water Undertaker for the supply of water do not appear to be subject to either the previous approval of the subsequent control of the health authority concerned, as the law in force seems to vest a general permission for the above in the said Water Undertakers. ^{6/} However, drains, sewers and other works for the protection of water supplies may be constructed by a Water Undertaker only with the consent of the WAB whenever such works affect the catchment area of the water resource concerned. ^{7/}

A few provisions deal specifically with the protection of existing waterworks and structures: in this respect, prospecting and mining (including oil prospecting and mining) on the site of, or within 100 yd. or 50 yd., respectively, of any public dam, canal or reservoir, are placed under the control of the Minister concerned. ^{8/}

(b) Technical and economic provisions

Detailed technical provisions apply in respect of the drawing up of plans for the diversion, abstraction, storage and utilization of water resources. ^{9/}

^{1/} Water Act, s. 4.

^{2/} Ibidem, ss. 37, 91, 97, 119; Water (General) Rules, regulations 36 to 50, 69.

^{3/} Water Act, s. 39.

^{4/} The Public Health (Drainage and Latrines) Rules, regulations 64, 65, 68 and 69.

^{5/} Ibidem, s. 77.

^{6/} The Water (Undertakers) Rules, regulation 6.

^{7/} Water Act, s. 149 (2).

^{8/} Mining Act, s. 7 (1) (f); Oil Production Act, 1925, as amended s. 3 (2) (a) (v).

^{9/} Water (General) Rules, ss. 36 to 50.

The few economic provisions existing in respect of the construction and maintenance of water works are dealt with under Ch. XIII. In addition to these, a contribution by the owner of a land subject to drainage works for the prevention or suppression of malaria may be required by the local health authority carrying out such drainage works. 1/

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

Protected areas may be created in respect of: (i) the protection of a catchment area (protected catchment area) or (ii) the conservation of groundwater resources (conservation area).

The power to declare protected catchment areas and conservation areas vests in the Minister responsible for water resources, who exercises such power after consultation with, or on advice of, the Water Resources Authority. 2/

A detailed procedure applies in respect of the declaration of these areas. For "Conservation Area Order" notice to that effect must be published in *Kwana Gazette* and a local newspaper and objections entertained thereon by the WRA and same goes for a "Protected Catchment Area Order". 3/

Within protected catchment areas restrictions may be imposed by the Minister in respect of any act affecting their water resources or water supplies obtained from them. 4/

In conservation areas, the construction of wells and the diversion or abstraction of groundwater by mechanical means require a permit from the WAB. 5/

Special control areas may be established by each Water Undertaker for the protection of his water supplies against pollution. A Water Undertaker may require the owner of any premises to construct and maintain any necessary works required in this regard and may impose restrictions in respect of any act within the control area concerned. 6/

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- 1/ Malaria Prevention Act, s. 9.
2/ Water Act, ss. 14, 74 (1), 150 (1).
3/ Ibidem, ss. 74 (2), 150 (2) (3).
4/ Ibidem, ss. 16, 150 (1).
5/ Ibidem, ss. 75, 76.
6/ Ibidem, ss. 145 (1) (2) (7).

XII - GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

(a) At the national level

Overall responsibility for Kenya's water resources conservation, control, apportionment and use lies with the Ministry for Water Development, which took over from the Ministry of Agriculture all responsibility for the country's water resources. The Water Act specifies a wide range of functions in regard to water so that other ministries have also responsibility for certain aspects of water development and conservation. These include the Ministries of Works, Health, Lands and Settlement, Local Government and Cooperatives and Social Services. 1/ Government water institutions operating at the national level are the following:

1. The Ministry of Water Development

This Ministry, established by presidential decree in October 1974, is responsible, inter alia, for water development and supplies, land reclamation and drainage, sewerage and industrial effluents, water pollution control, water conservation, irrigation, control of water catchments and research on all water matters. It also exercises supervision over the Tana River Development Authority, the Water Apportionment Board, the Catchment Boards, the Mombasa Pipeline Board and the Water Resources Authority. The Water Resources Authority, the Water Apportionment Board and the Water Department are discussed in greater detail:

(i) The Water Resources Authority

The Water Resources Authority consists of 17 members, some of whom are representative of the central State Administration and others of regional water administration. One member represents the Nairobi City Council. The majority of the members of the WRA are appointed by the Minister for Water Development upon nomination by the Ministers and other bodies concerned with agriculture, public health, and industry and commerce, whereas a few others are specified by the relevant legislation. Director of Water Development is the technical adviser of the Authority, but he is not a member 2/.

The WRA is in charge of the overall investigation of water resources, surveying existing consumption and future demand, and advising the Minister responsible for water resources in respect of its improvement, conservation, utilization and apportionment. 3/

In addition, the WRA is vested with judiciary powers and functions in respect of questions involving the utilization of water resources and ancillary matters. 4/ In discharging its functions, the WRA may delegate its powers and duties to any authority, board, committee, body or person. 5/

Unfortunately, WRA in practice ceased to function in 1968 and its functions were assumed by the Director of Water Development. Residue of these devolved upon WAE. All this happened without delegation of the authority and powers by WRA. Now frantic efforts are being made to revive WRA.

1/ Carruthers, op. cit., pp. 5-14. For a useful, if somewhat out-of-date description of the water administration, see WHO study, op. cit., p. 16-22.

2/ Water Act, s. 19 (3) (7).

3/ Ibidem, ss. 20, 22.

4/ Ibidem, s. 30 (3). See also, for details, Ch. XV.

5/ Water Act, s. 19 (2).

(ii) The Water Apportionment Board

The Water Apportionment Board is subordinate to the Water Resources Authority and is appointed as a whole by the Minister responsible for water resources. The members of the Board are representative of the central State Administration and of the existing catchment boards. The Director of Water Development acts as the chief technical adviser of the WAB but he is not a member of the Board. ^{1/} Several functions are discharged by the WAB in respect of water resources administration; among these are the granting of water use permits, the prescribing of devices for the measurement and control of water diverted or abstracted and the imposing of restrictions on existing water rights during droughts. ^{2/} It also tackles some matters of policy in lieu of WRA which has not met since 1968.

The WAB is also vested with judicial powers and functions in respect of all questions involving the utilization of water resources and ancillary matters. ^{3/}

The WAB may delegate its powers and duties to other authorities, bodies, committees or persons. ^{4/} This, however, has not been done for many years.

(iii) The Water Department

The Water Department is the chief technical arm of the Ministry for Water Development and its function is to implement the Government's water policy throughout Kenya. The Director of the Water Department is the technical adviser to the Water Apportionment Board and Water Resources Authority, and the Department maintains the secretariat for the Water Apportionment Board and the Catchment Board headed by a Registrar of Water Rights. Field control is enforced by a staff of Water Bailiffs. WAB has a qualified lawyer as legal adviser on all legal matters who sits at nearly all its meetings. More often than not he acts as secretary to WAB. The principal duties may be summarized as follows:

- (i) to advise the Minister on the development of the water resources of Kenya so as to serve the needs of the human and animal population, agriculture, including irrigation and ranching, manufacturing, hydro-electric power generation, etc. and to place as much water development as possible on a sound basis;
- (ii) to advise the Water Apportionment Board on the conservation of the country's water resources by the control and apportionment of such resources, including river regulation, and by the promotion of measures designed to prevent waste and pollution;
- (iii) to assist in the preservation of forest reserves which cover some of the principal water catchment areas in collaboration with the Chief Conservator of Forests;
- (iv) to make a continuing assessment of the surface and groundwater resources of the country by measuring and recording rainfall, evaporation, river discharge, etc.;

^{1/} Water Act, s. 25 (1) (2) (3).

^{2/} Ibidem, ss. 26, 28, 29.

^{3/} Ibidem, s. 30 (2). See also Ch. XV.

^{4/} Water Act, s. 26 (1).

- (v) to operate and maintain Public and Government Institutional Water Supplies, for which the Director of Water Department is the Jazotted Water Undertaker, and including the installations of the Namboga Pipeline Board. To plan, design and construct new supplies and the augmentation of existing supplies;
- (vi) to advise other Government departments: including carrying out the design and construction of civil engineering works in connection with irrigation, flood protection, sewerage and sewage disposal, etc., and preparing a National Master Water Plan;
- (vii) manage national irrigation schemes now that the National Irrigation Board has been brought under Ministry of Water Development (November 1978).

7. The Power Board

The Power Board is appointed by the Minister in charge of energy, and is vested with advisory functions in respect of the production and the development of electric power. 1/

(b) At the intermediate level

Government water institutions operating at the intermediate level are Catchment Boards and Regional Water Committees. The Water Apportionment Board is supported by six Catchment Boards corresponding to the six main drainage areas of which two are tributaries to Lake Victoria Basin: (i) Lake Victoria (North); (ii) Lake Victoria (South); (iii) Rift Valley; (iv) Athi; (v) Tana; (vi) Jase-Hyiro Catchment Boards.

In addition, each province has either a water engineer or water officer responsible for water resources development within the provincial boundary. A regional water committee is appointed for each region by the Minister in charge of water resources, and consists of members appointed by the Minister and representatives of the regional administration. Incidentally, the water committees never took off the ground and have never been operational. There is suggestion that they should be deleted from the Water Act.

An officer designated by the Director of Water Development acts as the technical adviser of each RWC. Each RWC is vested with advisory functions in respect of water conservation, development and policy at the regional level. 2/

Each existing Catchment Board advises the WAB on the apportionment and use of existing and potential water supplies and on the adjustment, cancellation or alteration of any existing water use permit. 3/

(c) At the local level

Local water authorities may be appointed by the Minister in charge for water resources, for the management and use of water or the drainage or reclamation of lands in any area, under a permit granted to it in respect of a community project. 4/ Similarly, these Local Water Authorities have not been operational and may have to be scrapped from the Water Act.

1/ Electric Power Act, s. 150.

2/ Water Act, s. 24.

3/ Ibidem, s. 23.

4/ For the legal definition of a community project, see s. 41, Water Act.

Local water authorities may also, subject to the approval of the Minister, construct, operate and maintain any other project for the provision of water within their areas. They may also exercise any powers and duties delegated to them by the WAB. ^{1/} This delegation has never happened.

(i) Water users' associations

The Water Act expressly governs water users' associations; water users may form an association for exploiting a water resource or for draining a swamp under a permit issued to the association itself. ^{2/}

Specific rules govern proceedings for the constitution of a water users' association, its management, the liability of both the manager and the other individual members of an association, the disposal of any member's land affected by a permit, sanction or license issued to an association for the above-mentioned purposes, and the dissolution of an association.

A water users' associations may store or convey water for its members only. Water may, however, be supplied to non-members provided members' rights are not prejudiced thereby. ^{3/}

(d) At the international level

Kenya is a country which shares various international river systems with its neighbours. These systems are: the Amboschi Lake (internal) basin (with Tanzania); the Juba basin (with Somalia and Ethiopia); the Lotagipi Swamps (with Sudan and Uganda); the Natron Lake (internal) basin (with Tanzania); the Nile (with Burundi, Egypt, Ethiopia, Rwanda, Sudan, Tanzania, Uganda and Zaire); the Pangani (with Tanzania); the Turkana (or Rudolf) Lake (internal) basin (with Ethiopia, Sudan and Uganda); the Stephanie Lake (internal) basin (with Ethiopia) and the Umba (with Tanzania).

Most of the agreements relating to these river systems refer to boundary demarcation, commerce and trade, navigation, protection of nature and natural resources ^{4/}. No other instrument seems to regulate specifically the use of Kenya's common water resources, except for the African Convention on the Conservation of Nature and Natural Resources. ^{5/}

^{1/} Water Act, s. 27.

^{2/} Ibidem, s. 40 (2).

^{3/} Water (General) Rules, regulations 12 to 15.

^{4/} These are reported in FAO, Systematic Index of Water Treaties, op.cit.

^{5/} Signed in Algiers, 15 September 1968, cit.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

(i) The Mozambica Pipeline Board

The Mozambica Pipeline Board, which is a body corporate and consists of a chairman and eight members, is a special autonomous agency in the field of water resources supply and distribution within Mozambica area and elsewhere in the coastal area. 1/

The Board's function is that of supplying water to both Water Undertakers and other persons designated by the Minister concerned. 2/

Financial autonomy is granted to the Board by providing for prices to be charged by, and paid to, the Board for water supplied by it. The Board is also empowered to raise or borrow money and invest it in securities and property, subject to the approval of the Treasury. 3/

The Board discharges its functions autonomously, but it must follow the directives, if any, given by the Minister responsible for controlling the Board's activities. The Board must also report yearly to the Minister. 4/ It is under the Ministry of Water Development.

(ii) The National Irrigation Board

The National Irrigation Board is a body corporate consisting of members partly representative of the central State administration and partly of the Provincial administrations. 5/

The Board is responsible for the development, control and improvement of any area which has been declared to be a national irrigation scheme by the Minister concerned. General or special directions may be given by the said Minister to be followed by the Board in discharging its functions. 6/

A General Manager of the Board is responsible for the execution of the Board's policy and for the control and management of its day-to-day business. 7/

In discharging its functions, the Board may appoint ad hoc committees; and advisory committees may be appointed by the same Board in respect of each national irrigation scheme. 8/

Specific rules govern the meetings of the NIB and the appointment thereto of a secretary, other officers and agents. 9/

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- 1/ The Mozambica Pipeline Board Act No. 19, 1957, as amended, s. 3.
2/ Ibidem, s. 6.
3/ Ibidem, ss. 2, 10, 11.
4/ Ibidem, ss. 13 (5), 17. See also WHO Study, op. cit., p. 23-4.
5/ Irrigation Act, 1966, s. 3.
6/ Ibidem, ss. 13, 15.
7/ Irrigation Act, 1966, s. 11.
8/ Ibidem, ss. 8, 24.
9/ Ibidem, ss. 5 to 7.

The financial autonomy of the Board is ensured by the tax which the Board is (subject to the approval of both the Minister responsible for the control of the Board and the Minister responsible for finance) empowered with imposing on any agricultural produce grown and/or processed on a national irrigation scheme. In addition, the Board may, subject to the approval of these Ministers, borrow money to cover expenditures incurred in discharging its functions. Funds may also be provided by Parliament for the purposes of the Board. 1/

The Board must report yearly to the Minister concerned. 2/ At the end of November 1975, the Board was removed from Agriculture to Water Development and it needs time to comment on the switch. It is now under Minister for Water Development.

(iii) The Tana River Development Authority 3/

This authority was established for the purpose of coordinating all water development activity and water resource use within the Tana Basin which is Kenya's largest river.

The functions of this Authority are as follows:

- (a) to advise the Government generally and the Ministries of Agriculture, Economic Planning, Natural Resources and Power in particular on all matters affecting the development of the Area including the apportionment of water resources;
- (b) to draw up, and keep up-to-date, a long-range development plan for the Area;
- (c) to initiate such studies, and to carry out such surveys, of the Area as it may consider necessary, and to assess alternative demands within the Area on the resources thereof, including electric power generation, irrigation, wildlife, land and other resources, and to recommend economic priorities;
- (d) to coordinate the various studies of, and schemes within the Area so that human, water, animal, land and other resources are utilised to the best advantage, and to monitor the design and execution of planned projects within the Area;
- (e) to effect a programme of monitoring of the performance of projects within the Area so as to improve such performance and establish responsibility therefor, and to improve future planning;
- (f) to ensure close cooperation between all agencies concerned with the abstraction and use of water within the Area in the setting up of effective monitoring of such abstraction and use;
- (g) to collect, assemble and correlate all such data related to the use of water and other resources within the Area as may be necessary for the efficient forward planning of the Area;
- (h) to maintain a liaison between the Government, the private sector and foreign agencies in the matter of the development of the Area with a view to limiting the duplication of effort and to assuring the best use of technical resources;

1/ Ibidem, ss. 18, 18, 19.

2/ Ibidem, s. 23 (1).

3/ The Tana River Development Authority Act, Cap. 49M.

- (1) render assistance to operating agencies in their applications for loan funds if required.

The Authority is the first Basin Authority to be established. It is envisaged that as experience is gained in its operation other similar Authorities will be established to control and plan the Water Resources of all the main basins in Kenya.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government financial participation and reimbursement policies

A few general legal provisions relate to government financial participation in or contributions to, enterprises connected with the development of water resources. For instance, any works contemplated in a scheme for either the public usage of water or the drainage of land or in a reservation of water for public purposes (called "State schemes") may be aided from public moneys by order of the Minister concerned and to the extent authorized by Parliament. ^{1/} In fact, there are many water projects started on self-help basis by citizens collecting money. When this is done, the Ministry sends Consulting Engineers to do feasibility study after which the Government may take over and build it. In addition, the same Minister may pay the expenses incurred by any existing water authority, board or committee, from funds provided by, or with the authority of, Parliament for this purpose. ^{2/}

Other provisions apply in respect of government contributions to the construction and maintenance of water works. For example, compulsory works for the drainage of lands may be aided from public money. ^{3/} The same applies where the Minister concerned is authorized to construct works for water conservation, and/or protection, and/or distribution, and/or for flood water disposal purposes. ^{4/}

Financial assistance may also be provided for the development of the fish industry. ^{5/}

(b) Water rates and charges

Water rates may be imposed in several respects. For example, when the costs of the construction and maintenance of water control and/or protection and/or distribution works, or of flood water control or disposal works, are paid from public money, the Minister concerned may direct that persons benefiting from such works pay a water rate. ^{6/}

Likewise, a water rate may be imposed upon the owners of land affected by and benefiting from a water storage, distribution and utilization scheme operated by a community or association of operators other than an appointed Water Undertaker. ^{7/}

Other water rates apply for the use of water on national irrigation schemes. ^{8/}

Provisions fixing the charges for water supplied by a Water Undertaker and tariffs for ancillary services, are contained in the model regulations for Water Undertakers. ^{9/}

^{1/} Water Act, s. 34 (1).

^{2/} Ibidem, c. 16.

^{3/} Ibidem, s. 13 (2).

^{4/} Ibidem, s. 9 (3).

^{5/} Fish Industry Act, 1968, as amended, ss. 3 (a) (b) (c), 5 (1) (3).

^{6/} Water Act, ss. 10 (1), 11 (1) (2), 12.

^{7/} Ibidem, s. 9B (2) (a) (ii).

^{8/} Irrigation Act, 1966, s. 27 (1) (c).

^{9/} Water Act, s. 143 (1) (3); Water (Undertakers) Rules, regulation 39.

Fees to be paid in respect of: (i) services connected with water utilization permits, (ii) licences for navigation in inland waters by steam vessels and (iii) dredging licences, have been provided for in the relevant legislation. 1/

XV - WATER LAW IMPLEMENTATION

(a) Judicial protection of existing rights

Protection of existing water rights is ensured by providing that compensation be paid to any person suffering damage as the result of any legal action curtailing or diminishing such rights.

This principle applies where the drainage of a swamp deprives a legitimate holder of an existing water right with regard to such swamps; 2/ also where a water use permit is cancelled or amended in terms of an approved community scheme for the storage, distribution, and utilization of water resources 3/; where excess domestic water supplies are compulsorily supplied to areas or persons under emergency; 4/ and where a water pollution control area is declared and restrictions accordingly imposed by a Water Undertaker for the preservation of its water supplies. 5/

In all the above cases, pecuniary compensation is agreed upon between the parties concerned; instead of compensation, the supply of water from an alternative source may, however, be agreed upon in case of the drainage of swamps.

(b) Modifications, termination and reallocation of existing rights

Modification of existing rights to the use of water resources granted under a permit, sanction or licence may occur when there is any variation in the terms and conditions of such permit. 6/

Restrictions may be imposed on existing water rights by the WAB during droughts (or at any time in the case of small watercourse) in order to prevent any reduction in the flow of the watercourse concerned. 7/

No specific legal provisions seem to exist in respect of the re-allocation of existing water rights.

(c) Water tribunals, courts and other judiciary water authorities

Lawsuits involving the use of and other matters connected with water resources are generally dealt with by the WAB in the first instance, and by the Water Resources Authority in the second instance, both acting as judicial water authorities. 8/

1/ Water Act, s. 182 (1) (b); Water (General) Rules, 1st Schedule; Lakes and Rivers Act, s. 12.

2/ Water Act, s. 13 (2); Water (General) Rules, regulation 54.

3/ Water Act, s. 98 (3).

4/ Ibidem, s. 17 (4).

5/ Ibidem, s. 14 (3).

6/ See for more details in this respect, Ch. IV (b).

7/ Water Act, s. 29.

8/ Ibidem, s. 30 (2) (3).

In addition, a special Water Court existed in the form of the Water Appeal Board, consisting of a chairman appointed by the Minister concerned, on the advice of the Chief Justice, and two more members appointed by the Minister. The Water Appeal Board could deal with any appeal brought before it against: (i) any decision of the WAS cancelling, revising or varying any authorisation, sanction or permit having a minimum validity of two years, and (ii) any decision, direction or matter in respect of which an appeal to the Board is expressly permitted by the relevant legislation. ^{1/} This section has been amended and the High Court of Kenya substituted in lieu of the Water Appeal Board; no appeals go direct to the High Court. ^{2/}

(d) Penalties

The Water Act sets out penalties for the breach of legal provisions governing water resources and ancillary matters. These penalties include fines and imprisonment; the carrying out of an act which the offender has failed to carry out; the recovery of the costs from the offender, and the cancellation or revision of the terms of any authority under which a person exercises any right in respect of or in connection with water. Thus, for instance, a fine or, on default of payment, imprisonment up to 12 months applies in respect of any unauthorized diversion or abstraction of water; in addition, any works executed may be destroyed, and any plant and machinery relating to them may be confiscated ^{3/}.

Likewise, a fine applies in respect of unauthorized dredging or navigating steam vessel navigation in waterways. ^{4/}

A fine may be imposed in respect of many listed offences ^{5/}; where the offence consists of wasting water the penalty is that, and in addition to a fine, any water use permit, sanction of licence may either be cancelled or revised. ^{6/}

The carrying out of an act ordered by a competent authority which an offender has failed to carry out and the recovery of any costs from the offender may be imposed in respect of, *inter alia*, the violation of land drainage orders ^{7/}. If a Water Undertaker fails to discharge his duties competently, his functions may be transferred to the Minister concerned and in addition a fine or sentence to imprisonment may be imposed. ^{8/}

A general penalty applies in respect of any breach of legal provisions, rules, and regulations governing water resources which are not otherwise expressly sanctioned. ^{9/}

^{1/} Ibidem, s. 163.

^{2/} Act No. 6 of 1973.

^{3/} Water Act, s. 160 (2) (a).

^{4/} Lakes and Rivers Act, ss. 5 (2), 10 (4).

^{5/} Water Act, s. 160.

^{6/} Ibidem, s. 157.

^{7/} Ibidem, s. 13 (4).

^{8/} Ibidem, s. 136 (1).

^{9/} Ibidem, s. 178; Water (General) Rules, regulation 137; Water (Undertakers) Rules, Regulation 72.

MAURITIUS 1/

1 - BACKGROUND

Mauritius is situated near the edge of the southern tropical belt between 20°30' and 20°15' S and 57°40' and 58°00' E. The island is roughly triangular in shape. It is 170 km. long and 42 km. wide with an area of 3 654 square kilometers.

The island is of purely volcanic origin with a central plateau ranging in altitude from 450 to 500 meters surrounded by coastal plains larger on the north and north east and more narrower along the south eastern, southern and south western coast.

The climate of Mauritius is extremely maritime and is affected by the south eastern trade winds which are prevalent from May to October.

The mountainous conformation and the effect of the trade winds attract clouds during the greater part of the year making the higher lands almost constantly moist while the rivers (or perhaps the word "rivalets" would be more appropriate) streams and canals bring to the coastal plain the moisture that collects upon the hills.

Mauritius' rainy season extends from December to May. This does not mean that the other months of the year are dry although the months of September to November are reputed to be amongst the driest months especially on the coast.

During the months of December to April tropical cyclones pass in the vicinity of Mauritius and bring along with them heavy rainfall all over the island - even when their centers do not come close enough to damage crops and buildings. During this period the air mass is moist and calm producing slight disturbances which cause a regular amount of rainfall.

During the other months (May to November) only the south eastern windward slopes and the central plateau receive an amount of rainfall which varies very much from one year to another. The western and northern parts of the island are dry during that season. As the thermometer goes down during that part of the Mauritian winter season to a maximum of 25°, the west and the north become tourist resorts.

It would appear that as far back as the sixteenth century Mauritius was known to Arab sailors as they indicate the island on their maps as "Ile Arabi". In 1507 the Portuguese landed on the island and called it the Island of the Swan but there was no settlement. The Dutch were the first to settle at the end of the sixteenth century and they gave the island the name of still current Mauritius. Then came the French colonial period from 1715 to 1810. It was during that time that Mauritius then known as "Ile de France" was developed. The French brought along with them their Civil Code which governed the waters and the rivers. When they left after the English conquest in 1810, the Treaty of Paris of 1812 provided that the laws which had hitherto existed on the island would be respected.

1/ Inceel on the study prepared for the P&O Legislation Branch by G.L. d'Arifat, Q.C., Legal Adviser, Central Water Authority, Port Louis, Mauritius. For further background documentation, see: Report to the Government of Mauritius on Water Resources Policy, Administration and Legislation with Particular Reference to the Proposed Central Water Board, by E. Caporera, S.A.O. Rome, Italy, 1969.

This explains how even to this day after Mauritius has acquired its independence on the 12th March 1968, the basic water laws are originally French and have had very gradually evolved to meet the requirements of the day.

During the last decades (the population was 400 000 in 1947 but is now nearing the million) Mauritius has become conscious that the storage and distribution of water is a problem which requires its earnest attention.

II - LEGISLATION IN FORCE

The principal legislative texts which govern either directly or indirectly the conservation, development and use of water resources in Mauritius are:

1. The Civil Code of 1802, arts. 527-543.
2. The Penal Code Ordinance of 1813, arts. 164 and 175 (XV) and (XXII).
3. The Rivers and Canals Ordinance of 1863 (Cap 421) as subsequently amended.
4. The Irrigation Ordinance of 1882 (Cap 410) as amended.
5. The Public Health Ordinance of 1925 (Cap 277) s. 150.
6. The Lease of River Waters Ordinance of 1944 (Cap 419).
7. The Port Louis Sewerage Ordinance (Cap 276).
8. The Fisheries Ordinance of 1950 (Cap 233).
9. The Plaines Wilhems Sewerage Ordinance No. 29 of 1968.
10. The Town and County Planning Ordinance of 1964 (n. 11).
11. The Constitution of 1968, s. 6 (5).
12. The Broadwater Acts Nos. 25 of 1969 and 6 of 1973.
13. The Central Water Authority Acts Nos. 25 of 1971, and 26 of 1973.
14. The Plaines Wilhems Sewerage Ordinance Regulations No. 53 of 1968.
15. The Plaines Wilhems Sewerage (Levy of Tax) Regulations No. 51 of 1970.
16. The Ground Water Regulations Nos. 68 of 1970 and 74 of 1973.
17. The Rodrigues Water Rate Regulations 1985.
18. The Central Water Authority (Irrigation) Regulations Nos. 5 and 10 of 1973.
19. The Central Water Authority (Ferrying) Orders Nos. 4, 10 and 12 of 1973.
20. The Central Water Authority Regulations Nos. 91, 153 and 163 of 1974.

117 - OWNERSHIP OF OTHER JURIDICAL STATUS OF WATER RESOURCES

(a) Surface water resources

Section 3 of the Rivers and Canals Ordinance of 1863, (Laws of Mauritius, Cap. 221) reads: "All rivers and streams, except as herein provided are declared and enacted to be public property (du domaine public) subject to the provisions of the Ordinance".

The Rivers and Canals Ordinance of 1863 did not purport to repeal articles 531 to 543 of the Civil Code. However, art. 536 of the Civil Code applied to navigable rivers or rivers used for floating material from place to place. In 1889, the Supreme Court of Mauritius in deciding the case of ex parte Colin, (1889) Mauritius Reports page 7, decided: "It has truly been said that such running waters as are within the provisions of art. 536 of the Code to wit: navigable rivers, or rivers used for floating material from place to place, do not exist in Mauritius. It may, therefore, be taken prima facie that the rights accorded to river borderers by art. 547 of the Civil Code apply to all rivers of this island, unless it is otherwise provided by local legislation".

If it is true that there are various and complex rights to use the water of rivers granted by the Civil Code and by Mauritian legislation, it remains that, subject to those rights which are rights to use the water, all river water is public property (du domaine public).

There is in Mauritius no distinction between private and public waters or river waters.

(b) Underground water resources

The French Civil Code acknowledged to the landowner the ownership of the subsoil and, therefore, of the underground waters.

Section 6 of the Mauritius Constitution which provides that "No property of any description shall be compulsorily taken possession of and no interest in or right over property of any description shall be compulsorily acquired except with specific conditions (necessity or expediency in the interest of public health, town and country planning, development or utilization of any property so as to promote public benefit, reasonable justification and payment of compensation, etc.)" contains in subsection 3 of that section a material exception.

"3. (3) Nothing in this section shall affect the making or operation of any law so far as it provides for the vesting in the Crown of the ownership of underground water or unextracted minerals".

That Constitution came into being in 1960. It corresponded with the awareness of Mauritius that the time had come to use water sparingly and economically. It was followed by the Ground Water Act 1969, which states that "Subject to the provisions of this Act, all groundwater is hereby declared to vest in the Crown". This Act gave the State full control over the use of underground water. The only exception was in respect of persons who prior to the licensing of the Act had been party to a written agreement with the Government and whose rights under the agreement were respected.

(c) Other water resources

In Mauritius a "canal" is an artificial water course belonging to a corporation or community of riverains. It does not include a private water course belonging to an individual.

All the canals have their origin in concessions from the Government made on the one hand with the Municipality of Port Louis to the municipal corporation for the benefit of the inhabitants of the town or as in that of the other canals to communities of riverains having granted corporate rights for the protection and management of their common property.

The canals are the property of the corporations or other bodies having right to them, the respective rights of the shareholders being determined according to their titles. A non-shareholder may obtain a share if all the shareholders agree to let him have a specified share.

Any portion of water or "partie d'eau" of a shareholder in his absolute property. It consists of one or more shares of a specified size - the "partie d'eau" equal to 0.50 cubic feet per minute or (12.5) liters per second. The water must be taken out the main canal by means of an aperture in metal or brass work. The position and size of the aperture is in accordance with his title, or if he has none with the decision of the corporation or community of riverains.

The rights of parties claiming portions of water from a canal is, therefore, based on concession, apportionment or prescription and is determined in conformity with their written or prescriptive titles.

When the owner of a land becomes entitled to a share of water in a canal for the use of his land, the right in this water is to be looked on as a tenancy of the land, and according to the maxim acquiescentia est in re will pass to his successors of the land although the decedent was not entitled to the water. *Scott v. Oriental Bank Corporation*. *Mauritius Reports* (1862) at page 11.

When there is not a title holder or person claiming from him, the persons who contributed to the cost of constructing the canal or their successors in the properties through which the canal passes shall have rights to possession thereof. If there is insufficient proof to determine who were the contributors the Supreme Court determines who has the right to portions thereof. (Section 34 of the Rivers and Canals Ordinance, Cap. 421).

(d) Mode of acquisition

Water in Mauritius being public property cannot be owned privately.

17 - ARTICLE 3, THE WATER OF MAURITIUS

By way of introduction it is to be noted that the Central Water Authority Act which created that Authority in 1961 defined for the purposes of the Act the expression "existing water right" as meaning:

ANY RIGHT, IN -

- (a) any irrigation works, water works, or any work whatsoever relating to water;
- (b) any water from any river, stream or canal,

being a right, other than in ground water, which belongs to any person or body corporate (other than a body corporate established by law for public purposes) before the commencement of this Act.

The Act of 1971 amended by Act No. 25 of 1973 provides that the Authority shall not exercise any duty imposed or power conferred on it by the Act so as to affect an existing water right except with the written consent of its owner.

The Authority cannot therefore without the permission of the owner of the right to use water interfere with that right.

Further, s. 43 of the Central Water Authority Act, 1971 provides that -

Compulsory
acquisition
of water

43. (1) Where the Authority is satisfied that -

- (a) it is necessary or expedient in the interests of the development or utilization of any existing water right and to promote the public benefit that the Authority should take possession or acquire the water right; and
- (b) there is a reasonable justification for the causing of any hardship that may thereby result to any person having an interest in the existing water right,

the Authority may, by notice published in the Gazette and in at least three daily newspapers direct that the water right is compulsorily acquired and, upon the notification, the Authority shall be deemed to have acquired the title in the water right after the lapse of twenty days from the date of the notice unless an appeal has been lodged under s. 44.

- (2) Where any water right has been compulsorily acquired in pursuance of subsection (1), the Authority shall immediately offer to the owner or any other person having an interest in the water right reasonable compensation or, where such a course is not practicable, it shall immediately cause the amount thereof to be deposited in the Registry of the Supreme Court.

(a) Mode of Acquisition

Water rights - surface waters:

Water rights in Mauritius are complex, various and numerous. They have been obtained by their owners since the French settlement by grant, concessions, use, custom, prescription and by orders of the Land Court. Many official records of these rights have been lost.

As far back as 1753 when the Divers and Garais Ordinance was passed it was enacted that: "These persons who have obtained concessions of such water shall have the right to use same in conformity with their titles of concession" and "Any concession of water from any river or stream of which the titles of concession have been lost, shall be presumed (until the contrary be proved) to be for purposes other than that of irrigation and to be under the condition of returning the water to the river or stream so far as not required for the purpose of the concession".

In his report on the passing of Ordinance No. 35 of 1863 Procureur General W.C. Dickson writes about that latter section: "This provision, which was very distasteful to many persons was meant to check a great abuse. Nearly all the old concessions of water had been made for driving machinery before the introduction of steam in the infancy of sugar cultivation, when irrigation was considered deleterious to the growth of the cane. Hence, however, it became the practice to irrigate copiously that crop, large quantities of water which had been conceded on condition of being returned to the river with comparatively little loss, were consumed entirely in irrigation, to the prejudice of all lower proprietors and the public generally".

Since 1863 the rights to use water are regulated by that Ordinance as follows -

(1) All persons may draw water for their own personal use, that of families and their animals - but without the right either to trespass on private land in order to reach the river. The drawing cannot be by occasional means, unless so authorized by the Supreme Court 1/. Therefore, the drawing can only be made from public lands, or from private lands with the authorization of the owner.

(2) The State may remove from rivers and streams the water which is required to supply towns and villages and for similar public purposes, due regard being had to existing and future rights. But any person who is prejudiced by the exercise of that power is not entitled to indemnity.

(3) The riparian owners have the right to use water to irrigate their lands. That right is privileged and may be exercised against all non-riparian owners. All riparian owners have an equal right. The right must be exercised in conformity with the Rivers and Canals Ordinance and specially with the condition that a sufficient quantity of water is always preserved in the river to meet the natural wants of all the riparians and the public.

This provision reproduces art. 646 of the Civil Code but specifies that riparian owners may use water without taking into account the needs of non-riparian owners except as regards their natural wants as inscribed in (1) above.

(4) Rights acquired by prescription according to the text of the Rivers and Canals Ordinance No. 3 of 1863, after water has been conceded by Government to private parties, the subject of the concession is capable of alienation and prescription like any ordinary right, having ceased to be within the "domaine public". Decision of the Supreme Court of Mauritius in the case of Constantin & Co. versus Alfred Chalire and others. Defendants - Mauritius Reports 147 at page 81.

2 - ORDER OF PRIORITY

There is no special legislative provision stipulating an order of priority between different water users or between different areas.

However, under the Central Water Authority Act, 1971 the Central Water Authority is the sole undertaker for the supply of water for domestic, commercial and industrial purpose and has the power to grant rights for the use of water and to issue permits, licenses and concessions.

It is, therefore, the Authority which establishes the priorities. In this respect the Authority must comply with directions given by the Minister to whom responsibility for the Authority is assigned 2/ in the public interest.

1/ Supreme Court is the highest judicial authority on the Island.

2/ Presently, it is the Minister of Energy.

13 - REGULATION OF BENEFICIAL USES OF WATER

(a) Domestic and household uses

As outlined earlier the Central Water Authority of Mauritius is the sole undertaker for the supply of water for domestic purposes.

The Central Water Authority Act, 1971 empowers the Central Water Authority to make such regulations as it seems necessary for carrying into effect the provisions of this Act, in virtue of those powers the Authority has promulgated the Central Water Authority (Water Supply for Domestic, Commercial and Industrial Purposes) Regulations, 1971.

(b) Irrigation uses

The expansion of the territory has led to a centralization of the authorities responsible for the various uses of water. The Central Water Authority now takes charge of the distribution of water in towns and villages.

(c) Agricultural uses

Legislation is being prepared to provide that agricultural lands which are in greater need of irrigation should receive the water they require. The concept of beneficial use in water legislation is new to Mauritius. The predominant ideas were that the water of the rivers could be used for irrigation only by the riverbeds and by those who were entitled thereto by order of a Land Court, of the then Executive Council, or of the Supreme Court. There is no doubt, however, that these various authorities which in the course of the years acted as water rights administrators considered those rights because they believed that they were beneficial to the economy of the country.

The point which is new and worth calling for recognition is a nationalization of water rights taking into consideration the conflicting alleged beneficial uses of the water which is available.

(d) Fishing

The owner of any land bordered or traversed by a river or stream and any person authorized in writing by the owner may fish in the portion of the river or stream bordering such land up to the middle line or in the whole width of the river or stream along its course through the land as the case may be.

Fishing in rivers is restricted to fishing with lines, castnets, or nets not longer than 15 meters nor wider than 1.50 meters with meshes measuring not less than three centimeters from knot to knot. These nets must be registered with the Chief Agricultural Officer. (The Fisheries Ordinance 1963, s. 15).

Section 20 of the same Ordinance protects the safe-keeping of fish in lakes, ponds or waters which are privately owned and in respect of which fishing rights have been granted.

The Cararons and Shrimps (Protection) Ordinance, 1930, (Laws, Laws of Mauritius, Op 20) prohibits the fishing of cararons and shrimps in any river, stream or rivulet unless authorized in writing by the Conservator of Forests. That law also provides for a closed season during which fishing is prohibited and also for the prohibition of fishing with explosive or poisonous substances.

(e) Hydropower

Water is used for hydro-power under permits granted under the Waterworks Ordinance (Laws of Mauritius, Cap. 422) as it then was. (It has been repealed by Proclamation No. 1 of 1971).

(f) Industrial and mining uses

Is special legislation in respect of this topic. Mauritius has no mining. The main and almost exclusive industry is the fabrication of sugar cane which consumes water only to cool the factory.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

Mauritius has no legislation to guard against harmful effects of water. It is, however, significant that the Central Water Authority Act 1971 empowers the Central Water Authority:

- (i) to study and formulate policy in relation to the control and use of water for the following purposes - inter alia - land drainage - flood control - control of soil erosion - the abatement and prevention of pollution of water resources;
- (ii) to undertake measures for the prevention of malaria and other diseases;
- (iii) to establish, maintain and operate laboratories, experimental and research stations and farms for the conduct of experiments and research in relation to any of its functions.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

One of the objects of centralizing under one administration the different water services which were provided by different bodies was to reduce the misuse of water and to regulate and harmonize the requirements of water for domestic, commercial, industrial and agricultural purposes. The Central Water Authority acts according to the requirements and has no pre-established standards or principle by which to abide except that existing water rights must be respected. But even then it is provided in section 5 of the Rivers and Canals Ordinance (Laws of Mauritius Cap. 42) that portions of the water of any river or stream may be removed therefrom by the authority of the Governor-General for supplying towns, villages, public buildings or establishments and for similar purposes of public utility: due regard being given to existing and future interests.

(b) Health preservation

Section 123 of the Public Health Ordinance provides that it is the duty of the Sanitary Authority to take all lawful, necessary and reasonably practical measures for

preventing the pollution dangerous to health of any supply of water which the public within its district has a right to use and does use for drinking for domestic purposes and for purveying the supply of water which has become polluted and to take measures including, if necessary, (proceedings at law) against any person so polluting any such supply or polluting any stream so as to be a nuisance or danger to health.

Several regulations known as the Washing Regulation (Notices) made under the authority of the Public Health Ordinance Law Code of Mauritius, Subsidiary Legislation, Vol. 1, pages 141 to 4, prohibit the bathing of persons and the washing of clothes, animals and articles generally at specific rivers, rivulets, streams or part thereof.

(v) POLLUTION

Apart from the laws already referred to under the heading "Health protection" and which provide for the prevention of pollution the Central Water Authority now has general responsibility for preserving against the risk of pollution and informing consumers against the use of water which has become polluted through circumstances beyond its control.

There is on the other hand a special part of the Rivers and Canals Ordinance (Part IV) which deals with Pollution of Rivers and Canals. It prohibits the throwing or sending or allowing to flow into rivers and canals of soil, residue, refuse or any other liquid that may tend to pollute water.

The Managers of Sugar factories are made responsible for taking precautions to prevent soil, residue, refuse and washings from their factories to be allowed to flow into water courses. Apart from making the pollution of rivers an offence, a simplified legal procedure is set out to give the Permanent Secretary of the Ministry of Health responsibility for issuing an injunction to a Judge in Chambers to stop immediately the pollution, accidental or otherwise, of water courses.

IX - REGULATION OF UNRESERVED WATER RESOURCES USE

As already mentioned under the heading "Ownership of Waters", since 1969 all groundwater has become State property and cannot be claimed by the owner of the land. However, transitional provisions were included in the Act of 1969. The first include those persons who before the commencement of the Act have been a party to a written agreement with the Government in relation to the abstraction, diversion, obstruction, measurement or use of any groundwater. Their rights under the agreement were preserved. The second provision allowed all persons, who without any agreement had, prior to the commencement of the Act, abstracted, diverted, obstructed, measured or used groundwater or erected any works for this purpose and intended continuing to do so to apply for a licence within two months of the coming into force of the Act. As far as was possible their applications were favourably considered.

The purposes of the Act are (i) to vest all groundwater in the State (ii) to grant licences for the abstraction, diversion, obstruction, measurement and use of groundwater as well as for the construction or erection of any structure, apparatus, contrivance or device for drawing groundwater.

The Central Water Authority is responsible for the administration of the Act and for the grant of licences.

Any person aggrieved by a decision of the Authority acting under the Groundwater Act may appeal to the Supreme Court.

Provision is made to require any person who in the course of any digging, boring or drilling operations who comes across groundwater to notify the Central Water Authority.

The Authority has power to make regulations to prescribe anything which it is permitted or required to be done under the Act.

The Groundwater Regulations published as Government Notice No. 14 of 1971 provide -

- (i) for the manner in which applications for a licence must be made;
- (ii) that the duration of the licence shall be for a maximum of seven years;
- (iii) that the fee payable for a licence is fifty rupees for each year during which a licence is granted.

The licensing authority may when issuing a groundwater licence specify the operations which the licensee is allowed to carry on and the conditions subject to which the licence is issued. This provision is generally regarded as including the power to limit the amount of water to be extracted during a period. No provision exists for the payment of the amount of water taken or water licensed to be taken.

X - LEGISLATION ON CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

(a) Waterworks construction

The construction of works in rivers to draw water therefrom is made by the riparian landowner who possesses rights in that river. Similarly the licensee of groundwater is responsible for the construction of works which are necessary to abstract water from the well. A riparian landowner may have works made on the opposite bank of the river on payment of a fair indemnity to be fixed before the works begin. However, the riparian landowner on whose lands the works are constructed may claim the right to use the works in common with the owner of the works on condition that he contributes to half the cost of the work and of maintenance. In that case he must reimburse the indemnity if he has already cashed it.

(b) Waterworks operation and maintenance

A distinction must be drawn between those water works which are used for irrigation purposes and those which are used for domestic, commercial or industrial purposes. The first are in general privately owned and it is the responsibility of their owners to maintain and operate the waterworks. The second are now under the general responsibility of the Central Water Authority in respect of reservoirs, distribution pipes but exclude the service pipe of the consumer which is maintained by the latter.

(c) Waterworks protection measures

The Central Water Authority (Water Supply for Domestic, Commercial and Industrial purposes) Regulations include under the heading "Water Works" the different systems of canals, conduits, mains, pipes, wells, dams, reservoirs, fountains, treatment works, machines and appliances of the Authority for supplying and measuring water for domestic, commercial or industrial purposes and include all works, structures, lands, rights of way and other appurtenances held by the Authority for the purposes of carrying into effect the purpose of these Regulations.

For the protection of these water works regulation No. 11 of these regulations provide that any person who does or omits to do any act whatsoever which is likely to impede the flow of water or to pollute water or to render it unfit for use or consumption shall commit an offence. Similarly those who trespass on any land held by the Authority for the purpose of carrying into effect the provisions of these regulations and on or near which a notice giving adequate warning to trespassers has been committed shall also commit an offence.

XI - LEGISLATION ON THE REGULATION OF PROTECTED ZONES OR AREAS

Section No. 11 of the Town and Country Planning Board may declare any area a "planning area" and shall then prepare a scheme in respect of that area which shall include water area -

- (i) Facilities for the construction of works in relation to water supply, sewerage, drainage, sewage disposal (First Schedule - Part IV).
- (ii) Preventing the pollution of streams, water courses, rivers, wells, lakes (First Schedule, Part VI No. 6).

XII - GOVERNMENT WATER RESOURCES ADMINISTRATION AND DISTINGUISHING 1/

In recent years and in the course of a gradual process the administration of all water resources was entrusted to the newly created Central Water Authority which as its name suggests has assumed responsibility for the control, development and conservation of surface and ground water all over Mauritius. At the time of writing only one service (sewerage) has not yet been vested in the Authority.

The Minister of Energy has parliamentary responsibility for water affairs. He may in relation to the exercise of the powers of the Authority - under the Act - give such directions to the Authority as he considers to be necessary in the public interest and the Authority is bound to comply with his directions.

The Central Water Authority is controlled and administered by the Central Water Board.

(a) Constitution of the Board

The Central Water Board consists of seventeen members, six are appointed, eight nominated and three are ex-officio members. The first group of six are appointed by the Minister they include the Chairman who is appointed personally by the Minister and five representatives of small planters, large planters, millers, industry and the consumer public after consultation with the respective associations of those consumers, if any. The second group of eight nominated members are representatives of the various Government ministries who are directly or indirectly concerned with the water policy. They include: an engineer from the Ministry of Works and officials from the Ministries of Finance, Housing, Lands and Town and Country Planning, Economic Planning and Development, Cooperatives and Cooperatives Development, Commerce and Industry, Local Government, and Energy. The three ex-officio members are the General Manager of the Central Water Authority, the Chief Agricultural Officer, the General Manager of the Central Electricity Board. An appointed member holds office for one year but is eligible for re-appointment at the end of his term.

1/ This Chapter includes also Chapter XIII "Special and Autonomous Water Resources Development Agencies".

of water.

(b) The General Manager

He is the Chief Executive Officer of the Authority, and is appointed by the Minister and is responsible for the execution of the policy of the Authority and the control and management of its day to day business. In the exercise of his functions the General Manager acts in accordance with such directions as he may receive from the Board.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

All previous special and autonomous water agencies have been incorporated in the Central Water Authority.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government Financial Participation

For the implementation of its policy and for the performance of its duties under the Act the Central Water Authority receives financial aid from the Central Government. In connection with the development of specific water works the Authority has received aid from foreign Governments and international organizations.

The Central Water Authority Board is governed by the Statutory Order (Announcement and Order) No. 2 of 1974 which provides that the Board shall as soon as practicable after the end of each financial year furnish to the Minister of Energy a report dealing with the activities, policy and financial position of the Central Water Authority during the year as well as a copy of the accounts of the Authority for that year duly audited in the manner prescribed by law, together with the auditor's report thereon. The Minister in his turn lays a copy of the annual report and audited accounts of the Authority on the table of the legislative Assembly.

(b) Water rates and charges

Section 20 (a) of the Central Water Authority Act No. 20 of 1974 provides that the Authority shall, subject to the approval of the Minister of Energy, have power to determine and levy the rates or fees for the supply of water for any purpose including sewerage. Section 24 of the same Act provides that the Board may make such regulations as it seems necessary for carrying into effect the provisions of the Act. By virtue of those powers the Board has made regulations which fix the price of water for irrigation and for domestic, commercial and industrial purposes.

The price of the water for irrigation differs according to the reservoir from which it is supplied. The consumer pays the amount of water agreed to be supplied even if he has not consumed the whole of that amount. However, where the supply is interrupted for fifteen consecutive days or more for any reason not attributable to the consumer he shall pay a price calculated by dividing the number of days during the year in which water has been supplied by 365 and multiplying the result by the amount agreed to be paid for one year's supply.

In respect of water supplied for domestic, commercial or industrial purposes the flow of water supplied to every consumer is measured by a meter provided and set up by the Authority at the consumer's expense but which remains the property of the Authority. Where a meter is removed for repairs the amount of water consumed is calculated by reference to the

average daily rate of consumption as evidenced by the last two readings made before the removal of the meter. A consumer who is dissatisfied with the reading on the meter may in writing require the Authority to have the meter examined in his presence.

The Authority may authorize the supply to be regulated by means of a valve-cock or gauge orifice. This provision is intended to meet the rights acquired by certain consumers under previous legislation.

The Water Rate is the same irrespective of the purpose for which the water is used. The initial 10 cubic meters are paid at 15 cents per cubic meter, this being a minimum charge of \$ 1.50 for one month. The next 10 cubic meters at 20 cents per cubic meter. The next 10 cubic meters at 25 cents per cubic meter. The next 100 cubic meters at 60 cents per cubic meter and any additional amount at 75 cents per cubic meter. The minimum cost is equal to .301st U.S. Dollars.

A consumer must also pay a deposit which varies with the size of his meter which may be used by the Authority to settle unpaid water charges.

XX - WATER LAW IMPLEMENTATION

(a) Juridical protection of existing water rights

The law defines "existing water right" as "any right in any irrigation works, or any work whatsoever relating to water and any right to any water from any river, stream or canal being a right other than in ground water which belongs to any person or body corporate (other than a body corporate established by law for public purposes) before the coming into operation of the Central Water Authority Act in 1971".

The Authority cannot in relation to an existing water right exercise any of its powers under the Act except with the written consent of the owner of the right or until the Authority has acquired full title in the water right.

The law empowers the Authority to establish procedures for the recognition of existing water rights for the readjustment, variation and re-allocation of existing water rights and for the grant of new water rights. The Authority has not yet established those procedures.

Until those procedures are established the Supreme Court has jurisdiction under the Rivers and Canals Ordinance to grant water rights and to control the exercise of the rights by the water users.

(b) Modification, termination and re-allocation of water rights

Until such time as the Rivers and Canals Ordinance and the Irrigation Ordinance are repealed the Supreme Court has jurisdiction under those Ordinances to grant, vary, cancel or amend water rights. However, the jurisdiction of the Supreme Court is restricted as s. 14 of the Central Water Authority Act, 1971 provides that after the commencement of this Act no person shall construct any irrigation works or other water works except with the written permission of the Authority who may impose conditions to the grant of the permission.

SIERRA LEONE 1/

1 - INTRODUCTION 2/

The Republic of Sierra Leone, roughly circular in shape, is a compact country of some 72,000 square kilometres located in the south-western part of West Africa. It is bounded on the west by the Atlantic Ocean and, inland, by Guinea on the north and by Liberia on the south-east.

Its varied terrain includes the striking, mountainous Sierra Leone Peninsula, a zone of low-lying coastal belt along the Atlantic Ocean, a wide plain extending inland to about the middle of the country and, east of the plain, lands rising to a broad, moderately elevated plateau from which emerge occasional hill masses and mountains that include the Bintamani, West Africa's highest point.

The climate is tropical with usually high temperatures and humidity. Rainfall is abundant everywhere but received during a single wet season that alternates with a dry season of somewhat shorter duration.

The country drains entirely into the Atlantic Ocean through nine roughly parallel, major river basins that run generally north-east to south-west. In the western part of the plains, these feed a series of swamps captured in the low lands, or bolilands. Five smaller basins confined to the coastal area, three minor basins on the Sierra Leone Peninsula, and Sherbro Island form another three distinct water resource areas. Of the major basins, four are international: the Great and Little Scarpaes basins which Sierra Leone shares with Guinea, the Moa basin shared with Guinea and Liberia, and the Mano basin shared with Liberia.

All rivers are still undeveloped and, together with groundwater resources which are abundant, supply water for drinking, animal watering and homestead gardens. Rain-fed crops are grown on up-lands, but mangrove and swamp rice cultivation provides a large part of the yearly harvest. Double cropping is rare in a still prevailing subsistence economy which occupies some 80 per cent of a population of some 3 million. Major population groups are the Temnes in the west and the Mendes in the south-east; the Fullahs, a semi-nomadic tribe of herdsmen, are prevailing over lesser ethnic groups in the north. Some 20 per cent of the population is Mozian.

Sierra Leone's main exports are diamonds, rutile and bauxite which are mined inland in the west and east. Iron ore was also mined in the north-west.

1/ Reproduced from: Water Resources Legislation and Administration in Sierra Leone, by Bernard J. Wohlwend, Legal Officer, Legislation Branch, FAO Legal Office, UNDP/FAO/SIL/73/002, Land Resources Survey Project, Mission Report, Rome, December 1976.

2/ See: Area Handbook for Sierra Leone, D.A. Pam 570-180, American University, Washington D.C., 1976.

The juridico-political history of Sierra Leone may be roughly divided into three main periods: the pre-European, the British and the post-independence periods.

As Sierra Leone lay outside the realms of the early empires of sub-Saharan West Africa, little is known of its history before the fifteenth century. While the present-day population includes a minority, concentrated along the coast, whose ancestors have occupied the country for a thousand years or more, the majority are descendants of groups that arrived in several waves between the twelfth and nineteenth centuries. One major migration pushed southward by political events in the empires of the north coincided with the arrival of the first European explorers in the second half of the fifteenth century. The Portuguese, the British, the French and, in lesser numbers, the Dutch and the Danish, established trading companies which rapidly became the agents of the trade in human lives between African rulers and transatlantic shippers. Not until the 1790's a colony of former slaves from England, Nova Scotia and Jamaica was established under British control on the Sierra Leone Peninsula; after the British Government outlawed the slave trade in 1807, thousands of Africans who had been enslaved were recaptured and released in Freetown where they now form the so-called Creole community, a largely westernized and influential minority.

The changing interests of European nations towards the end of the nineteenth century set off a great race to divide Africa among their colonial empires. Great Britain finally proclaimed a Protectorate over the mainland of Sierra Leone in 1896, but retained the peninsula under colony status. While British law and institutions had been brought to the Colony, British rule over the Protectorate was intended to make as little change as possible in the existing order, leaving direct rule to the traditional chiefs. As a result, individual land ownership was introduced in the Colony while in the Protectorate land remained, and still is, held in trust by family and village units. Water resources being plentiful, British legislation was limited to domestic water supply, drainage and health regulations within a Common Law based riparian system which, although grounded on landownership rights, was not fundamentally different in its operation from the native law environment prevailing within the Protectorate.

After World War II, Great Britain's desire to lighten its burden of colonial rule coincided with the demand for self-government that spread from the Creole community to the educated minority in the Protectorate. Self-government was granted in 1951 and independence subsequently achieved on 27 April 1961. The new Constitution created a parliamentary system while the Queen, as titular head of state, appointed a governor general as her representative. Following ten years of political unrest, the Republic was finally proclaimed on 19 April 1971. Rivalries among political parties subsequently led to the establishment of a single party system and to the promulgation, on 14 June 1978, of a new Constitution which provides in particular for the respect of customary law and usage as well as for the conservation, development and utilization of natural resources to be based on the principle of community interest.

III - LEGISLATION IN FORCE

The legislation directly or indirectly governing water resources in Sierra Leone includes the following:

1. The Constitution of Sierra Leone, 1978 (Act No. 12 of 1978).
2. The Provinces Act (Cap. 60), as amended.
3. The Chiefdoms Councils Act (Cap. 61), as amended.
4. The Chiefdoms Councils (Farming Areas) Order, 1955 (Cap. 61).
5. The Chiefdoms Treasuries Act (Cap. 62).
6. The Freetown Improvement Act (Cap. 66), as amended.

7. The Freetown Improvement Rules, 1953 (Cap. 66).
8. The Freetown Fire Prevention Measures Act (Cap. 68).
9. The Rural Area Act (Cap. 75), as amended.
10. The District Councils Act (Cap. 79), as amended.
11. The Town and Country Planning Act (Cap. 81), as amended.
12. The Public Lands Act (Cap. 116).
13. The Unoccupied Lands Act (Cap. 117).
14. The State Lands Conservancy Act (Cap. 118).
15. The Concessions Act (Cap. 121), as amended.
16. The Provincial Lands Act (Cap. 122), as amended.
17. The Ferries Act (Cap. 131).
18. The Forestry Act (Cap. 189), as amended.
19. The Minerals Act (Cap. 196), as amended.
20. The Mining (Mineral Oil) Act (Cap. 197).
21. The Alluvial Diamond Mining Act (Cap. 198), as amended.
22. The Rokel River Water Rights Agreement (Ratification) Act (Cap. 206).
23. The State Lands Act, 1960 (Act No. 19 of 1960), as amended.
24. The Public Health Act, 1960 (Act No. 23 of 1960), as amended.
25. The Tindal Chiefdom Canoes, Boats, Fish and Fish-Trading Bye-Laws, 1960.
26. The Kagboro Chiefdom Canoes, Boats, Fish and Fish-Trading Bye-Laws, 1960.
27. The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended.
28. The Chiefdom Council (Pendembu-Gowahun) (Pendembu Town Water Rate) Bye-Laws, 1962.
29. The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended.
30. The Local Courts Act, 1963 (Act No. 20 of 1963), as amended.
31. The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended.
32. The Waterways Act, 1964, (Act No. 54 of 1964).
33. The Ports Act, 1964 (Act No. 56 of 1964), as amended.
34. The Courts Act, 1965 (Act No. 31 of 1965), as amended.
35. The Chiefdom Council (Nimé Koro) (Jaiosa Town Water Rate) Bye-Laws, 1965.
36. The Statutory Nuisance (Summary Punishment) Act, 1969 (Act No. 20 of 1969).
37. The Port Authority (Port Tariff) Regulations, 1970.
38. The Interpretation Act, 1971 (Act No. 8 of 1971).
39. The Sierra Rutile Agreement 1972 (Ratification) Act, 1972 (Act No. 1 of 1972).
40. The Wildlife Conservation Act, 1972 (Act No. 27 of 1972).
41. The Freetown Municipality Act, 1973 (Act No. 20 of 1973).
42. Assignment of Responsibility to Ministers, Government Notice No. 142, The Sierra Leone Gazette, Vol. CVIII, No. 10, 4 February 1977.

According to the Constitution, the laws of Sierra Leone comprise the Constitution itself, parliamentary enactments, orders, rules and regulations and the common law which includes the doctrines of equity and customary law, or the rules of law which by custom are applicable to particular communities. 1/

In addition, both the regular courts of law and local courts are called upon to apply general as well as customary law 2/; as a result, the legal regime of water resources in Sierra Leone is subject to a mixed system of statutory and customary law which cannot reasonably be dissociated. Nevertheless, the law applicable to the Western Area, or former Colony, is general law, whereas that applicable to the Provinces, or the former Protectorate, includes both general and customary law.

Finally, laws which were applicable before the Constitution of 1978, including English Common Law and Statutes not repealed by the Constitution of 1971, continue in force 3/ subject to modifications, adaptations, qualifications and exceptions in conformity with the present Constitution. 4/

III - THE JURIDICAL STATUS OF WATER RESOURCES

Basically, the English Common Law based riparian doctrine, according to which water resources follow the legal regime of the under- and over-lying land, applies in Sierra Leone as land is deemed to include that "covered by water, any house, building or structure whatsoever and any estate, interest or right in, to or over land and water." 5/ It is therefore necessary to analyse the legal regime of land which is different in the Western Area and in the Provinces.

Within the Western Area, 6/, there are the following types of lands:

1. State Lands which consist of all lands belonging or acquired by or for the State for public purposes or otherwise, including shores, beaches, lagoons, creeks, rivers, estuaries and other places and other waters whatsoever belonging to, acquired by, or which may be lawfully disposed of by or on behalf of the State. 7/ Furthermore, any right granted on State lands does not, unless provided otherwise, confer any right to (a) the water of any spring, river, lake or stream other than such waters as may be required for domestic purposes upon the land which is subject of the grant, and (b) to the foreshore or to the banks of any navigable waterway. 8/

1/ Constitution, 1978 (Act No. 12 of 1978), Sec. 125.

2/ The Courts Act, 1965, as amended; the Local Courts Act, 1963 (Act No. 20 of 1963), as amended.

3/ Constitution, 1978 (Act No. 12 of 1978), Sec. 177.

4/ Ibidem, Sec. 125 (5).

5/ Interpretation Act, 1971, Sec. 1.

6/ The Western Area includes the Sierra Leone Peninsula, Cassock Island, the Banana Islands and the Sherbro Urban District. Interpretation Act, 1971, Sec. 1; The Provinces Act (Cap. 60), as amended, Sec. 2.

7/ The State Lands Act, 1960 (Act No. 19 of 1960), as amended, Sec. 3.

8/ Ibidem, Sec. 7 (1).

2. Unoccupied Lands which include land that for twelve consecutive years has not been put to beneficial use either for cultivation, inhabitation, collecting or storing water, or for any industrial purposes, unless possession is proven or the land is planted with permanent tree crops; 1/ such unoccupied land, if not claimed by anybody becomes State Land 2/.

3. Public Lands which include land acquired by the Government for public works. 3/

4. Private Lands on which, according to the riparian doctrine, all waters, except underground water flowing in known and defined channels, vest in the landowner for the duration of the effective possession thereof.

Within the Provinces, according to law, there is only one type of land:

5. Provincial Lands which vest in the Chiefdom Councils who hold such lands for and on behalf of the local communities concerned. 4/ Provincial land and water rights are thus regulated by customary law, except for non-natives, i.e., citizens of non-African origin and citizens having their principal residence in the Western Area. 5/

Nevertheless, in the recent practice land appears to have been effectively bought in the Provinces and made to vest in the private ownership of the landowner, in fact of citizens having their principal residence in the Western Area.

Finally, the water legislation of Sierra Leone provides for Water Supply Areas to be declared both in the Western Area and in the Provinces, for all natural water supplies therein to become the property of the Government and for the control thereof to vest in the Minister of Energy and Power. 6/

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of acquisition

Except for limited domestic purposes, the right to use water on State Lands is acquired by virtue of a licence, 7/ an agricultural lease 8/ or a navigation licence. 9/

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- 1/ The Unoccupied Lands Act (Cap. 117), Sec. 4.
 - 2/ Ibidem, Sec. 10.
 - 3/ The Public Lands Act (Cap. 75), as amended, Sec. 4.
 - 4/ The Provincial Lands Act (Cap. 122), as amended, Preamble.
 - 5/ Ibidem; The Sierra Leone Citizenship (Amendment) Act, 1976. (Act No. 13 of 1976).
 - 6/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 4.
 - 7/ The State Lands Conservancy Act (Cap. 118), Sec. 3 - 4.
 - 8/ The State Lands Act (Cap. 117), Sec. 2, 14.
 - 9/ The Waterways Act, 1964 (Act No. 51 of 1964), Sec. 15.

On Unoccupied Land, the right to use water is acquired by acquisitive prescription of at least 12 years; 1/ and on Public Land by virtue of a licence, except for domestic water uses which are free from any natural water supply at any place to which lawful access is maintained. 2/

On Private Land, the right to use water is acquired together with the ownership or lawful possession of the land.

In the Provinces, customary law provides for water resources to be of free access to all for drinking, animal watering, domestic, fishing and navigation purposes in natural water supplies; the right to use water within community held lands is however subject to the agreement of the competent local authority and, for non-members of a community, to the consent of the interested member or members thereof.

In addition, sectoral water uses are subject to special right acquisition procedures. Within Water Supply Areas, other than domestic uses from natural water supplies are subject to a licence granted by the competent Water Authority; 3/ owners and occupiers of premises may request a piped water supply by contract 4/ or have access to a public standpipe for the use of which they are subjected to the payment of a water rate. 5/ The holders of mining rights may be granted a Water Right Licence 6/ or a Dredging Licence 7/. The right to engage in commercial navigation is subject to a licence, 8/, as is that to operate non-governmental river-crossings. 9/ Within Forest Reserves and Protected Forests, a Clearing Licence is required in order to secure a water supply. 10/ An Energy Production Licence is required to produce hydro-electric power in excess of 3 KW. 11/

Finally, the right to use water on privately owned land or on Provincial Land whereon citizens have customary rights may be acquired by virtue of a land concession. 12/

(b) Water use authorizations, licences and concessions

1. A License to use water on State Lands is issued for a term of 6 years by the Minister of Lands, Housing and Country Planning, subject to such conditions as are considered necessary for the prevention of drought, the reduction of rainfall or the reduction or pollution of the water supply; this licence is subject to a fee. 13/

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- 1/ The Unoccupied Lands Act, 1960 (Act No. 16 of 1960), as amended, Sec. 3.
2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 4.
3/ Ibidem, Sec. 5 (1).
4/ Ibidem, Sec. 21; The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 37.
5/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 2, 19; The Guma Valley Water Act, 1961 (Act. No. 3 of 1961), as amended, Sec. 63.
6/ The Minerals Act (Cap. 196), as amended, Sec. 53 (1).
7/ Ibidem, Sec. 59, 61.
8/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 15.
9/ The Ferries Act (Cap. 131), Sec. 9 (2), (3).
10/ The Forestry Act (Cap. 189), as amended, Sec. 16 (3).
11/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 27.
12/ The Concessions Act (Cap. 121), as amended, Sec. 2.
13/ The State Lands Conservancy Act (Cap. 118), Sec. 5, 7 - 8.

2. An Agricultural Lease on State lands covers all activities connected with agriculture, cattle breeding, cultivation and forestry; it provides for the lessee to improve and develop natural resources on the leased land in a prudent and businesslike manner. 2/

3. A Licence to use water within a Water Supply Area is granted by the competent Water Authority on such terms and conditions as it deems fit. 2/

4. A Water Right Licence is issued to a mining right holder by the President if required to obtain and convey from any river, stream or watercourse outside the mining area such volume of water as may be required for mining; the licence holder is further entitled to occupy the land required for a dam, reservoir, pumping station and for the conveyance of such water by pipes or other means, provided (a) no licence is granted until a one-month prior notice has been published in the Official Gazette and posted in the Office of the Chief Inspector of Mines, and (b) no licence is granted if shown that it would be liable to prejudicially affect existing water rights, or unless agreed or arbitrated compensation is paid. A provisional licence is then granted pending the issuance of the definitive right. Applications for water right licences are to be in the prescribed form. 2/

5. A Dredging Licence is issued by the President to a mining right holder on such terms and conditions as he deems fit; before the licence is issued, the President prescribes in each case the amount of security to be deposited. 4/

6. A Navigation Licence is issued for boats and bargeage plying for hire; the issuance procedure is to be in accordance with regulations issued by the President. 5/

7. A River-Crossing Licence is issued for a term of two years, free of charge, by Provincial District Councils to non-Governmental operators. 6/

8. A Clearing Licence is issued by the President if necessary to survey and secure a water supply within Forest Reserves and Protected Forests; this licence is issued for a term and on conditions prescribed by the President. 7/

9. A Power Production Licence is issued by the Electricity Corporation on the basis of an application indicating the proposed supply and the nature of the undertaking, together with annexed plans. Applications are subject to a public notice published in the Official Gazette for two months. The Corporation is entitled to request a security payment. 2/

10. A Land Concession constitutes a written title by which any right in land, interest or property in or over land with respect to minerals, timber, rubber or other products of the soil is granted by the owner of private land or a citizen having customary rights over provincial land. 2/ A grant for cultivation does however not constitute a concession, and does therefore not require a court inquiry in order to prove the validity thereof; except if the grant is made to the Government, conveyed land may not exceed an area of 20 Ha for a term of 99 years. 10/

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- 1/ The State Lands Act, 1960 (Act No. 19 of 1960), Sec. 2, 14.
2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 5 (2).
3/ The Minerals Act (Cap. 196), as amended, Sec. 53-54.
4/ Ibidem, Sec. 59.
5/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 15.
6/ The Ferriss Act (Cap. 131), Sec. 9 (2), (3).
7/ The Forestry Act (Cap. 189), as amended, Sec. 16 (1), (3).
8/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 27.
9/ The Concessions Act (Cap. 121), as amended, Sec. 2.
10/ Ibidem, Sec. 2, 6 (3), 9.

V - ORDER OF PRIORITIES

Whereas, according to customary law, an absolute priority is given to the right to use water for drinking purposes, the fact that water resources in Sierra Leone are plentiful throughout most of the year has not called for a general statutory declaration of priorities between different uses, existing rights or areas.

Nevertheless, sectoral enactments do provide for one or another type of water use priorities.

(a) Between different uses

Within the Limits of Supply of the Guma Valley Water Company for instance, domestic uses of water have priority over all other consumptive uses if the demand projection does not allow for these other uses to be satisfied. 1/

In the Freetown City Council Area, on the other hand, the use of water for fire-fighting takes precedence over all other uses. 2/

(b) Between different existing rights

Within the Limits of Supply of the Guma Valley Water Company, the protection of river navigation has priority over all other uses. 3/ The same applies in respect to fishing, health and hydro-power development activities. 4/

(c) Between different areas

The Sierra Leone Development Company, which operated the Marompa Iron Ore Plant in the Northern Province, has been granted an exclusive and preferential right to the use of the Rokel River waters by special agreement 5/; the Company is however required to provide downstream users with an adequate supply of water and, in periods of shortages, with a daily supply, up to the volume of water extracted, sufficient to meet their customary needs. 6/

1/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 47.

2/ The Freetown Fire Prevention Measures Act (Cap. 69), Sec. 8.

3/ The Rokel River Water Rights Agreement (Ratification) Act (Cap. 206), Sec. 2 - 3.

4/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 15; The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 145; The Electricity Corporation Act, 1964, (Act No. 5 of 1964), as amended, Sec. 45.

5/ The Rokel River Water Rights Agreement (Ratification) Act, Sec. 3 a) and c).

6/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 34 (5).

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Domestic and household uses

Domestic water uses cover drinking, washing, cooking and sanitary purposes, but exclude the use of any bath having a capacity (measured to the central line of the overflow pipe) in excess of 225 liters; included are limited household, garden watering and private vehicle washing purposes, but without the use of a hosepipe or similar apparatus connected to an inside tap; 1/ excluded are industrial, irrigation, commercial, animal watering, ornamental, storage, laundrying, the supplying of ships and other non-domestic purposes. 2/

Except by Presidential Order providing otherwise, the supply of water within Water Supply Areas is to be a metered supply; 3/ nevertheless, the Water Authorities may, subject to the approval of the Minister of Energy and Power, supply water at any other conditions. 4/ In addition, the Water Authorities are to manage and control public fountains, or stand-pipes, and the hourly supply therefrom. 5/

Within its Limits of Supply, the Guma Valley Water Company which supplies water to the Freeflow City Council Area, is under an obligation to provide users having complied with all requirements respecting inside services with a constant supply of wholesome water at a reasonable pressure, though by gravity only, for domestic and household purposes 6/.

In addition, every home and school within Health Areas are, to the extent possible, to be provided within a reasonable distance 7/ with a sufficient supply of potable water for domestic purposes; and, in every building lease granted on State lands, the lessee is under an obligation to secure a water supply in accordance with the relevant regulations. 8/

Nevertheless, in the Provinces as well as in the Western Area, dug wells provide, in fact, a non-negligible part of the total water supply for drinking and domestic purposes, especially during the dry season. Most wells are either privately owned or possessed by families; jointly sunk and maintained wells are sometime operated in the Provinces, as are some village wells. In this latter case, the Village Headman is the guardian of the well and the holder of the keys of the well cover.

Numerous villages have also been equipped with a gravity water supply feeding stand-pipes from a nearby stream or spring. Stand-pipes are equipped with a stop-cock. Local authorities are responsible for the operation and maintenance of these supply systems for the use of which an annual charge is levied on beneficiaries. 9/

1/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 2.

2/ The Water (Control and Supply) Act, 1961 (Act No. 1 of 1961), as amended, Sec. 2.

3/ Ibidem, Sec. 22.

4/ Ibidem, Sec. 26.

5/ Ibidem, Sec. 24 (2).

6/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 37-38, 47.

7/ The Public Health Act, 1960 (Act No. 21 of 1960), as amended, Sec. 92.

8/ The State Lands Act, 1960 (Act No. 19 of 1960), as amended, Sec. 13 b).

9/ The Chiefdom Council (Pendembu-Gowahun) (Pendembu Town Water Rate) Bye-Laws, 1962 and the Chiefdom Council (Kini Koro) (Jaiama Town Water Rate) Bye-Laws, 1965, Sec. 3.

(b) Municipal uses

Within its Limits of Supply, the Guma Valley Water Company provides on agreed terms the City Council of Freetown with water supplies for the cleansing of sewers and drains, the cleansing and watering of streets and the supply of pumps, baths and wash-houses. 1/ To this end, the Company is entitled, as are all Water Authorities within their Water Supply Areas, to lay and maintain pipes, to open and break streets, sewers, drains or tunnels, subject to the satisfaction of the Street Authority or, by notice, to cause any Street Authority, against compensation, to close and reinstate such property into its prior conditions. 2/ The Company is also entitled to serve notice on persons causing damages to its water supply system and street installations to proceed with, or cause the reinstatement thereof into working conditions. 3/

As Fire Authority, the City Council of Freetown secures from the Guma Valley Water Company, at its own cost, and maintains or causes fire hydrants to be secured and maintained and controls the use thereof. 4/ To this end, the City Council has the power to enter any property and to do all necessary acts, whether causing damages or not, as may be reasonably required to extinguish fire outbreaks; and the Senior Officer of the Fire Brigade is empowered to tap water from any source of supply and to cut all other mains and pipes in the area in order to provide greater supply and pressure, this without liability for correspondingly reduced water supplies elsewhere. 5/

Within Town Planning Areas, a Scheme prepared under the control of the Minister of Lands, Housing and Country Planning provides for the regulation of water supply, drainage and sewerage as well as for the prevention of surface and underground water pollution. 6/

(c) Agricultural uses

In Sierra Leone, agriculture is essentially rainfed; some water control measures to provide limited supplementary irrigation in order to extend somehow the crop season take place, locally, on lands bordering rivers and in the Bolliland swamps. Water retention and diversion structures, feeders, bunds and drains are constructed each season on family or village lands by the local communities concerned. Very few larger scale irrigation schemes have been or are being operated as projects; irrigated sugar cane plantations are now being developed.

In such a context, the need to regulate irrigation water uses has remained very limited.

Nevertheless, provision is made for the Water Authorities to regulate the construction, maintenance and use of irrigation, drainage and related works within their respective Water Supply Area. 7/ In every lease granted on State Lands for agriculture, cattle breeding, cultivation or forestry purposes, the lessee is under an obligation to improve and develop natural resources thereon in a prudent and businesslike manner, and to abstain from the undue destruction or exhaustion of trees and plants. 8/

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- 1/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 40.
2/ Ibidem, Sec. 41; The Water (Control and Supply) Act, 1961 (Act No. 3 of 1961), as amended, Sec. 10.
3/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 42-43.
4/ Ibidem, Sec. 39; The Freetown Fire Prevention Measures Act (Cap. 68), Sec. 11.
5/ The Freetown Fire Protection Measures Act (Cap. 68), Sec. 2, 7 - 8.
6/ The Town and Country Planning Act (Cap. 81), as amended, Sec. 20.
7/ The Water (Control and Supply) Act, 1961 (Act No. 3 of 1961), as amended, Sec. 45b).
8/ The State Lands Act (Cap. 117), Sec. 2, 14.

in the Provinces, Chiefdom Councils issue orders for the purpose of setting aside areas to be specially reserved for grazing and mixed farming, and regulate the allocation and use of these areas. ^{1/} Cattle raising is essentially undertaken by the Pullabs, a semi-nomadic tribe, in the northeastern part of the country; during the dry season, herds occasionally damage cropping areas in their search for water. Disputes arising therefrom are settled according to customary law.

(d) Fishing

Individual fishing in inland waters is free for everybody having lawful access to rivers, streams, lakes and ponds; the only restriction thereto is the protection of navigation ^{2/} and the customary law prohibition to fully close watercourses for the purpose of catching fish so as to prevent fish reproduction.

Commercial fishing in the Provinces is restricted to Chiefdom natives or residents who, for at least 3 years, have been paying the local tax. Every native craft and other boats are registered with the Chiefdom Council concerned who maintains a register of fishing canoes and boats. Boat registration, fishing and fish-breeding in the Chiefdoms is subject to a yearly fee. ^{3/}

(e) Hydropower

Except for a small 2.4 KW plant, there is at present no hydro-electric power being produced in Sierra Leone; two dam-sites are however under feasibility study for this purpose at Bumbuna on the Rokel River in the Northern Province, and at Congo on the Mano River on the border between Sierra Leone and Liberia.

Nevertheless, the Electricity Corporation has an exclusive right to generate power in excess of 3 KW for its own use and to supply other users; it issues licences to persons intending to produce power in excess of this statutory limit for their own use. ^{4/}

(f) Industrial uses

Industries are essentially located closely to Freetown in the Western Area and obtain their water supply either from the Guma Valley Water Company ^{5/} or from privately owned wells. Industrial water uses are assimilated to domestic uses and are regulated accordingly by the water supply authority concerned. ^{6/}

(g) Mining uses

The holder of a mining right is entitled to lay pipes and to make channels, ponds, dams and reservoirs and to divert any water flowing on or through the corresponding leased land or mining area, provided he does not interfere with existing rights and compensation for

^{1/} The Chiefdoms Councils (Farming Areas) Order, 1955 (Cap. 61), Sec. 2.
^{2/} The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 15.
^{3/} The Tindel Chiefdom and the Kagboro Chiefdom Canoes, Boats, Fish and Fish Trading Bye-Laws, 1960.
^{4/} The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 27.
^{5/} The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 4, 36.
^{6/} The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 26.

damaged to the owner or occupier of the land is paid. 1/ If necessary, a mining right holder may be granted a licence, known as water right, to obtain and convey water from any river, stream or watercourse outside the mining area for his mining needs and to convey such water by pipes and other means. 2/ In addition, the President may authorize another mining right holder to take surplus water from a licensed water user and to construct and maintain any water conveyance system. 3/

If mining operations are envisaged to take place within 36 meters from the water supply network of the Guma Valley Water Company however, provision is made for the Company to be served a 28-day prior notice and for damages to be subject to payment of compensation in any case; mining operations under a Company reservoir or building, or within any distance likely to damage the same, are prohibited. 4/

The President is furthermore empowered to issue mining right holders with a dredging licence on terms and conditions he deems fit and provided a security deposit of an amount fixed in each case has been made. 5/

In the case of alluvial diamond mining however, provision is only made for a rent to be paid to the owner or occupier of the concession land and for damages thereto to be subject to compensation. 6/

The rights of mining companies are regulated by means of special agreements. Within or outside of its mining area, the Sierra Rutile Company 7/, for instance, enjoys the right to dig, widen and deepen channels in rivers, streams and watercourses as necessary to have access thereto and, within its mining area, to use water from any natural watercourse and to return the same, together with mining spoils, to that watercourse provided no poisonous or noxious matter not present in the intake water is discharged therein. The Company is furthermore entitled to divert streams, to build temporary dams and to impound water to secure the supply of water needed for mining operations; however, the prior consent of the District Officer is required in cases where such a diversion would alter the water supply to any lands. Finally, where such an action is deemed by the Minister of Mines as likely to pollute, impair, divert or destroy the normal supply of potable water of any village, the Company may be compelled to provide an adequate alternative water supply approved by the Minister of Health.

As to the Sierra Leone Development Company that has been operating the Marampa Iron ore plant in the Northern Provinces, it has been granted an exclusive right to erect a pumping station on the Rokel River and to construct a pipeline on terms and conditions fixed by the President upon consultation with the Cabinet. 8/ This water right has been granted on 1 January 1938 for 89 years, subject to an annual rent 9/. The Company is however to prevent silting and pollution from its effluent wash water or, alternatively, to provide downstream users with an alternative source of potable water supply. The

1/ The Minerals Act (Cap. 196), as amended, Sec. 35, 51.

2/ Ibidem, Sec. 53 (1).

3/ Ibidem, Sec. 57.

4/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 11d (2) and (3).

5/ The Minerals Act (Cap. 196), as amended, Sec. 59-61.

6/ The Alluvial Diamond Mining Act (Cap. 198), as amended, Sec. 10 - 11.

7/ The Sierra Rutile Agreement 1972 (Ratification) Act, 1972 (Act No. 1 of 1972).

8/ The Rokel River Water Rights Agreement (Ratification) Act (Cap. 206), Sec. 3.

9/ Ibidem, Schedule, Sec. 1 + 2.

right of the Company covers 13,500 cubic meters of water per day, subject to pumping being controlled, measured and reported on periodically. In cases of water shortages, the Company is under an obligation to feed downstream users with a daily water supply sufficient to meet their needs, limitatively however to the maximum volume of water effectively abstracted from the river. 1/

(h) Navigation and river-crossings

Navigation on inland waterways, i.e. any part of coastal and inland waters declared to be a waterway by Presidential Order 2/, enjoys preferential status: no bye-laws made by the Guma Valley Water Company may restrict the rights of any authority entrusted by law with the protection of any river for navigation purposes 3/, nor may Health Authorities interfere with the navigation of any river or canal 4/ or the Electricity Corporation lay cables across any navigable waterway without the approval of the Minister of Energy and Power upon consultation with the appropriate authority. 5/

Navigation on waterways is regulated by the Waterways Officer whose competences cover navigation, the mooring of vessels, navigation marks, the removal and destruction of sunken and abandoned vessels. 6/ The President is furthermore entitled to make regulations on mooring and anchoring, sailing, dangerous cargo, the licensing of boats and boatsmen plying for hire, the safety of goods and passengers, the licensing and registration of ships, licence fees, the prevention of water pollution and the prevention of navigation by fishing nets or tackle. 7/

Where toll-ferries are operated by the Government, anyone is prohibited from conveying or offering to convey any passengers, vehicles, animals, goods or merchandise across any river in the Province within 5 km upstream and downstream from or to any point or place on either bank of the rivers; a limited competition is nevertheless allowed for holders of licences issued free of charge by District Councils to river-crossing operators not operating a commercial service. 8/

(i) Recreational uses

Within its Limits of Supply, the Guma Valley Water Company has been empowered to acquire land, either by agreement or compulsorily, for use as recreational grounds. 9/

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- 1/ The Rokol River Water Rights Agreement (Ratification) Act (Cap. 206), Sec. 1 - 3 a) - c) and f) - g).
 - 2/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 2.
 - 3/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 34 (5).
 - 4/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 145.
 - 5/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 45.
 - 6/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 3 - 9.
 - 7/ Ibidem, Sec. 15.
 - 8/ The Ferries Act (Cap. 131), Sec. 4, 9 (1) - (3).
 - 9/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 7 (2) (c).

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

(a) Flood control and soil erosion

There is no legislation providing for flood control measures. Provision is however made for the declaration of Forest Reserves and of Protected Forests, a measure which, indirectly, affords a non-negligible degree of soil erosion control 1/.

(b) Drainage and sewerage

The Gums Valley Water Company is required, among other things, to supply water for cleansing sewers and drains within its Limits of Supply 2/ and, within Town Planning Areas, drainage and sewerage is regulated by the Minister of Lands, Housing and Country Planning in conformity with a Planning Scheme approved by the President 3/.

Within Urban, Labour and Port Health Areas, the Health Authority is to provide drains and to make provision for the effective disposal of drainage. To this end, Health Authorities are entitled to construct public drains in any land provided prior notice is served; failing the agreement of the Minister of Public Works, such drains are not to interfere with street drains 4/. Any interference with the proper drainage of surface water from any premises constitutes furthermore an offence. 5/

Within Urban and Port Health Areas, private drains may be connected to public surface water drains provided foul water has been settled or purified as required by the Health Authority. 6/ If intimated by a Health Authority, any owner of private drains may furthermore be compelled to have them connected with the public drain, provided his own drain is within 30 meters therefrom. 7/ In addition, joint drainage may be made compulsory. 8/

Finally, provision is made for the lessee of every building lease granted on State Lands to provide drainage in conformity with the relevant regulations. 9/

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- 1/ The Forestry Act (Cap. 189), as amended, Sec. 20
 - 2/ The Gums Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 40.
 - 3/ The Town and Country Planning Act (Cap. 81), as amended, Sec. 20, 1st Schedule.
 - 4/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 74, 75 a) and b).
 - 5/ Ibidem, Sec. 78.
 - 6/ Ibidem, Sec. 80.
 - 7/ Ibidem, Sec. 84.
 - 8/ Ibidem, Sec. 86.
 - 9/ The State Lands Act, 1960 (Act No. 19 of 1960), as amended, Sec. 13 (b).

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL.

(a) Waste and misuse of water

Any person who whether wilfully or negligently misuses or wastes water, or causes or allows any water passing into, through or from waterworks near any premises is liable to a fine 1/. There is furthermore a general prohibition to wrongly open or close any lock, cock, valve, sluice or manhole belonging to waterworks. 2/

Within its Limits of Supply, the Guna Valley Water Company is entitled, by Public Notice, to restrict the use of hosepipes in cases of water shortages; it is further generally entitled to inspect and test domestic water fittings in order to prevent wastes 3/.

(b) Health preservation

It is prohibited to wash or bathe in waterworks, catchment areas or containers used to supply public fountains or to wash, throw, cause or permit any animal, clothing material or thing into the same or to wash anything in a public place within 15 meters of any public fountain, except in a public washhouse. 4/

The Minister of Health is to take samples from any water supplied for domestic purposes in order to control if the quality thereof is of satisfactory standard; and employees of water supply undertakings are to be examined by the Government Medical Officer not less than every 3 months in order to prevent the contamination of water supplies. 5/

According to the health legislation 6/, the following constitute statutory nuisances:

- (i) any pool, ditch, gutter, watercourse, cistern, sanitary convenience, cesspool, drain, dungpit or septic so foul or in such a state as to be prejudicial to health;
- (ii) any collection of water or any water vessel found to contain eggs or larvae of mosquitoes; and
- (iii) any well, tank, cistern or water container used for domestic water supply which is so placed, constructed or kept as to render the water therein likely to be a source of contamination prejudicial to health.

The Health Officer is empowered to arrest the owner or occupier of premises on which a statutory nuisance is found and to inflict fines. 7/

1/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 50.
2/ Ibidem, Sec. 61 iv).
3/ The Guna Valley Water Company Act, 1961 (Act No. 3 of 1961), as amended, Sec. 52 - 53.
4/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 61.
5/ Ibidem, Sec. 17 (1) and (3).
6/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 23 (e) - (g).
7/ The Statutory Nuisance (Summary Punishment) Act, 1969 (Act No. 20 of 1969), Sec. 2 - 3.

Within every Health Area, the Health Authority is to provide places for the deposit of nightsoil from pail latrines and public sanitary conveniences 1/; within Urban and Port Health Areas, private drains may be connected to public drains only if the foul water thereof has been settled or purified as required by the Health Authority 2/.

Within the Freetown City Council Area, no cesspit may be constructed within 4.5 meters from any building used as dwelling or kitchen; building sites are to be drained and drainage discharged into concrete street drains or, where it is not possible, into soak-away pits. The same applies to waste water from baths and washhouses 3/.

In addition, Health Authorities are empowered to order, by notice in the Official Gazette, the closing of any well within 720 meters of any public pump, standpipe or other water supply point provided by them, the Government or the Guma Valley Water Company 4/.

Finally, to foul drinking water supplies or systems by washing or throwing things or animals, animals excreta or carcases therein constitutes an offence 5/.

(c) Pollution

Within Water Supply Areas, Water Authorities are empowered, with the approval of the Minister of Energy and Power, to make bye-laws to prevent the pollution of surface and underground waters by (a) defining control areas, (b) regulating or prohibiting any act therein, and (c) prosecuting offenders. 6/ Such bye-laws are to be published in the Official Gazette and notified to the competent local authority; two or more Water Authorities may make joint bye-laws 1/.

Water Authorities are entitled to enter premises between 6 a.m. and 6 p.m. to inspect, ascertain defects and pollution, to repair works and to disconnect, diminish, withhold or divert the supply through pipes or fittings; they may also cut the main water supply for this purpose without prejudice to recovering water rates. 2/

Whoever pollutes or risks to pollute, or allows any foul liquid, gas or any other noxious matter to enter any watercourse commits an offence which, upon failure to take the necessary corrective measures as duly notified, constitutes a continuing offence. 3/

Within its limits of Supply, the Guma Valley Water Company is entitled to acquire land and to construct works for the purpose of protecting water, whether surface or underground, against pollution, to make bye-laws to define pollution control areas and, by prior notice, compel owners and occupiers of land and premises to execute and maintain pollution control works 12/. Consequently, the wilful or negligent pollution of water used or likely to be used for human consumption, domestic supply or food manufacturing constitutes an offence, except provided (a) methods of cultivation are in accordance with principles of good husbandry or (b) Street Authorities make reasonable use of oil and tar, and take the necessary measures to prevent pollution when maintaining public

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- 1/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 91.
 - 2/ Ibidem, Sec. 80.
 - 3/ The Freetown Improvement Act (Cap. 66), as amended, Secs. 49-50, 52; The Freetown Improvement Rules (Cap. 66), Secs. 79, 21, 54.
 - 4/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 94.
 - 5/ Ibidem, Sec. 95.
 - 6/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 13 (1).
 - 7/ Ibidem, Sec. 13 (3) and (4).
 - 8/ Ibidem, Secs. 14-15.
 - 9/ Ibidem, Secs. 49, 60.
 - 10/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 7 (2) (a), 33, 39.

roads and highways 1/.

Within Town Planning Areas, the prevention of surface and well water pollution is regulated by the Minister of Lands, Housing and Country Planning in accordance with a Planning Scheme approved by the President to secure therein proper conditions of health and sanitation 2/. In implementing approved Schemes, the Minister is empowered to modify all rights not conforming therewith. 3/

In the field of mining, provision is made for concession holders not to pollute or permit the water of any river, stream or watercourse within the concession area or of any works connected therewith to become polluted 4/; for the prohibition to discharge any poisonous or noxious matter in any natural watercourse 5/; and for the President, in consultation with the Cabinet, to make rules providing for the drainage of land and the prevention of land and water pollution in the course of all mining operations 6/.

(d) Environmental protection

Although there is no environmental protection legislation proper in Sierra Leone, provision is nevertheless made for the Water Authorities, when preparing water resources management Schemes, to include therein a description, together with plans, of proposed development activities and, in particular, of the probable effects thereof 7/.

In addition, the Minister of Agriculture and Forestry is empowered to cause the declaration of Strict Natural Reserves to protect land, fauna and flora, as well as of Natural Parks for the propagation, conservation and management of wild animal life, of wild vegetation and for the protection of sites, landscapes or geological formations of scientific or scenic value. 8/ Within such reserves and parks, it is prohibited to perform any act connected with agriculture or mining, including drilling, to fish and to construct dams or weirs across any river or stream, or otherwise to obstruct the channel thereof. 9/ The Chief Conservator of Forestry is however authorized to grant hunting permits allowing for the killing of animals for the protection, among other things, of water installations. 10/

Finally, the President may, upon consultation with the Cabinet, provide by order for the management, utilisation and protection of Forest Reserves and Restricted Areas and of any roads, paths, channels or rivers therein. 11/

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- 1/ The Gum Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 35.
2/ The Town and Country Planning Act (Cap. 81), as amended, 1st Schedule.
3/ Ibidem, Sec. 20.
4/ The Concessions Act (Cap. 121), as amended, Sec. 37.
5/ The Minerals Act (Cap. 196), as amended, Sec. 30.
6/ The Mining (Mineral Oil) Act (Cap. 197), Sec. 8 (1) (p).
7/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 42 (2) (iii).
8/ The Wildlife Conservation Act, 1972 (Act No. 27 of 1972), Sec. 3, 5.
9/ Ibidem, Sec. 7.
10/ Ibidem, Sec. 38.
11/ The Forestry Act (Cap. 169), as amended, Sec. 20.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

There is no specific legislation in Sierra Leone governing groundwater exploration, well drilling or the abstraction of groundwater resources. The right to abstract and use underground water, in accordance with the prevailing riparian doctrine, is incidental to land ownership in the Western Area or to land possession in the Provinces. As a result, wells have been dug in great number all over the country without control, groundwater resources being plentiful and only shallow wells down to a maximum of 12 metres having been sunk however, no major interferences appear to have occurred in respect of groundwater supplies so far.

A few legislative provisions nevertheless provide limited measures of control. Provision is made for any well or waterhole dug within any Health Area to require the prior authorization of the competent Health Authority, for wells to be protected from contamination through proper lining and drainage measures, for wells to be dug at least 30 meters from any cesspool or place used for the disposal of rubbish or 350 meters from any cemetery or animal burial ground, and for Health Authorities to be empowered to close down or protect wells not satisfying such environmental health requirements. ^{1/}

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

(a) Waterworks construction

Provided a 14 days' notice has been served to the owner or occupier of land, or without notice in cases of emergency, Water Authorities are entitled to lay pipes on, under or across any lands and to maintain and repair the same. ^{2/} To this end, Water Authorities may furthermore acquire a leasehold interest or, within the Western Area, a freehold interest in lands, buildings or ornaments. ^{3/}

In the Provinces, waterworks constructed within Water Supply Areas have the status of public works; as a consequence, compensation for taking of land for this purpose is regulated by the Public Lands Act and not by the Provincial Lands Act. ^{4/}

The construction of waterworks within Water Supply Area is thus regulated by the Water Authorities which may empower any person to do so and use such work on one's own land, on public lands or on third-party land subject to payment of just compensation for damages; any person may in addition be required to permit, on agreed conditions, the construction of waterworks provided for in an approved water resources management Scheme. ^{5/}

^{1/} The Public Health Act, 1960 (Act No. 21 of 1960), as amended, Sec. 97 (1) - (3).
^{2/} The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 11.
^{3/} Ibidem, Sec. 12 (1).
^{4/} Ibidem, Sec. 12 (2).
^{5/} Ibidem, Sec. 48.

The construction of private drains and the connection thereof to public drains is subject to the prior authorization of the competent Health Authority which specifies the mode and standards governing the implementation of such waterworks; the cost of constructing approved private drains is borne by the beneficiary. 1/

(b) Waterworks operation and maintenance

Within Water Supply Areas, Water Authorities are similarly empowered to regulate waterworks operation and maintenance; Water Authorities may furthermore authorize any person to use third-party works subject to a contribution towards construction, operation and maintenance costs. Where a water resources management Scheme has been approved, that Scheme is furthermore to provide for the renewal and maintenance of all works as well as for the control of all the waters affected thereby. 2/

The obligation to maintain public drains pertains to the Health Authorities and other Government departments concerned; 3/ furthermore, private owners are under an obligation, upon notification by the competent Health Authority, to maintain and repair drains. 4/

(c) Waterworks protection measures

In addition to the general powers conferred upon the various Government departments and special authorities concerned with respect to the control of water resources and waterworks within their respective fields and areas of jurisdiction, express provision is made for (a) trespassing on enclosed land used for waterworks, the trespass by animals, standing and resting whatsoever thereon, and (b) for any interference whatsoever with the proper functioning of any public or private drain from any premises to constitute an offence. 5/

1/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 81 - 83.

2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 48.

3/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 19.

4/ Ibidem, Sec. 87.

5/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 56 - 58; The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 78.

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

(a) In the case of beneficial uses of water

1. The Limits of Supply of the Guma Valley Water Company were established and registered with the Registrar-General in 1961 ^{1/}. These cover the Guma River catchment area within which the Company is to manage water supplies and from which it is entitled to supply by agreement water in bulk to outside users ^{2/}. The Guma River catchment area is wholly comprised within the Western Area. Upon its creation, the Company took over all prior existing water supply undertakings within its Limits of Supply and undertook the construction of the Guma Dam, treatment plant and distribution network. ^{3/}

2. Water Supply Areas are declared by Order of the President. From the date of publication of the Order, all natural water supplies within the area become the property of the Government and the control thereof made to vest in the Minister of Energy and Power, except domestic uses from any natural water supply at places where users have lawful access. ^{4/} Water resources management Schemes are to be prepared for each Water Supply Area and implemented by a Water Authority appointed by the Minister. ^{5/} Water Authorities are empowered to regulate water supply conservation, utilization, distribution and disposal within their respective areas. ^{6/}

(b) In the case of harmful effects of water

1. Forest Reserves and Protected Forests are established by Presidential Order and water resources conservation, development and utilization therein placed under Government control. ^{7/} In order to control soil erosion, the use of rivers and streams therein for water supply purposes is subject to a Clearing Licence issued by the President. ^{8/} Within the Limits of Supply of the Guma Valley Water Company, the Guma River catchment area has been declared as a Forest Reserve. ^{9/}

2. Endemic Control Areas are declared by Order of the Minister of Health provided a corresponding scheme has been approved in order to provide therein for drainage and other works needed for the control of endemic diseases as well as for the elimination of insect or animal vectors. ^{10/}

(c) In the case of water quality and pollution control

1. Pollution Control Areas are defined according to bye-laws made by the Guma Valley Water Company for the effective control of pollution within its Limits of Supply, including prevention and abatement measures. ^{11/}

^{1/} The Guma Valley Water Act 1961 (Act No. 3 of 1961), as amended, Sec. 36 (1).

^{2/} Ibidem, Sec. 4, 30, 36.

^{3/} Ibidem, Sec. 14, 26-29.

^{4/} The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963) as amended, Sec. 3-4.

^{5/} Ibidem, Sec. 42 (2).

^{6/} Ibidem, Sec. 43.

^{7/} The Forestry Act (Cap. 169), amended, Sec. 20.

^{8/} Ibidem, Sec. 16 (1).

^{9/} The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 31.

^{10/} The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 31 (1).

^{11/} The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 39.

2. Urban, Rural, Labour and Port Health Areas are declared by Order of the Minister of Health. 1/ Within such Areas, the Health Authority is responsible for environmental health and sanitation. 2/

3. Water-gathering Areas are declared by the Health Authorities by public notice in the Official Gazette for the protection of drinking water supplies; no new cemetery for instance may be established within 360 meters from any source of water supply. 3/

4. Town Planning Areas are declared by the Minister of Lands, Housing and Country Planning in consultation with the City Council concerned. 4/ These areas are established in conformity with a Planning Scheme providing for proper conditions of health, sanitation, communications and amenity therein. 5/

XII - GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

(a) At the national level

The legislation in force provides for water resources conservation, development and utilization to be centrally controlled within Water Supply Areas managed by Water Authorities operating under the aegis of a single Ministry. 6/ Except for the Guma Valley Water Company, which has sole jurisdiction within its Limits of Supply, and for two Water Supply Areas in the Northern Provinces, namely the Mambole-Sama-Maghama-Gbinle and the Loko-Masama Kuru-Balloo Bako-Loko Water Controlled Areas which had been declared as such pursuant to the former Water Act, 7/ no other Water Supply Areas have been established so far.

As a result, water resources management has in practice remained essentially user-oriented and numerous sectoral governmental, mixed and non-governmental institutions are currently undertaking isolated water resources development projects.

In 1974 the former Ministry of Public Works, Energy and Power was split into two ministries responsible for public works and for energy and power respectively; consequently, the major responsibility for water law implementation has now been transferred from the Ministry of Public Works to the Ministry of Energy and Power. Similarly, the former Ministry of Agriculture and Natural Resources was split in 1978 into two ministries dealing respectively with agriculture and forestry, and with fisheries and livestock.

Nevertheless, as follow-up action to the International Hydrological Decade, Sierra Leone has been actively participating in the International Hydrological Programme (IHP) and, on UNESCO's instigation, a National Committee for the IHP is in the process of being institutionalized. It is anticipated that this Committee will serve as a mechanism for inter-ministerial coordination in the water resources management field.

1/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 4.

2/ Ibidem, Sec. 23A, 74, 80, 91-94.

3/ Ibidem, Sec. 96, 59 (2).

4/ The Town and Country Planning Act (Cap. B1), as amended, Sec. 6 (1).

5/ Ibidem, Sec. 12 (1).

6/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 4.

7/ Ibidem, Sec. 6d.

Central Government departments having responsibilities in the field of water management are the following 1/:

1. The President's Office

Either in consultation with the Cabinet for matters involving inter-sectoral activities, or on his own authority, the President is empowered to declare by order Water Supply and Water Rate Areas, to establish therein water rates and to approve the financing of water resources management Schemes 2/; to regulate water uses by mining right holders and to issue and revoke corresponding water right and dredging licences 3/; to declare by order any part of coastal and inland waters to be a waterway, to regulate inland navigation and the issuance of navigation licences 4/; to regulate land drainage and the prevention of land and water pollution in the course of oil mining operations 5/; to approve Town Planning Schemes 6/; and, within the Rural Areas of the Western Area, to regulate the management of water supply, including the control of markets, slaughter-houses, public washhouses and cemeteries 7/.

The President is furthermore empowered to establish by order Forest Reserves and Protected Forests, and to issue Clearing Licences for the use of the rivers and streams the conservation, development and utilization of which is subject therein to centralized control. 8/

2. The Ministry of Energy and Power

Through its Water Resources Division, the Minister of Energy and Power has overall control over national water supplies within Water Supply Areas so declared by Presidential Order; he correspondingly appoints Water Authorities and directs their preparation of water resources management Schemes for submission to the House of Representatives 9/. In addition, the Minister is empowered to raise funds for the financing of approved Schemes, to regulate water supply works development and management, the inspection and testing of networks, the suspension of the water supply, the prevention of water waste, water pricing, and to appoint water supply rate Collecting Officers. 10/

In the Western Area, the Minister operates through the Guma Valley Water Company which, within its limits of supply, has similar functions and powers. 11/

The Minister of Energy and Power is furthermore entrusted with the supply of energy, including hydro-power, and for the management of related works and installations; the Minister operates through the Electricity Corporation which he controls. 12/

Finally, this Ministry operates a hydrological data network and publishes a Hydrological Yearbook.

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- 1/ Assignment of Responsibility to Ministers, Government Notice No. 142, The Sierra Leone Gazette, Vol. CVIII, No. 10, 2 February 1977.
 - 2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 3, 18-19, 23-24, 47.
 - 3/ The Minerals Act (Cap. 196), as amended, Sec. 51 (f), 53 (1), 55-59, 61-63.
 - 4/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 2-9, 15.
 - 5/ The Mining (Mineral Oil) Act (Cap. 198), as amended, Sec. 8 (1) (p).
 - 6/ The Town and Country Planning Act (Cap. 61), as amended, Sec. 20.
 - 7/ The Rural Areas Act (Cap. 75), as amended, Sec. 131.
 - 8/ The Forestry Act (Cap. 189), as amended, Sec. 16 (1), 20.
 - 9/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 4, 6 (1), 42 (1), 43 (f), 45.
 - 10/ *Ibidem*, Sec. 28, 47, 63.
 - 11/ The Guma Valley Water Act, 1963 (Act No. 20 of 1963), as amended, Sec. 122.
 - 12/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 13 (1).

3. The Ministry of Health

The Minister of Health is empowered to declare by order Urban, Rural, Port and Labour Health Areas and to control therein the quality of domestic water supplies according to standards established by the Ministry 1/. The Minister is similarly empowered to declare by order Endemic Control Areas for which a Scheme has been approved. 2/ Within Health and Endemic Control Areas, the Minister is to provide drainage in agreement with the Minister of Public Works. 3/

Within areas not having been declared as Health Areas, the Minister is furthermore empowered to regulate house drainage and sanitary conditions, the disposal of night-soil and sewage, latrines, cesspools, cesspits and the maintenance of the sanitary conditions thereof, the control of public washhouses, the keeping of cattle, the selection, protection and maintenance of water supplies, including the declaration for this purpose of gathering-areas, and the selection of sites for the sinking, supervision and protection of wells and related storage facilities. 4/

Finally, the Minister of Health regulates the sanitary conditions of food processing, slaughter-houses and markets, 5/ and is empowered to abate and prevent statutory nuisances. 6/

4. The Ministry of Lands, Housing and Country Planning

All public lands are placed under the control of the Minister of Lands, Housing and Country Planning who, except where other government institutions hold statutory powers to this effect, regulates water rights as appurtenances to land rights; conditions of use are specified in a licence issued by the Minister or by a Licensing Authority appointed by the Minister. 7/

Within the Freetown Urban Area, the Minister's approval is to be sought for the construction of crossings over any open drain or gutter in any street; the Minister furthermore regulates the removal of private crossings, street drainage, the position of outhouses, cesspits and drains, house drainage, the disposal of rain and waste water, the provision of corresponding gutters and drains, and the prevention of pollution. 8/

The Minister is, furthermore empowered to declare by order Town Planning Areas and to regulate therein water supply, drainage, sewerage and the prevention of surface and well water pollution in conformity with a Planning Scheme prepared, under his authority, by an appointed Planning Committee. 9/ Once this Planning Scheme has been approved by the President, the Minister is entitled within any Town Planning Area to make all water rights conform therewith. 10/

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- 1/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 4, 17 (3).
2/ Ibidem, Sec. 11.
3/ Ibidem, Sec. 74-75.
4/ Ibidem, Sec. 107.
5/ Ibidem, Part VII.
6/ The Statutory Nuisance (Summary Punishment) Act, 1969 (Act No. 20 of 1969), Sec. 2-3.
7/ The State Lands (Servancy) Act (Cap. 118), Sec. 3-4, 7.
8/ The Freetown Improvement Act (Cap. 66), as amended, Sec. 62 (4) (1);
The Town and Country Planning Act (Cap. 81), as amended, 1st Schedule.
9/ The Town and Country Planning Act (Cap. 81), as amended, Sec. 10, 12-13, 17, 63 and 1st Schedule.
10/ Ibidem, Sec. 20.

5. The Ministry of Mines

The Minister of Mines is empowered to control water uses by mining right holders within leased lands and mining areas and, through the Chief Inspector of Mines, to process applications for water right licences issued by the President to mining right holders in need of water supplies from outside their leased lands or mining area. 1/

6. The Ministry of Agriculture and Forestry

This Ministry is currently operating a UNDP/PAO assisted land and water resources survey project providing for the systematic inventory of the country's land and water resources, present land use and land suitability for agricultural development purposes. This project will eventually become a full-fledged Division of the Ministry. 2/

In addition, the Minister of Agriculture and Forestry is empowered to declare by order Strict Natural Reserves and, with the approval of Parliament, Natural Parks within which the Chief Conservator of Forests controls the conservation of water resources and waterworks. 3/ The Minister similarly controls natural water supplies within Forest Reserves and Restricted Forests. 4/

7. The Ministry of Transport and Communications

This Ministry operates a Meteorological Department which collects hydrometeorological data.

In addition, the Minister of Transport and Communications appoints Waterway Officers who control inland navigation and issue navigation licences. 5/ The Minister also controls the operation of ferries and river-crossings through the District Authorities 6/, as well as water supply to ships through the Port Authority. 7/

8. The Ministry of Public Works

The Ministry is responsible, among other things, for street drainage; the Minister is in particular consulted by Health Authorities when the public drains they construct are likely to interfere with street drains. 8/

9. The Ministry of Natural Resources

This Ministry is responsible for fisheries and livestock. The regulation of fishing rights is however the competence of the local authorities, 9/ and the watering of livestock is regulated by customary law.

10. The Ministry of Education, Social Welfare and Rural Development

This Ministry is operating rural water supply projects.

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- 1/ The Minerals Act (Cap. 196), as amended, Sec. 35, 51-54.
2/ UNDP/PAO Land Resources Survey Project, Project Document, 16 May 1978.
3/ The Wildlife Conservation Act, 1972 (Act No. 27 of 1972), Sec. 3, 5, 7, 38.
4/ The Forestry Act (Cap. 189), as amended, Sec. 20 (16).
5/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 2, 15.
6/ The Ferries Act (Cap. 131), Sec. 4, 9.
7/ The Ports Act, 1964 (Act No. 31 of 1964), as amended, Sec. 14, 12 (h).
8/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 75 (b).
9/ The Tidel, and the Engbers Chiefdom Canoes, Boats, Fish and Fish-Trading By-Laws, 1960, Sec. 3, 5, Schedule.

11. The Ministry of Justice

The Minister of Justice administers the national judiciary organization, including the local courts to which he provides the assistance of Customary Law Officers. Formerly in the Ministry of Interior, the Customary Law Division has recently been transferred to the Ministry of Justice which is now equipped to deal in particular with customary land and water right disputes.

12. The Ministry of Finance, Development and Economic Planning

This Ministry formulates the national economic development plan and controls its implementation. The current five-year plan (1974-1978) provides in particular for the immediate establishment of a comprehensive and continuous inventory of the national water resources to serve as a basis for efficient project design, integrated water use planning and for water policy, legislation and administration. 1/

In addition, this Ministry has overall competences for water resources development financing.

13. The National Committee for the International Hydrological Programme

This Committee is composed of the representatives of the following ministries and institutions: the Ministry of Energy and Power, Fourah Bay College, the Ministry of Lands, Housing and Country Planning, the Ministry of Agriculture and Forestry, the Guma Valley Water Company, the Ministry of Education, Social Welfare and Rural Development, the Ministry of Transport and Communications and the National Authorizing Office. It is chaired by the representative of the Ministry of Energy and Power and deals, at the technical level, with the various water resources data collection and development projects undertaken by these institutions.

The Committee has met twice, in April and July 1978, and has prepared, with the assistance of UNESCO, draft statutes for its formal institutionalization. It is envisaged that this Committee will be used as the instrument of inter-ministerial coordination in the water resources field.

(b) At the provincial level

The Republic of Sierra Leone is administratively divided into the Western Area and the Northern, Southern and Eastern Provinces. The Western Area includes Tassoh Island, Banana Islands and the Sherbro Urban District 2/.

The Provincial Authorities consist of a Resident Minister in charge of political affairs, of a Provincial Secretary responsible for administrative affairs and of any government civil servant appointed by the technical ministries concerned to work in the Provinces. Such officers remain however subject to the authority of their respective minister.

1/ The Sierra Leone Five-Year Economic Development Plan (1974-1978), p. 11
2/ The Provinces Act (Cap. 60), as amended, Sec. 2; the Interpretation Act, 1971 (Act No. 8 of 1971), Sec. 1.

With the promulgation of the new Constitution in 1978 and the introduction of a single party system, local government administration is being reinforced at the Chiefdom level. As a consequence, the former Provincial Councils have now been abolished. Resident Ministers are however members of the Cabinet.

(c) At the District Level

The Western Area is divided into the Freetown Urban Area and the Rural Area which includes four Rural Districts ^{1/}. The Rural Area is managed by the Rural Area Council which consists of twelve members, each rural district electing two representatives in the Council ^{2/}. In turn, each rural district is managed by a Rural District Council which is responsible, among other things, for the provision, maintenance and regulation of water supplies within their area of jurisdiction. ^{3/}

The Provinces are divided into Districts, themselves subdivided into wards. There are twelve Districts managed by District Councils composed of the Paramount Chief, or the chiefs of each Chiefdom in the District, one elected member for each ward, any member of Parliament in the District, and three co-opted members. ^{4/}

Executive powers are exercised by a District Officer and his staff appointed by the Minister of Interior. The District Officer is assisted by government civil servants detailed by their respective ministries to work with the District authorities. ^{5/}

The District Councils are empowered, with the approval of the President, to make rules modifying customary law, to regulate inland navigation through the Waterways Officer appointed by the Minister of Transport and Communications, to issue river-crossing licenses to private operators and, with the assistance of the Provincial Health Officer, to control environmental health conditions within the District. ^{6/}

Finally, the District Officer is empowered, with the approval of the Resident Minister, to settle land disputes, including among Paramount Chiefs; he is consulted by the Chiefdom Councils on the exemption of buildings from the payment of water rates. ^{7/}

(d) At the Chiefdom Level

The Provincial Districts group 150 Chiefdoms managed by Chiefdom Councils comprising the Paramount Chief, lower Chiefs, Councillors and men of note elected by the people according to customary law with the approval of the Resident Minister. ^{8/}

^{1/} The Rural Area Act (Cap. 75), as amended, Sec. 3.

^{2/} Ibidem, Sec. 2, 6.

^{3/} Ibidem, Sec. 67 (f).

^{4/} The District Councils Act (Cap. 79), as amended, Sec. 4, 6.

^{5/} Ibidem, Sec. 36.

^{6/} Ibidem, Sec. 40; The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 2; The Ferries Act (Cap. 131), Sec. 9 (2), (3); The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 14.

^{7/} The Provinces Act (Cap. 60) as amended, Sec. 28; the Chiefdom Council (Niml Koro) (Jaiama Town Water Rate) Bye-Laws, 1965, Sec. 3 (d).

^{8/} The Chiefdom Councils Act (Cap. 61), as amended, Sec. 2.

Chiefdom Councils are empowered to issue orders to regulate, among other things, surface and underground water resources pollution, the cutting of trees, and the cultivation of land in all aspects, to such an extent and with such crops as will secure an adequate supply of food for the support of the population in the Chiefdom. 1/ To this end, Chiefdom Councils may issue orders to regulate grazing and mixed farming in areas expressly set aside for this purpose. 2/

In addition, Chiefdom Councils may make bye-laws to regulate the establishment, operation, control, maintenance and management of markets, slaughterhouses, public wash-houses and cemeteries. 3/

While customary law is applied within the Chiefdoms, the Provincial Authority may nevertheless issue superseding orders. 4/

(e) At the Local Level

In the Western Area, the City of Freetown is divided into 5 wards and 12 sections. 5/ It is managed by a City Council consisting of the Mayor, 3 Councillors per ward and 8 Aldermen selected from among the Councillors; the staff of the City Council includes, among others, a Town Clerk, a Health Officer, a Town Engineer and Chief Sanitary Superintendent. 6/ The Council provides, maintains and regulates parks, gardens and other recreational places for the public 7/; it also functions as Fire Authority and 8/, under the chairmanship of the Principal Medical Officer for the Western Area, as Health Authority, with the Senior Executive Engineer of Water Supply and the Town Clerk as members. The same applies to the Sherbro Urban District Council and, in the Provinces, to the three provincial Town Councils of Makoni, Bo and Kenema. 9/

Within the Rural Area of the Western Area, there are 29 groups of villages managed each by a Village Council consisting of 6 elected members; in turn, a Headman is elected in each village from among Elders and family Heads. 10/ Village Councils are responsible for the implementation of minor public works. 11/

In the provinces, Chiefdoms consist of a number of Sections headed by a Chief elected by the Chiefdom Council, having due regard to customary law, from among persons who prove to the Resident Minister that they are properly descended from a recognized Paramount Chief in the same Chiefdom; in cases where such a position has remained vacant for twelve consecutive months, Section Chiefs are appointed by the Resident Minister upon consultation with the Chiefdom Council concerned. 12/

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- 1/ The Chiefdoms Councils Act (Cap. 61), as amended, Sec. 8 (d) - (e), (h).
 - 2/ The Chiefdoms Councils (Farming Area) Order (Cap. 61).
 - 3/ The Chiefdoms Councils Act (Cap. 61), as amended, Sec. 16 (f).
 - 4/ Ibidem, Sec. 4, 10.
 - 5/ The Freetown Improvement Act (Cap. 66), as amended, Part II.
 - 6/ The Freetown Municipality Act, 1973 (Act No. 20 of 1973), Sec. 7-10, 29.
 - 7/ Ibidem, Sec. 41 (c).
 - 8/ The Freetown Fire Prevention Measures Act (Cap. 65), Sec. 2.
 - 9/ The Public Health (Urban Health Areas and Authorities) Order, 1963.
 - 10/ The Rural Area Act (Cap. 75), as amended, Sec. 6, 15 (1), 1st Schedule.
 - 11/ Ibidem, Sec. 68 (c).
 - 12/ The Provinces Act (Cap. 60), as amended, Sec. 5.

In turn, Sections comprise village groups headed by a Headman or Town Chief; villages are themselves subdivided into Sections managed by a Headman who controls 2 to 3 families and their family heads. Village Section Headmen and Family Headmen are recognized Elders who form Village Committees to advise Section Headmen or Town Chiefs. The organization of, and water right administration by, local authorities below the Chiefdom Council level is based on customary law. These authorities are nevertheless enjoying similar regulating powers as those exercised by the Chiefdom Authorities. 1/

(f) At the basin or sub-basin level

The Water Authorities

Provision is made for one Water Authority to be established for each Water Supply Area or group of Water Supply Areas having been so declared by Presidential Order. 2/ Water Authorities consist of the person or authority appointed by the Minister of Energy and Power; these are to consist of at least three members; decisions are by majority vote, the Chairman having an original and casting vote 3/. As from the date of their establishment, Water Authorities are empowered to construct and take over all water supply works, to manage and, with the approval of the Minister, to supply water within their area of supply. 4/

Water Authorities may be directed by the Minister to prepare a Scheme for the conservation, utilization, distribution and disposal of any natural water supply within their respective areas. Such Schemes are to contain a description of the natural water supplies to be safeguarded and controlled; the nature, purpose and extent of such a control; a description, together with plans, of principal works and apparatuses, including a statement as to the probable effects thereof; an adequate supply of water sufficient for all beneficial purposes not in conflict with the Scheme; construction and maintenance costs, public as well as private financing and corresponding water pricing; and, in the case of private financing, a statement as to corresponding benefits accruing to beneficiaries while, in the case of public financing, the level of proceeds from water rates and charges, proposed tariffs and the basis on which rates and charges are to be levied. 5/ In the preparation of such water resources management Schemes, the Water Authorities are empowered to undertake surveys, provided reasonable notice is served and compensation for damages is paid.

Proposed Schemes are submitted to the Minister, to the Provincial Authority concerned and to any other place as the Minister may direct. Such Schemes are furthermore to be published in the Official Gazette and be open for inspection by the public for at least one month; in the Provinces, these Schemes are to be explained to the local authorities concerned. Once a Scheme has been settled, it is submitted together with any objections and statements of damages to the Minister who may reject or approve the Scheme, with or without modifications, for submission to the House of Representatives. The same procedure then applies to the subsequent modification, amendment or revocation of any approved Scheme. 7/

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- 1/ The Chiefdoms Councils Act (Cap. 61), as amended, Sec. 2, 4, 8.
 - 2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 3, 7.
 - 3/ Ibidem, Sec. 5.
 - 4/ Ibidem, Sec. 8.
 - 5/ Ibidem, Sec. 42.
 - 6/ Ibidem, Sec. 43.
 - 7/ Ibidem, Sec. 44 - 46.

Finally, Water Authorities are empowered to regulate by order the control of the conservation, utilization and supply of natural water supplies on public and private land to both entitled and non-entitled persons; the construction, maintenance and use of irrigation, drainage and other waterworks; the construction, maintenance and use of any waterworks by any person on his own and on public land, or on land of third-parties subject to just compensation for damages; joint waterworks management and related financing; the compulsory construction and maintenance, subject to agreed conditions, of waterworks in conformity with the approved Scheme; and any other matter relating to water resources management, including the disposal of used and excess water. ^{1/}

(g) At the international level

Sierra Leone shares international water resources with her two neighbours: the Great Sarcies basin and the Little Sarcies basin with Guinea, the Moa basin with Guinea and Liberia, and the Mano basin with Liberia. Numerous bilateral treaties have successively governed the delimitation of the frontier of Sierra Leone since 1815 on the Great and Little Sarcies rivers, since 1885 on the Mano river and since 1892 on the Moa river. ^{2/} Some of these treaties have, in addition, provided for the freedom of navigation and transit, fishing and the protection of existing water use rights by the local populations.

The following general international conventions to which Sierra Leone is a party are furthermore applicable to these rivers:

- The 1923 Geneva Convention relating to the Development of Hydroelectric Power affecting more than one State (Effective date: 22 September 1925).
- The 1947 General Agreement on Tariffs and Trade.
- The 1964 African Convention on the Conservation of Nature and Natural Resources (Entry into force: 9 October 1969). ^{3/}

More recently, Sierra Leone has co-signed with Liberia on 3 October 1973 the Mano River Declaration which has established the Mano River Union comprising a joint Ministerial Committee on Liberia - Sierra Leone co-operation and a Secretariat with headquarters in Freetown. The Declaration contains six protocols. ^{4/}

The main objectives of the Union are the elimination of customs and trade barriers and a closer economic cooperation for an expanded production of agricultural and manufactured products of local origin. The Union is furthermore open for participation to all States in the Western African sub-region.

^{1/} The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 4B.

^{2/} According to the First Schedule of the Constitution of Sierra Leone, the national territory is delimited by the Anglo-French Convention of 28 June 1802, the Anglo-Liberian Convention of 11 November 1885, the Anglo-French Agreement of 21 January 1895, the Anglo-Liberian Convention of 21 January 1911 and the Anglo-French Exchange of Notes of 6 July 1911.

^{3/} For a detailed listing of agreements relevant to the international river basins shared by Sierra Leone, see Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin, FAO Legislative Study No. 15, Rome, 1975.

^{4/} Mano River Declaration, signed at Kalem, Sierra Leone, on 3 October 1973, and Protocols to the Declaration, signed at Bo, Liberia, on 3 October 1974, Mano River Union Secretariat, Freetown, Sierra Leone.

The Joint Inter-Ministerial Committee, renamed as the Union Ministerial Council, is composed of the Minister of Planning and Economic Affairs of Liberia and of the Minister of Development and Economic Planning of Sierra Leone, together with the Ministers responsible for Finance, Education, Trade, Industry, Agriculture, Transport, Communications, Power and Works in both countries. The Council holds ordinary meetings at least once a year; chairmanship is in rotation and decisions are by consensus. Decisions designed to have legal force are to be the subject of additional protocols.

Water resources development constitutes part of the activities of the Union; a multi-purpose dam project on the Mano River is currently under feasibility study. Although hydro-power is the main objective, provision is to be made for flood control, navigation improvement, irrigation and fishing, including related environmental impact studies.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

(a) At the national level

The Electricity Corporation

As a public corporation operating under the aegis of the Ministry of Energy and Power 1/, the Electricity Corporation is responsible for the supply of energy and for the management of corresponding works and installations throughout the country. It is accordingly empowered, through its General Manager, to abstract water from any natural supply for power generation provided water not consumed is returned to the original course or source of supply. 2/

The Corporation enjoys an exclusive right to generate power in excess of 3 Kw for its own use and to supply customers; it is furthermore empowered to issue production licenses of a term not exceeding 21 years to persons intending to generate power for their own use. 3/

(b) At the regional level

1. The Guma Valley Water Company

The Guma Valley Water Company is a body corporate with perpetual succession and a common seal; it is empowered to acquire, hold and dispose of land and other properties 4/. The purpose of the Company are to procure a supply of water from the Guma River catchment area and to distribute this supply within its Limits of Supply or, by agreement, in bulk or otherwise outside these limits. 5/ Upon its creation in 1961, the Company took over all prior existing water supply undertakings within its Limits of Supply and undertook the construction of the Dam Dam, treatment plant and distribution network. 6/

1/ Assignment of Responsibility to Ministers, Government Notice No. 142, the Sierra Leone Gazette, Vol. CVIII, No. 10, 4 February 1977.
2/ The Electricity Corporation Act, 1963 (Act No. 5 of 1964), as amended, Sec. 10-13(1).
3/ Ibidem, Sec. 27.
4/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 3.
5/ Ibidem, Sec. 30, 36.
6/ Ibidem, Sec. 14, 26 - 29.

Shareholders in the Company are the Government for the value of the Guma lands which now vest in the Company, the City Council of Freetown for the value of the properties it has vested in the Company, the former owners of the water supply undertakings taken over by the Company, and individual shareholders. 1/ The Company is expected to conduct business on the basis of sound commercial principles. 2/

The powers of the Guma Valley Water Company are exercised by the General Meeting; the management vests in a Board of six Directors of whom three are appointed by the Government and one by the City Council of Freetown; the Directors may delegate their powers to the General Manager; these include the making of bye-laws with the approval of the Minister of Energy and Power. 3/

The Company enjoys an exclusive right to supply water within its Limits of Supply and, to this end, is entitled to acquire land by agreement or, failing agreement, to arrange for government taking of such lands on which it then enjoys a right of disposal. It is furthermore entitled to enlarge, improve, extend, maintain, repair, renew, alter and use all reservoirs, wells, boreholes, pumping stations, mains, pipes and other waterworks, and to collect, intercept, impound, take, use, divert and appropriate all streams, springs and waters which may be intercepted or taken by such works. 4/

In turn, the Company is under an obligation to supply wholesome water for domestic purposes constantly and at reasonable pressure, although by gravity only; it is to provide fire-hydrants at the request and cost of the Fire Authority, businesses and factories. 5/ It is furthermore to supply water for cleansing sewers and drains, cleansing and watering streets, and for supplying public pumps, baths and washhouses on agreed terms. 6/ Mains are provided by the Company, as are the connections to inside services and stopcocks; while inside service, service pipes for new supplies or the fitting of separate service pipes at the request of the Company are to be paid for by users, the latter are entitled, provided they have complied with all requirements regarding inside services, to demand the corresponding water supply. Meters and related fittings remain however the property of the Company. 7/

Water supplied by the Company is subject to rates and charges. 8/

Finally, the Guma Valley Water Company is responsible for drainage, sewerage, water waste and pollution control; to these ends, it is entitled to enter premises and to prosecute offenders. 9/

2. The National Authorizing Office

The National Authorizing Office is a special agency operating under the Minister of Finance, Development and Economic Planning. 10/ It has been established as a national development agency in order to autonomously operate integrated rural development projects financed by foreign aid agencies. Three such projects are currently being implemented, one in each Province.

1/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 73 - 78.

2/ Ibidem, Sec. 86.

3/ Ibidem, Sec. 6, 9-11, 96, 122.

4/ Ibidem, Sec. 5, 7-8, 19, 32 (i).

5/ Ibidem, Sec. 37-39.

6/ Ibidem, Sec. 40.

7/ Ibidem, Sec. 46, 46-49.

8/ Ibidem, Sec. 63.

9/ Ibidem, Sec. 33-35, 52-58, 117.

10/ Assignment of Responsibility to Ministers, Government Notice No. 142, The Sierra Leone Gazette, Vol. CVIII, No. 10, 4 February 1977.

(c) At the local level

The Sierra Leone Ports Authority

The Sierra Leone Ports Authority is a body corporate operating under the control of the Minister of Transport and Communications. 1/ Its management consists in a Chairman, 6 elected and 5 appointed members, and 4 Government representatives. 2/

The Authority is responsible for the management of ports and harbours and, in particular, to supply water to ships. 3/ It is entitled to levy rates on the water it supplies. 4/

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government financial participation and reimbursement policies

Water resources development financing in Sierra Leone is fully centralized. Funds are allocated on the basis of yearly budgets established by the Chiefdom and District Authorities, and submitted to the Minister of Interior through the relevant Provincial Authorities. 5/

Within Water Supply Areas, the Minister of Energy and Power is however empowered, with the approval of the President upon consultation with the Cabinet, to raise funds on terms and conditions certified reasonable by the Director of Audit in order to finance approved water resources management Schemes likely to generate profit for the Water Authorities concerned. 6/

As to the Guma Valley Water Company, it finances its own development budget out of corresponding yearly revenues 7/; the Company is however exempted from local authority rates and from income tax. 8/

Returns on water resources development financing are based on a complex system of water rates and charges which, except within the limits of Supply of the Guma Valley Water Company which operates on a commercial basis, cover only partly corresponding investments.

(b) Water rates and charges

The President is empowered to declare by order any Water Supply Area, or part thereof, to be a Water Rate Area 9/ within which he fixes the amount and the dates of payment of the following water rates and charges:

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- 1/ The Ports Act, 1964 (Act No. 56 of 1964), as amended, Sec. 3, 14.
2/ Ibidem, Sec. 5.
3/ Ibidem, Sec. 12 (b).
4/ Ibidem, Sec. 66.
5/ The Chiefdoms Treasuries Act (Cap. 62); the District Councils Act (Cap. 79), as amended, Sec. 43, 45.
6/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 47.
7/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 89.
8/ Ibidem, Sec. 90-91.
9/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 18.

1. A General Water Rate levied by the Water Authority on each premise, unless the Area has been exempted either partly or wholly 1/;

2. an additional Water Supply Rate for domestic and non-domestic water supply which local authorities are required to pay to the Water Authority for each public fountain, stand-pipe, tap, trough or any structure used to supply the public from waterworks. 2/ Within Water Supply or Water Rate Areas, Standard Domestic Rates and Standard Non-Domestic Rates apply 3/; within Water Supply Areas not having been declared as Water Rate Areas, a Standard Compound Rate applies for public fountains provided by the Water Authority 4/; and where Water Authorities supply water by metres, a Metered Water Supply Rate is applied instead of the standard rate 5/;

3. a Meter Rent is charged for meters which belong to, and are installed by, the Water Authorities. 6/

Proceeds from the general water rate are to cover the cost of public fountains maintained by the Water Authorities; any remaining balance is to be allocated to the general budget of the local authority concerned. 7/

The general water rate is paid half-yearly in advance by equal payments on 1 January and 1 July to the relevant local, town, city, urban or rural District Council, or to the Chief of Treasury, which acts as Collecting Officer 8/. All other water rates are normally paid to the Government, 9/

The additional water supply rate is payable to the Water Authority or to the local authority concerned in equal quarterly advance payments on 1 January, 1 April, 1 July and 1 October. 10/

The metered water supply rate and the meter rent are payable monthly or quarterly in arrears upon notification by the Water Authority or the local authority concerned, 11/

At present, applicable rates are of Leones (Le) 2.50 12/ for the 1st standpipe and, for house connections, Le 2.50 for the first tap, Le 1.00 for each of the next four taps, Le 0.75 for each of the next five, and Le 0.50 for each additional tap. The Ministry of Energy and Power is however envisaging to raise its tariffs to the level of those charged by the Ouma Valley Water Company.

1/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 18.

2/ Ibidem, Sec. 2, 19.

3/ Ibidem, Sec. 23.

4/ Ibidem, Sec. 24 (1), (3).

5/ Ibidem, Sec. 20.

6/ Ibidem, Sec. 25.

7/ Ibidem, Sec. 27 (3).

8/ Ibidem, Sec. 27 (1), (4).

9/ Ibidem, Sec. 32.

10/ Ibidem, Sec. 27 (4).

11/ Ibidem, Sec. 29-30.

12/ 1 Leone eqs. approximately US\$ 1.00 in December 1978.

In the case of the Guna Valley Water Company, proceeds on water rates cover first and doubtful debts, and are then allocated to management costs and interest on loans (which may not exceed 50 per cent of the issued capital), depreciation, the special reserve fund, maintenance costs, the working capital and dividends up to 8 per cent per annum on Le 2.00 shares. 1/

Rates levied by the Company within its Limits of Supply include 2/:

1. a General Water Rate of Le 0.20 per Le 1.00 of the annual value of each premise, whether drawing water or not, except if premises are not supplied through a service pipe or are located more than 100 meters from the nearest public standpipe; also excepted are places of religious worship, hospitals, schools, cemeteries and charitable institutions. Furthermore, the rate may be reduced or waived on grounds of the users' poverty;

2. a Water Supply Rate of Le 4.00 for the 1st tap, Le 1.25 for each of the next four taps, Le 0.95 for each of the next five, Le 0.75 for any number of taps over 10, and of Le 5.00 for each water closet;

3. a Metered Water Supply Charge of Le 0.90 per 4000 litres of domestic water supplied outside the boundaries of the City of Freetown, of between Le 0.20 to 0.90 per 4000 litres of water supplied for other uses, and of Le 0.75 per 400 litres, or fraction thereof, supplied directly to ships;

4. a quarterly Meter Rent of between Le 0.50 and 4.00 depending on the size of the metre; and

5. an annual Water Charge of Le 28/50 minimum for water supplied outside the boundaries of the City of Freetown in cases where neither the general water rate nor the water supply rate apply.

Water rates and charges are collected either by the Company or by the competent local authority as agent of the Company. 3/

Within the Rural Area of the Western Area, water rates and charges are levied and kept by the Rural Area Council as part of its regular revenue. 4/

In addition, the Port Authority levies water supply rates of Le 2.00 per 4000 litres from quay hydrants, of Le 4.00 for the supply of water to barges in stream, plus Le 0.60 to 4.00 per hour of overtime. 5/

Proceeds from the fees or royalties levied on Clearing Licences issued for the survey and securing of a water supply within Forest Reserves and Protected Forests are used to compensate damages arising therefrom 6/; fishing boat registration is subject to an annual fee of Le 0.80; and an annual charge of Le 2.00 is levied on fishermen and fishing boats. 7/

1/ The Guna Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 73, 79, 89.

2/ Ibidem, Sec. 63, 65 and the Company's Water Rates and Charges.

3/ Ibidem, Sec. 66-71.

4/ The Rural Area Act (Cap. 75), as amended, Sec. 90 (b).

5/ The Ports Authority (Port Tariff) Regulations, 1970.

6/ The Forestry Act (Cap. 189), as amended, Sec. 16 (4).

7/ The Tindiel, and the Kagboro Chiefdom Canoes, Boats, Fish and Fish-Trading Bye-Laws, 1960, Schedule.

Finally, Chiefdom Councils are empowered to make bye-laws with a view to levying a water rate on any building in towns, except places of religious worship, hospitals, schools and other buildings which may be exempted with the approval of the District Officer. ^{1/} Rates are of Le 1.00 per year for buildings with a grass roof, of Le 3.00 for buildings with mud walls and a tin roof, of Le 5.00 for buildings with mud block walls and a tin roof, and of Le 10.00 for buildings with concrete walls. ^{2/}

XI - WATER LAW IMPLEMENTATION

(a) Judicial protection of existing water rights

In addition to the provisions of the Constitution on the protection of individual property and possessory rights ^{3/} and to the various statutory norms governing compensation for taking and damages, special provisions apply in particular to the protection of water rights.

Within Water Supply Areas for instance, water uses in existence prior to the corresponding declaratory order are reserved. ^{4/} Persons aggrieved by a water resources management Scheme prepared by a Water Authority as regards land and water rights even outside the Water Supply Area may object in writing to the Chairman of the Water Authority indicating the nature and extent of the probable damage; the Water Authority is then compelled to modify the Scheme accordingly and to notify the public of such modifications, to further modify the Scheme if new objections are raised, and may only thereafter make a final decision in such terms and conditions as it deems just and necessary for the purposes of the law. ^{5/}

Landowners riparian to a water source used by the Guza Valley Water Company who prove that they have been deprived of the water they need for agricultural or private business purposes may compel the Company to return to their source of supply a quantity of water not less than the deficiency so caused or to provide them with a piped supply of a like amount of water free of charge, provided however that beneficiaries are not entitled to receive a better supply than that previously available to them. ^{6/} Similarly, the rights of any authority entrusted by law with the protection of any river for navigation purposes is expressly protected against interferences by the Guza Valley Water Company when exercising its exclusive water use right for the supply of water within its Limits of Supply. ^{7/}

^{1/} The Chiefdom Council (Pondorbu-Gowabur) (Pondembu Town Water Rate) Bye-Laws, 1962 and the Chiefdom Council (Nimi Soro) (Jaiam Town Water Rate) Bye-Laws, 1965, Sec. 3.

^{2/} Ibidem, Schedule.

^{3/} The Constitution of Sierra Leone, 1974 (Act No. 12 of 1974), Chapter II, Sec. 5, 11-12.

^{4/} The Water (Control and Supply) Act, 1963 (Act No. 10 of 1963), as amended, Sec. 4, 5 (1).

^{5/} Ibidem, Sec. 43 (5), (6).

^{6/} The Guza Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 32 (2).

^{7/} Ibidem, Sec. 34 (5).

Provision is also made for Health Authorities not to interfere with navigation rights neither to diminish nor to divert any supply of water, the quality or the fall thereof or corresponding rights on any river, canal or the feeders thereof in cases where any person would, prior to the enactment of the Public Health Act, have been entitled by law to prevent or be relieved against the injurious effect of such interferences, unless the Health Authority first obtains the consent, in writing, of the person so entitled. 1/

Mining right holders are prevented from making or permitting any other person to make, without the permission of the President, any alterations in the water supply of any lands as may prejudicially affect the water supply enjoyed by any other person or land; in case such an alteration is made, the mining right holder is then presumed to have made it. 2/ Similarly, damages caused in the course of alluvial diamond mining are subject to compensation. 3/

Finally, before the Electricity Corporation lays cables across any navigable waterway, it is to obtain the approval of the Minister of Energy and Power upon consultation with the appropriate authority. 4/

(b) Modification, termination and re-allocation of water rights

As a matter of principle, the enjoyment of property and possessory rights is subject to such limitations as the rights and freedoms of others, the interests of defence, public safety, public order, public morality, public health, town and country planning and the development or utilization thereof for the benefit and welfare of the public. 5/ Accordingly, the modification, termination or re-allocation of water rights may be provided for by law for such purposes and, in particular, in cases where such interferences are necessary for the satisfaction of any tax, rate or dues, for so long as examinations, investigations, trials or inquiries are required or, in the case of land and water rights, to carry out soil and other natural resources conservation works or agricultural development or improvement works which the owner or occupier of land has been required, and has without reasonable or lawful excuse refused, or failed, to carry out. 6/

In addition, as most water rights likely to have an effect on the quantity or wholesomeness of the corresponding source of supply are subject to a statutory title governed by terms and conditions established by the issuing authority, the latter is similarly empowered to interfere therewith in accordance with the above constitutional and statutory limitations. 7/

1/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 14b.

2/ The Minerals Act (Cap. 196), as amended, Sec. 51.

3/ The Alluvial Diamond Mining Act (Cap. 198), as amended, Sec. 10.

4/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 45.

5/ The Constitution, 1978 (Act No. 12 of 1978), Chapter II, Sec. 5 (a), 11 (1) (a).

6/ Ibidem, Sec. 11 (2) (a), (h).

7/ Ibidem, Sec. 12.

Provision is thus made, for instance, for Water Authorities to vary, amend or revoke water resources management Schemes and to regulate all water rights accordingly 1/; for the Minister of Lands, Housing and Country Planning to modify all water rights which are in contradiction with approved Town Planning Schemes 2/; for Health Authorities to order the closing of any well within 120 metres from a public pump, standpipe or other water supply point provided by it, the Government or the Guma Valley Water Company when health protection imperatives so require 3/; for water right licences issued to mining right holders to be revoked by the President in cases of breach of the terms or conditions thereof 4/ or for power production licences to be suspended or revoked at any time on breach of any condition thereof or in case of arrears in payments due 5/.

(c) Water tribunals, courts and other judiciary water authorities

As there are no special water courts in Sierra Leone, water disputes are settled by the regular courts of law. The country's judicial system is rather complex as courts are called upon to apply both written and customary law 6/, and because judicial districts do not correspond to administrative Districts.

At the highest level there are a Supreme Court with a Local Appeals Division, a Court of Appeal and a High Court 7/. In practice, one High Court sits in Freetown and a Resident Judge chairs a High Court in each of the Provincial cities.

At the intermediate level, the country is divided into fifteen judicial districts, three in the Western Area and twelve in the Provinces. There is one District Appeal Court and at least one Magistrate's Court in each district. Magistrate's Courts may hear civil suits involving up to Le 1,500 and try criminal cases in which punishment does not exceed three years of imprisonment or fines up to Le 1,000; they may also conduct preliminary investigations of other cases for trial before sittings of the High Courts. When applying customary law, the bench includes two or more justices of the peace and two assessors selected from a list of experts on customary law of the ethnic group involved.

At the local level, there are Group Local Appeal Courts and Local Courts whose Chairmen and Vice-Chairmen are appointed by the Minister of Interior 8/; officers of Group Local Appeal Courts are also appointed by the Minister, while officers of Local Courts are appointed by the Chiefdom Council concerned 9/. These courts sit in each Chiefdom or group of Chiefdoms as the case may be; until recently, Paramount Chiefs used to be appointed as chairmen of these local courts which sit at such times and places as the Chiefdom Council or Chiefdom Councils consider necessary for a speedy dispatch of business. 10/

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- 1/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 5, 42, 46.
 - 2/ The Town and Country Planning Act (Cap. 81), as amended, Sec. 20.
 - 3/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 94.
 - 4/ The Minerals Act (Cap. 196), as amended, Sec. 58.
 - 5/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 29.
 - 6/ The Courts Act, 1965 (Act No. 31 of 1965), as amended, Sec. 76.
 - 7/ The Courts Act, 1965 (Act No. 31 of 1965), as amended.
 - 8/ The Local Courts Act, 1963 (Act No. 20 of 1963), as amended, Sec. 4 (1), 5.
 - 9/ Ibidem, Sec. 6.
 - 10/ Ibidem, Sec. 11.

Local courts have jurisdiction over customary law suits other than between Paramount Chiefs or Chiefdom Councils involving land rights which are settled by the District Officer 1/; over civil law cases governed by general law (i.e. the Common Law, equity and all enactments in force in Sierra Leone except in so far as they are concerned with customary law 2/) involving suits up to Le 200 or claims for recovery of possession of land with an annual rental value not exceeding Le 50 and a lease term not over 5 years; and over criminal cases involving a fine not exceeding Le 200 and one year imprisonment or both 3/. In the absence of applicable customary rules, these courts are to apply general law 4/. Customary Law Officers answerable before the Minister of Justice assist Local Courts in the implementation of their judicial duties.

Appeals against, or rather a re-hearing of cases decided by a Local Court may be had before the Group Local Appeal Court concerned or before the District Appeal Court which sits under the Chairmanship of the Magistrate of the district assisted by two assessors selected from a list of experts in customary law drawn up by the District Officer 5/. Appeals against decisions of a Group Local Appeal Court may also be heard by the District Appeal Court. 6/

Decisions of District Appeal Courts may be appealed against before the Local Appeals Division of the Supreme Court; in this case, however, such appeals have the status of appeals made against a Magistrate's Court decision. 7/

Finally, and in addition to any existing civil or criminal remedy before Magistrate's Courts, Catchment Area Inspectors are enabled as police constables to arrest offenders against pollution regulations within Water Supply Areas, as are any persons duly authorized by a Water Authority to take fines under the Water Act 8/; the Guma Valley Water Company is similarly enabled to prosecute offenders in the case of pollution and of damages caused to waterworks 9/; Health Authorities are empowered to arrest and to inflict fines on persons causing statutory nuisances and to prosecute offenders in the case of surface and underground water contamination and of interference with drainage and drainage works 10/; Chief Superintendents of Mines are entitled to prosecute polluters and persons interfering with water supplies in the course of mining operations 11/; and Waterways Officers are empowered to prosecute polluters of waterways and persons interfering with navigation. 12/

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- 1/ The Provinces Act (Cap. 60), as amended, Sec. 28.
 - 2/ The Local Courts Act, 1963 (Act No. 20 of 1963), as amended, Sec. 2.
 - 3/ Ibidem, Sec. 13 (1).
 - 4/ Ibidem, Sec. 13 (2).
 - 5/ Ibidem, Sec. 29.
 - 6/ Ibidem, Sec. 30.
 - 7/ Ibidem, Sec. 31-32.
 - 8/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 16, 62.
 - 9/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 33-35, 42-43, 52-58, 117, 120-121.
 - 10/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 2-3, 78, 95, 97.
 - 11/ The Minerals Act (Cap. 196), as amended, Sec. 50, 52.
 - 12/ The Waterways Act, 1964 (Act No. 54 of 1964), Sec. 11, 15.

(d) Penalties

Penalties for offences against the water legislation consist of fines, imprisonment, compensation for damages and administrative sanctions.

Fines of Le 3,00 sanction the unauthorized use of water, together with the recovery of the value of the water improperly used, and the trespassing on enclosed land used for waterworks 1/; Le 30,00 for the misuse as well as for the fraudulent use of the Guma Valley Water Company's supply network and for the tampering with water metres 2/; a similar fine, or imprisonment for up to 2 months, applies in the case of default in payment of water rates within local towns 3/; Le 20,00 for the wilful or negligent misuse and waste of water supplies from waterworks, for letting animals trespass and for standing or resting whatsoever on waterworks 4/; Le 40,00, on summary conviction, in the case of the wilful or negligent use of water without a licence or in contravention to the terms or conditions thereof within any Water Supply Area, of alterations made to a pipe or fitting in which case the water Authority is entitled to further cut off or withdraw the supply of water until the main or service pipe has been reinstalled, for the unauthorized taking, except for private domestic use, of water from a Water Rate Area to another Water Rate Area and, except for fire-fighting, for the sale or transfer of water to third-parties, unless the beneficiary is entitled to water but, without his fault, his supply has been cut off or is otherwise not available 5/; Le 50,00 in the case of the contamination of a public fountain, of the wrongful opening or closing of any lock, cock, valve, sluice or sashole pertaining to any waterworks, and for the unauthorized use of fire-hydrants 6/; Le 100,00 in the case of contraventions to orders made by a Water Authority in respect of the management of water resources as part of an approved Scheme, of interferences with or of wilful or negligent damages to any waterwork or water metre, of the unlawful drawing off, diversion or taking of water therefrom or from the catchment area, for the pollution of water resources by allowing any foul liquid, gas or other noxious matters to enter any watercourse, for the unauthorized supply of water to ships over 50 tons displacement and, within the Limits of Supply of the Guma Valley Water Company, for letting animals trespass on water supply works and networks or for taking water therefrom for the supply of ships 7/; Le 160,00 in case of fraudulent measurement or stealing of water supplies, in which case the Water Authority is empowered to repair measuring devices at the cost of the offender 8/; and of Le 200,00 in cases of water pollution especially provided for in regulations made by Water Authorities 9/. Provision is further made for the wilful or negligent damage to waterworks and water metres, the unlawful drawing off, diversion and taking, as well as for the pollution of water resources to constitute continuing offences liable to additional daily fines of respectively Le 4,00 and 8,00 following due notice to stop the wrongful act 10/.

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- 1/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 54, 56.
 - 2/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 58.
 - 3/ The Chiefdom Council (Pendembu-Gowahun Chiefdom) (Pendembu Town Water Rate) Bye-laws, 1962, Sec. 5.
 - 4/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 50, 58.
 - 5/ Ibidem, Sec. 5 (3), 51, 53, 55.
 - 6/ Ibidem, Sec. 61; The Freetown Fire Prevention Measures Act (Cap. 68), Sec. 11.
 - 7/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 48 (5), 49, 59, 60; The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 120-121.
 - 8/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Sec. 52.
 - 9/ Ibidem, Sec. 13 (1).
 - 10/ Ibidem, Sec. 49, 60.

In turn, if the Guma Valley Water Company fails to supply water to entitled users it is liable to an initial fine of up to Le 10.00, together with a subsequent daily fine of Le 6.00, unless the water supply is not available because of drought conditions or of other accidental causes. 1/

Water Authorities are furthermore entitled to cut off or withdraw the water supply to defaulters in the payment of water rates following a 28 days' prior notification by the Collecting Officer; rates remaining due thereafter are then recovered as civil debts by the Water Authorities. 2/

Similar penalties sanction offences against the public health, mining, power production and inland navigation legislation. An invariable fine of Le 2.00 applies in the case of any collection of water or water vessel found to contain eggs or larvae of mosquito considered to constitute a statutory nuisance 3/; the Minister of Health is empowered to serve intimations and abatement notices or to have nuisance orders issued by courts in cases of statutory nuisances which are liable to fines up to Le 10.00, together with an additional daily fine of Le 6.00 for continuing offences 4/; fines of Le 20.00 apply to the fouling of drinking water supplies by washing or throwing therein things or animals, animal excreta or dead animals, to the digging of wells without prior authorization, and to interferences by mining rights holders with prior existing water supply rights following the non-observance of a corresponding order issued to prevent the continuance or recurrence thereof 5/; in the case of statutory nuisances, this fine may be substituted by, or cumulated with, imprisonment up to 3 months 6/; interferences with drains or with proper drainage from any premises are liable to fines of Le 100.00 7/; and a fine of Le 200.00 is applicable to any other offence against the health legislation, in which case provision is also made for such a fine to be substituted by, or cumulated with, imprisonment up to 6 months, to water pollution in connection with mining operations, in which case a daily fine of Le 10.00 applies to continuing offences, to the breach in the term or any condition of dredging licences, in which case this fine is asserted with corresponding compensation requirements as well as with the cancellation of the licence, and to the pollution of waterways or to interferences with navigation by fishing nets, together with a daily fine of Le 200.00 for continuing offences and compensation for damages up to Le 1000.00 8/.

Finally, the Electricity Corporation is empowered at any time to suspend or revoke production licences on breach of any conditions thereof or of arrears in payments due 9/.

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- 1/ The Guma Valley Water Act, 1961 (Act No. 3 of 1961), as amended, Sec. 47.
 - 2/ The Water (Control and Supply) Act, 1963 (Act No. 16 of 1963), as amended, Secs. 37, 39-41.
 - 3/ The Public Health Act, 1950 (Act No. 23 of 1960), as amended, Sec. 23 A.
 - 4/ Ibidem, Secs. 29-32.
 - 5/ Ibidem, Secs. 95, 97 (3); The Minerals Act (Cap. 196), as amended, Sec. 52.
 - 6/ The Statutory Nuisance (Summary Punishment) Act, 1969 (Act No. 20 of 1969), Sec. 2.
 - 7/ The Public Health Act, 1960 (Act No. 23 of 1960), as amended, Sec. 78.
 - 8/ Ibidem, Sec. 107; The Minerals Act (Cap. 196), as amended, Secs. 50, 62-63; The Waterways Act 1964 (Act No. 54 of 1964), Sec. 15.
 - 9/ The Electricity Corporation Act, 1964 (Act No. 5 of 1964), as amended, Sec. 29.

XVI - CUSTOMARY WATER LAW AND INSTITUTIONS

(a) The legal regime of water resources and water rights

According to customary law ^{1/}, Provincial Land is regarded as a commonly held resource with no individual rights of sale or transfer; land constitutes the patrimonium of the common ancestors, the living being its present, and the unborn its future, caretakers. As a consequence, land is limitatively subject to use rights which may be recognized an indefinite, but never a permanent term.

Water resources are considered as appurtenances of the land and follow the same legal regime.

Water rights are acquired, together with land rights, through effective and prolonged use, by assignment from the head of the social group concerned and by virtue of a lease, a grant or a pledge. To the holder, land is priceless and rights thereon may only be transferred from one social group to another with the understanding that the transaction is temporary.

Land and water rights may also be acquired for development purposes by the Government through a land grant, in which case the 20 Ha and 99-year term limits aiming in particular at the protection from alienation of pasture land do not apply. ^{2/}

In the case of Provincial Land leases, the transaction is handled by the District Officer, the Paramount Chief, the Village or Family Head and the representative of the land-holding group. The rent is then shared equally among the Chieftain Treasury, the Headmen and the members of the land-holding community.

Within tribal groups, the transfer of land and water rights among families may however become permanent. In addition, temporary holding rights may be given to stranger farmers who are then expected to donate part of their harvest to the original holding group as acknowledgement of their position as temporary occupants. This type of occupancy remains mainly seasonal.

At the inter-Chieftain level, land transactions depend largely upon goodwill on the part of the host Chieftain. While transfer of right is usually temporary, permanent settlement may, however, lead to an ultimate acquisition of freehold rights. As migrant farmers deal directly with Village Headmen rather than with Chiefs, Chieftain disputes have remained limited as Chiefs are unaware of stranger land occupancy, a common practice in swamplands where settlement is sparse.

As to land and water rights acquired through marriage or inheritance, claimants to land and water rights on paternal grounds hold preferential rights over maternal claims. The husband enjoys nevertheless temporary rights over his wife's holding until he divorces, she dies or there are offsprings.

^{1/} See in particular: Man, Land and Planning for Rural Development, by Harry Puray, Njala University College, University of Sierra Leone, Vol. 1, updated.

^{2/} The Concessions Act (Cap. 121), as amended, Sec. 9 and II.

Inter-marriages have therefore been limited in order to prevent complex inter-tribal land right transfers through inheritance.

Finally, as customary law application is a function of personal status, land transactions among natives (i.e. citizens of African origin with principal residence in the Provinces) ^{1/} and non-natives are regulated by statutory law. ^{2/}

Although customary water rights are basically regulated as incidents to land rights, and whereas the use of water resources has not called so far for the development of a district legal framework, some specific norms nevertheless apply in particular cases.

Irrespective of the community concerned, the use of water for drinking purposes is free for all. This principle is evidenced by the presence of a cup on wells and of water jars in front of houses for the by-passer to quench his thirst.

Similarly, access to streams for non-consumptive or for minor consumptive water uses is free, subject to payment of compensation for damages and to the prior authorization of the land-holder if cultivated fields are to be crossed.

Irrigation works have so far been limited to small intakes and retention structures which have not required other measures than what applies to joint and community works implemented by work groups in which each family unit participates.

Of interest is the fact that in some regions, and in the Northern Province in particular, uplands are cultivated by family headmen while the more fertile low-lands are allocated to the other members of the community; this practice evidences the traditional principle of balancing powers and privileges among leaders and members within each community.

While fishing is free for all, Paramount Chiefs are nevertheless empowered to prohibit the closing of streams in their whole width and to establish closed fishing periods in order to protect breeding.

A number of measures provide for the protection of water quality. In addition to upstream and downstream priorities for drinking water supply and other uses of stream waters, and drainage in particular, there is a general prohibition to throw carcasses and other polluting substances into water bodies.

There is furthermore a strict obligation to report to Village Headmen and Chiefs the presence of dead crocodiles in any water body as the gall-bladder thereof is regarded as a highly dangerous source of contamination.

Similar rules apply to the use of underground water resources. Water rights in this case are acquired by him who digs the well or taps the spring. Basically, the holder of land is free to dig wells, subject however to the agreement of the Village Headman or local Chief as regards well spacing and siting. A minimum distance of 45 metres between wells is usually observed, as is the siting thereof on higher grounds than that on which individual or family latrines or disposal pits are located.

^{1/} The Sierra Leone Citizenship (Amendment) Act, 1976 (Act No. 13 of 1976), Sec. 3.

^{2/} The Provincial Lands Act (Cap. 122), as amended.

Finally, the use of streams and water bodies by a given community or group of users is subject to the correlative rights of the other communities or groups of users dependant on the same source of supply; agreement is reached among Family Headmen or among Village Committees as the case may be, Village Headmen, Section Chiefs or Paramount Chiefs acting as witnesses or, if necessary, as arbitrators.

In periods of water shortages, and although water rights are basically acquired on a "first in time, first in right" basis, similar equalization measures apply to holders of correlative water rights.

(b) Water resources management and administration

The extended family constitutes the basis of the social structure in Sierra Leone. The rural family is formed of a closely knit set of blood relationships having socio-economic concomitants. The individual is only accepted and respected in society if he respects traditional norms; the binding factor concerns mutual protection and the common interest amounts to production for subsistence.

While family units may vary in size, organization and productivity, family structures remain basically the same. A common element is the close affinity of the natural and supernatural which presides over the fact that recognized leaders are more the chiefs of a given people than of a precisely bound territory and that common assets are held by them in trust and not in actual ownership. Land and water resources are thus basically managed as a family or community affair.

The Family Headman is in charge of the economic welfare of the rest of the family. In certain cases, headship of the family may consist of a two-tier system according to which the oldest member of the group is the traditional head while a younger prosperous relation, whether male or female, functions as the economic head.

There is a direct correlation between rural family sizes and labour demands for agricultural activity. The basic organization depends on communal efforts in which a family's labour contribution towards group work is a direct index to the family size and farm area. Each family unit has a representative number of farm workers. Farms of group members are operated in turns and the amount of labour inputs per family farm is proportional to the number of registered membership of household workers in the work group. Such work groups can however be hired by non-members for a price which is shared among workers.

Extended family members do not receive cash payment for farm work, but large proportions of the farm produce from the the food supply base constitute the source of exchange for other domestic goods required by the family. The oldest wife keeps the key to the group's food store, while the Family Headman deals with most financial transactions.

The co-existence of assorted in-laws within the household adds to the responsibility of family headmen in minimizing quarrels and in maintaining a peaceful atmosphere within the community.

The importance of the extended family unit resides in the fact that it constitutes the prototype of the overall customary social environment; its structure and mode of operation is recognizable at the Village and Chiefdom levels at which the Village Head, the Section Chief for sub-tribal units, and the Paramount Chief act, in consultation respectively with their Village Committees and Chiefdom Councils, in the same way as Family Headmen do in consultation with their recognized Elders.

(c) The settlement of disputes

Within such a traditional environment, the prevailing attitude is to aim at conciliation, rather than litigation, for the maintenance of the peace. Each recognized headman in the social structure therefore functions as official witness in transactions and subsequent claims; when required, he also becomes the arbitrator or judge, usually in consultation with recognized elders.

As disputed cases involve not only the parties to the dispute, but the whole of their respective families, and that individual debts in kind cannot be paid without the consent of the Family Headman, in most cases family assets are pledged to clear a family member from a court case. This is why the survival of the family unit depends on a constant minimization of inter-group quarrels. As a consequence, the Village Headman, the Section Chief as well as the Paramount Chief are as important as a magistrate because one of their major functions is to reduce the number of claims to be registered at the local courts.

(d) Customary water law implementation

The Constitution of Sierra Leone provides for customary law to apply, along with the Common Law and any written legislation, provided it is not in contradiction or has been modified, adapted, qualified or limited in its application in conformity with its provisions. ^{1/}

Customary law is defined as any rule having force of law in any Chiefdom of the Provinces whereby rights and correlative duties have been acquired or imposed, which is applicable in any particular case and conforms with natural justice and equity, and is not incompatible, either directly or indirectly, with any enactment applying to the Provinces. ^{2/}

Although customary law may vary greatly from region to region and from ethnic group to ethnic group, especially as regards matters of personal status, family, inheritance and trade law, the regulation of human relationships within the various social units and their groupings, as well as of man's relationship with respect to natural resources, in particular land and water, and his environment, remains nevertheless conceptually the same throughout the country: land and water are looked upon as community resources as much by a sedentary Mende swamp-rice farmer in the Southern Province or Tamne upland cash crop grower in the Eastern Province, as by a nomadic Pullah cattle breeder in the Northern Province.

^{1/} Constitution, 1978 (Act No. 12 of 1978), Sec. 125.

^{2/} The Local Courts Act, 1963 (Act No. 20 of 1963), as amended, Sec. 2.

SWAZILAND 1/

I - INTRODUCTION

(a) Geography

Swaziland is a landlocked country lying between the borders of Mozambique and the Republic of South Africa. The country covers an area of 6 704 square miles (17 364 square kilometers) and has a population of about 435 000 inhabitants 2/.

Swaziland is divided into two main geographical zones: the Highlands, in the north western part of the country with an average altitude of 3 500 - 4 000 feet, is a humid area receiving yearly 40 to 80 inches of rain, mostly during the summer (December to March); the Lowlands, with an average altitude of 500 to 1 000 feet, are of the sub-desertic type with only 20 inches of rain per year and a very poor distribution.

(b) Juridico-political history

Successively a British Colony and a British Protectorate, Swaziland became fully independent in 1968. In spite of a long British domination, traditional cultural background has remained strong in Swaziland. In 1956, 60 percent of Swaziland's African population was recorded as Christian and 40 percent as followers of indigenous religions.

In 1967, the Constitution set up a parliamentary Kingdom of British style, but royal prerogatives remain in fact more important in Swaziland than in the United Kingdom. The King is at the same time the head of the Swazi people (Nqwenyama) and, as such, the trustee of their lands and of all minerals in Swaziland. He is assisted by the Swazi National Council.

More than half of the national territory is reserved for the Swazis, the rest having been attributed to European landowners who do not represent more than 3 percent of the total population.

The main economic activities are agricultural (cotton, livestock and rice) as Swaziland offers ample scope for irrigation from its large rivers. Of the major river systems of Swaziland three (the Komati, Komati and Usutu) have their headwaters in Transvaal, South Africa, and two (the Mbuluzi and Nqwenyama) in Swaziland. The Great Umotu has the highest flood with a maximum of 47 500 cusec recorded in Swaziland on the 10 February 1967 3/. There are three important irrigation projects: Malkerns, Big Bend and the Swaziland Irrigation Scheme (36 000 ac altogether). Mining industry (iron, asbestos) and pulp and lumber industry take a large part of the national export 4/.

1/ Based on the study prepared for the PRC Legislation Branch by Dominique Alhéritière, docteur en droit, Paris, France (original French).

2/ United Nations, Swaziland Background Paper for the Country Programme of United Nations Development Programme Assistance, New York, U.S., 1972, p. 5.

3/ Swaziland, op cit, p. 20 infra note 1, p.22.

4/ Most of the above information is from Encyclopaedia Britannica and Europa Yearbook, Africa South of the Sahara, 1976/1977.

Together with Botswana, Lesotho and South Africa, Swaziland forms part of a common customs area under a Customs Agreement renegotiated in 1968 ^{1/}.

The rapid increase of the water demand and irregular supply of the natural waters has compelled Swaziland to revise its overall water legislation. One of the main policy elements for economic take-off being agricultural modernization, hence by means of increased irrigation, the importance of water in Swaziland is therefore particularly great.

Swaziland history and geographical position has broadly influenced the water law of this country. The Water Act bears a strong resemblance to the South African legislation. In addition, African customary law centered on the principle of "community of interest" in land and water resources is still applicable ^{2/}. Water legislation in Swaziland is in the course of revision to change the accent from "riparian rights" to "greatest beneficial use" in the apportionment of water.

II - LEGISLATION IN FORCE

The most important legal enactments which directly or indirectly affect water resources management in Swaziland are the following:

1. The Water Proclamation, 1959, No. 73, as amended by the Water Act.
2. The Natural Resources Proclamation, Chapter 139, 1960.
3. The Electricity Proclamation, 1963, No. 13 as amended by the Water Act.
4. An Act to consolidate and amend the laws in force in Swaziland relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes and to make provision for the control of certain activities on or in water in certain areas, 1967, No. 25 (the Water Act), as amended by Acts Nos. 40/70, 12/71, 25/71.
5. The Building Act of 1962.

^{1/} United Nations, op cit, p. 7 supra note 1, p. 1.

^{2/} D.A. Caponera, Water Policy, Administration and Legislation in Africa, Working Group of Experts on Water Resources Planning, Addis Ababa, ECA, 1970, p. 4.

III - OWNERSHIP OF OTHER JURIDICAL STATES OF WATER RESOURCES

African customary law has relevance in fields such as land tenure, ownership and watering rights ^{1/}, and such customary law applied to any matter concerning water with regard to land owned by Swazis which is not subject to the Water Act ^{2/}. The Water Act, which governs non-Swazi areas, is not significantly influenced by African customary law.

At the moment, royal rivers and saunged pools do not fall under the Water Act and are governed by unwritten customary law. There are plans to regulate the position further under the proposed new water legislation.

The Water Act provides that, as regards public water, there can be no right of property ^{3/}. Public water is defined as any water flowing or found in a public stream, whether visible or not ^{4/}. This, therefore, implies that groundwater is to be considered as public water when flowing or found in a public underground stream. A public stream is defined as a natural stream of water which flows in a known and defined channel; it logically follows from section 5 (1) that there can be private ownership rights in water, that is in non-public water, which may thus be defined as water flowing or found in artificial streams and contained in underground aquifers. As long as there is no contrary provision, common law governs these matters: they fall within the absolute property of the riparian who may use them as he likes provided he does not intentionally cause damage to his neighbour. The absence of ownership of public water does not exclude ownership of waterworks, dams, bridges, embankments, etc. ^{5/}

IV - THE RIGHT TO USE WATER OR WATER ALIENS

As in the common law system, the Water Act of Swaziland refers first to the riparian rights doctrine.

(a) Mode of acquisition

The selling or leasing of public water is prohibited ^{6/}. The Board may, however, allow persons who did so before December 31, 1956, to maintain their right thereto ^{7/}.

In the case of private water, the right to use it is a normal attribute of the ownership of this water; the sole, exclusive and unlimited use and enjoyment of private water belongs to the proprietor of the land on which such water is found ^{8/}.

^{1/} D.A. Saponera, op cit, 1970, p. 4.

^{2/} Section 5 (6).

^{3/} Section 5 (1).

^{4/} Section 2.

^{5/} Section 6; (3); section 7 (4) (privately owned waterworks); Section 706 (irrigation boards waterworks ownership.)

^{6/} Section 5 (2).

^{7/} Section 5 (3).

^{8/} Section 6 (1).

As regards public water, water use rights belong to the owner of the land contiguous to surface streams or overlying contained ground water according to the riparian rights doctrine. However, in certain cases and for a certain period of time, ownership of riparian land and related water rights may not vest in the same person, for example when the Minister suspends riparian water use rights without acquiring property of the land 1/; in general, however, water rights cannot be dissociated from riparian land ownership, making it impossible for a riparian proprietor to sell or lease his water rights without selling or leasing his land 2/.

This relation between water rights and riparian land is so firm that riparian water rights are divisible with riparian land 3/.

Rights to use water can also be acquired through acquiring the ownership of waterworks. By owning waterworks, the Government obtains complete control over water related to such works 4/. This can be particularly significant in the case of a dam creating a large lake.

(b) Water use authorizations, permits or concessions

In the new Water Act of 1957, Swaziland has not abandoned the original riparian right doctrine, and the right of the riparian owner to use public water still exists inso jure and has to be confirmed by a permit only for particular uses 5/ or within special areas.

When an authorization is necessary, two concurrent procedures are often required. Thus, industrial uses require a permit from an administrative body (the Board of Apportionment) as well as the subsequent sanction by a judiciary body (the Water Court) 6/.

The use of public water in a Government water control area falls under the control of the Minister and is administered by the Board by way of permits embodying all conditions deemed necessary 7/.

Any permit issued for water uses in a Government water control area is attached to the land 8/; to this extent the permit is as a confirmation of existing riparian rights. Thus, the right acquired by a permit to use water is automatically transferred with the property of the land in relation to which the permit was issued; a permit holder entitled to use water for one of its plots of land cannot use that water for another plot without another permit 9/.

Riparian rights in public water may be limited by Government proprietary rights on waterworks 10/, by the rights of other riparian land owners, by servitudes and by any other legally recognized rights. Such rights may also be limited by virtue of general legal requirements such as the prohibition against wasting water 11/ or where the public interest requires it 12/.

1/ Section 67 (1).

2/ Section 67 (2).

3/ Section 7 (1).

4/ Section 63 (4).

5/ Section 15.

6/ Section 17 (3 and 4).

7/ Section 69.

8/ Section 69 (7).

9/ Section 72.

10/ Ibidem.

11/ Section 60 (2).

12/ The notion of Public Interest clearly lies behind the priority given to uses of public water for the immediate purpose of drinking or watering stock, washing or cooking, or to the benefit of any officer or servant of any lawfully constituted body engaged in the construction of any roadway. These uses are subject to riparian proprietor use rights, but only for irrigation and primary purposes; Section 10 (1).

The obligation on each riparian owner to respect the riparian rights use of other owners include the obligation to return water to the same public stream after use, the need to respect primary use requirements of other riparian proprietors 1/ and the like.

Servitudes are ancillary to a just exercise of the owner's right of use when conflicting with the property right of another person 2/. These servitudes may result from the conflict between public use rights and private property rights 3/ or between private property rights and other private use rights 4/. These servitudes are acquired either by agreement with the proprietor, on the basis of a Water Court judgment, or by a decision of the Board 5/.

There are four servitudes: servitude of abutment on bed or banks of a public stream, servitude of aqueduct, servitude of drainage and servitude of storage 6/.

V - ORDER OF PRIORITIES

There is no provision giving any order of priorities of general effect, but specific applications of certain sections of the Water Act confer priority of use to another person, area or right.

(a) Between different uses

Uses of water for primary purposes 7/ receive special attention. For instance any proprietor of land, which is not riparian to a public stream, may apply to the Board for a permit to use the water thereof for primary purposes 8/. Every riparian proprietor is entitled to the reasonable use of the normal flow of a public stream for agricultural purposes without the permission of the Water Court, provided that he does not use any portion of the normal flow for irrigation if, by so doing, he deprives any lower riparian proprietor of water for primary purposes 9/.

Uses for agricultural purposes are generally privileged as compared with other uses such as industrial purposes 10/. This is, of course, particularly true for irrigation purposes in irrigation areas 11/.

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- 1/ Section 9.
 - 2/ Section 11. (1a).
 - 3/ Section 11 (1a).
 - 4/ The Board may for instance issue permits for mining purposes to any person, whether a riparian landowner or not. Such an acquired right can conflict with riparian rights and supersede them after compensation to riparian proprietors, as determined by a Water Court, has been paid: Section 12 (1, 2, and 4).
 - 5/ Sections 25 (6), 10 (3).
 - 6/ Section 112.
 - 7/ "Use for primary purposes" means in the Water Act: the daily use of water for the support of animal life, and the use of water for domestic purposes: section 4.
 - 8/ Section 71 (1).
 - 9/ Section 9 (d).
 - 10/ Section 16 (1).
 - 11/ Sections 81-111.

The use of water in connection with the construction or maintenance of railways can be declared as priority use by the Board 1/, subject to any compensation fixed by a Water Court being paid to any person whose rights are adversely affected 2/.

The Minister may set aside certain areas giving priority to recreational uses 3/. He may also establish an order of priority between different uses when distributing water from Government waterworks 4/.

(b) Between different existing rights

Existing water use and related rights which have been lawfully acquired prior to the Act are not affected by the new legislation.

Riparian rights have precedence over non-riparian rights which, in any case, may be acquired only when it is in the public interest or when there is more water than can be used by riparian owners. The permission to use water 5/ is subject to the control of the Water Court which may prevent riparian proprietors from being detrimentally affected 6/. The permission of the Court is transmitted to the Board 7/ in the form of a recommendation towards the issuance of a water use permit. The water Act is generally less stringent with local authorities than with any other persons or authorities 8/. A local authority, or the central Electricity Board, may be granted priority rights by means of the authorization of the board 9/.

(c) Between different areas

In selecting a particular area for waterworks construction, the Minister automatically confers special priorities of use within that area 10/. The Minister may create water control areas and decide priorities in these areas 11/.

Irrigable lands have priority over uncultivated pasture lands 12/.

In 1964, a special area was established in order to develop the Little Ouse and Great Ouse international rivers. In addition to this geographical priority, use for hydropower has a preference 13/.

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- 1/ Section 10 (2).
 - 2/ Section 10 (3).
 - 3/ Section 79 (1).
 - 4/ Section 63 (2a).
 - 5/ Section 4.
 - 6/ For industrial purposes.
 - 7/ Section 16 (6a).
 - 8/ Cf. for instance Section 5 (4).
 - 9/ Section 11 (1).
 - 10/ Section 63 (1).
 - 11/ Section 65 (1).
 - 12/ Section 8 (2).
 - 13/ Section 70.

VI - LEGISLATION ON BENEFICIAL USES OF WATER

As defined in Section 2 of the Water Act, uses for agricultural purposes include fishing; uses for industrial purposes include hydropower, transportation and occasionally part of municipal uses; uses for primary purposes include some agricultural uses, domestic uses and some municipal uses 1/.

As already stated, uses of water for primary purposes benefit from a special treatment 2/.

Municipal uses derive from the powers of local authorities 3/.

Irrigation is a privileged use 4/. Any three or more proprietors of land riparian to a public stream who together own not less than one tenth of the land irrigated or proposed to be irrigated, may, if they consider it desirable, submit to the Minister a petition requesting that the area comprising such land be declared as an irrigation district 5/.

An irrigation district can be established by the Minister, on his own motion 6/. Whatever procedure is followed, there is always a preference for irrigation uses. Despite this legislation it appears that some smaller groups of irrigators find it difficult to cooperate and maintain work.

Uses for hydropower purposes automatically benefit from prerogatives of the Electricity Board 7/. Specifically, such uses have priority within the special area established in 1964 with respect to the Little and Great Ouse international rivers 8/. The Board manages a supply via two canals to the headwater of their hydro-electric plant.

More generally, industrial uses of water are subject to the direct control of the Minister. As regards industrial effluents, this control is exercised a priori 9/. The same control, by way of a permit, is to be applied if industrial uses exceed sixty thousand gallons per day, whatever the manner of use; thus, for industrial uses, there is a quantitative as well as qualitative control.

Uses for mining purposes have to be authorized by the Board by way of a permit 10/.

The Water Act alludes as well to uses for transportation purposes. Thus, as it has been noted, the use of water in connection with the construction or maintenance of railways may be declared a preferential use by the Board 11/; this clause provides as well for the construction or maintenance of roads 12/.

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- 1/ Section 2, p. 8.
 - 2/ Section 71 (1) for instance.
 - 3/ Section 11 (1).
 - 4/ Section 3.
 - 5/ Section 21 (1).
 - 6/ Section 23 (1a).
 - 7/ Section 11 (1).
 - 8/ Section 70.
 - 9/ Section 17 (1a).
 - 10/ Section 12 (1 and 2).
 - 11/ Section 13 (2).
 - 12/ Section 13 (1).

No reference is made in the Water Act to navigation and floating; this is not surprising in the case of navigation since Swaziland does not possess large navigable rivers, although floating could have a certain importance since the lumber and timber industry is one of the main industries in Swaziland.

Among other uses, it has already been mentioned that the Minister may reserve certain areas for recreational uses 1/.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

The Water Act does not contain significant provisions on harmful effects of water; overflow being considered as a waste of water, the Water Court and the Board have power to control it 2/. Only one provision covers potential harmful effects of waterworks for public safety 3/, and another provides that the Minister may assign to an irrigation board the duty of constructing, acquiring or maintaining any waterwork considered necessary for the drainage of land in an irrigation district 4/.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

Riparian rights are limited by the prohibition against wasting water 1/. The Water Court and the Board control uses of water to avoid waste 2/, either by overflow or as an unbeneficial use 3/. The Minister may assign to any irrigation board the function of protecting the sources of the water of any public stream in a particular irrigation district and of preventing water waste 4/.

(b) Health preservation

There is no specific provision governing health preservation in the Water Act itself although health legislation will probably contain such provisions. In this context, reference can also be made to powers of the Member of the Executive Council responsible, inter alia, to insure that steps be taken for the protection of life, public safety or property 1/.

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- 1/ Section 79 (1).
 - 2/ Section 3 (5).
 - 3/ Section 3 (1).
 - 4/ Section 97 (1h).
 - 5/ Section 60 (2).
 - 6/ Section 3 (5).
 - 7/ Unbeneficial irrigation for instance: Section 3 (4).
 - 8/ Section 97 (1).
 - 9/ Section 3 (1).

(c) Pollution

The causing of pollution by any wilful or negligent act is an offence 1/.

The Board determines the standards of purification that any person using water for industrial purposes has to respect 2/. In addition to the obligation of efficient purification, the same user may not reduce the quantity of the water used for industrial purposes and returned to the public stream 3/. This can be interpreted as preventing the use of water for purposes other than stipulated in the permit, but in fact it seriously limits the choice of effluent purification processes. Any fresh application before the Board to dispose of effluent into a stream, or any alteration to an existing disposal situation is examined in the light of the relevant regulations.

The Minister may make regulations relating to water pollution control. This power covers public and private water as well as surface or underground water 4/.

Such environmental factors are probably not taken into sufficient account. In particular, small agricultural dams which are not fenced off because the foci of cattle trucks are leading down hill and conducive to soil erosion and short dam life.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

The definition of public water given in the interpretation clause 5/ of the Water Act includes underground water. Further in the Act, however, there are no provisions dealing with the licensing of drillers, exploration and exploitation licences, the control and depletion of aquifers, nor with interferences with other uses.

However, the Minister has power to sink boreholes and wells, to obtain supplies of water from underground sources, to conserve water so obtained and to supply it to any person 6/. There are also several indirect references to groundwater throughout the Act 7/.

The lack of legislation on underground water may be justified by the fact that these waters are used in Brazil only to satisfy the domestic needs of a few isolated farms or small collectivities 8/. No urban area is supplied with underground water 9/. The Mines and Geology Department determines the location of bores 10/.

1/ Section 20 (1).

2/ Section 18 (2); see also Section 17 (1a).

3/ Section 18 (1).

4/ Section 22 (c).

5/ Section 2.

6/ Section 3 (c).

7/ Sections 18 (4), 11 (1), 20 (2a), 63 (1), 22 (c).

8/ Nations Unies, Les eaux souterraines de l'Afrique, New York, Nations Unies, 1971, p. 173.

9/ Ibidem.

10/ Ibidem.

X - LEGISLATION ON CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

(a) Legal and administrative provisions

Part VI of the Water Act governs Government waterworks. The Minister may construct any Government waterwork which he may deem necessary 1/; he may entrust an irrigation board with the power to maintain any waterwork 2/. As already mentioned, he has the power to require any person responsible for a water work to execute such repairs he considers necessary for the protection of the public safety or property 3/.

Control over the building of dams over 6 m. in depth is nevertheless regulated under the Building Act 1966, which is in the portfolio of the Minister for local administrations 4/.

(b) Economic provisions

Irrigation boards may levy rates upon land served by any waterworks in order to defray maintenance costs 5/. The Minister may supply or distribute water from any Government waterwork to any person at such rates as he may deem 6/.

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES ON AREAS

(a) In the case of beneficial use of water

The Minister may declare Government water control areas for the construction of any waterwork 1/ or for the improvement of water utilization in those areas 2/. The use of public water in a Government control area is under the direct control of the Minister and of the Board 3/.

Irrigation districts are the second type of protected areas 10/.

Other special areas consist in water sport control areas 11/, the Little and Great Koutu international rivers 12/ and the Swazi areas. The latter are, however, not subject to the Water Act 14/.

In addition, the Natural resources Board may promote the conservation and improvement of natural resources in areas other than African areas and acquire all necessary lands for this purpose 14/.

1/ Section 61 (1).

2/ Section 97 (1b, i).

3/ Section 3 (i).

4/ The Building Act, 1966.

5/ Section 97 (8).

6/ Section 63 (7).

7/ Section 65 (1a).

8/ Section 66 (1b).

9/ Section 69.

10/ Sections 51 (1), 83 (1a).

11/ Section 79.

12/ Section 70.

13/ Sections 5 (6), 11 (4).

14/ The Natural Resources Proclamation, Chap. 139, 1960, sections 2, 3 and 15.

(b) In the case of harmful effects of water

No provision of the Water Act provides for the declaration of protected zones in the case of harmful effects of water or of water quality and pollution control.

III - GOVERNMENT WATER RESOURCES ADMINISTRATION AND INSTITUTIONS

(a) At the national level

While there is no overall and centralized Department of Water Affairs, the following are responsible for various aspects of water administration at the national level:

1. The Minister of Works, Power and Communications

The overall responsibility for water resources management belongs to the Minister of Works, Power and Communications 1/, assisted by:

(i) The Water Resources Branch

This department, falling under the above-mentioned Ministry, deals with the control and use of public and private water; the Water Apportionment Board; the Water Court; Government waterworks; water sports areas; irrigations boards and servitudes relating to water.

The Minister has all the necessary powers to draft the overall water resources policy 2/ and related development plans; he may delegate part of his powers 3/as well as establish hydrographic stations and compile statistics as to hydrologic and hydrographic conditions in Swaziland 4/, thereby contributing to the inventory of the country's water resources 5/. Water planning as regards surface water is the responsibility of the Water Resources Branch which with its hydrological and meteorological data is in a position to indicate where and how much water is available.

The Minister cooperates with the Board in the coordination and planning of projects (e.g. creation of special areas) 6/.

The Minister may decide to construct waterworks and the Board may advise him in his decisions 7/. The Minister may vest in the Board 8/ or in any person 9/ the construction or maintenance of any waterwork.

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- 1/ Water Act, Section 3.
 - 2/ Section 3 (1).
 - 3/ Section 25 (a (v), e)
 - 4/ Section 3 (d).
 - 5/ Section 3 (e, g).
 - 6/ Sections 3 (g, h, j); 25 (a (i), b); 66; 60; 83 (1a).
 - 7/ Sections 3 (a, g); 7E.
 - 8/ Section 25 (c).
 - 9/ Sections 65 (1); 97 (1b, 11).

Subject to the payment of compensation, the Minister may appropriate any land or any right in land 1/. The amount of compensation is determined by the Minister and in case of litigation the Water Court is seized; the proprietor has one year from the date of the last Government offer 2/ to refer the matter to the Water Court.

(ii) The Water Apportionment Board

The Water Apportionment Board is primarily involved with water rights administration 3/ although not completely relieving the Minister of this function 4/, but advising him.

The Board has power to advise the Minister in the operation and maintenance of sources, catchment areas, beds and banks of public streams, water supply, etc. 5/.

The Water Apportionment Board is a centralized water authority controlling uses of water by means of permits 6/. As is apparent from Teclaff's description of the South African system 7/, the Water Act of Swaziland has without doubt used it as a basic model. In this connection Caponera states:

"South Africa derives its water administration and legislation from the Roman-Dutch law, a combination of English and Dutch systems. Its water administration reflects much more the Dutch system and a centralized water authority controls all uses of water" 8/.

The Board is an autonomous body 9/, however, directly linked with the government administration. It is controlled by the Minister.

The Board functions as an advisory board to the Minister 10/ for all essential decisions; it also encourages research and the collection of information and statistics on water 11/; it is an executive office which may be charged with all government waterworks, water supply or distribution network and with the management of protected areas 12/; it may also exercise arbitrary functions 13/; finally, it appears sometimes as a quasi-judicial body, a status evidenced by the Common Law procedural rules 14/ to which it is subject.

1/ Section 68 (1).

2/ Section 68 (1, 2c, 4b).

3/ Sections 25 (a (ii), d); 69.

4/ Sections 3 (c), 69.

5/ Section 25 (a (iii), a (iv)).

6/ Section 12 (1, 2) for instance.

7/ Ludwig A. Teclaff, Abstraction and Use of Water, New York, United Nations, 1972, iv, 254 pages.

8/ Dante A. Caponera, Water Policy, Administration and Legislation in Africa, Addis Ababa, Economic Commission for Africa, 1970, p. 15.

9/ Water Act, Section 23

10/ Section 25 (a).

11/ Section 25 (b).

12/ Section 25 (c).

13/ Section 36 (8 a).

14/ Section 35 (2) referring to Section 6 (a, c, d) is another formulation of the audi alteram partem rule; section 42 (3 a, b) deals with the Nemo iudex in sua propria causa principle, two of the main rules which in Common Law countries regulate the relationship between the courts and administrative bodies having judicial functions.

The Board may claim and fix levels of compensation 1/.

The Minister appoints the seven members of the Board 2/, three of them being representatives of agricultural matters, one of them representing the Ministry of Agriculture 3/.

The Board has generally discretionary power as is exemplified by the use of "may" instead of "must" 4/. The Board may have delegated to it by the Minister only such powers as are expressly stipulated in the Water Act 5/.

It is not a specific concern of the Board to administer water rights and water uses through the granting of permits. The permitted 6/ use of public water in a Government control area may be cancelled if the Board is of the opinion that public water abstracted or stored is not beneficially used. The Board is then entitled to undertake all necessary works at the expense of the waterworks owner 7/.

(iii) The Water and Sewerage Board

Township supplies and the management of some institutional installations are the responsibility of this Board, a semi-state body operating under the auspices of the Ministry of Works, Power and Communications.

2. The Minister for Local Administration

Control over the building of dams of over 6 m in depth is exercised in terms of the Building Act 8/ which confers responsibility for such control upon the Minister for Local Administration.

3. The Ministry of Industry, Mines and Tourism

The Department of Geological Survey and Mines falling within this Ministry is responsible for groundwater development planning.

4. The Swaziland Electricity Board 9/

This Board manages the production and distribution of electricity, including hydro-power.

5. The Natural Resources Board 10/

This Board, *inter alia*, exercises supervision over natural resources, which include water, in view of their conservation and improvement.

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- 1/ Section 25 (d).
 - 2/ Section 26 (1).
 - 3/ Section 26.
 - 4/ Sections 17 (5); 18 (2)(6a); 69.
 - 5/ Section 124 (1).
 - 6/ Section 69.
 - 7/ Section 69 (6, 7, 8).
 - 8/ 1968.
 - 9/ Electricity Proclamation 1963.
 - 10/ The Natural Resources Proclamation, 1960.

(b) At the intermediate level

In the absence of special water authorities, water uses in regional protected water areas are controlled by the central water administration.

(c) At the users' level

The Board may appoint advisory committees which may include other persons than members of the Board to assist it. 1/ Since there appear to be no specific requirements for "other persons" to be government officers, water users may presumably serve on a committee.

Specific institutions at the user's level are the irrigation boards. There is an irrigation board for every irrigation district; although the boards have legal 2/ and financial 3/ autonomy they remain under the direct control of the Minister 4/. The irrigation boards are composed of elected landowners from each district and of members appointed by the Minister 5/. Their functions, powers and duties are assigned by the Minister 6/ and may include among others: public water protection in irrigation districts 7/, water waste prevention 8/, the prevention of unlawful acts in respect of water 9/, the supervision, regulation and distribution of water uses, the management of waterworks 10/. With the exception of Crown and Swazi lands 11/, irrigation boards may, with the approval of the Minister, appropriate land, servitudes and other existing rights.

Local authorities may acquire jurisdiction over water by means of a Government delegation of powers, with respect to Government waterworks 12/. By virtue of the special provision of the Act 13/, local authorities may hold general powers to control and supply public or private water within their respective areas of jurisdiction.

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- 1/ The Water Act, Section 32 (1).
2/ Ibidem, section 37.
3/ Ibidem, section 38 (1).
4/ Ibidem, sections 97 (2), 103 (2), 104 (2), 110, 111 (2).
5/ Ibidem, sections 88 (2), 90 (2), 83 (4).
6/ Ibidem, section 97 (1).
7/ Ibidem, section 97 (1a).
8/ Ibidem, section 97 (1b).
9/ Ibidem, section 97 (1d).
10/ Ibidem, section 97.
11/ Ibidem, section 102 (1).
12/ Ibidem, section 65 (1a).
13/ Ibidem, sections 65 (1a), 19, and especially section 18 (4).

(a) At the international level

Swaziland shares with her neighbours, the Republic of South Africa and Mozambique, the Komati River basin, the Maputo River basin and the Umbeluzi River basin.

Most of the treaties concerning Swaziland's international river systems deal with demarcation of boundaries, freedom of navigation and commerce ^{1/}. In addition, all three international river basins mentioned above are affected by the following treaties, bearing on the conservation, development and utilization of the country's international waters:

- (i) Agreement - between the Republic of South Africa, Swaziland and Portugal concerning their international rivers, signed 13 October 1964 ^{2/}. The Agreement deals with the utilization of the waters of the Xbuluzi, Great Uvutu, Komati and Lomati rivers for water supply, irrigation and industrial (cooling) purposes;
- (ii) African Convention on the Conservation of Nature and Natural Resources ^{3/}. The Treaty provides, inter alia, for the conservation, development and utilization of international drainage basins, and for the establishment of ad hoc inter-state commissions charged with the Implementation of Treaty provisions.

^{1/} For a list of such treaties, see: Systematic Index of Water Treaties, FAO, op cit.

^{2/} Republic of South Africa, White Paper, 13 October 1964, Part 1.
The Agreement was formally confirmed by Swaziland in October 1967.

^{3/} Signed in Algiers, 15 September 1968, op cit.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

With the exception of the Electricity Board and the Water and Sewerage Board, there appears to be no other special and autonomous water development agency in Swaziland.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government financial participation and reimbursement policies

The present policy of the Government is to gradually transform the present subsistence economy into a market economy. Except for those local institutions which are to use water rates proceeds to finance their internal operational budget 1/, the Government is providing all the necessary finance including waterworks development financing.

The principle of fixing a price for water is applied in Swaziland and the Minister may thus obtain a reimbursement of state investments by determining any price charged for the use of water from Government waterworks 2/.

(b) Water rates and charges

The Minister determines the rates charged for the use of water from Government waterworks 3/. He may entrust an irrigation board with the power to maintain any waterwork 4/, and such a board may, in turn, levy a rate upon the land served by any waterwork in order to defray maintenance costs 5/.

The Board may, by regulation issued by the Minister, require the payment of fees for the issuance of water use permits 6/.

Irrigation boards may assess rates on land in irrigation districts managed by them 7/.

XV - WATER LAW IMPLEMENTATION

(a) Modification, termination and reallocation of water rights

In addition to what has been noted in parts IV (for instance: confirmation of certain riparian rights by way of permits) and V (protection of water use rights for primary purposes, for instance) about protection, modification or allocation of water rights, it is noteworthy that riparian rights are definitive and are maintained even when there is a change in the natural course of public streams 8/. A Water Court may, however, rule

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- 1/ Water Act, section 97 (1 (1)), 97 (8), 98 (1a).
 - 2/ Section 63 (2 in fine).
 - 3/ Ibidem.
 - 4/ Section 97 (1 (h); 1 (1)).
 - 5/ Section 97 (8).
 - 6/ Section 75.
 - 7/ Section 98 (1).
 - 8/ Section 13 (2).

otherwise 1/. When riparian land is divided among several persons, the Board may, on the written application of any interested person, modify the allocation of water 2/.

The Board may cancel the water use permit of any person convicted for the non-observance of the water use regulations applying within a Government control area 3/.

(b) Water tribunals, courts and other judiciary water authorities

Swaziland (like South Africa) has set up a special water court. Its decisions may, however, be appealed before the Court of Appeal 4/.

Water Courts are established by the Minister 5/ as the need arises. These consist of a judge who may be assisted by an engineer or by no more than two lay assessors 6/. There is thus an opportunity for water specialists to be involved in the settlement of water disputes.

A Water Court has wide powers 7/. It may, among others: permit any person entitled to use public water for agricultural purposes to affect part of this water to another purpose 8/; permit the use of water for industrial purposes 9/; make orders relating to any water dispute, including disputes about servitudes related to the use of water 10/. More generally, a Water Court may grant water use rights 11/ to non-riparian owners, apportion water among riparian owners 12/ and fix compensation in cases of the compulsory diminution of the rights of individual water users 13/.

The judge may, upon the request of one of the parties to an agreement involving water rights, make such agreement on order of court 14/.

A Water Court decision is not subject to appeal if the parties 15/ have so agreed before the judgement is heard. Failing such agreement, appeals are before the Court of Appeal.

While the Apportionment Board, in a few cases, has powers of arbitration 16/, the Board is bound by decisions of the Water Courts 17/.

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- 1/ Section 13 (3).
 - 2/ Section 73 (1).
 - 3/ Section 73 (3).
 - 4/ Section 57 (1).
 - 5/ Section 40.
 - 6/ Section 41.
 - 7/ Section 47.
 - 8/ Section 16 (2a).
 - 9/ Section 16 (1).
 - 10/ Section 47 (1a).
 - 11/ Section 16 (2b).
 - 12/ Section 47.
 - 13/ Section 10 (3).
 - 14/ For instance: Section 69 (4b).
 - 15/ Section 51 (3).
 - 16/ Section 52.
 - 17/ Section 36 (8a).

(c) Penalties

There are four main offences: firstly, any act done without permit when such a permit is compulsory 1/; secondly, any omission in the maintenance of a waterwork, in the payment of rates and charges 2/ or on being required to appear as a witness before the Board 3/ (the former omissions being punished by a fine of up to two hundred rands or an imprisonment for up to one month or both (four hundred rands or six months in the case of a subsequent conviction), the latter by a fine up to two hundred rands or imprisonment up to three months); thirdly, any acts of pollution 4/ (one thousand five hundred rands or an imprisonment for nine months) and of waste 5/; fourthly, any act of perjury or obstructing the inquiries of the Board 6/.

(d) Other water law implementation matters

The Water Act came into force on the first March 1968 throughout the country except in Swazi areas. Its application is mainly the Minister's responsibility 7/. Finally, Swazi customary law governs water resources uses within the Swazi areas.

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- 1/ Section 128, (1a, b, f).
 - 2/ Section 128, (1c, d).
 - 3/ Section 128, (4).
 - 4/ Section 128, (2).
 - 5/ Section 128, (1e).
 - 6/ Section 128, (3).
 - 7/ Section 3, (1).

UPPER VOLTA ^{1/}

I - INTRODUCTION

(a) Population and location

The Republic of Upper Volta is situated between latitudes of 10° and 15° north, and longitudes of 22° east and 3° west. With an area of a little over 274 000 square kilometers and a population of 5 870 000 ^{2/}, Upper Volta is a rather heavily populated west African country. Population distribution is not uniform with a greater concentration in the central region and some of the southern region. There are three principal ethnic groups: (i) the Mossi, in the north, (ii) the Loba in the south west, and (iii) the Gourma in the east. A landlocked country, its main access to the sea is a railway line connecting its capital Ouagadougou with Abidjan in Ivory Coast. Upper Volta is bounded by Ivory Coast, Ghana and Togo, on the south; Benin, on the south-east; Mali, on the north-east and Niger, on the north and west.

(b) Climate and topography

The land is generally flat with regular relief inclining north to south at an altitude range of 250-350 m. Most of Upper Volta is underlain by granite and schists with much loose sand and laterite giving extensive infertile areas. There are isolated areas of higher altitude rising to between 500 and 600 m. in the south-east, and between 650 and 750 in the south-west, where the Falaise de Banfora range of hills are to be found, with the central and southern regions constituting the upper basin of the Volta River. Towards the south-west, along the Mali border, there are primary sandstones reaching eastward to the Banfora escarpment. The south-west is drained by branches of the Volta (Black Volta, Red Volta, and White Volta), while the south-eastern part of the country is drained by tributaries of the Niger River. All of the rivers reach the sea outside Upper Volta through countries to the south, but none of them is navigable to the sea.

Generally, the country has poor soils and erosion aggravates the soil situation. Water percolation is high in some areas. The south-west and the areas along the rivers possess the most fertile soils. In the north-west conditions are that of a semi-desert, while the central plateaus are not much more productive and over populated. Shortage of water resources is a limiting factor to agricultural production over much of the country, with rivers and wells often running dry for several months before the annual rainy season commences.

^{1/} Prepared by Dante A. Caspers on the basis of the material provided by J.H. Roussin.

^{2/} Population estimate of 1974, Europa Yearbook, Africa South of the Sahara, 1976/1977, p. 952.

Climatawise, the country may be divided into three zones: (i) the south Sudan region situated south of the 11° north latitude line, where rainfall ranges between 1 000-1 400 mm and temperature between 25°-35°; (ii) the north Sudan region falling between the 11° and 14° north latitude line with a rainfall range of 650-1 000 mm and temperatures of 16°-40°; and (iii) the Sahelian zone - falling north of the 14° north latitude line which has a rainfall range of 500-600 mm, and temperatures of 13°-42°. In general, though, there are two seasons: the shorter rainy season, usually lasting from July to October; and the longer, dry season from November to June. In the extreme south-west annual rainfall averages 1 400 mm, falling to 250 mm level as one proceeds north-eastward.

Upper Volta's economy is very much dependent on the agriculture sector with about 90 percent of its population living on subsistence-level of agricultural production and herding. Sorghum and millet constitute the principal consumption crops occupying about 75 percent of the cropped area. Among the cash or export crops grown are: sesame, cotton, rice and ground nuts. Meat is also exported. The large number of Upper Volta's nationals who migrate to neighbouring countries such as Ivory Coast and Ghana bring additional revenue to the country. On the whole, the country is poor in natural resources.

(c) Juridico-political history

The pre-colonial history of the country is similar to other countries in West Africa. In the north-central area, where the Mossi ethnic group is to be found, there existed one of the oldest indigenous Kingdoms of West Africa, dating as far back as the eleventh century A.D. Upper Volta succumbed to colonialism despite armed resistance against the colonizers. Ultimately the country fell into the hands of the French. Upper Volta constituted part of the old French Colony of Upper-Senegal-Niger before the year 1919 when France established the country as a separate colony. In 1932 Upper Volta's entity was dissolved and the country was divided between Ivory Coast and Mali (then known as French Sudan). Upper Volta was again re-established as an entity in 1947; and in 1958 it attained autonomous republican status within the French Community. Upper Volta became independent on 5 August 1960, adopting a parliamentary government in its first Constitution. On 3 January 1966, the Army deposed President Yasséga's government and by Ordinance No. 1 of 5 January 1966, the 1960 Constitution was suspended and the National Assembly dissolved. Legislative and executive powers were vested upon the head of state by the same Ordinance 1/.

Upper Volta's legal history is very similar to that of the rest of ex-French West African countries and closely follows its political history. The legal system is characterized by dualism, where the customary laws of the various ethnic groups are in force along with the legislation of colonial origin imported from France and adopted to suit local conditions. The sources of Upper Volta's legislation are, therefore, both local customary laws, which were recognized by the colonial government, and European-derived legislation consisting of laws, ordinances, decrees, and orders. Post-independence legal development is substantially conditioned to meet economic and social development efforts. "Colonial legislation still governs the recognition and application of customary law as well as the system of customary law courts" 2/. A major example of this type of law is the Kossi customary law which applies to over 50 percent of the country's population and has been left intact since independence.

1/ Jeswald W. Salacuse, Legal Systems of Africa Series, French Speaking Africa, Vol. 1, p. 255, Charlottesville, Virginia, Michie Co.

2/ Ibidem, p. 256.

The regime of land and water legislation also has colonial legislation and customary law as its basis. As is the case throughout the continent, land and water resources utilization and administration in customary laws has been streamlined to meet the demands and needs of the community as a whole. Thus, the "community interest" is the maxim in African customary law as regards land and water. Private ownership of water is almost unknown in this area of law and a member of a community only has the right to use water ^{1/}. In Upper Volta land still remains subject to customary law despite some changes that have been made with regard to state domain ^{2/}.

II - LEGISLATION IN FORCE

In the Republic of Upper Volta, the existing legislation concerning the ownership, use, development and conservation of water resources is scattered in many legal enactments of which the following list contains most of them.

1. The Civil Code (arts. 648-649).
2. Decree of 14 April 1904 on health protection in AOF (French West Africa).
3. Decree of 23 October 1904 establishing the public domain and the principle of state control of all water resources in AOF (French West Africa).
4. Decree of 1 April 1906 determining the powers of the authorities charged with appearing on behalf of the public domain (including the public domain of the colonies in French West Africa).
5. Governor-General's circular of 21 November 1916 relating to domanial matters.
6. Decree of 5 March 1921 defining the procedures for the submission and examination of applications for the granting of permits and concessions.
7. Decree of 8 October 1925 establishing a method of securing land rights of the indigenous peoples of French West Africa.
8. Circular of 18 November 1925 regarding the decree described in 7 above.
9. Decree of 21 March 1928 in the same terms as 6 above.
10. Decree of 29 September 1928 regarding the public domain and public utility servitudes in French West Africa as amended by the decrees of 7 September 1935 and 3 June 1952.
11. Decree of 24 November 1928 regulating the application of the Decree of 29 September 1928 as amended by the Decree of 13 December 1919 regarding the planning and expansion of farms.
12. Decree of 25 November 1930 regulating expropriation in French West Africa as amended by the Decrees of 24 August 1933 and 9 February 1949.
13. Decree (French West Africa) of 25 November 1933 regarding the right to appropriate water.
14. Decree (French West Africa) of 24 August 1933 regarding the right to appropriate water.
15. Decree of 4 July 1935 concerning forestry in French West Africa.
16. Decree of 30 October 1935 concerning the protection of drinking water.
17. Decree of 15 November 1935 concerning the public domain in French West Africa.

^{1/} Caponera, D.A., Legal and Institutional Aspects of Water Resources Development in Africa, Background Paper No. 10, 1976, p. 1.

^{2/} Salacuse, op cit, p. 262.

18. Circular No. 515 S.E. of 7 December 1935 regarding the regulation of the public domain.
19. Circular No. 622 TP of 17 September 1942 establishing procedures for the delimitation of the public domain.
20. Circular No. 700 TP of 13 December 1943 concerning the declaration of the existence of a public utility.
21. Law No. 47/1629 of 29 August 1947, art. 43, conferring power on the territorial assemblies to grant agricultural and forestry concessions.
22. Decree of 15 June 1949 establishing a rural project and irrigation supply section within the Agricultural Services published in the Official Gazette (Journal officiel), dated 15 July 1949, page 420.
23. Decree No. 401 Agro of 4 October 1949 concerning water and land use, published in the Official Gazette of 1 November 1949, page 658.
24. Decree No. 55/490 of 5 May 1955 on groundwater.
25. Decree No. 55/580 of 20 May 1955 reorganizing land and domains in French West Africa and French Equatorial Africa.
26. Decree No. 3929 TP of 15 December 1955 extending the public domain over groundwater.
27. Decree No. 56/704 of 10 July 1956 defining the implementation of Decree No. 55/580.
28. Decree No. 392 C.G.TP of 15 June 1957 establishing the local directorate of Public Works, published in the Official Gazette dated 15 June 1957, page 306.
29. Decree No. 54/1110 of 13 November 1957 modifying the administration of mineral resources in external territories, Togo and Cameroon, as amended by Decrees No. 55/638 of 20 May 1955 and 57/242 of 24 February 1957, in turn amended by Decree No. 57/859 of 30 July 1957.
30. Decree No. 15 PRES. AGRI. COOP. of 20 July 1960, establishing the Agricultural Engineering Directorate within the Ministry of Agriculture and Cooperation. Published in the Official Gazette of 15 February 1960, page 113.
31. Decree No. 33 PRES. CIM. DGM. reorganizing the Directorate of Geology and Mines and describing its responsibilities (art. 3), published in the Official Gazette of 27 January 1965, page 41.
32. Decree No. 34 PRES. ECNA C.D. TP. ST. of 14 January 1965, redefining responsibilities concerning water, published in the Official Gazette of 21 January 1965, page 42.
33. Decree No. 466 PRES. ECNA of 5 December 1965, creating and defining the Directorate of Water and Rural Equipment and its responsibilities, published in the Official Gazette of 23 December 1965, page 677.
34. Decree No. 72 PRES. TP. JEV. T-HER of 7 March 1966 amending decrees No. 34 PRES. ECNA-C.D. TP-ST of 14 March 1965 and No. 466 PRES. ECNA of 5 December 1965 redefining the responsibilities for water, published in the Official Gazette of 24 March 1966.
35. Cahier des Charges (Specifications) and management agreements concluded between Upper Volta and SUD; 17 September 1969.
36. Ordinance No. 73-68 bis PRES. MSP-PAS of 28 December 1970, setting out a public health code (Chapter III), published in the Official Gazette of 21 January 1971, page 51.

III - OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

Almost all waters, whether surface or underground, form part of the public domain of the State.

(a) Surface water resources

(i) Public waters

The first enactment to establish the public status of surface water dates back to 1904 ^{1/}, but was derogated in 1935 ^{2/}. Still in force, however, is the Decree of 1926 ^{3/} which sets out Upper Volta's water ownership legislation and dates from the French colonial era, in French West Africa. This Decree provides that the following water resources (including underground water) within former French West African colonies and territories fall within the public domain:

- (a) fresh water falling within the littoral up to the highest tidal limit plus an additional 100 meters inland;
- (b) navigable watercourses and watercourses used for floating objects (e.g. timber) within the limits of their normal banks together with a 25 meter two-path zone on either side and around the edge of any islands existing in such watercourses;
- (c) non-navigable and non-floatable springs and water-courses to the extent of their normal banks;
- (d) lakes, ponds and lagoons within the limit of their highest water levels together with a 25 meter two-path zone on either side and around the edge of any islands existing in such waters;
- (e) navigation canals (including their two-paths), irrigation and drainage canals and aqueducts built for public utility purposes, including all appurtenances of these.

(ii) Private waters

Waters which are expressly classified as being private waters are rain water and springs which do not fall within the public domain.

Water contained in wells, watering places and cisterns which individuals have built on their own private land are excluded by implication from the definition of public water.

Private water also includes irrigation and drainage canals and waters forming intermittent streams in them. All these waters are regarded as private and are regulated by the Civil Code ^{4/}.

^{1/} Decree of 23 October 1904.
^{2/} Decree of 15 November 1935.
^{3/} Decree of 29 September 1926, Art. 1.
^{4/} Civil Code, Arts. 640 - 645.

(b) Groundwater resources

The 1921 Decree 1/ on the status of water in French West Africa is silent as concerns groundwater while the 1928 Decree on the same subject 2/ merely gives a limited list of the type of water resources which form part of the public domain of the State, which list also makes no specific mention of groundwater. Groundwaters were therefore, until 1955, considered as private waters. Since that date, however, underground aquifers of whatever origin, nature or depth, form part of the public domain 3/.

(c) Mode of acquisition, alienation and extinction

Public water cannot, therefore, be acquired, since the untransferable and indefeasible public domain is inalienable. However, although the principle of public domain is officially in force, the population of the areas concerned often act as if they had lawful title to the water, i.e. as if they were individually or collectively owners of the water and not just entitled to its use. This is particularly so in rural and pastoral areas where the impact of legislation is not felt because they are too far from urban centers for strict and frequent controls, and customary principles of water law are still followed.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

Private water, whether surface or underground, in respect of the land on which such water is situated, may be used by the owner or any person deriving his rights from such owner including an occupier of such land.

Public water, again whether surface or underground, may not be appropriated without prior authorization of the State, since the public water resources of Upper Volta form part of the public domain. 4/

(a) Mode of acquisition, alienation and extinction

The right to use private water may be acquired by gift, sale, inheritance or by virtue of any other lawful contract. Such rights are alienated or extinguished in terms of the relevant legal provisions relating to the transaction in question. The right to use public waters, being part of the public domain, may be acquired, alienated or extinguished only by permission from and subject to the authorization of the State.

(b) Water use, authorizations, permits or concessions

It follows from the nature of the right to use private waters that they may be used without authorization or permit.

1/ 5 March 1921.

2/ 29 September 1928.

3/ Decree No. 55/490 of 5 May 1955, and Decree 9929 TF of 15 December 1955.

4/ But see IX below as regards use of underground water.

The right to use public waters is subject to authorization of the Administration, which is given by way of concession.

Anyone wishing to use public water is required to fill in an application specifying, inter alia, the nature of the proposed waterwork, its purpose and the expected duration of use ^{1/}. Applications are assessed before they are granted and, if so granted, are valid for a period not exceeding 25 years. The authorization is personal to the applicant and may not be alienated or transferred by him without the transferee making a fresh application and receiving an authorization in his own right. The grantee is bound by the terms and conditions of the authorization which include provisions reserving third-party rights, a specification of the period of the authorization and a clause providing for cancellation in the event of certain events occurring. For example, a concession may be cancelled by the Administration in the public interest or if the grantee has not abided by its terms or conditions (unless this was due to circumstances beyond his control).

V - ORDER OF PRIORITIES

(a) Between different uses

There is no legal order of priority for different water uses. No text gives more importance to one water use than to another. There is, however, an accepted order of priority based on the ranking of the various water uses. The following uses are stated in order of importance: potable water supply for humans; water supplies for livestock; irrigation or watering for agricultural purposes; industrial use and, finally, recreational use.

(b) Between different areas

There is also no legally recognized order of priority between different zones. In practice, the order is dictated by the relative needs of the areas concerned. Consequently, the more highly populated zones tend to be preferred over the less well populated areas of rural or pastoral regions. The effect is that urban populations are more fortunate than rural populations, who tend to be obliged to obtain their water supplies from "puisards" (wells).

^{1/} Decree of 5 March 1924, Chapter 2.

VI - LEGISLATION ON THE BENEFICIAL USES OF WATER

(a) Domestic and household uses

The protection of the privileged position of drinking water requirements is normally covered by the terms and conditions of individual water use concessions. Apart from this practice, however, the somewhat fundamental concept of the preference of the use of water for drinking and domestic uses generally seems not to have ever been established in the corpus of the law.

Such legal provisions as do exist are extremely limited. There is a provision, by implication, to the effect that a community or district having control of a drinking water supply is entitled to keep the surroundings of such supply clear of any sources of pollution and, if need be, to cover such supply in order to prevent pollution. In addition, there is also authority for the proposition that all or part of a drinking water supply may be acquired by a declaration that it is in the public interest 1/.

There is no provision for water rationing in the event of water shortages, despite supply difficulties in various areas of the country.

The current standards on water potability comply with the standards laid down by the World Health Organization.

(b) Municipal uses

Consumption by way of public street-fountains and water-hydrants is metered and billed to private persons, the administration or the municipality. In no case may the water of public fountains be used for industrial purposes.

Maintenance and renewal of any facilities situated on the public highway are the responsibility of the national water company 2/. Maintenance costs are governed by an agreement between that company and the public administration 3/.

(c) Agricultural uses

The Agricultural Water and Rural Equipment Service is responsible for preparing programmes of water use for crop raising and livestock purposes (irrigation, sanitation, drainage, livestock water supply and water for rural communities).

Likewise the Agricultural Water Service is responsible for performing and supervising the design, building, operation and maintenance of water-supply structures for cultivation purposes 4/.

The Rural Projects and Agricultural Water Section set up in 1949 5/ has had its responsibility extended to cover land schemes and water use for crop raising 6/.

1/ Decree of 14 April 1904 on the protection of public health in French West Africa.

2/ See also the company's powers regarding rates in XIII (b) below.

3/ Cahier des Charges, art. 12.

4/ Decree No. 466 PRES ECNA of 3 December 1965, art. 7.

5/ Decree No. 237 Agro of 15 June 1949.

6/ Ibidem, art. 2.

Any landowner wishing to avail himself of his right to use water for the irrigation of his land, either in accordance with the provision of the Civil Code or in conformity with the terms and conditions of his concession authorization, may acquire a right of way for his water through intermediate landholdings provided a fair compensation is paid to the owners of the lands so crossed 1/.

(d) Industry and mining

The same right of way may be acquired by the owner of a mine desiring to use, for mining activities, the water to which he has a right on the basis of a concession authorization 2/.

(c) Transport

Water matters relating to river navigation fall under the Ministry of Public Works, Posts and Telecommunications 3/.

(f) Other beneficial uses

Other beneficial uses of water, such as for fishing, hydro-electric, medicinal or thermal purposes, for instance, are not provided for.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

(a) Flood control

The few and somewhat incomplete legal provisions concerning flood control are mostly concerned with the financial implications of such control. Diking and flood control measures, including tidal waterworks, may be ordered by the Deputy-Governor upon consultation with the Administrative Council or in his own name, following an inquiry and the recommendation of the technical department concerned; such waterworks may then be partially or totally implemented at the cost of such persons as benefit from them 4/.

(b) Soil erosion

Owners of woods and forests are entitled to exercise their ownership rights within the entire land surface covered by their woods and forests but may not be granted any authority to clear such areas, or any part of them, if this would result in prejudice to the protection of the soil against erosion and/or flooding 5/.

1/ Decree of 5 March 1921, Title III, art. 33 et seq.

2/ Ibidem.

3/ Ibidem.

4/ Decree of 5 March 1921, Title IV, art. 42.

5/ Decree of 4 July 1935 on the status of forests in F.W.A., Title III, art. 30.

(c) Drainage

The drainage of ponds and marshes may be ordered for public health purposes as may the improvement and extension of cultivated land 1/. The relevant legislation also sets out administrative and financial provisions governing such waterworks. Any landowner or tenant wishing to reclaim his land by drainage or by any other means may dispose of unrequired water either by surface or underground drainage through landholdings which fall between his land and a watercourse or to any other uses of water, provided fair compensation is paid to the owners of lands so crossed. The latter may, however, avail themselves of any drainage waterworks constructed by the upstream landowner, but in that case the cost is to be shared among all beneficiaries 2/.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

(a) Waste and misuse of water

No regulations or legislative provisions limit the waste or misuse of water, nor does any regulation fix a maximum daily consumption per head.

(b) Health protection

The Public Health Code provides for certain measures 3/ in addition to other legislation which contains provisions regarding health protection 4/. According to these provisions, the Ministry of Public Health is empowered to enact health regulations designed to control potable-water supplies and to provide for the inspection of wells and washing places, the disposal of waste and the conditions to be met by cesspools 5/.

A pollution free zone may be established, wherever required, when a land expropriation declaration for public utility purposes in connection with the tapping of a spring is made by order. Unless an authorization has been issued by the Administration or the Mayor, the spreading of human fertilizers and the sinking of wells within such a protected zone is prohibited; the same provision extends to wells and underground galleries supplying drinking water from aquifers.

The right to use drinking spring water implies, for the local government or community possessing it, the right to clear, cover and protect the sources of such drinking water from any cause of pollution but not to divert its course by means of pipes or drains 6/.

Similarly, the discharge of refuse, domestic wastes, rocks, gravel, wood and the like in the bed around or along public domain watercourses, lakes, ponds or lagoons and canals is prohibited, as is the discharge of infected or harmful effluents into them 1/.

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- 1/ Decree of 5 March 1921 on the status of water in F.W.A., Chapter 2, arts. 43-48.
 - 2/ Decree of 5 March 1921 on the status of water in French West Africa, Chapter 3, arts. 49-55.
 - 3/ Ordinance No. 70 - 68bis PRES MSP PAS of 28 December 1970.
 - 4/ Decree of 14 April 1904, art. 7; decree of 5 March 1921, Chapter II, art. 7 al. 1.
 - 5/ Idem, Chapter I (c).
 - 6/ Decree of 14 April 1904, art. 7.
 - 1/ Decree of 5 March 1921, Chapter 2, art. 7.1.

All measures against the harmful effects of water can be considered as also aiming at the protection of public health. Besides the immediate advantage brought to agriculture by the drainage of ponds and marshes 1/ or by the reclamation of wet lands 2/, these measures result in the improvement of public health by virtue of the eradication of malaria bearing mosquitoes.

(c) Pollution

Colonial legislation applying to ex-French West Africa in general contains a few provisions for the control of water pollution originating mainly from domestic, animal, agricultural and industrial sources. Protection zones have been established around the sources of drinking water supplies for cities and towns, in order to limit the mineral and organic pollution of underground aquifers. Such potentially polluting undertakings as grazing, sinking dead wells and discharging non-treated industrial effluents (the bacteriological level whereof may cause the pollution of aquifers) are specifically prohibited in these zones 3/.

There are no water provisions governing pollution control in rural and pastoral areas. In towns, if the quality of the water distributed does not conform to existing standards, the water company concerned is held responsible provided such failure to conform can be traced to the company's negligence.

In all other cases, the administration is required to proceed, if necessary, against the persons responsible for any pollution.

If purification facilities prove inadequate, the necessary work must be performed by the company at the expense of the administration.

Major pollution sources prevent in Upper Volta are the following:

(i) Domestic pollution

The absence of drainage, rubbish tips and septic tanks is a cause of pollution. There are no construction standards for septic tanks, no regulations concerning rubbish tips and no rules forbidding boreholes in polluted areas.

(ii) Animal pollution

Herds are not allowed to foul the water of ponds according to existing legislation 4/, and must be brought to certain watering points. There is, however, a provision to the effect that herds must not be allowed to approach nearer than 50 meters from agricultural water-supply structures.

(iii) Agricultural pollution

No law regulates the use of organic or chemical fertilizers which adversely affect the quality of surface water (by run-off) and of underground water (by infiltration).

1/ Decree of 5 March 1921, Chapter 2, arts. 43-48.

2/ Idem, Chapter 3, arts. 49-55.

3/ Decree of 14 April 1904, art. 7.

4/ Decree No. 401 Agr. . 2 October 1949, art. 5; Decree No. 9929 TP of 15 December 1955, art. 3.

(iv) Industrial pollution

The problem of industrial pollution is not yet serious in Upper Volta and national lawmakers have not yet given thorough attention to this aspect of water pollution. However, health regulations lay down rules relating to all types of deterioration in the quality of the human environment caused by factors such as air or water pollution, industrial waste, noise, side-effects of pesticides, water stagnation or poor water-conservation conditions 1/.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Until 1955, underground waters formed part of the private domain and were governed by the provisions of the Civil Code. In that year, it was decreed that underground waters would form part of the public domain irrespective of their origin, nature or depth 2/. The use thereof is, however, regulated by specific orders relating to the water concerned 3/. All groundwater exploitation works, wells, boreholes, galleries and the like must be equipped with mechanized lifting devices and the supplying of existing waterworks with such new equipment and all groundwater extractions, mechanical or not, requires the prior authorization of the Administration. In addition, all existing underground waterworks equipped with mechanized lifting devices or tapping artesian waters are subject to a declaration of public ownership. However, groundwater works not fitted with mechanized lifting devices (unless they are artesian drilled wells) are exempt from the prior authorization requirement.

The Administration may prohibit any individual groundwater extraction (even where no mechanized lifting device is used) in the following cases:

- (a) when the aquifer is tapped for the supply of drinking water to cities and towns and has limited reserves;
- (b) when an aquifer tapped for human consumption of water needs to be protected against organic pollution;
- (c) when the aquifer is already polluted and the use thereof is likely to harm public health; and
- (d) when any other public interest purpose so requires 4/.

Basic groundwater research, preparation of hydrogeological maps, drafting of groundwater legislation, conservation of water reserves and all geological and mineralogical observations resulting from research or engineering work connected with groundwater all fall under the Directorate of Geology and Mines 5/.

1/ Ididem, Chapter I (f).

2/ Decree No. 59-490 of 5 May 1955.

3/ Order No. 9929 T² of 15 December 1955.

4/ Ididem, art. 1.

5/ Decree No. 33 PDS-CDX-DX² of 9 January 1965. See also XII (a) 2 below, in this connection.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

All works undertaken in, over or across a water course (whether the course is modified or not) and all temporary or permanent diversions of public domain waters, (irrespective of the mode or purpose) require the prior authorization of the Administration 1/.

Similarly, underground water exploitation works equipped with mechanized lifting devices require a prior authorization, if they are mechanized lifting devices or any fixed or mobile equipment fitted on or near the waterwork which require other than human or animal driving power and are of a capacity of more than ten cubic meters per day 2/.

The owner of mechanized waterworks must fill in a declaration listing his first and family names, title, profession and the purpose for which he wishes to extract water. In addition, he is required to make a statement describing the location of the waterwork, the type of lifting devices, the average daily extraction rate together with a diagram of the waterworks, lifting devices, drainage works and works for the disposal of waste water.

Provision is made for waterworks and structures to be inspected by the various officials duly commissioned and sworn for the district in which they are serving, and especially by employees of the Agriculture Service, who report infringements of the relevant legislation 3/.

XI - LEGISLATION ON THE DELIMITATION OF PROTECTED ZONES OR AREAS

The use of water and land in areas where water schemes have been implemented under the procedure referred to in the regulations 4/ is decided in each specific case by local committees composed of important persons from surrounding villages and user communities or, if applicable, from villages which helped to build the structures and presided over by the "Mecru" commander or his deputy. The latter is required by law to have the assistance of a representative of the Crops, Livestock and Forestry Services expressly appointed by the heads of these services 5/.

The demarcation of the area concerned also involves the reservation of zones for crops and plantations, the creation of tracks and roads used by people and animals for fetching water and regulations concerning, inter alia, the purpose and amount of water utilized 6/.

Another provision concerns pollution control areas around and along drinking water supply sources 7/.

1/ Decree of 5 March 1921, art. 2.

2/ Order No. 9929 TF of 15 December 1955, art. 2.

3/ Decree No. 401 Agro of 4 October 1949, art. 6.

4/ In particular, General Order No. 1523 SPP of 23 March 1949.

5/ Ibidem, art. 1.

6/ Ibidem, art. 2.

7/ Decree of 14 April 1904; Order No. 9929 TF of 15 December 1955.

III - COMMERCIAL WATER RESOURCES DISTRIBUTION AND ADMINISTRATION

(a) At the national level

Various ministries are responsible, at the national level, for sectoral aspects of water resources management:

1. The Ministry of Agriculture and Cooperation

The Directorate of Agricultural Engineering of this ministry is responsible for promoting, coordinating and supervising the design and implementation of rural equipment work under programmes prepared by the Ministries concerned 1/.

As such, it is responsible for:

- (a) supervising, within its terms of reference, the extent to which the financial participation of the State, public institutions and communities will be made use of;
- (b) supervising, as far as its own functions are concerned, the technical management of water supply or agricultural improvement enterprises financed in terms of (a) above and rural equipment schemes executed by such enterprises;
- (c) conducting research on rural water supplies;
- (d) studying and implementing, directly or indirectly, programmes of water use for agricultural purposes connected with sanitation, drainage, irrigation and water supplies for rural communities;
- (e) constructing dams for pastures, village water supplies and irrigated crop management and supervising their operation and maintenance;
- (f) representing the interests of the different interests involved in rendering the soil productive and studying major public works projects liable to modify the conditions under which water is used for agriculture;
- (g) assisting, together with the services concerned, in the study and implementation of schemes to improve general hygiene in the areas to be developed;
- (h) taking part in the study and application of soil conservation measures 2/.

2. The Ministry of Trade, Industry and Mines

The Directorate of Geology and Mines, which comes under the Ministry of Trade, Industry and Mines, is responsible for hydrogeological matters. It is the only body authorized to carry out basic research on groundwater. It is responsible for preparing the hydrogeological map, for protecting groundwater by framing appropriate legislation in coordination with all interested services and for supervising the

1/ Decree No. 15 PRES-AGRI-3300 of 20 July 1960.

2/ Idem, art. 6.

conservation of reserves. It must be kept informed of all groundwater research activities carried out by other bodies.

This Directorate has the duty and power to obtain from services, organizations and private parties all data it considers useful for groundwater knowledge and research. This also applies to all geological and mineralogical observations and samples resulting from research or management work on both surface and groundwater 1/.

3- The Ministry of National Economy

The Service de l'Hydraulique (Water Service) has been placed under the Ministry of National Economy by a decree enacted in 1965; 2/, which established a Technical Committee and a Commission.

(a) The Technical Committee

This committee, which is composed of the directors and chiefs of any technical services related to water, is responsible for coordinating work on the various natural-resource development projects involving water.

(b) The Commission

This commission has as its members (i) representatives from any technical services related to water, (ii) representatives of water users, (iii) representatives of communities and organizations falling under the Ministry of the Interior; and (iv) a representative of the Ministry of Public Health.

The commission examines all projects submitted annually to State and other public financing sources and is required for all its approval programmes for natural-resource development insofar as water sources are involved 3/.

The Directorate of Water and Rural Equipment was also created in 1965 within the Ministry of National Economy 4/. It promotes administrative, financial and technical measures encouraging the exploration of potential water resources, the harnessing and use of surface and groundwater, and the design and execution of all rural equipment programmes 5/. The Director of Water and Rural Equipment is responsible, in particular, for:

- (a) the coordination at the national level of research and use programmes regarding water resources, and of rural equipment programmes;
- (b) coordination with the Minister of National Economy;
- (c) coordination with local administrations, local technical services, foreign financing and technical assistance agencies, international agencies, etc.;

1/ Ibidem, art. 6.

2/ Decree No. 34 FRES-ECNA-SHE-Tr-CT of 14 January 1965, art. 1.

3/ Ibidem, art. 2.

4/ Decree No. 466 FRES-ECNA of 8 December 1965.

5/ Ibidem, art. 3.

- (d) the overall guidance of the Directorate and preparation of the programme of each service in cooperation with the various service chiefs;
- (e) the preparation of the Directorate budget;
- (f) the coordination of the activities of the various Directorate services in relation to each other ^{1/}.

The Directorate of Water and Rural Equipment consists of three services:

(i) The Urban and Industrial Water Service

This service is responsible for:

- (a) preparing programmes of water use for energy purposes, water supply to industrial plants, urban communities and for sanitation, and providing facilities for the evacuation of rain and waste water for such communities;
- (b) carrying out or supervising the study and construction of related waterworks and structures;
- (c) operating or supervising urban and rural public water systems, or monitoring the bodies responsible for doing so;
- (d) giving opinions on, and participating in, the study of road projects coming under the Ministry of Public Works when such projects appreciably alter water-flow conditions, and of projects under the same Ministry, designed to facilitate inland navigation ^{2/}.

(ii) The Agricultural Water and Rural Equipment Service

This service is responsible for:

- (a) preparing water development programmes for crop and grazing purposes (irrigation, sanitation, drainage, livestock) and rural water supplies;
- (b) carrying out or supervising the study, construction, operation and maintenance of the structures required in terms of (a);
- (c) supervising the technical management of prepared crop raising areas which have been the subject of State financial participation, and safeguarding these areas in collaboration with other interested services;
- (d) carrying out water supply experiments for agricultural purposes;
- (e) giving advice and representing the Ministry of National Economy in the study of any public works project which may alter the conditions under which water is used for agricultural purposes;
- (f) assisting in collaboration with other interested services, in the study and implementation of schemes to improve general hygiene in development areas;
- (g) studying and implementing soil conservation methods in collaboration with the Forestry Service;
- (h) examining the possibilities of improving rural accommodation and farm buildings and assisting with the execution of relevant programmes;

1/ Ibidem, art. 5.

2/ Ibidem, art. 6, amended by art. 2 of Decree No. 92 PRFS-TP-JEM-T-1883 of 7 March 1966.

- (1) studying the problems involved in farm mechanization and the rural use of energy, and implementing the appropriate programmes;
- (2) studying, in consultation with users, projects to set up plants for the preservation, packaging and processing of crop and livestock products and ensuring or supervising their execution 1/.

(iii) The Water Inventory and Research Service

This service is responsible for:

- (a) collecting, centralizing and updating all water documentation;
- (b) preparing a hydrological inventory and a card index of all water points and keeping the inventory and index up to date with contemporary data;
- (c) helping to establish water study and research programmes;
- (d) executing or causing to be executed under its control the following basic studies (the list is not exhaustive): planning and operation of the hydrometric network; studies on experimental water-table studies of groundwater resources (including those to be used for preparing the hydrogeological map); assisting in the preparation of the hydrogeological map; carrying out research on the tapping of water-bearing beds, evaporative problems, climatology (in liaison with the Directorate of Meteorological Services), soil erosion, the chemical and bacteriological quality of water and on water purification problems and the supplying of all technical services, scientific bodies, public organizations, etc. with information on water matters.

The Directorate of Water and Rural Equipment must also cooperate liaison with the Directorate of Geology and Mines with regard to the supply of information which can be used to prepare the geological map, and is responsible for preparing legislation on ground and surface water. It also acts as the secretariat for the Technical Water Committee and the Water Commission, and carries out or supervises hydrogeological surveys prior to the preparation of preliminary projects for the creation of water points (wells or dams) 2/.

4. The Ministry of Public Works, Posts and Telecommunications

River hydraulics as applied to river navigation matters fall within the province of the Ministry of Public Works, Posts and Telecommunications 3/.

5. The Ministry of Development and Tourism

The operation of urban and rural water-gutters, or the supervision of the bodies responsible therefor, and basic groundwater research also fall under the Ministry of Development and Tourism.

1/ Ibidem, art. 7.

2/ Ibidem, art. 8, amended by art. 3 of Decree No. 92 PRES-TP-DEV-T-REB of 7 March 1966.

3/ Decree No. 92 PRES-TP-DEV-T-REB of 7 March 1966, art. 1.

6. The Ministry of Public Health, Population and Social Affairs

The public health code lays down health measures and arrangements for the prevention of drinking water pollution*

(b) At the international level

Upper Volta is a basin state of two of the major river basins of West Africa, namely, the Niger and the Volta. In addition, the country shares the Komou River system with Ivory Coast. As far as the Niger and the Volta River systems are concerned, a large number of treaties exist mostly concerning the demarcation of boundaries and freedom of navigation and trade ^{1/}. In addition, Upper Volta is a party to the following treaties bearing specifically on the conservation, development and utilization of the country's international river systems:

(i) Niger and Volta River Basins

- Protocole d'accord portant création de l'Autorité de développement intégré de la région du Liptako - Gourma, signed in Bamako, 3 December 1970 ^{2/}. Mali and Niger, in addition to Upper Volta, are parties to the Treaty;
- Convention establishing a Permanent Inter-State Drought Control Committee for the Sahel, signed in Ouagadougou, 12 September 1973, by Chad, Mali, Mauritania, Niger, Senegal and Upper Volta ^{3/}.

(ii) Niger River Basin

- Act regarding navigation and economic cooperation between the States of the Niger Basin ^{4/}, and the Agreement concerning the Niger River Commission and the navigation and transport on the River Niger ^{5/}.
The treaties regulate the utilization of Niger River basin waters for agricultural, industrial, navigation and transportation purposes.

(iii) Volta River Basin

- Agreement between Ghana and Upper Volta concerning the use of the waters of rivers flowing from Upper Volta into Ghana ^{6/}, including the establishment of an ad hoc Joint Permanent Commission.

In addition, the Niger, the Volta and the Komou River Basin fall under the provisions of the African Convention on the Conservation of Nature and Natural Resources ^{7/}, to which Upper Volta is a party.

^{1/} A list of such treaties in FAO, "Systematic Index of Water Treaties", op cit.

^{2/} Autorité de Développement Intégré de la Région du Liptako - Gourma, Direction générale, Ouagadougou, Haute-Volta. This Protocole has been subsequently integrated by the Convention portant statuts de l'Autorité pour le développement intégré du Liptako-Gourma, signed in Bamako, 3 June 1971, by Mali, Niger, and Upper Volta (Autorité de Développement Intégré de la région du Liptako-Gourma, Direction générale, Ouagadougou, Haute Volta).

^{3/} U.N. Doc. A/9178, Annex II.

^{4/} Signed in Nyamey, 26 October 1963, by Cameroon, Ivory Coast, Dahomey, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad (587 UNTS, 9).

^{5/} Signed in Nyamey, 25 November 1964, by the States signatories to the Act regarding navigation and economic cooperation between the states of the Niger River Basin (587 UNTS, 19).

^{6/} Summary of World Broadcasts NS 3769 B8 of 24 August 1971; West Africa of 3 September 1971.

^{7/} Signed in Algiers, 15 September 1968, op cit.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

There seems to be no legislation relating to special and autonomous water resources development agencies in Upper Volta.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

(a) Government financial participation and reimbursement policies

Upper Volta has no special legislation on State financial participation, reimbursement policies relating to the conservation, development and use of water resources. Investments are financed out of credits from the State budget.

For larger scale work, recourse is had to foreign capital provided either by bilateral aid or by international agencies, e.g. the European Development Fund and the Aid and Cooperation Fund (FAC).

(b) Water rates and charges

Conventional use of the water of lakes, rivers, springs, wells, cisterns and canals and all water points not forming part of public works programmes is not subject to the payment of tariffs or charges.

Water rates are decided on by the President of the Republic after consideration by the Council of Ministers upon a proposal by the Management Committee of the Société nationale des eaux - SNE (National Water Company). They are reviewed quarterly by application of the variation formula when such variation exceeds 5 percent ^{1/}.

^{1/} Cahier des charges, art. 10.

ZAMBIA 1/

I - INTRODUCTION

Zambia, once Northern Rhodesia, is a landlocked country that became an independent state on 24 October 1964. It shares frontiers, inter alia, with Angola, Zaïre, Tanzania, Malawi, Mozambique, Botswana and Namibia.

It was colonized in 1890 under the aegis of the British South African Company (BSA) of Cecil Rhodes. In 1923, it became a British protectorate until 1953, at which date, it entered the Federation of Rhodesia and Nyasaland.

In 1964, a new Constitution was promulgated and Zambia acquired full independence. Its population is estimated at 4.3 million (1974) and includes 65 percent living in rural areas and 26 percent in the north-eastern copper belt. The total land area is 74,3367 million hectares giving an average density of 6.39 inhabitants per square kilometer. The country is divided into 8 provinces which are in turn divided into a total of 24 districts.

The country is essentially a broad plateau between 1 000 and 2 000 m in height above sea level and may be divided into four main geographical areas: the northern high rainfall zone with an annual rainfall of 1 000-1 500 mm; the western semi-arid plain with an annual rainfall of 762-1 000 mm, with sandy soils of low fertility; the central, southern and eastern plateau, containing the best agricultural soil and the Luanga-Zambesi rift valley, hot, with low potential for agricultural development. Twelve per cent of the land area is scattered swamps.

The average annual temperature is relatively low because the country lies from 900 to 1 200 m above sea level. Rainfall distribution is adequate and facilitates agricultural development.

Zambia is well endowed with water and has much potential with regard to the development of the main rivers. Water is not, however, evenly distributed throughout the country especially in the west. Zambia forms part of three river basins: the Zambesi, the Zaïre and the Tanganyika, all of them being international rivers in that their courses flow through other countries as well.

1/ Based on the study prepared for the FAO Legislation Branch by S. Barochi, Dottore in Giurisprudenza, Rome, Italy; LL.M. (Harvard, U.S.A.); M.S. (Michigan, U.S.A.).

The country's major river is the Zambesi which has three major tributaries, the Katompo, Kafue and Luangwa rivers. From its headwaters in North-western Zambia, it enters Angola before re-entering Zambia to serve as a boundary, inter alia, with Namibia, Botswana, and finally enters Mozambique.

Malawi is interested in this basin as its territory includes Lake Nyasa and the Shire River, which is a tributary of the Zambesi. The river waters are partially controlled by the waterfalls at Chavua and Victoria and by two large dams: Kariba and Cahora Bassa.

The Luangwa, a tributary of the Zaire river serves as a boundary between Zambia and Zaire and flows into the Lake Kvery, shared by these two countries.

Finally, Lake Tanganyika is bordered by the Zaire, Rwanda, Burundi and Tanzania.

Groundwater resources are found throughout the country at varying depths.

Agriculture is the principal source of livelihood for 75 percent of the population and the potential for its expansion is excellent. In many villages, the community is organized around a rainshrine which links them with the modern Government chiefs: a number of such shrines may be integrated into one rainmaking cult controlled by the matrilineal kin of the Government chief, who uses the shrines as a support to his authority. In the traditional societies, chiefs were originally appointed from among the rank of rainmakers and rain shrines were formerly the only unit that organized several villages for community activities.

Before independence there were European law courts and native customary law courts. In addition to their competence for crimes against customary law, customary law courts were given responsibility for minor violations of the criminal code. After independence, the customary law courts were called local courts and integrated with the country's entire court structure.

Zambia's legal system is based on (i) traditional customary law, (ii) English common law, (iii) statutes originating in the colonial and federation periods and (iv) acts of the Zambian legislature.

In October 1964, at the time of independence, all land, including waters, became Government land. This reflected the situation existing prior to colonial period, as under customary law, ownership of land was theoretically vested in the tribe with the paramount chief as custodian. Land rights could be conveyed to the individual by means of a formal hierarchy, from paramount chief to subordinate chief to village headman or head of a kinship group. Often, land rights derived primarily from the individual's own efforts in claiming and clearing new land, where cultivation became permanent or land scarce.

II - LEGISLATION IN FORCE

The legal enactments which have been taken into consideration in the preparation of the present study are the followings:

1. The Water Ordinance, No. 34 of 1948 as subsequently amended and relevant subsidiary legislation: the Water Rights (Procedure on Application) Regulations, 1950; the Water Board (Charges and Fees) Regulations, 1950; the Water Rights (Registration) Regulations, 1950 (Cap. 231 of the Laws of Zambia, 1957 edition).
2. The Natural Resources Conservation Act, No. 53 of 1970 and relevant subsidiary legislation: the Provincial Natural Resources Committees Regulations, 1971, and the District Natural Resources Committees Regulations, 1971.
3. The Fisheries Act, No. 21 of 1974.
4. The Forestry Act, No. 39 of 1973.
5. The Public Health Act, No. 12 of 1939 as subsequently amended.
6. The Mining Regulations, 1971.
7. The Registration and Development of Villages Act, No. 30 of 1971.
8. The Loans (Kafu Gorge Hydro-electric Power Project) Act, No. 34 of 1968.

III - OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The ownership of all waters in Zambia vests with the State ^{1/}. Current legislation, however, classifies waters as "public" and "private": (i) public waters include public streams, that is, those watercourses, drainage depressions and "canyons" ^{2/} of natural origin wherein water flows in ordinary season. Public waters also include the lakes, swamps or marshes which form the source of a public stream ^{3/}; (ii) private waters include all those swamps and springs which are entirely situated within the boundaries of one's land, and which do not feed a stream or watercourse flowing beyond one's land boundaries. Also groundwater which is artificially brought to the surface of one's land, and flood water which is impounded on one's land, are classified as private waters ^{4/}.

However, this classification does not seem to imply a different ownership status of private as opposed to public water but merely to the different rights of use to water that apply to the two different classes of water.

IV - THE RIGHT TO USE WATER OR WATER RIGHTS

(a) Mode of acquisition

The acquisition of a right to impound, store, divert or simply use public water for purposes other than domestic use, is subject to grants of the administrative authority ^{5/}.

The right to take public water for domestic consumption, including the watering of animals, vests ministerio legis in any person ^{6/}.

The right to use private water occurring on one's land for one's own (i) domestic, (ii) irrigation, including fish breeding, (iii) industrial and (iv) hydro-power generation purposes is free of interference from the administrative authority ^{7/}.

The holder of a right to use water, whether public or private, may be granted by the water authority certain ancillary rights, for example, (i) a right of storage of water

^{1/} The Water Ordinance, No. 34 of 1948 as amended, section 5.
^{2/} A low-lying area in which water tends to collect during the rains.
^{3/} The Water Ordinance, No. 34 of 1948 as amended, section 2.
^{4/} Ibidem.
^{5/} Ibidem, sections 9, 16 and 18.
^{6/} Ibidem, sections 8, 5) (2).
^{7/} Ibidem, section 5.

and/or (ii) a right of abutment 1/.

Such ancillary rights, or easements, result in additional modes of acquisition of water use rights in that the law entitles the owner of the land thereby burdened to (i) receive from the holder of a right of storage an amount of water proportional to his participation in the storage work 2/ or (ii) divert from the public stream in respect to which other people hold a right of abutment, an amount of water proportional to his participation in the diversion work 3/.

(c) Water use authorizations, permits or concessions

The granting of water use rights is regulated by a procedure enabling the water authority (the Water Board) to take into careful consideration all the factual and the legal factors which may have an influence on its final decision.

To this effect, provision is made for, among others, (i) the Secretary of the Water Board to advertise any water use application which is filed with him to enable existing water users to make their objections thereto 4/; (ii) the Water Officer and an appointed engineer to investigate into any application and report thereon to the Water Board 5/ and (iii) the Water Board to hold public inquiries whenever further evidence is needed 6/. Upon completion of this procedure, the Water Board may either grant or refuse an application 7/. However, the Board's decisions are not final and can be appealed against to the High Court 8/. The granting of an application takes the form of an order by the Water Board order in terms of which water rights can be exercised subject to appropriate terms and conditions 9/. Where a term clause has been included, renewal of water rights after the term has expired is at the discretion, by a formal act, of the Water Board 10/.

1/ Water Ordinance No. 36 of 1945, sections 39, 41. The right to store water entitles the holder thereof to submerge corresponding land with water by means of a dam, weir or other storage work. Under a right of abutment a dam or a weir may be placed across the bed or banks of a public stream, or upon other people's land adjacent thereto, for purposes of raising the water level in it and diverting it on to the land. Additional easements instrumental to the exercise of a right to use water are: (i) the right of passage, whereunder other people's land may be occupied to the extent which is necessary for, or incidental to, the passage of water, including the construction, enlarging or extension of corresponding works (Water Ordinance, cit., sections 2, 40); (ii) a right to take materials from the land upon which a right of storage or of abutment or of passage exists, for the purpose of constructing, maintaining or repairing any irrigation works existing on such land (Water Ordinance, cit., section 42). These easements are granted by the Water Board temporarily or for a term of years. Registration thereof is provided with both the Water Registrar and Registrar of Lands and Deeds (Water Ordinance, cit., sections 35, 45).

2/ Water Ordinance, cit., section 39 (2).

3/ Ibidem, section 41 (1).

4/ Ibidem, section 25 (2) (3) (4).

5/ Ibidem, section 25 (5); the Water Rights (Procedure on application) Regulations, 1950 as amended, section 5.

6/ Water Ordinance, sections 26 (3), 27.

7/ Ibidem, sections 26 (2), 28 (a).

8/ Ibidem, section 30.

9/ Ibidem, sections 32, 26 (2), 28 (b).

10/ Ibidem, section 35.

Water use rights may be declared forfeited at the discretion and by order of the Water Board when the holder of a water use right (i) fails to beneficially use the water for 3 consecutive years or (ii) breaches conditions in terms of which waterworks are to be constructed and maintained ^{1/}. The law further provides for (i) the publication of duly granted water rights twice a year by the Secretary of the Water Board; and (ii) the registration, at the grantee's instance and expense, of any Water Board order affecting water rights in an ad hoc Water Rights Register kept by the Water Registrar ^{2/}.

V - ORDER OF PRIORITIES

In terms of the Water Ordinance, different uses of water are classified as "primary" or "secondary" or "tertiary". According to this classification, domestic use of water, including the watering of animals, is a "primary" water use; the use of water for irrigation and for fish breeding is classified as "secondary" use; and industrial and mechanical use of water, including that for power generation, is "tertiary" use ^{3/}.

This classification, however, appears not to result in a priority status of corresponding uses of water; in fact, it apparently affects such other aspects of present Zambian water resources legislation as re-allocation of existing water rights.

VI - LEGISLATION ON BENEFICIAL USES OF WATER

(a) Domestic and municipal uses

According to the general rules in force, domestic uses (including the watering of animals) and municipal uses of public water are subject to a grant by the water authority whereby the appropriate water use right is vested in the water users subject to appropriate terms and conditions ^{4/}.

Furthermore, domestic use of water is classified as a "primary" use. Hence, some restrictions exist in respect to the re-allocation of existing domestic water rights ^{5/}.

The urban centres, i.e. the three cities, five municipalities and fourteen urban townships all have a central water supply. These are operated and maintained by the individual local authorities which charge for the services and connections to the systems on various tariffs. The Department of Water Affairs of the Ministry of Rural Development operates and maintains (in addition to Village and Cooperative ^{6/3}), 42 rural township water supplies in this country. In these cases, the revenues are collected by the rural township councils and deposited in the Government General Revenue Fund except for an administrative amount, usually 10 %, which is retained.

^{1/} Water Ordinance, section 51.

^{2/} Ibidem, sections 34-A, 34-B, 51(2); the Water Board (charges and fees) Regulations 1950 as amended, sections 2, 3, 5 and 6.

^{3/} Ibidem, section 2.

^{4/} Ibidem, sections 9, 22

^{5/} Ibidem, sections 2, 9; see also Chapter XV.

(b) Agricultural uses

Under the legislation in force the use of water for purposes of irrigation or fish breeding is classified as "secondary" water use 1/.

Secondary use of public water is subject to a grant by the water authority whereby an appropriate water use right is vested in the water user(s), subject to suitable terms and conditions 2/.

In addition, public water can be diverted or abstracted and supplied for purposes of irrigation (or fish breeding), and water rates can be levied in respect of the water supplied, under a "special" water right.

Special water rights, which the water authority has power to vest in any undertaker acting in the pursuance of a public interest, are not subject to re-allocation 3/.

Any landowner giving evidence of a requirement for water for a secondary use may claim another's surplus private water and to obtain the necessary water use right from the water authority. The granting of such right is, however, subject to other existing rights and to payment of compensation in respect to any expenses which are incurred by the deprived party in making the claimed water available 4/.

On subdivision of land on which water (irrigation) rights exist, such rights are to be equitably apportioned by the Water Authority 5/.

(c) Fishing

Under the legislation in force, a permit is required only for fishing in specified inland waters for purposes of (i) scientific research, (ii) collection of fish for stocking purposes, (iii) food supply and (iv) approved experiment. Under such permit ("Special Fishing Licence"), which is issued by the Minister of Lands, Natural Resources and Tourism, the permit holder is entitled to fish by whatever method subject, however, to the relevant terms and conditions of his licence 6/.

Fishing in inland water is otherwise subject to legal restrictions insofar as the methods thereof are concerned. Destructive methods of fishing are thereby subject to an ad hoc permit of the Fisheries Department of the Ministry of Lands, Natural Resources and Tourism. The use of the same methods may, however, be banned by the Minister of Lands in respect to specific areas and for specified periods 7/.

1/ The Water Ordinance, cit, section 2.
2/ Ibidem, section 9.
3/ Ibidem, sections 12 (1), 14.
4/ Ibidem, section 11.
5/ Ibidem, section 34.
6/ The Fisheries Act, No. 21 of 1974, section 7.
7/ Ibidem, sections 3, 4.

In addition, the law provides for the establishment of (i) special fishing areas and (ii) commercial fishing areas, whereby ad hoc restrictions apply 1/.

(d) Industrial uses and hydropower generation

According to the laws in force, the use of water for industrial or hydropower generation purposes ranks as a "tertiary" water use 2/. The acquisition of the right to use public water for a tertiary purpose follows the general rules which apply in respect of primary and secondary uses of public water 3/.

In addition, however, undertakings of general utility in the fields of industry or hydropower generation may be vested by the water authority with "special" rights for corresponding water uses, which rights are exempted from re-allocation 4/.

(e) Mining uses

The right to use public water for mining purposes can be acquired subject to the general legal provisions which govern the acquisition of water use rights for other purposes 5/.

Mining water rights are attached to the mining rights in respect of which they are granted, and, therefore, pass with the transfer of mining rights 6/. In addition, regulations govern the employment of water for specific mining operations (e.g. suppression of dust, wet drilling) 7/.

(f) Transportation

(1) Railway operation

The acquisition of a right to use public water for the purpose of working railway lines, and for ancillary purposes, follows the general rules whereunder a grant (in this case, an authorisation) from the water authority is required 8/.

In addition, the law expressly binds existing water rights for railway purposes to the ownership of the corresponding railway line.

As a consequence, existing water rights pass with the passing of the ownership of the railway line to which they are attached and cancellation of existing water rights follows the abandonment of the relevant railway line or of a water supply as an recourse in the operation of the line concerned 9/.

1/ Ibidem, sections 6, 6; see also Chapter XI.
2/ Water Ordinance, section 2.
3/ Ibidem, section 9.
4/ Ibidem, sections 13, 14.
5/ Ibidem, section 17 (1) (2).
6/ Ibidem, section 17 (3).
7/ The Mining Regulations, 1971, sections 914, 925, 930.
8/ Water Ordinance, section 1B.
9/ Ibidem, section 19 (1).

(ii) Floating

The floating of timber in inland waterways has been made subject to the regulating authority of the Minister of Lands, Natural Resources and Tourism 1/.

VII - LEGISLATION ON HARMFUL EFFECTS OF WATER

Legal provisions governing the control and/or the prevention of floods, soil erosion and drainage can be found in the Natural Resources Conservation Act and in the Forests Act. Additional provisions concerning the drainage of water are contained in the Health Act, while ad hoc Mining provisions deal with the harmful effects of water in connection with mining activities. These and other harmful effects of water are also dealt with incidentally by the Water Ordinance.

(a) Flood control and soil erosion

Within the overall legal framework outlined in the Natural Resources Conservation Act for purposes of conservation and protection of all natural resources, specific consideration is given to such major harmful effects of uncontrolled water as (i) floods and (ii) soil erosion.

With the aim of preventing and controlling these effects, the law empowers the Minister of Land, Natural Resources and Tourism to oblige by specific order, the owners of the lands concerned to provide at their own expense for (i) the protection of the courses and the banks of streams, (ii) the control of storm water and floods 2/.

In the alternative, the same Minister has power to directly provide at the Government's expense for the construction of works aimed at, among others (i) the prevention or control of soil erosion, (ii) the disposal and control of storm water and (iii) the protection of the course and the banks of watercourses. The costs of these works may be recovered from the owners of the lands benefiting from them 3/.

In addition, measures for, among others, (i) the protection of the banks of watercourses, (ii) the prevention of soil erosion and (iii) counteracting flood damage may be prescribed in the conservation measures relating to the overall protection of the natural resources existing within designated areas (conservation planning areas) 4/.

The prevention of soil erosion in areas subject to floods may also be the aim of additional regulation provisions which the competent Ministers have power to enact in terms of which (i) the cultivation of land within a prescribed safety distance from the banks of watercourses may be either prohibited or become subject to restrictions 5/, and (ii) the improvement of the channel of public watercourses can be provided for 6/.

1/ The Forests Act, No. 39 of 1973, section 68 (2) (a).

2/ The Natural Resources Conservation Act, No. 53 of 1970, section 13 (1) (3) (f) (g) (5) (6).

3/ Ididem, section 15 (1) (a) (1) (a) (5).

4/ Ididem, section 12 (2), in connection with the Schedule to the Act, sections (1) (5) (6). Also see Chapter XI.

5/ Natural Resources Conservation Act, No. 53 of 1970, section 54 (2) (v).

6/ Water Ordinance, section 45 (d).

The prevention of soil erosion and the protection of the soil from drainage by floods are also dealt with by major provisions in existing forest legislation. Under this legislation, lands falling within a declared National Forest are devoted to the conservation and development of forests and hence to securing, among other things, protection from floods and from soil erosion and to maintaining the flow of rivers 3/.

To these effects, a detailed list of acts may be allowed in a National Forest subject to a licence of the Forest Authority (namely the Chief Conservation of Forests) and conditions may be imposed by the Minister of Lands, Natural Resources and Tourism on any right existing in respect to any land situated in a National Forest 2/.

In addition, licences granted by the Forest authority may not, as a rule, affect a neutral zone of land edging a watercourse, an existing dam or a lake 3/.

(c) Drainage

The legal machinery set out in the Natural Resources Conservation Act to control and prevent floods and soil erosion also extend to the control of the drainage of water. Accordingly, the disposal and control of drainage water may either be the obligation (and the corresponding financial burden) of the landowners therewith concerned under an ad hoc order of the competent authority, or the direct care of the Government which provides for the construction of corresponding waterworks 4/. In addition, specific measures for the drainage of land may be contained in the conservation plans whereunder the overall protection of designated (natural resources conservation) areas is provided for 5/.

Under the Health Act, the drainage of land, streets and premises has been made subject to the regulation authority of the Minister of Health 6/.

(c) Other harmful effects

(i) Obstructions of watercourses

Under the existing water legislation, the renewal of obstructions unlawfully placed in a public watercourse is subject to the regulation authority which vests in the competent Minister 7/.

(ii) Effects connected with mining

Existing mining legislation provides for (i) the drainage of stagnant pool water from underground areas, (ii) the prevention of flooding of mines and (iii) the discharge of effluent water from mining processes 8/.

1/ Forests Act, No. 39 of 1973, section 12.

2/ Ibidem, sections 15, 16, 14 (1).

3/ Ibidem, section 44 (e). Such safety strip of land stretches as far as 60 metres from the bank or shore of a watercourse, dam or lake.

4/ The Natural Resources Conservation Act, No. 53 of 1970, sections 13 (1) (3) (g), 15 (1) (b).

5/ Ibidem, section 42 (2) in connection with the Schedule to the Act, section 5. Also see Chapter II.

6/ The Health Act, No. 12 of 1930 as amended, section 75 (d).

7/ Water Ordinance, section 46 (d).

8/ The Mining Regulations 1971, sections 2107, 2114, 2115.

VIII - LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

Specific legislation exists with respect to the qualitative and to the quantitative aspects of water resources control and administration.

(a) Water waste and misuse of water

The legislation in force provides for the prevention not only of water waste caused by man, but also of the natural dispersion and consequent waste of water.

Different legal measures aim at preventing:

(i) water users from wasting water. In the first instance, where water is used under a grant of the water authority, as is the case with all public and some private water use, the metering of water may be prescribed by regulation and any terms and conditions prescribed in a permit wherein corresponding rights of use are granted may cover the prevention of water waste 1/.

Furthermore, the Minister responsible for water resources has been expressly empowered to make regulations providing for, amongst other things, the prevention of water wastage 2/.

Finally, the waste of public water or of water drawn from existing waterworks constitutes an offence and is punishable accordingly 3/.

(ii) The present concern for the prevention of natural waste of water is evidenced by those legal provisions whereunder special rights of use of public water can be granted by the water authority in order to prevent underground water from running to waste and to preserve the specific availability thereof for agricultural consumption 4/.

Further evidence is given by the power of the competent Minister to make regulations for the prevention of surface water from leaking or flowing to waste into underground channels 5/.

(b) Health preservation

Water law provisions aimed at protecting human health are contained in the public health legislation dealing with the prevention of malaria and the sanitation of townships and districts. For preventing the spread of malaria, existing legislation attempts to minimize the occurrence of any collection of water in which mosquitoes are likely to breed, and to ensure the covering of open wells 6/.

1/ Water Ordinance, sections 28 (b), (by implications 46 (h)).

2/ Water Ordinance, section 46 (d).

3/ Ibidem, section 53 (4) (5).

4/ Ibidem, section 12 (1).

5/ Ibidem, section 46 (d).

6/ Public Health Act, No. 12 of 1930 as amended, section 84 (a) (b).

For the sanitation of townships, irrigation within their precincts may be restricted or even prohibited at the Minister of Health's discretion 1/.

The same Minister may also make regulations for the prevention of pools of standing water and the control and drainage of existing ones for district sanitation purposes 2/.

(c) Pollution

Extensive legislation exists with respect to the control and the prevention of water pollution since they are among the major aims of the existing legislation on natural resources conservation and on public health. The Water Ordinance itself provides for the direct implementation of existing provisions.

Under current legislation, the prevention of pollution of public water is pursued through either imposing obligations on individuals or, in the alternative, through vesting responsibility thereof in the government. A legal obligation for individuals to take proper antipollution measures at their own expense may arise from the following: (i) a term or condition which the water authority may attach to the grants whereunder water users may acquire rights to use public and, in some cases, private water 1/, (ii) an order of the Minister in charge of the protection of natural resources affecting the owners of lands which require antipollution measures and (iii) a conservation plan in terms of which the adoption of antipollution measures may be imposed upon the occupiers of lands falling within designated natural resources conservation areas 2/.

The protection of drinking and domestic water supply from pollution, the purification of polluted supplies and the sanitary prevention of pollution of watercourses is the direct responsibility of local government. The central government has a discretionary authority to take direct responsibility for the prevention of pollution of public waters, and accordingly provides at his own expense for the construction of suitable facilities, as an alternative to imposing antipollution legal obligations on individual land tenants 3/.

Auxiliary legal provisions authorise the Minister of Health to enact regulations governing (a) the setting of quality standards for effluents from any source and (ii) the establishment and the carrying on of factories whose activities may have water pollution as a consequence 4/.

The Water Ordinance itself provides that polluting a public water constituted an offence and is punishable accordingly 1/.

(d) Other control measures

Additional legal provisions covering further aspects of water quality and/or quantity conservation are embodied in the broad framework of the natural resources conservation legislation and in the forest legislation.

1/ Public Health Act, section 102 (1). For the purposes of this provision, the outskirts of a township stretch as far as 3 miles from the boundaries thereof.

2/ Idem, section 102 (2) (a) (b).

3/ Water Ordinance, section 28 (b) (by implication).

4/ The Natural Resources Conservation Act, No. 53 of 1970, section 13 (1) (3) (h).

5/ Idem, section 42, in connection with the Schedule to the Act, section (12).

6/ Public Health Act, No. 12 of 1930, as amended, section 78.

7/ Natural Resources Conservation Act, No. 53 of 1970, section 15 (1) (e).

The conservation of existing water supplies and the protection of the source of watercourses are included among the legal obligations which the Minister in charge of natural resources has the authority to impose on the tenants of lands where conservation measures are called for 1/.

In the alternative, the Government has the power to directly undertake at its own expense the construction of works for the protection of the catchment area and the source of watercourses. Expenses may, however, be recovered from any owner of land to the extent that his land benefits from such works 2/.

Additional measures for constructing works to conserve or distribute water or to regulate the water supply, may be prescribed in terms of a conservation plan and imposed upon the occupants of lands falling within designated (natural resources conservation) areas 3/.

IX - LEGISLATION ON GROUNDWATER RESOURCES USE

Specific legislation does not seem to exist with respect to groundwater resources.

X - LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

Besides vesting the Minister in charge for water resources with the power to regulate the function of inspecting works and objectives affecting public watercourses 4/, the existing legislation seems not to deal in much detail with the control and the protection of waterworks.

Existing legislation on the conservation of natural resources deals with aspects of the construction and maintenance of corresponding waterworks as, for example, the responsibility for it and the type and purpose of works to be undertaken.

XI - LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

Specific legislation provides for the establishment, control and/or protection of water resources areas with respect to (i) fishing in inland water and (ii) the conservation of existing water resources.

1/ Natural Resources Conservation Act, No. 53 of 1970, section 13 (1) (j) (b) (f).
2/ Natural Resources Conservation Act, No. 53 of 1970, section 15 (1) (c).
3/ Idem, section 42 in connection with the Schedule to the Act, section 6.
4/ Water Ordinance, section 46 (c).

(a) In the case of beneficial uses of water

Under existing legislation, special fishing areas or commercial fishing areas may be established. In these areas recreational, research or commercial fishing respectively become subject to the direct control of the Minister responsible for fishing who may restrict by regulation the methods and the period of fishing and/or prescribe the registration of fishermen and boats.

Both special and commercial fishing areas are established by the Minister in charge for fishing.

In addition, commercial areas may be governed by Fishing Development Committees which are appointed by the Minister to coordinate and improve commercial fishing ^{1/}.

(b) In the case of harmful effects of water

Under the current legislation on the conservation of water and other natural resources, "conservation planning areas" may be created wherein special provisions apply with regard to the control and prevention of major harmful effects of water and for the protection and conservation of the quantity and the quality of water resources. An area may be designated a natural resources conservation planning area by order of the Minister responsible for natural resources and upon either the request of a qualified majority of land occupiers or the recommendation of the Natural Resources Advisory Board.

Specific legal provisions govern the drafting, the approval, the publication, the registration, the amendment and the cancellation of natural resources conservation plans, the implementation of which is the obligation of the owners or tenants of the lands thereby affected.

As far as water resources are concerned, a conservation plan may prescribe the adoption of measures and/or the construction of works for (i) the control and prevention of floods and soil erosion, (ii) the drainage of land, (iii) the protection of the banks of watercourses, (iv) the drainage of the course of rivers, (v) the storage and/or the distribution of water supplies, (vi) the regulation of fishing, (vii) the prevention of (public) water pollution and (viii) the reservation of water catchment areas, springs and watercourses ^{2/}.

XII - GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

Zambian Government water resources administration is basically the responsibility of the central government. Yet, steps toward decentralization seem to be currently under way, in the form of both the delegation of functions of local interest to decentralized units of the central government and of devolution of local interest responsibilities to local governmental bodies ^{3/}.

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- ^{1/} The Fisheries Act No. 21 of 1974, sections 6, 8 to 12, 21 (1) (2) (e) (c) (d) (f).
^{2/} The Natural Resources Conservation Act No. 53 of 1970, sections 41 (1) (2) (3), 43, 45, 46, 47, 48 (1), 49 (1), 50 (1), 51, 52 (1) (2) and the Schedule to the last sections (1), 3, 4, 5, 6, 10, 12.
^{3/} See the concepts of "devolution" and "decentralization" in the U.N. National Systems of Water Administration, document ST/ESA/17, New York 1974, pp. 48 to 50.

(a) At the national level

The main branches of the central government administration which are involved in the control and development of water resources are:

- (i) the Ministry of Lands and Natural Resources which is responsible for water resources conservation and development (Office of the Conservation of Natural Resources) and for the control and development of fishing in inland water (Fisheries Department);
- (ii) the Ministry of Rural Development, which holds responsibility for water resources control and development in connection with the improvement of irrigation (Department of Agriculture, Department of Water Affairs);
- (iii) the Ministry of Power, Transport and Works, which is concerned with the collection and analysis of hydrological data (Meteorological Department) and with the development of water resources as a source of power;
- (iv) the Ministry of Health, which is in charge of the sanitary aspects of water resources including the prevention and control of water pollution;

the central government administration also includes:

- (v) the Water Board, which is responsible for the control and exploitation of public water resources and for the granting of corresponding rights of use ^{1/}. The Board is composed of five members appointed by the Minister in charge for water resources, and is from time to time integrated with experts chosen by the chairman from a panel appointed by the Minister ^{2/}. The Board is assisted by a Water Officer with advisory functions, and by a Water Registrar with record-keeping functions ^{3/};
- (vi) the Natural Resources Advisory Board, which has advisory and supervisory functions in the field of natural resources conservation, development and exploitation ^{4/}. The Board consists of some high government officials who are ex officio members, and of other members appointed by the Minister responsible for natural resources ^{5/}. The Board may be assisted by Committees of experts which are appointed by the Board itself subject to the authorization of the Minister ^{6/}. Separate legal provisions govern the procedure of the Board and the term of office of members thereof ^{7/};
- (vii) the Chief Conservator of Forests, is a public officer responsible to the Minister in charge of forestry, for the control and management of Natural Forests and of Local Forests, and for the related matters of (i) prevention of flood and soil erosion, and (ii) conservation of existing water supplies ^{8/};

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- ^{1/} Water Ordinance, sections 25 to 28, 31, 56.
 - ^{2/} Ibidem, section 24 (1) (2).
 - ^{3/} Ibidem, section 4 (1) (2).
 - ^{4/} Natural Resources Conservation Act, No. 53 of 1970, sections 3, 9.
 - ^{5/} Ibidem, section 4 (1).
 - ^{6/} Ibidem, section 8.
 - ^{7/} Ibidem, sections 6, 7.
 - ^{8/} The Forests Act No. 39 of 1973, sections 4 (1), 13, 22.

(viii) the Central Board of Health, with advisory functions in the field of public health 1/.

(b) At the intermediate level

Steps toward functional decentralization of the central government water resources administration at the intermediate level have been taken by establishing the Provincial Natural Resources Committees and the District Natural Resources Committees.

Provincial and District Committees may be established by the Minister in charge for natural resources to exercise advisory and, to some extent, supervisory or executive functions in the conservation and improvement of natural resources. These decentralized functions include, but are not limited to, the coordination and reviewing of, and the implementing of, plans and measures for the conservation, wise use and improvement of water and other natural resources.

Members of the Provincial and of the District Natural Resources Committees are appointed by the Minister in charge for natural resources partly from among the residents in the area concerned and partly from among the members of local representative bodies. Provincial Natural Resources Committees may be assisted by ad hoc sub-Committees thereby appointed under an authorisation of the Minister. Specific additional provisions govern the tenure of office of members and the procedure of provincial and of District Committees which are financially dependent on loans, subsidies or grants which the Minister may make out of money appropriated for that purpose by Parliament 2/.

(c) At the local level

Government water resources administration includes, at the local level, the Local Authorities (municipal or township councils, or mine township boards), and the Village Productivity Committee and the Ward Development Committees.

These Committees, over which the central government has only an indirect control, and the functions of which seem to be secured as a matter of substantive right rather than as a result of the delegation of such functions, may be integrated into the local government administration together with the Local Authorities.

Both Ward Development Committees and Village Productivity Committees are directly responsible for the welfare and the socio-economic development of rural wards and of villages, respectively. As far as water administration is concerned, Ward Development Committees are responsible for (i) participating in the construction and maintenance of water drainage systems and (ii) securing the most profitable use of water for irrigation. In addition, they are required to assess the wards' needs for natural resources, including water resources, for establishing a corresponding order of priorities and for integrating them with the national scheme determined by the central government.

1/ The Public Health Act No. 12 of 1930 as amended, section 3.

2/ The Natural Resources Conservation Act No. 53 of 1970, sections 16, 17, 18; the Provincial Natural Resources Committee Regulations, 1971, sections 4(1) (2), 5, 6 and 8; the District Natural Resources Committee Regulations 1971, sections 4(2) (3), 5 and 6.

The Ward Development Committees act as the executive units of the Ward Councils, and have authority upon the wards into which rural areas are divided.

Members of a Ward Committee are elected by the corresponding Ward Council from among its members. The finances of the Ward Committee are based on contributions from the inhabitants or from the Productivity Committees of the ward, or on grants or donations.

Village Productivity Committees are responsible for matters which include providing and improving water supplies in the villages. A Village Productivity Committee has authority upon one or more villages, the inhabitants of which directly elect the members of it and provide financial support to it. The Village Productivity Committees are supervised and coordinated by the Ward Development Committees 1/.

Local authorities have been made responsible for, among others, the prevention and control of water pollution, with emphasis on the prevention of pollution of, and on the purification of, polluted drinking or domestic water supplies 2/.

(d) At the international level

Zambia is a basin state of the Zaire (formerly Congo) and of the Zambesi River systems. In addition, the country shares the Rakwa Lake with Tanzania.

Several treaties exist dealing with such matters as boundary demarcation, navigation and trade in respect to the Zaire and the Zambesi River basins 3/.

In addition, an ad hoc Agreement between Zambia and S. Rhodesia regulates the exploitation of the Zambesi River waters for Hydroelectric purposes at the Kariba Dam. 4/

Finally, Zambia is a party to the African Convention on the Conservation of Nature and Natural Resources 5/, whereby the country's position in respect to the development and utilisation of all three international water basins mentioned above is subject to an ad hoc international legal regime.

1/ The Registration and Development of Villages Act, No. 30 of 1971, sections 6 to 10, 14 to 16; First Schedule to the Act, section 2 (b); Third Schedule, sections 3, 7 (f) (g).

2/ Public Health Act, No. 12 of 1930 as amended, section 7B.

3/ These treaties are reported in: Systematic Index of Water Treaties, FAO, op cit.

4/ Agreement between the Government of Southern Rhodesia and the Government of Northern Rhodesia relating to the Central African Power Corporation, signed in Salisbury, 25 November 1963 (163, Government of Southern Rhodesia Gazette No. 657 A).

5/ Signed in Algiers, 15 September 1968, cit.

XIII - SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

In Zambia, there are a number of autonomous development agencies. In the field of hydro-electric power, these are the Zambia Electricity Supply Corporation (ZESCO), which is a member of National Energy Corporation (NEC) which in turn is a component of the Zambia Industrial and Mining Corporation (ZIMCO), all parastatal bodies; the Central African Power Corporation (CAPCO); the Copperbelt Power Company (CPC); and the Kariba North Bank Power Company (KNBPC). CAPCO is responsible for the control of generation and transmission and sells energy to ZESCO and CPC. CPC is responsible for the supply of electrical energy to the mining companies on the Copperbelt and sells energy to ZESCO for the Copperbelt townships. ZESCO is responsible for some transmission and the operation of power generating stations and supplies energy to CAPCO. It is also responsible for the supply and distribution of electricity to townships, municipalities and cities. ZESCO has complete responsibilities for all aspects of power generation, transmission and distribution in isolated areas. KNBPC is responsible for the construction of Kariba North Bank Power Station.

XIV - LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

Specific legislation exists with respect to (i) the financing of the Kafue Gorge Hydro-electric Power Project and (ii) fees to be paid in connection with the granting of water rights.

A special statute conferred on the Minister for Finance the authority of raising loans for the purpose of financing the above mentioned hydro-power project, and of entering into agreements with, and borrowing money from, foreign financial institutions 1/.

The payment of specified fees is prescribed in respect to the original application for, and the registration of, water rights. The application for the renewal and the registration of renewed water rights are free 2/.

The general policy of the Government with regard to water charges is that in urban centres the consumer should pay according to (a) production costs and (b) the amount of water used - i.e. meter readings.

Until the beginning of 1976, the tariff of water rates charged by all the local authorities used to be inversely proportional to the amount of water consumed, i.e. when the consumption figures increased, the lower rates applied. However, the position with regard to water rates has now been changed by the Government and the new rates are directly proportional to the consumption figures. This change is welcome as this would almost certainly help to reduce the waste of treated water at consumers' end.

1/ The Loans (Kafue Gorge Hydro-electric Power Project) Act No. 34 of 1968.

2/ The Water Board (charges and fees) Regulations, Government Notices Nos. 3 and 339 of 1950, 12 of 1956.

In the rural areas where the per capita income is relatively low, the Government policy is to subsidize the production costs. The consumer is generally charged on the basis of a flat rate - usually K1.00 or K2.00 per family per month.

XV - WATER LAW IMPLEMENTATION

Specific legal provisions deal with aspects of the implementation of existing water resources and related legislation such as (i) the modification, termination or reallocation of existing water rights and (ii) the infringement of legal provisions and corresponding penalties.

Current water resources legislation expressly empowers the Water Board to revoke, amend or reallocate existing registered water rights except for special water rights. However, adequate protection of the affected registered right holders is provided in that either their previous consent of the reallocation is required or, alternatively, appropriate compensation by the benefiting party is payable.

Major offences created by the Water Ordinance are (i) unauthorized use of public water, (ii) waste or misuse of public water, (iii) undue interference with the flow of a public watercourse, or with the flow and/or distribution of water conveyed in any water-bearing work, (iv) altering or obstructing any work instrumental to the conservation and to the exploitation of water resources, and/or tampering with related fittings and appliances, (v) polluting public water and (vi) breach of conditions attached to the grant of a water right.

Corresponding penalties consist of fines and/or imprisonment, the most severe of which apply in respect to pollution of public water 1/.

The same penalties also apply, under existing legislation on the conservation of natural resources, in respect to the damaging of works constructed for purposes of conservation and improvement of natural resources, including water resources 2/ (among which, works for the control and prevention of water pollution and of harmful effects of water, and works for the protection of the source, course and banks of watercourses 3/).

1/ Water Ordinance, sections 53, 55, 56A, 57.

2/ The Natural Resources Conservation Act No. 53 of 1970, sections 22, 57.

3/ Ibidem, sections 13(3) (b) (f) (g) (h), 15 (1) (a) (b) (c) (e).

ANNEX I

OUTLINE FOR THE PREPARATION OF A NATIONAL
WATER RESOURCES LAW INVENTORY

by: Dante A. Caponera

- I. INTRODUCTION
- II. LEGISLATION IN FORCE
- III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES
 - a) Surface Water Resources
 - b) Groundwater Resources
 - c) Other Water Resources
 - d) Mode of Acquisition
- IV. THE RIGHT TO USE WATER OR WATER RIGHTS
 - a) Mode of Acquisition
 - b) Water Use Authorizations, Permits or Concessions
- V. ORDER OF PRIORITIES
 - a) Between Different Uses
 - b) Between Different Existing Rights
 - c) Between Different Areas
- VI. LEGISLATION ON BENEFICIAL USES OF WATER
 - a) Domestic and Household Uses
 - b) Municipal Uses
 - c) Agricultural Uses
 - d) Fishing
 - e) Hydropower
 - f) Industrial and Mining Uses
 - g) Transport
 - h) Medicinal and Thermal Uses
 - i) Recreational Uses
 - j) Other Beneficial Uses
- VII. LEGISLATION ON HARMFUL EFFECTS OF WATER
 - a) Flood Control, Overflow and Bank Protection
 - b) Soil Erosion and Siltation
 - c) Drainage and Sewerage
 - d) Salinization
 - e) Other Harmful Effects

- VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL
- a) Waste and Misuse of Water
 - b) Re-cycling and Re-use of Water
 - c) Health Preservation
 - d) Pollution
 - e) Environmental Protection
 - f) Other Control Measures
- IX. LEGISLATION ON GROUNDWATER RESOURCES USE
- a) The Licensing of Drillers
 - b) Exploration and Exploitation Licences
 - c) Groundwater Resources Protection Measures
 - d) Other Control Measures
- X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES
- a) Waterworks Construction
 - b) Waterworks Operation and Maintenance
 - c) Waterworks Protection Measures
- XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS
- a) In the Case of Beneficial Uses of Water
 - b) In the Case of Harmful Effects of Water
 - c) In the Case of Water Quality and Pollution Control
 - d) Zoning
 - e) Other Cases
- XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION
- a) At the National Level
 - b) At the Intermediate Level
 - (i) At the inter-state, inter-regional or inter-provincial level
 - (ii) At the state, regional or provincial level
 - (iii) At the inter-basin level
 - (iv) At the basin or sub-basin level
 - c) At the Local Level
 - (i) Local water rights institutions and administration
 - (ii) Water users' associations
 - d) At the International Level
 - (i) International treaty provisions
 - (ii) International basin or river commissions or boards
- XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES
- a) At the National Level
 - b) At the Regional or Basin Level
 - c) At the Project Level
 - d) At the Users' Level

- XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING
 - a) Government Financial Participation and Reimbursement Policies
 - b) Water Rates and Charges
- XV. WATER LAW IMPLEMENTATION
 - a) Juridical Protection of Existing Water Rights
 - b) Modification, Termination and Re-allocation of Water Rights
 - c) Water Tribunals, Courts and Other Judiciary Water Authorities
 - d) Penalties
 - e) Other Water Law Implementation Matters
- XVI. CUSTOMARY WATER LAW AND INSTITUTIONS
 - a) The Legal Regime of Water Resources and Water Rights
 - b) Water Resources Management and Administration
 - c) Water Rates and Charges
 - d) The Settlement of Disputes
 - e) Customary Water Law Implementation

ANNEX II

LIST OF SELECTED AGREEMENTS SETTING UP JOINT MACHINERY
FOR INTERNATIONAL WATER RESOURCES MANAGEMENT IN AFRICA

1. 1926 (1 July): Cunene River (Basin) - Agreement between the Government of the Union of South Africa and the Government of the Republic of Portugal regulating the use of the water of the Cunene River for the purposes of generating hydraulic power and of inundation and irrigation in the mandated territory of South West Africa (LNTS, Vol. LXX, p. 316).
2. 1959 (8 November) and Protocol 1960 (17 January): Nile Basin - Agreement between the Government of the UAR and the Government of Sudan (UNTS, Vol. 453, p. 51).
3. 1963 (26 October) and 1964 (25 November): Niger Basin - Agreements of Niamey between Cameroon, Ivory Coast, Dahomey, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad (UN Registration No. 8506 and 8507).
4. 1963 (25 November): Zambesi Basin (and Lake Kariba) - Agreement between the Governments of Southern Rhodesia and Northern Rhodesia relating to the Central African Power Corporation.
5. 1964 (18 March): Mono River Basin (Togo and Dahomey), Convention setting up a Coordinating Committee.
6. 1964 (22 May): Chad Basin - Agreement of Fort-Lamy between Nigeria, Niger, Cameroon and Chad.
7. 1967 (19 April): Gambia Basin - Treaty of Association between Senegal and Gambia setting up an interstate ministerial committee; and on 9 and 10 June 1967, a permanent executive secretariat; 1968 (30-31 July): Agreement on the integrated development of the Gambia River Basin (UNTS, Vol. 640, p. 101); 1976 (16 April) on the establishment of the Coordinating Committee for the Gambia River Basin Project.
8. 1967 (31 May): Lakes Victoria-Kyoga and Albert - Convention between Kenya, Sudan, Uganda, U.A.R., Tanzania, setting up a Technical Committee.
9. 1970 (4 March): Congo Basin - Agreement between the Congo (Brazzaville) and the Central African Republic, with five protocols.
10. 1971 (21 August): Volta Basin - Agreement between Ghana and Upper Volta for cooperation on Volta Basin and setting up a joint permanent commission.
11. 1972 (11 March): Senegal Basin - Convention of Nouakchott between Senegal, Mali and Mauritania setting up O.M.V.S.
12. 1970 (3 December) and 1971 (3 June): Liptako-Gourma - Protocol signed between Upper Volta, Mali, Niger establishing the "Integrated Development of the Liptako-Gourma Authority" with statutes (3.6.1971) signed at Bamako.
13. 1973 (17 April): CEAO (Communauté Economique de l'Afrique de l'Ouest) Treaty signed at Abidjan by the Chiefs of State of Ivory Coast, Upper Volta, Mali, Mauritania, Niger and Senegal, involving economic cooperation in various fields.
14. 1963 (1 December): EAC (East African Community) Agreement between Kenya, Uganda, Tanzania, which includes provisions on water resources.
15. 1973 (11 September): CILSS (Permanent Inter-State Committee against Drought in the Sahel) Convention signed at Ouagadougou between Niger, Mali, Mauritania, Senegal, Chad and Upper Volta (Text in "International Legal Materials", Vol. XII, No. 3, pp. 537-539).

16. 1975-76 (under study): Lake Tanganyika and Kivu Basin. Draft Convention and Statutes setting up a Commission between Burundi, Rwanda, Tanzania, Zaire and Zambia.
17. 1977 (24 August): Kagera (Nile) Basin Agreement for the establishment of the Organization for the Management and Development of the Kagera River Basin, signed between Burundi, Rwanda and Tanzania.

