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LONG-TERM STRATEGY FOR THE FOOD AND AGRICULTURE SECTOR

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I. INTRODUCTION

A. The Special Session of the UN General Assembly and the International Development Strategy for the Fourth UN Development Decade

1. The UN General Assembly has initiated two interrelated sets of activities of direct interest to FAO to which the Organization will make significant contributions. These refer to the preparations of the IDS for the fourth UN Development Decade and to the convening of a Special Session of the General Assembly. The Council was informed of these matters in its ninety-fifth session (CL 95/17).

2. Resolution 43/182 on the IDS invites the UNCTAD, the regional commissions and other organizations and specialized agencies of the UN system to include in their agenda during 1989 items regarding their contribution to the preparation of the IDS. It also requests the Secretary-General of the UNCTAD and the executive heads of the other organs, organizations, and bodies of the UN system to contribute effectively to the preparatory process for the strategy by providing all appropriate inputs, including relevant documentation, using comprehensive analytical studies.

3. Decision 43/460 on the Special Session states that "the Secretary General shall submit to the Preparatory Committee a comprehensive report on the state of international economic co-operation, in particular on effective ways and means of revitalizing the economic growth and development of the developing countries. The Secretary-General, in consultation with the President of the General Assembly, is requested to carry out appropriate high level consultations, including consultations with eminent personalities, in the preparation of his report in order to contribute to the success of the Special Session". In this context, on behalf of the Secretary-General, the Director-General for Development and International Economic Co-operation of the UN Secretariat, has consulted with FAO and requested inputs from the Organization for the preparation of his report to the Preparatory Committee.

4. FAO's mandate and acknowledged role as the world authority in the crucial sectors of agriculture, forestry, fisheries, food and nutrition and rural development put it in a unique position to contribute to the preparations for, and the success of, both the IDS and the Special Session. Such a contribution must be commensurate with the importance of these sectors in the economies and societies in the great majority of the developing countries.

5. The Council at its 95th Session in June 1989 emphasized the particular importance of FAO's contribution to the IDS and the Special Session, as the food and agriculture and the rural sector had a vital role to play in revitalizing economic growth and in achieving the objectives in the areas of nutrition, poverty alleviation, human development and the environment. It noted that FAO had already made contributions to preparatory work in the UN System as well as to the June 1989 session of the ad hoc Committee of the Whole of the General Assembly for the preparation of the IDS. It stressed the need for the IDS and the Special Session to focus on practical results.

B. Contents and Focus of the Special Session and the IDS: Some Preliminary Ideas

6. The Preparatory Committee of the Whole for the Special Session held its first substantive session from 31 May to 2 June 1989. It had before it a document entitled "Preliminary outline of the comprehensive report of the Secretary-General on the state of international economic co-operation, in particular on effective ways and means of revitalizing the economic growth and development of the developing countries". This document reviewed the situation and prospects of the world economy and listed a number of topics for the revitalization of growth and development as follows: Strengthening international economic co-operation; reinstating the development objective; overcoming the debt crisis; enhancing financial flows to developing countries; towards international monetary stability; opening of markets and strengthening the trading system - commodities; encouraging regional and subregional co-operation among developing countries; Africa; sustained development and the environment; and an agenda for overview of the United Nations system.

7. In the debate it was generally held that the document that would result from the Special Session would lay down broad principles for co-operation and address the issues in a global, interrelated and balanced manner, reflecting the interests of all countries. While it would provide guidance for action, detailed prescriptions were to be avoided. It would, in particular, provide a framework for other important events in the UN system and help mobilize public awareness and interest. The link between some of the issues to be addressed in the Special Session and those of the IDS were noted.

8. Concerning the issues themselves, there was general agreement on a number of areas but no final consensus was reached. The question of the agenda for the Special Session was therefore left open and the Chairman was invited to conduct informal consultations with the various delegations. The second session of the Preparatory Committee for the Special Session will be held from 26 February to 3 March 1990.

9. The ad hoc Committee of the Whole for the Preparation of the IDS held its first substantive session from 5 to 9 June 1989. It had before it a number of documents with ideas and proposals as to the issues to be covered by the IDS. Three of these documents had been prepared by the Secretariats of the UN system following the relevant request of resolution 43/182. These were: a report by the Secretary-General; a report by the ACC Task Force on Long-term Development Objectives (FAO had participated in the deliberations of the Task Force and in the preparation of this report); and a report by the UNCTAD Secretariat. A fourth document was the report of the Committee for Development Planning, a group of independent advisers appointed by the Secretary-General.

10. The Secretary-General's report summarized as follows the tentative general conclusions concerning the building blocks of an IDS that could address the problem of future co-operation for development: international economic relations; acceleration of socio-economic progress on a wide front; developing countries' debt, market access and financial flows for development; development of human resources with emphasis on women and youth, education, health, employment and food security; environment.

11. As in the case of the Special Session, there was broad agreement on a number of these issues, but no consensus was reached. There was general agreement, however, that the IDS should be flexible and realistic with provision for periodic monitoring, and if required, for mid-course corrections in the light of changing international developments. The second session of the ad hoc Committee of the Whole on the IDS was planned to be held from 11 to 15 September 1989.

C. Preparation of FAO's Contribution

12. The Council was informed in its Ninety-fifth session (CL 95/17) of FAO's need and readiness to participate fully and make a substantive contribution to both the Special Session and the IDS. Contributions have already been made to the preparatory work in the UN system at the Secretariat level and in the ACC (see paragraph 9 above). In addition, FAO participated in the first substantive session of the Preparatory Committee of the Whole for the Special Session and in that of the ad hoc Committee of the Whole on the IDS. A statement was made to the latter session outlining FAO's views on the subject and planned work for preparing further contributions.

13. In view of the need to contribute FAO inputs to both the Special Session and the IDS on several occasions between now and the end of 1990, the Director-General has initiated work for the preparation of a long-term strategy for the food and agriculture sector for the 1990s and beyond (hereafter referred to as the Strategy). This should provide a framework for preparing the FAO contributions as and when required to preparatory work undertaken in the UN system at the inter-secretariat level, to further planned sessions of the two Committees of the Whole, to the Special Session of the General Assembly (23-27 April 1990) and to the IDS (end-1990).

14. In order to draw on all fields of competence of the Organization, the Director-General established a Task Force to prepare the Strategy, in which all relevant units are represented under the chairmanship of the ADG/ES. The Council noted with satisfaction the contributions already made and the work initiated by the Director-General as well as the plans for its completion. The Council welcomed the Director-General's plan to present to the Twenty-fifth Session of the FAO Conference in November 1989 a detailed outline and a preview of the contents of the strategy for the food and agriculture sector and to submit the full strategy document to the Ninety-eighth Session of the Council in November 1990. It agreed that the strategy for the food and agriculture sector should be based on an elaboration of the findings and recommendations in existing FAO global and regional studies ("Agriculture: Toward 2000" and the regional studies on Africa, Latin America and the Caribbean and Europe) as well as on the existing FAO or FAO-sponsored sectoral strategies, plans of action and undertakings. These would include the WCARRD Programme of Action, the Guidelines and Targets for International Agricultural Adjustment, the TFAP, the Plan of Action for the Integration of Women in Development, the World Food Security Compact, the International Code of Conduct on the Distribution and Use of Pesticides, etc.

15. The Council suggested that the Cooperative Action Programme adopted by the Fifteenth Ministerial Meeting of the World Food Council in May 1989 in Cairo, could be an important source of input, particularly as regards the structural adjustment programmes. The Council urged that the proposed Conference document be circulated to member governments as early as possible.

16. It is envisaged that the full document will review the food and agriculture and rural development situation, as well as the outlook and prospects for the 1990s and highlight the outstanding issues which must be addressed by the Strategy (Chapter II below). The main part of the document will be devoted to the Strategy recommendations (Chapter III below). In the final document, an attempt will be made to clearly indicate the areas for priority actions appropriate to different geographic regions, and to countries at different levels of economic development and with different resource situations and potentials. The following paragraphs present a provisional outline and a tentative preview of the contents of the Strategy document. It is to be noted that the section on Natural Resources, Environment and Sustainability (Section III.C below) summarizes the relevant parts of the SOFA Special Chapter (C 89/2 Supp. 2).

17. The primary role for translating the Strategy recommendations into operational policies and for implementing them lies with governments. The international community and the UN system should back-stop these efforts by promoting a more supportive environment of international economic relations, including resource flows, trade and technical assistance. In this context, FAO's role will be defined in large measure by the long-term goals, objectives and strategies, set out in the approved PWB, as well as by the sectoral strategies, action plans and undertakings already referred to above. As in the past, FAO must be prepared to respond to emerging challenges.

II. CURRENT ISSUES AND PROSPECTS FOR THE 1990s

A. Food and Agriculture and Rural Development in the late 1980s

1. Past Trends

18. There has been significant but uneven progress in the world food supply situation, at least up to the mid-1980s and before the reversals of the last two years due mostly to climatic factors. World agricultural production grew at 2.4 percent p.a. in the 1970s and at 2.5 percent p.a. in 1980-86, but at only 0.9 percent in 1987 and 0.1 percent in 1988. Notable exceptions in this overall progress were the superimposition of the effects of the devastating African drought on the already poorly performing agricultural sector of the region, a performance which reflected the effects of inappropriate policies as well as earlier drought of 1972-74, among other things, and the effects of the overall economic crisis that hit particularly Latin America and the Caribbean and sub-Saharan Africa. For the developing countries as a whole these adverse effects were counterbalanced by better overall economic and agricultural performance of some major Asian countries, at least up to quite recently.

19. As regards the developed countries, the relatively low agricultural growth rate of eastern Europe and the USSR as a whole gave rise to increasing concerns, leading to an intense policy debate in some countries of the region concerning required agricultural policy reforms in the context of the broader efforts towards economic reform.

20. The economic crisis and the accentuation of the related debt problem in the first half of the 1980s affected adversely the demand growth and import capacity of many developing countries, at a time when some major

industrialized countries and regions found it difficult to contain trends towards overproduction. Such trends had been established in earlier years of rapidly expanding export markets and when the scope for import substitution, often pursued under heavy protection, was still considerable.

21. These and other factors had combined to produce intense competition in international markets, often conducted with the aid of export subsidies. The resulting disarray in agricultural trade conditions drove home the need for concerted approaches to policy reform. These concerns found expression in current efforts in the Uruguay Round to lessen the trade distortions originating in the domestic support policies. The end result of the multilateral trade negotiations (MTNs) is not yet known. Yet, success in the MTNs remains a crucial factor in the revitalization of economic growth of many developing countries with significant dependence on agricultural export earnings.

22. The last two years ushered in a period of tight supplies, reflecting reduced production, particularly in the OECD area, which was the result mainly of the North American drought but also, to some extent, of policy measures, e.g. the supply control measures in major OECD areas. In the opposite direction, serious consideration was being given to novel approaches to agricultural policy-making in a number of developed socialist countries.

23. In the fisheries sector, almost all important stocks of demersal (bottom-dwelling) species are either fully exploited or over-fished; most stocks of the valuable crustacean species, especially shrimp, are also heavily exploited and the fisheries for these species have generally reached a stage of economic over-fishing, though there is significant potential for aquaculture. There are better prospects for increasing the harvest of small shoaling pelagic (surface-dwelling) species; however, stocks of such species, some of which are used primarily for conversion into fish meals and oil, are subject to considerable long-term fluctuation in abundance. The sustained growth in demand, faced by these supply constraints, will therefore lead to a continued rise in the real prices of preferred species.

24. In forestry, the pressure for clearing land for permanent or shifting agriculture, wasteful logging and the fuelwood needs of growing rural populations lead to forest destruction in many developing countries. Seldom are forests used as a renewable resource which can meet through effective management present and future needs for fuelwood and industrial raw material while conserving their important genetic resources. In the fragile environments of the dry as well as of the humid tropics this is severely detrimental to the performance of the forests' environmental role and to the protection of the land and water base. If current trends are allowed to continue unchecked and in the absence of sufficient investment in resource management and rational utilization, forestry production will fail to keep pace with the growth of demand. Already developing countries are becoming more dependent on imports of forest products in the production of which they have a comparative advantage. While large areas of forests are being cleared for agricultural expansion there is also insufficient attention to the need to maintain a tree presence in farming systems in order to sustain the productivity of the land and water resources base.

2. Policy Issues

25. In many developing countries the central role of agriculture and the rural sector is increasingly recognized as crucial in their efforts to break out of the vicious circle of economic stagnation and to restructure their economies towards a more viable economic growth path with internal and external balance. Concern with revitalization of economic growth in the developing countries, which is the main focus of the UN Special Session and will also figure prominently in the IDS, will need to be reflected in higher emphasis than in the past on agricultural and rural development. The growth objective should also take into account the varying experiences of the different developing countries: for many countries, including the majority of the Least Developed ones, the trend has been towards marginalization and non-participation in the growth process. The pursuit of revitalization of growth should, therefore, include measures to ensure the full participation of these countries. Given the often overwhelming weight of agriculture and the rural sector in the economies of many developing countries, an agriculture and rural development-based growth strategy would increase the chances of success of efforts to revitalize economic growth. Such a strategy should aim at integrating agriculture, forestry and fisheries development in an optimal and rational management of natural resources.

26. As noted above, the Special Session and the IDS are likely to emphasize poverty alleviation, the betterment of the human condition as an end in itself and the development of human resources as a means towards achieving development. Nutrition (including aspects of food quality and safety), food security, rural development, including enhanced and more equitable access to productive assets and services, people's participation and the recognition of the role of women in development are some of the key dimensions of the food and agriculture and the rural sector that must figure prominently in a strategy focusing on the human condition, side by side with emphasis on the fundamental sectors of health and education. Reduction and/or elimination of severe undernutrition are likely to figure prominently in the IDS objectives. The 1980s have not been a propitious period for these concerns. The evidence in these fields indicate that the economic crisis in its many dimensions (low growth, debt-related outflow of resources and cutbacks in social expenditures in many developing countries) and the climate-induced setbacks in food production combined to arrest and indeed reverse progress in nutrition and introduced new uncertainties for food security. To judge from the evolution of per caput food supplies in many developing countries, undernutrition has probably increased. Concerning rural poverty, the Second Progress Report on the WCARRD Programme of Action (C 87/19) concluded that during this period there was little scope for advance on the front of rural poverty alleviation, except in Asia.

27. The poverty alleviation objective is intimately linked to food security. It is increasingly recognized that food security depends on the generation of incomes and purchasing power for the low income groups, rather than on production increases alone. If proof were needed, it is to be found in the recent emergence of food surpluses not finding remunerative market outlets in some African countries following good weather, notwithstanding the prevalence of widespread undernutrition. Good agricultural performance, if accompanied by equitable participation, goes a long way towards coping with both sides of the problem: it increases

supplies and at the same time generates incomes. But experience shows that success depends crucially on the pace and pattern of development in the other economic sectors as well. Particularly positive linkages are established when non-agricultural growth contributes to broad-based rural development. It contributes to create incomes and remunerative markets for farm produce and, by creating alternative employment and income-earning opportunities in rural areas, to stimulate the outflow of labour from agriculture. The latter is often a sine-qua-non condition for increasing productivity and incomes in the sector, particularly in countries with high population growth. Concerning the agricultural labour force, an emerging concern is the possible effect of AIDS, inter alia, on rural manpower, particularly in Africa where, according to some reports, the impact is already being felt at the community level in some countries.

28. The experience of the 1980s demonstrated once more and very vividly the devastating effects on hunger, undernutrition and even starvation of war and civil strife and the associated dislocation and condemnation of large population groups as refugees and displaced people. It is not sufficient to have a strategy aimed at bettering the human condition through policies to cope with effects of severe climatic fluctuations and to stimulate agriculture and the rural economy. Of equal importance is progress towards more settled political conditions and respect for human rights, which would also contribute to reduce expenditure on armaments. At its 95th session in June 1989, the Council emphasized that internal and external peace was an essential prerequisite for food security to become reality. It urged that efforts be intensified for peace and detente.

29. The more than average frequency with which unfavourable climatic conditions seemed to occur in the 1980s gave new impetus to efforts to understand the phenomenon and helped bring to the top of the policy agenda the issue of environment and sustainable development. While this is not a new subject, it is a welcome development in that it helps focus attention on the relations between environmental protection, natural resources management and agriculture, which is the foremost sector dependent on, and interacting with, these factors. FAO's mandate and technical competence in agriculture, forestry, fisheries and rural development puts it in a unique position to contribute to the Strategy formulation and to ensure that it takes into account in an integrated manner the important role of these sectors in the achievement of environmental sustainability as well as in that of development.

30. Increasingly the subject of environment and sustainable development is shifting from being the nearly exclusive concern of scientists and assumes its rightful place at the heart of the development debate. This is the issue par excellence that must be addressed by international action because environmental problems do not respect national frontiers. It is, therefore, rightly singled out as one of the main focuses for the IDS. This being said, due recognition must be given to different national situations and, above all, differing perceptions concerning development priorities and capabilities of countries to take appropriate action, singly or in the context of international cooperation. The prevalence of widespread poverty in the developing countries is identified as a major factor leading to over-exploitation, poor management and consequent degradation of their natural resources.

31. The recent tightening of food supplies in world markets and the heightened concern for the environment and sustainability have contributed to focus attention on the state and management of the world's agricultural resources, including soil, water, plants, forests and fisheries. Among the main points at issue is the capability of natural resources and technological advances to continue to ensure sustainable increases in production. Concern is increased by the more recent assessments of world population prospects. They are less sanguine than earlier assessments as to the pace at which population growth is slowing down, particularly in Asia.

32. At the same time, more attention than before is focused on the issue of what further productivity gains can be obtained from wider adoption of existing varieties and better management as well as from the application of technologies under development, and more generally from the application of science and technology for development, including biotechnology. This heightened concern emanates in part from the realization that significant gains in productivity, of the type associated with the heyday of the spread of the high yielding varieties, are not in store over the medium term. The subject certainly warrants close study and empirical analysis if the Strategy goals and policy responses are to be set correctly.

B. Prospects for the 1990s

33. The existing FAO global and regional studies, the FAO or FAO-sponsored sectoral strategies, action plans and undertakings as well as other relevant work and analytical studies will form the basis for FAO's preparations for the Strategy.

34. The latest detailed FAO assessment of the food and agriculture prospects for all countries, regions and the world as a whole is the 1987 edition of "Agriculture: Toward 2000" (AT 2000) which was considered and approved by the 24th Session of the FAO Conference. Its analyses and findings were re-examined and refined in the process of preparing the regional studies for Latin America and the Caribbean and for Europe. The earlier study on African agriculture also belongs to the same set of assessments of future prospects, but with a longer time horizon to year 2010.

35. Selected findings of the assessments concerning prospects for the 1990s are discussed below. They can be conveniently grouped under three major interlinked themes corresponding to those currently under consideration for the Special Session and the IDS. These are the revitalization of economic growth together with the associated issues of improved international cooperation, debt, resource flows and trade; the alleviation of poverty and development of human resources; and issues of natural resources, environment and sustainable development.

1. Economic Growth and Agriculture

36. The table below shows the population growth rates used in the 1987 version of "Agriculture: Toward 2000", together with the Study's growth rates of agricultural production and demand. The revised population growth rates of the latest (1988) UN assessment are also shown in brackets. In this connection, it is to be noted that the IDS will probably adopt a cautious approach regarding the setting of concrete detailed quantitative

targets. On present indications, it appears that if any targets are adopted, they are likely to be few. It is generally felt that such targets, if any, should be realistic in terms of the feasibility of their achievement.

AT 2000: Annual growth rates (% p.a.) for 1990-2000

	Population		Agriculture	
	<u>AT 2000</u>	<u>Latest</u> <u>Assessment</u>	<u>Production</u>	<u>Demand</u>
Developing countries <u>1/</u>	1.8	(2.0)	3.0	3.1
Asia	1.5	(1.7)	3.0	3.0
Latin America and Caribbean	1.9	(1.9)	2.9	3.0
Near East/North Africa	2.4	(2.7)	3.1	3.2
Sub-Saharan Africa	3.3	(3.3)	3.5	3.7

1/ 94 developing countries.

37. The interdependence of the agricultural and the overall economic growth rates in the majority of the developing countries was noted in the preceding section. It is possible that success in revitalizing economic growth will make it easier for the projected agricultural growth rates of AT 2000 to be achieved or exceeded. The AT 2000 stressed the great difficulties of accelerating agricultural growth in sub-Saharan Africa on a durable basis if overall economic growth were to remain at levels implying virtually no growth in per caput incomes. Yet, this is what is indicated shown by the "likely" scenario projection contained in the Secretary-General's report to the June 1989 Session Committee of the Whole on the IDS referred to above.

38. The same "likely" scenario is very pessimistic also for Latin America and the Caribbean, implying growth in per caput incomes of only 1.0 percent p.a. This is much lower than the one underlying the projections of AT 2000 and of the Regional LARC study. If this "likely" scenario were to materialize, the achievement of the agricultural growth rates would be jeopardized. It is to be hoped that the objective of the revitalization of economic growth, which for this region in particular depends on success in dealing with debt, resource flows and trade issues, will improve the economic prospects for the region to at least the level assumed in the FAO assessment. By and large the economic prospects foreseen for the regions other than Latin America and the Caribbean and for the developed countries are in broad agreement with those underlying the FAO assessment.

39. The link between agriculture and economic growth is also established via the external sector for the many developing countries which depend on agricultural exports for a good part of their export earnings.

Agricultural prospects for the 1990s depend, therefore, also on progress of current efforts towards an improved agricultural trade environment leading to enhanced market access; on the growth of import demand particularly in the main markets for the developing countries' traditional export products; and success in raising export availabilities. The assumption underlying the AT 2000 assessment was that current efforts to contain protection and to move towards a more market-oriented world agricultural trading system would be a slow process so that attenuation of unfavourable trends, rather than radical reversal, could be expected over the medium term. Given, however, the great uncertainties surrounding the prospects for policy reform, a wide range of alternative outcomes is possible. At the same time, import demand for many traditional agricultural exports of the developing countries is expected to rise only slowly, especially in developed country markets (see also paragraphs 57-58 for further discussion of trade issues).

40. In the developed market economies agriculture's prospects are for the growth rate of production to be slower than in the past. This would reflect continuation of low growth in their own demand as well as in external demand following the less rapid expansion of the export markets and the virtual exhaustion of the scope for further import substitution.

41. In the Eastern Europe and the USSR region the prospects for agricultural production and for food trade are particularly uncertain and depend on the outcome of policy reforms undertaken or contemplated in some major countries. The AT 2000 and the FAO Regional Study of Europe considered that this region as a whole would continue to be a net importer of cereals at around present levels, that is the past trend for rapid growth in their cereals deficit may be halted.

42. Concerning population growth in the developing countries, it is to be noted that the latest UN assessment of 1988 is less optimistic than before concerning the rate at which their demographic growth will slow down. It is now foreseen that the growth rate for the 1990s could be 2.0 percent rather than 1.8 percent as assumed in AT 2000. This difference is almost wholly due to the less optimistic prospects for Asia.

2. Poverty Alleviation and Human Resources Development

43. As noted, present indications suggest that both the Special Session and the IDS are likely to address issues related to poverty alleviation and human resources development. The existing FAO assessments provide some elements useful for estimating the prospects for the 1990s. Nutrition, or rather the incidence of undernutrition, is a crucial indicator of developments in these areas. The AT 2000 assessment indicated that the absolute numbers of undernourished would probably not be reduced, though the proportion of the population affected may decline somewhat. Asia would continue to be the region with the highest numbers of undernourished people but the problem would gradually shift towards sub-Saharan Africa. However, the "novel" elements indicated earlier (lower economic growth prospects in Latin America, higher demographic growth in Asia) as well as the uncertainty concerning African agriculture's ability to accelerate the growth rate of production in the face of no growth in per caput incomes, introduce new uncertainties on the pessimistic side of this possible outcome.

44. In the area of rural poverty, the projections of agricultural growth in relation to that of the agricultural labour force provide certain elements for judging the prospects for labour productivity and hence per caput incomes in agriculture and to some extent in the rural sector. AT 2000 estimated roughly that the projected growth of agriculture would require an increase of some 30% in the labour use for the 15 years to 2000. This increase is somewhat above that foreseen for the agricultural labour force in the demographic projections, implying some modest reduction in un- and underemployment and improvement in per caput incomes. However, there are caveats: the higher population growth projected now for Asia and the prospects for very low overall economic growth in both sub-Saharan Africa and Latin America and the Caribbean would probably cause the growth of the agricultural labour force to be higher than anticipated. This would make it more difficult for agricultural labour productivity and incomes to rise. Moreover, the FAO assessments assumed policies that would remove distortions in labour and capital markets so as not to favour undue substitution of labour by machines in agricultural production, a process which was not uncommon in the past in some developing countries and which was at variance with their relative endowments of these factors of production. As it will be discussed in the next chapter, current efforts at economic policy reform seem to be in the right direction for favouring the correction of such market distortions.

45. Prospects for rural poverty alleviation depend, however, crucially on policies for achieving the objectives of the WCARRD Programme of Action (access to productive assets, inputs and services, people's participation, recognition of the role of women, etc.). It is not possible to be very precise as to these prospects; nonetheless elaboration of the required policies will be attempted in the context of the Strategy (next section). To judge from past developments, however, and on the basis of the findings of the latest (1987) progress report on the WCARRD Programme of Action, developments have not been in the right direction, reversals were not uncommon, and the overall economic crisis and the associated policies for structural adjustment have created a hostile environment for progress. In the light of this latter consideration, the future prospects for improvement will depend greatly on the formulation and implementation of very strong and specific policy interventions, including in the context of the IDS.

3. Natural Resources, Environment and Sustainability

46. In the area of natural resources, environment and sustainability, the prospects are that additional pressures will be put on the natural resources of the developing countries which, unless carefully managed, will risk having negative effects. Such management involves promotion of the appropriate mix of intensive and extensive agriculture for achieving sustainable farming systems. The AT 2000 assessment indicates that if current aggregate self-sufficiency levels are to be roughly maintained, some 80 million ha of additional land must be brought under cultivation during 1985 to 2000 in the developing countries (excluding China). This is an increase of just over 10 percent compared with the land in crop production in the mid-1980s. In addition, irrigation would also have to be expanded substantially, from 110 to 165 million ha, while average cropping intensity as well as use of fertilizers and pesticides will also have to increase.

47. With the higher cropping intensity, the increase in the area harvested in an average year will be even larger than the 80 million ha indicated above. High-potential land (good rainfall, naturally flooded and irrigated land) accounts currently for some 60% of total harvested land and the AT 2000 assessment indicates that this proportion will increase in the future because of the greater possibilities offered by this type of land for increasing yields and cropping intensity. This has certain implications for the Strategy in relation to sustainable development, which are discussed later in the relevant section of this document.

48. Without radical changes, the environmental problems in developing countries of deforestation, desertification and degradation of existing cultivated lands are likely to persist. There is a close link between the persistence of poverty and lack of economic opportunities and the processes leading to environmental deterioration. FAO estimates that because of uncontrolled settlements, expansion of agriculture and the need for fuelwood a net deforestation of some 10 million ha a year of tropical forests is taking place. Loss of biological diversity, degradation of soils and increased natural hazards such as flooding follow. The ever-increasing demand for fuelwood together with over-grazing is also causing an accelerating rate of desertification with approximately one-fourth of the earth's land surface now damaged by factors that contribute to desertification. Poor land and water management have led to resource degradation in the form of soil nutrient depletion and erosion, salinization and sodication, acidification and the spread of water-borne diseases. While expanded irrigation is essential for raising crop production, some 20 percent of irrigated areas are water logged or excessively saline or both. This raises serious challenges in any large scale efforts to introduce irrigation schemes and other input-intensive practices which do not meet necessary environmental standards.

49. Developed country environmental issues related to agriculture stem from the intensive farming methods, although some developing countries also have similar problems. Heavy application of fertilizers and intensive stock raising operations have led to soil and water contamination with high levels of nitrates that may pose serious health hazards. Practices such as monoculture have encouraged increased use of pesticides and consequent rising concentrations of pesticide materials in food chains, widespread development of pesticide resistant species of pests and the elimination of natural predators. From the wider social viewpoint, modern farming has tended to detract from the visual variety, amenity and wildlife habitats of farmland. The prospects for the developed countries are that slower growth of output and increased public concern over health effects and environmental quality will contribute to a more environmentally sustainable agriculture.

50. An analysis of future prospects must also take into account the possibility of climate change and its possible impact on agriculture. Although the precise rate and nature is as yet unknown, there is broad agreement by scientists that the world is now undergoing a process of climate change induced by human activities. Global average temperatures may rise by about 1°C by 2010 and possibly by 4.5°C by the year 2050. The temperature increase will not be uniform: changes towards the poles could be more than twice as great and occur faster than the increase in global average values.

51. The likely climatic change over the next decades, due to rising concentrations of "greenhouse gases" in the atmosphere, is expected to first manifest itself by greater climatic variability and incidence of extremes, followed by perceptible warming especially in mid and high latitudes, with attendant changes in rainfall amounts and patterns over the next several decades. Within about 50 years, a gradual sealevel rise of several decimetres is expected, accelerating in the latter part of the 21st century.

52. Concerning the impact on agriculture, forestry and fisheries, climate change will probably have positive and negative effects on agriculture as early as the first or second decade of the 21st Century. Few countries will remain unaffected: many food-deficit countries seem likely to suffer most, but food surplus countries may also be affected. Perhaps the most important aspect of the projected changes is that climate variability will increase. This will result in increased frequencies of extremes such as droughts, floods and very pronounced freezes, as well as high temperatures. Such changes, as well as changes in land potential in low-lying coastal areas, would stress and threaten the well-being of plant and animal life and human populations in many parts of the world.

III. THE STRATEGY FOR THE 1990s: OUTLINE AND TENTATIVE PREVIEW OF CONTENTS

53. The preceding sections on the current situation, outstanding issues and the prospects for the 1990s set the stage for formulating strategy recommendations. In this context, it is recalled that this paper is only an outline and preview of the full Strategy that will be prepared. It therefore does not aim to present a comprehensive, detailed picture. The full Strategy document will be more detailed and will also indicate broad priorities for governments and the international community.

54. As in the discussion of prospects, the three main themes under which most of the issues of concern are likely to be addressed in both the Special Session and the IDS may provide a convenient way of looking at the Food and Agriculture Strategy for the 1990s. It should, however, be noted that these distinctions by major theme (growth, poverty and human condition, environment and sustainability) should in no way subtract from the fact that actions in each of these areas are an integral part of one single strategy for the development of food and agriculture and the rural sector whose different components (including those related to forestry and fisheries) are mutually supporting and reinforcing. Indeed, the strategy for food and agriculture and rural development must be viewed as an integral part of the whole IDS which addresses issues in other sectors as well as the broader ones of macro-economic policies, structural adjustment, international economic relations, debt and finance.

A. Economic Growth and Agriculture

55. In the context of the macro-economic aspects of the IDS, the 1990s are likely to be a period requiring continued efforts towards policy reform aimed at establishing internal and external balance, in both developed and developing countries. For the developing countries in particular, the structural adjustment will need to put greater emphasis on growth-generating aspects by removing constraints and bottlenecks to growth, rather than on short-term stabilization measures only. The stabilization effort will also need to be buttressed by a significant increase in financial assistance over a long enough period.

56. Macro-economic policy reforms will affect the relative profitability of agriculture via their effects on some key variables such as the rate of inflation, the exchange rate and public sector resources. The general thrust of such policy reforms can be expected to promote rather than hinder agricultural growth in the developing countries to the extent that they will lower or remove disincentives to the sector, often manifested in the form of unfavourable real producer prices.

57. In parallel the external conditions will also need to change through policy reforms aimed at improving international economic relations and reducing distortions in agricultural trade. Otherwise the gains from macro-economic policy reforms would be siphoned out for debt servicing in the many countries facing this problem, or lost by way of further declines in the terms of trade. Transfers of resources via losses in terms of trade and factor income payments lower the purchasing power, and hence the demand, for agricultural products, which is often a key constraint to the growth of the sector.

58. In this context, the Strategy would have to address a number of issues in the area of international agricultural trade. Some of these have already been referred to earlier (para 39). These include the following: Firstly, there is the long-term tendency for industrialized countries to generate structural surpluses of temperate-zone commodities under high cost support regimes; the continuing substitution of synthetics for natural agricultural products; and their financial capacity to subsidize exports, to the disadvantage of competing, cost-effective exporters. Secondly, many developing countries find that markets for their traditional agricultural exports are expanding only very slowly; they suffer also from market access barriers on processed tropical products; and find particularly difficult the entry into or expansion of export sectors which would compete directly with the domestic production of the industrialized countries.

59. As already expressed, the outcome of the negotiations under the Uruguay Round of MTNs is currently not known, although the negotiations hold promise for reductions in barriers to trade in agriculture and in tropical products as well as improvement in the overall trading environment in the 1990s. However, even if fully successful, in terms of satisfying the objectives set out for all sectors in the Declaration of Punta del Este, it is unlikely that the negotiations by themselves would bring trade gains with sufficient rapidity to enhance significantly the economic growth prospects of many low-income countries. Many of these countries will need to be better equipped, in terms of infrastructures and institutional capacities, to take advantage of the new market opportunities which could materialize (in both agricultural and non-agricultural sectors). The impediments of these countries are reinforced by the fact that the industrialized countries have a long-established technological and marketing edge in markets for processed tropical commodities. Moreover, a liberalization of the global agricultural trading system is considered likely to raise prices of basic foods above levels which would otherwise prevail, to the disadvantage - at least for some time - of net food-importing developing countries.

60. None of these arguments constitute good reasons for halting the thrust toward agricultural policy reform, least of all by the industrialized countries (whose combined annual cost of agricultural

support policies has been estimated to exceed US\$250 billion in recent years). However, the arguments underline the need to forcefully seek remedial action. Such action includes:

- (a) diversification of agricultural export commodity economies, where economically and environmentally viable, supported by external investment;
- (b) enhancement of export marketing skills, including through joint ventures and international assistance;
- (c) enhancement of competitiveness through research and development, improved and environmentally sound agronomic practices, promotion of demand and development of new end-uses, as envisaged by the Common Fund for Commodities;
- (d) compensation for the possible adverse effects on the balance of payments and food security situation of net food-importing developing countries which may arise as a consequence of the agricultural reform process in the MTNs; and
- (e) encouragement of the opening of access to markets so as to facilitate cooperation in agricultural trade (ECDC) among the developing countries themselves, including the evolution of financial clearing arrangements.

61. In the area of sector-specific policies for agricultural growth the strategy of the "four Is" (Inputs, Incentives, Institutions, Infrastructure) elaborated in the above mentioned global and regional studies, particularly the one on African agriculture, together with the objective of sustainability, should be the mainstay of efforts in agricultural development. The "four Is" are closely interrelated and mutually reinforcing. Policies in these areas must take into account the changing situation in agriculture resulting from mounting population pressure, declining land/labour ratios, the subdivision and dispersion of farm units and the increase in landlessness or near landlessness as well as unequal access to inputs and services. Increasing land scarcity puts an added premium on effective implementation of sound land use plans which combine agriculture, livestock and forestry activities.

62. Concerning inputs, the great majority of the developing countries will have to depend on yield increases to meet the bulk of future demand for food and agricultural products. This in turn means that they will become increasingly dependent on purchased production inputs, notably fertilizer, improved seeds, pesticides, irrigation, agricultural implements and machinery, vaccines, veterinary medicines and feed grains. This will require major investments to establish or expand local or regional production of inputs, and new initiatives by donors and the international community to assist those developing countries whose limited foreign-exchange earnings prevent them importing most of their input needs. In this context, the structural adjustment programmes should pay due attention to the need for governments to continue to encourage modernization of environmentally sustainable agricultural production, including through selective use of input subsidies, as discussed below (paragraph 70).

63. The use of purchased inputs will vary according to the level of agricultural modernization and agro-ecological conditions. The increased use of such inputs reduces dependence on land resources, that is they have an important land-substituting role. This role is most apparent for fertilizer, HYVs and irrigation, but it also exists for herbicides. Irrigation has a similar effect by increasing the productivity of fertilizers and HYVs, and has an even greater effect in some areas because of the double or even triple cropping it makes possible. However, the increased use of inputs also requires more sophisticated management to avoid environmental problems. Therefore, efforts in this area must be accompanied by much greater emphasis on technical training of farmers and extension workers, and development of the necessary institutional structures to ensure the inputs are used properly.

64. The increasing dependence of further production growth on improvements in productivity and the associated use of purchased inputs will require continued efforts in the area of agricultural research and development. The strategic issue is that the search for technological innovations to help farmers in less favourable circumstances and to sustain development in more favoured areas must be based on a thorough understanding of:

- the physical and biological production environments;
- the genetic potential for increased productivity;
- the farming systems.

65. The implications of these basic considerations will vary from country to country, but may include greater emphasis on rain-fed agriculture in the less favourable areas, while remaining alert to the possibilities for irrigation. Greater attention needs to be given to nutrient recycling without discounting the crucial importance of mineral fertilizers. Other facets needing greater attention include traditional patterns of intercropping while not prejudicing the opportunities for mechanization and the use of herbicides. Investigation of the possibilities for integrated and biological control of pests, while exploiting suitable opportunities for the proper use of chemical pesticides, needs further examination. Breeding for stress tolerance, in both crops and livestock, without restricting performance under favourable conditions, should be critically appraised. Greater understanding of the farming systems of the small producer, while not neglecting the problems of large-scale production, is also necessary. Greater attention should be paid to the basic food commodities, while recognizing the place of cash crops in income generation. Greater attention to small ruminants, combined with intensified efforts to resolve the dry season feed-supply and feed-quality problem, is also required.

66. A balanced approach is essential, but the nature of the balance will depend on local circumstances. Broadly, the aims of research and technology development must be to raise productivity in ways that do not aggravate fluctuations in production, or expose farmers to appreciably greater risks, do not reduce the potential of the environment to sustain production indefinitely into the future and that contribute to increased rural incomes. In addition, there are many problems of food-processing, storage and preparation that currently lack suitable solutions and therefore require urgent attention, particularly with respect to the use of fuel for cooking given the increasing scarcity of fuelwood, and the need to expand the production of processed forms of foods from traditional staples.

67. Increased use of inputs and the spread of technical innovations will only be achieved if it is economically attractive to farmers to do so. This is where the close relationship between improved growth rates of agriculture and economic incentives becomes important. It is emphasized, however, that economic incentives alone, in particular price incentives will not work fully unless other enabling conditions are also present or are created by the Strategy (see following paragraphs). The Strategy should recognize that farmers respond positively by increasing output to the incentive of remunerative prices for their produce. The problem of how to ensure remunerative real prices to agriculture is, in the first place, a question of macro-economic policies which determine the extent to which agriculture is favoured or discriminated against vis-a-vis other sectors. The preceding paragraphs 56-57 have already indicated that an overall Strategy seeking better macro-economic balance should favour agriculture by removing disincentives still existing in some developing countries. However, more emphasis on agriculture should not ignore that the development process would require in many developing countries a gradual transfer of resources out of agriculture to other productive endeavours, including agricultural servicing and processing.

68. There are, however, many more dimensions that must be taken into account when considering the place of producer prices in the total array of policies constituting a strategy towards higher production growth. In the first place, the aggregate supply elasticity of agriculture is low enough to rule out the possibility of achieving sustained growth in production by positive pricing inducements alone. Response to price incentives is, however, much higher for individual commodities and this makes price policy a powerful instrument for influencing the commodity composition of output.

69. The incentive effect of price policies is greatly enhanced if such policies include stabilization provisions for evening out excessive price fluctuations. This need is highest in countries where food markets are not properly developed. In such cases, the government must be seen as a reliable buyer and seller of last resort. Policies should provide for administratively strong and well-funded arrangements permanently in place to provide guaranteed floor and ceiling prices for major products, where possible. The floor price should not interfere with the operation of markets except when the market price is abnormally depressed. The ceiling price should be high enough to encourage producers to increase production but low enough to prevent large increases in food prices.

70. Real producer prices are influenced by the prices farmers pay for purchased inputs, particularly in the context of a Strategy seeking to achieve higher production growth by means of wider use of such inputs. Here is where the role of input subsidies must be considered in the context of the Strategy. The general guideline on this issue is that while they are effective if well administered in carefully chosen situations, producer input subsidies should have only a limited application and temporary life. This is particularly important in situations where macro-economic policy reform requires fiscal restraint.

71. Improved price incentives will not exert their full effect in stimulating production growth if other enabling conditions are not present. In particular, increased production depends critically on the adequacy of the whole infrastructure of agriculture. The term is used to refer to both

physical infrastructure as well as to that represented by institutions serving agriculture. Both are relevant for enhancing the productive assets of the sector, for diffusing technology, for ensuring access to inputs and credit and for marketing the output. Major public investments will be needed in such areas as irrigation, research and extension services, marketing and road building. The list of such prerequisites differs among countries and regions but much is common to all. The above highlights the need for the Strategy to pay due attention to the complementarity of price and non-price policies for raising agricultural growth.

72. The Strategy must also address the issues of how to finance the required investments for agricultural growth. AT 2000 estimated the gross investment requirements of the agriculture of the developing countries for the period 1982/84-2000 at some US \$1500 billion at 1980 prices. Policies must be put in place to exploit all possible means of raising the volume and effectiveness of development finance. Savings by rural people, which together with their own-labour activities are the largest source of agricultural investment in developing countries, could be expanded considerably if institutional arrangements were made more available and more effective. Public expenditure on agricultural development complements private investment and, in view of budget stringencies in most developing countries, raising its efficiency will be increasingly important. Again, there appears scope for doing this. The third component of investment, external resource flows, will continue to be of critical importance in expanding overall investment in agriculture. Of immediate concern is the need to ensure that there are no net transfers of financial resources from developing countries. Efforts will be therefore required, in the wider context of policies to deal with problems of external finance and debt. At the same time the momentum in the official development assistance needs to be restored. It is indeed disappointing that the official development assistance has grown very slowly in recent years and its level remains well below the target and requirements.

73. The emphasis on infrastructure and institutions, which are largely areas of government responsibility, raises the question of the role of public sector involvement in economic life. Current policy thinking for development seems to favour a reduced role for the public sector, though its role in promoting such basic aspects of agricultural development as infrastructure investment, education and training, research and extension and the like is universally acknowledged and not questioned. At issue is more the role of the public sector in directly productive activities or those of marketing, processing and distribution. In these matters FAO's position is that the Strategy should favour pragmatism over dogma. In particular, account must be taken of the widely differing national circumstances and experiences concerning public sector capability to be an efficient economic agent relative to the private sector. What must be emphasized in the Strategy is the need for promoting an enhanced role for the private sector, including cooperatives in areas where it has the comparative advantage and for upgrading the efficiency of public administration as well as for removing undue impediments to economic growth.

B. Poverty Alleviation and Human Resources Development

74. The preceding section dealing with policies in support of growth did not specifically refer to poverty and human resources development concerns, a subject which is taken up in the following paragraphs. It is, however, emphasized that these are not separate subjects and policies aiming at raising production and productivity have implications for poverty and indeed are the main instruments for achieving objectives also in this area. Similarly, development of human resources through education and health can make important contributions to increasing production and productivity.

75. The part of the Strategy on the macroeconomic policies required for revitalizing growth and achieving internal and external balance must address issues of poverty, income distribution, human resources and generally the social dimensions of development. There is now a considerable amount of literature on these topics which grew out of the mounting concern that the economic crisis which hit many developing countries and the policies used to cope with it, in particular those aimed at structural adjustment are having a serious adverse impact on poverty and its associated dimensions of nutrition, health, and education. The main links are seen as working via the restrictions imposed on money supply (which restricts demand, employment and incomes), devaluation (which raises prices of imported goods, including essential ones like food, medicines and production inputs) and fiscal restraint (which cuts expenditures on services of health, education, food subsidies). Though unavoidable, such policies are in great need of fine tuning, concerning both their formulation and pace of implementation, in order to minimize their adverse effects on poverty.

76. It is increasingly recognized that unless more attention is paid to these aspects, the pursuit of internal and external balance may be achieved at the cost of undermining the prospects for resumed growth and development because of their adverse effects on the very base of development, which is the health and quality of human resources. Such concerns have found expression in the intensified efforts of the institutions responsible for policy advice (including FAO) and for supporting macro-economic adjustment programmes to better analyse and understand the process by which such adverse effects are generated.

77. The incidence of such policies on income distribution, poverty, the environment, and human resources in agriculture and the rural sector, as well as on nutrition everywhere, would be of particular concern to FAO Strategy. In this respect, the general policy guidelines can be as follows:

- (a) While recognizing the need for structural adjustment programmes, there is a need to improve the sequencing of adjustment policies particularly in countries lacking physical infrastructure, adequate marketing and financial systems and government services. These factors limit the ability of countries to implement schemes that could mitigate the effects of adjustment on poor and food insecure population groups.

- (b) Within the context of cuts in government spending, the maintenance and build up of necessary infrastructure need to be protected to the maximum extent possible. Government investment, specially in infrastructure development, agricultural research, sanitation, water supply, health and education are the prerequisites for longer term growth for both the urban and the rural poor.
- (c) Concern about securing an enhanced role of women to be both contributors and beneficiaries of development, should not focus simply on alleviating the possible negative effects of adjustment. They should rather be trained in the sectors promoted by adjustment programmes, which if such programmes are effective would put women in the mainstream of development.

78. As noted, the policies for promoting production growth should also be instruments to achieve objectives in the area of nutrition, poverty alleviation and income distribution with their many ramifications in the area of human development, encompassing such aspects as the role of women, people's participation and human rights. The two sets of objectives are often mutually supporting and complementary. But where trade-offs are known to exist, these should be clearly recognized and policies should be formulated accordingly, i.e. with full cognizance that gains in one area may be achieved at the cost of losses in another area.

79. It will be often found that trade-offs regarding human development are not manifested solely, and perhaps not even predominantly, in the simple manner of growth versus equity, but rather within the equity area itself, with the choices often presenting themselves in the form of favouring one social or population sector vis-à-vis another. A typical example is the case when increases in food production needed to enhance food supplies to the urban poor can only be achieved quickly by stimulating production in the most promising areas even though this may imply very limited benefits for the small and disadvantaged farmers, the landless and generally the rural poor.

80. The intertemporal dimension of trade-offs must also be taken into account, e.g. today's gains may imply a lower total cumulative gain over a period of years. This intertemporal dimension is particularly important in a Strategy which seeks to achieve quick gains in alleviating poverty and at the same time requires that such gains be durable in the context of sustainable development. It is also particularly important in the context of the 1990s when many countries will be going through a structural adjustment process, with the expectation that present sacrifices will be compensated by future gains from resumed growth. It is a subject also likely to be faced by those developed Centrally Planned Economies (CPEs) which seek to shift from a long tradition of central planning to one in which market forces are assigned a greater role. The foremost area in which this intertemporal trade-off may be manifested in these countries is that of price reform aimed at a reduction of food subsidies.

81. Coming to the more specific question of the Strategy approach for combining objectives of agricultural growth and rural poverty alleviation, account must be taken of the prevailing conditions in agriculture and the

rural sector. The more such conditions are adverse to the poor (e.g. highly unequal distribution of productive assets and access to services) the more difficult it will be to combine such objectives. In the concrete case of price policies used to enhance incentives to producers, an unequal distribution of land will tend to benefit large farmers more than small ones. In this case, the policy guideline should be that in order to mitigate these adverse effects on distribution, all farmers with a marketable surplus, even if small, need assured access to marketing systems through which price measures are applied; products important in the output of small farmers and not only those of which large farmers are the suppliers should be included in price support schemes to the fullest extent possible; and small farmers and landless labourers must be able to participate adequately in services provided to the sector, such as institutional credit, transport networks or extension services, which facilitate an increase in their productivity and marketable production.

82. The other major dilemma to be faced in the area of price policies is how to reconcile the need for remunerative prices to the producers without unduly raising the food prices paid by the poor consumers, many of whom are also rural poor and net purchasers of food. In this connection it is to be observed that improved producer incentives, including through higher prices, are meant to promote agricultural productivity which should eventually help to lower the real price of food, as evidenced by long-term declines in food prices. The intertemporal dimensions of trade-offs are also present here. Governments have traditionally responded to this dilemma through policies of food subsidies. Some developing countries and developed CPEs have had a particularly strong preference for this solution which, however, is becoming increasingly difficult to pursue in a climate of fiscal restraint. Urbanization and the spread of rural landlessness with the associated increase in the share of total population not producing their own food, make things more difficult by increasing the total fiscal burden of food subsidies.

83. The Strategy recommendations must also consider the policy instrument of food subsidies, because, especially in times of fiscal restraint, significant food price increases have devastating effects on the incomes, the health and the physical and intellectual integrity of the vulnerable population groups in countries in which a significant part of the incomes of the poor is spent on food. In such cases their very survival is at stake and the development potential of the country is seriously jeopardized. The key question is how to formulate and implement subsidy policies in cost-effective ways.

84. The most appropriate approach is to target the beneficiaries by various criteria, such as subsidizing products consumed mainly by the poor or locating urban distribution centres in poor neighbourhoods only and extending distribution centres to rural areas also, rationing subsidized quantities and providing benefits through food-for-work schemes. The administrative requirements of such an approach are, however, very demanding. A firm ceiling must be imposed in advance on the cost of the scheme to the budget. A complementary approach is to operate welfare food distribution schemes to assist the poorest of consumers in rural as well as urban areas so that, without incurring fiscal burdens which are not viable in the long run, producer prices of food commodities need not be held down artificially in order to benefit such vulnerable population groups.

85. The realization that severe undernutrition and its underlying causes are likely to persist for some time to come puts added emphasis on the need for efficient direct intervention programmes in the area of nutrition to be an integral part of the Strategy. In addition to approaches mentioned in the preceding paragraphs, experience shows that such interventions are the most direct way of meeting the needs of those bypassed by accelerated agricultural and economic development. They should include measures for improvement of the nutritional quality of food (food fortification, mixtures) and increasing food resources at the household level (traditional food plants, home gardens, nutrition education), education on food preservation, preparation, distribution and consumption at home (nutrition education) and protection of vulnerable groups (special feeding programmes, nutrition rehabilitation and distribution of specific supplements). A Strategy for improving nutrition should also recognize and promote the important supplementary and emergency roles in diets of wild food including bushmeat from forests and other lands covered with natural vegetation.

86. External assistance in the more specific area of nutrition will continue to be needed in the 1990s and beyond. In particular, emergency food aid, on a more predictable basis, must continue to provide a buffer for cushioning the effects on nutrition of sudden shortfalls in food supplies caused by climatic factors and of man-made disasters. Other types of food aid must progressively be integrated with the development plans of recipient countries and meet the need for poverty alleviation in the context of structural adjustment programmes. Other externally supported interventions in the nutrition area, which should find wider adoption in the Strategy, include the World Bank-assisted applied nutrition projects and the joint nutrition support programmes funded by the countries and operated jointly by FAO and WHO.

87. The strategy for safeguarding nutrition standards must place due emphasis on enhancing the capabilities of governments to cope managerially with unexpected and abnormal food emergency situations. Central to these needs are the establishment and strengthening of early warning systems, particularly at national level, and the development of capacity to react promptly to emerging food shortage situations, including the development of practical preparedness arrangements.

88. While direct interventions will continue to play an important role in combating undernutrition, the problem will not be resolved until the fundamental causes of poverty are overcome. The FAO Strategy will need to be concerned primarily with policy responses to the problem of rural poverty, but its direct links to urban poverty must be underlined. In some cases it could be more efficient to attack rural poverty by creating employment opportunities in the non-agricultural sector, particularly in the rural areas, so that excess labour can be siphoned out of agriculture. Given the unfavourable initial conditions of low growth, widespread urban poverty and urbanization, which is already too rapid for urban structures to absorb, the most promising avenue will most often involve emphasis on broad based agricultural and rural development. Examples of activities generating off-farm employment and income in rural areas include small scale enterprises which process agricultural and forest and tree products as well as secondary livestock enterprises. These can be very significant sources of rural employment, particularly for the poor and for women.

89. In this respect, the WCARRD Programme of Action provides the policy guidelines which are still valid 10 years after its adoption and will continue to apply for the 1990s. Indeed the same principles were reaffirmed in the 1983 revision of the FAO guidelines and targets for IAA. The relevant guidelines nos. 3 and 4 are reproduced in the next two paragraphs since they contain all the essential recommendations for a Strategy which seeks to combine growth with poverty alleviation and equity.

90. Guideline 3: "Developing countries should give priority in accordance with their national plans to the adaptation of institutional frameworks and farming structures which would allow wider and more equitable access by the vast majority of rural masses, including the landless peasants and small farmers, to:

- land, water and other natural resources;
- inputs, markets and services;
- new and improved technology;
- education, extension, research and training;

and to provide appropriate price policy and other incentives for expanded production and optimum use of inputs of available and suitable technology."

91. Guideline 4: "National policies for agricultural and rural development should encourage full and effective participation of rural people in decision-making, implementation and evaluation of the process of agrarian reform and rural development through promotion of rural organizations, including rural workers' associations and cooperatives, and through strengthening of local government. Especially in those countries where female status is not recognized as equal to that of men, full integration of women in rural development on an equal basis should be encouraged by:

- ensuring equality of legal status and greater access to rural services;
- promoting women's organizations as a first step for the integration of women in overall rural organizations;
- promoting educational, training and employment opportunities.

Governments should consider priority action to mobilize the energies of youth for a variety of developmental activities."

92. Both the WCARRD Action Programme and the IAA Guidelines give prominence to the need for policies to promote the integration of women in development. The relevant issues, objectives and policy recommendations were further refined and the need for action was given new impetus following the preparation and adoption by the FAO Council in 1988 of the "FAO Plan of Action for Integration of Women in Development". This plan of action and experience gained in the initial stages of its implementation will be drawn upon in preparing the full Strategy document and the related contributions of FAO to the Special Session and the IDS.

C. Natural Resources, Environment and Sustainability

93. Activities of both the developed and the developing countries in agriculture, forestry and fisheries have consequences for the environment and sustainable development. However, the focus of this part of the

Strategy is on the developing countries, though many of the recommendations regarding principally the technical aspects of sustainability will be applicable also for responding to problems encountered in developed countries. Fully articulated strategies must, of course, be tailored to specific country situations. This section focuses on the general approach to be followed and indicates what should be the major elements of the strategies for each of the resource types.

94. Two particular facts should be underlined in the context of the overall Strategy. First, in many instances strategies to achieve sustainable agricultural, forestry and fisheries production systems, and combinations of them, will fail unless they are complemented by policies to slow down population growth and boost alternative forms of employment. Appropriate technologies do not exist to sustain the present and projected population forecasted for many resource-poor areas, and even some resource-rich areas are reaching their maximum output. Secondly, in many instances it is the immediate survival needs of the small, low income farmers or pastoralists and other members of the rural poor which, in the absence of alternative means of livelihood and of appropriate government policies, contribute to much of today's unsustainable natural resource use in the developing countries.

95. The overall strategy should therefore be built around considerations of human needs, poverty alleviation and incentives to achieve sustainable development. The objective is to create an economic environment in which it is more profitable to conserve resources than destroy them. Soil and water conservation measures, for example, should, where possible, be designed to show an economic return to the farmer in the year of application, because otherwise they are unlikely to be widely adopted. Similarly, habitat conservation and game cropping for tourism should be seen as a socially and economically profitable alternative to forest and savannah destruction.

96. Much of the discussion of sustainable development has centred on marginal areas with low production potential where environmental degradation and rural poverty tend to be most severe - rainfed semi-arid areas and areas of unreliable rainfall, steep slopes and upland tropics. This is understandable, since such areas tend to be the ones where the poorest of the poor must eke out their meagre livings. Furthermore, degradation of marginal lands may cause damage to more productive neighbouring areas, e.g. after deforestation of watersheds. The policy options to be considered must include giving equal or relatively greater attention to the high-potential areas so that they can take some of the pressure off the marginal areas, and reduce the losses of forest and rangeland to arable farming. These areas account for the bulk of food and agricultural production and support a far greater population; consequently, when they are environmentally degraded, the loss of output is substantially greater. In adopting this low and high potential typology, FAO is not suggesting that there is a rigid distinction between the two resource types, but is proposing that, from both a strategic and an operational point of view, there are important differences in their respective needs.

97. It is clear from the above that, for most developing countries, the alleviation of rural poverty and food insecurity will depend mainly on establishing sustainable production systems in the high potential areas of

forest, arable and rangeland. This does not mean, of course, that the low resource areas should be neglected since to do so would condemn the poorest to becoming even poorer, and could force them to over-exploit natural resources just to survive.

98. There are lessons to be learnt in this respect from the developed countries. The first agricultural revolution of 18th Century Europe, based on improved crop rotations and the greater integration of crop and livestock production, allowed marginal land in these countries to be taken out of arable cultivation and used instead for livestock grazing or forestry. Similarly, the second, science-based agricultural revolution of the 20th Century allowed off-farm inputs, particularly mineral fertilizers, to substitute further for marginal land.

99. Four other factors need to be considered in formulating a balanced strategy between the low and high potential lands. The first is the promotion of rural infrastructure, industries and services. In the past, urbanization has helped to reduce pressures on the land, but urbanization creates other social problems, and in many developing countries is now proceeding too rapidly. It does, however, provide an alternative to eking out a living on low resource land, which would lead to its eventual degradation. Rural off-farm employment, focused on smaller towns rather than big cities, can have similar benefits without putting such great strains on urban institutions and infrastructure. Broad based rural development therefore should be an important component of the Strategy.

100. The second factor to be considered is the possibility of expanding the utilizable area of high potential land by ecologically sound methods of controlling infectious diseases of humans and livestock (onchocerciasis and trypanosomiasis, respectively). The third factor is the potential for improving both productivity and equity through land reform with economically viable units and supporting services. Particularly in Latin America, but also in other developing regions, large areas of high potential land could be allocated to the landless and near-landless through reform of property rights. In the artisanal fisheries sector, attention is increasingly being given to the award of property rights to inshore fishing communities; these often reflect traditional customs which have demonstrated the value of allocating to specific groups of fishermen exclusive fishing rights in defined areas with the attendant incentive of maintaining sustained production through self-regulation and control.

101. The final factor is technical knowledge. Our knowledge on improving production on marginal lands is still inadequate, though promising research opportunities exist. Most so-called improved technologies tend to expose farmers to greater uncertainty regarding net returns to labour inputs and so have met with only limited success. In high potential areas, however, given improvements in price and non-price incentives for increased production for the market, there are a number of under-utilized technologies. Research must be intensified, however, to ensure a continuous flow of additional technologies for the future.

102. In developing sustainable production systems, the particular needs of five resource types must be given priority while emphasizing the need for integration:

- (a) marginal, "low-potential" areas, where inadequate or unreliable rainfall, adverse soil conditions or topography, limit output and increase the risk of chronic land degradation;
- (b) "High-potential" areas, which, given sound land management practices, can sustain intensive production of crops and livestock at high and rising levels of productivity;
- (c) forests and agro-forest or sylvo-pastoral systems;
- (d) coastal and inland fisheries;
- (e) biological diversity and genetic resources, concerning each of the above resources.

103. In the low potential areas, conditions do not favour accelerated agricultural development. Even to support existing populations often will require far greater efforts to conserve soil and water resources than presently are being made. Nevertheless, many environmentally "marginal" areas such as drylands and highlands are preferred areas for people and livestock to live because they have healthier climates. In some cases, they support landless people and their livestock, migrating from overcrowded high potential land. In some areas, the battle to restore degraded land has already been lost. In other areas, reversing the process of land degradation will prove slow, costly, and difficult to achieve. Especially in many semi-arid areas, "sustainable development" will require migration to reduce the population on the land, conserve resources and supplement incomes. It follows, therefore, that:

- agricultural development must seek to strike a balance between conservation and the short-term necessities of farming families;
- agricultural technology in such areas needs to be designed to accommodate precarious environmental conditions, not solely to maximize crop yields;
- economic policy changes will usually be needed to change the market signals that poor people receive.

104. The key to sustainable development in impoverished resource areas is better management of farm production systems to minimize risks and to enable the farm household to withstand shocks and stress to the farm system. Sustainable natural resource management thus rests on three essential pillars:

- community management of local projects;
- sound land-use planning, including the integration of forests and wooded areas; and
- the development of improved farming systems that reverse the loss of soil productivity, recognizing that erosion and "soil loss" are symptoms and not causes of the problems.

105. The following elements of a strategy are essential to promoting development and conservation at the farm and community level in the low potential areas:

- (a) the perception of the environment as fundamental to present and future livelihoods;
- (b) more efficient technologies to economize on fuelwood, to collect water, to prepare food and to improve post-harvest storage in order to alleviate the pressure of growing populations on the environment and to enable women to devote more time to productive and income-earning activities;
- (c) wherever possible, farm-grown inputs which make little demand on household finances should be substituted for purchased inputs - integrated pest management, biological nitrogen fixation, organic waste recycling and composting, and biogas production are examples of such inputs;
- (d) non-farm income opportunities to promote, not undermine, sustainable farming systems. Governments and donors must be careful that efforts at income supplementation do not discourage sustainable practices;
- (e) if common access to resources such as grazing lands leads to increased degradation of the resource, usually because the local institutions controlling access are breaking down, alternative institutional arrangements must be put in place;
- (f) government policies should try to fill those gaps in the food system that are of critical importance to poor people in low resource areas: post-harvest technology to avoid food losses, agro-forestry, decentralized marketing, better biomass utilization, alternative sources of income generation. This will require the development and dissemination of improved agricultural technology;
- (g) emphasis by policy-makers of the integration of food, fodder and fuelwood systems. It is an error to see agricultural systems and forestry as isolated from each other: poor households must be encouraged to manage farm and forestry resources in an integrated way. The need for such integration exists also in coastal communities whose inhabitants, because of the seasonality of many fisheries, engage, according to season, in fisheries, farming and other rural occupations.
- (h) better environmental monitoring (e.g. satellite imagery and other remote sensing) to improve planning and assessments of the population-supporting capacities of land and water resources.

106. High potential areas commonly require many of the foregoing measures but they can generally sustain intensive crop production using existing technologies as long as care is taken not to exceed the soil's regenerative capacity. Unfortunately many of the development projects undertaken in these resource rich areas have not been environmentally sound. Priority must be given to sustaining the land's productive capacity while reducing its vulnerability to environmental hazards, many of which result from technological "progress" in agricultural production. Sustainable development of high potential areas must also be coordinated with the ecologically sound development of geographically contiguous zones, such as watershed forests.

107. High-input, high-productivity farming systems are dependent on a steady supply of relatively expensive inputs: mineral fertilizers, fuel and pesticides. They can carry unsustainable environmental costs, so some changes are required to ensure that the advances in production are maintainable in the foreseeable future. Particular attention must be paid to the structure of soils under heavy cropping regimes, and to the soil nutrient balance. Sustainability and equity would both be served by a shift where feasible to lower external input, mixed farming systems which poor farmers could afford. But such a shift would have to be made gradually and carefully lest food production drop during the transition period.

108. Means of minimizing or preventing environmental damage arising from such intensive cultivation include: balanced fertilizer application to compensate for the increased yields and the greater soil nutrient removals; the introduction of new disease- and drought-resistant genetic materials; and integrated pest management - a combination of cultural practices and biological and chemical controls that keeps to a minimum the need for and use of chemical pesticides, taking also into account their potential deleterious impact upon water bodies and fish resources.

109. The following environmental threats need to be addressed with urgency in the irrigated zones:

- (a) the salinity, sodicity and waterlogging of irrigated land, as well as the widespread incidence of malaria, schistosomiasis and other waterborne diseases;
- (b) the dangers deriving from mono-culture agriculture, under large-scale irrigation, which increase susceptibility to plant diseases and pests. Environmental and health problems are likely to become more severe from a possible doubling of pesticide use by the end of the century; and
- (c) increasing over-exploitation of groundwater resources in areas where alternative sources of irrigation are lacking.

110. Solutions exist to minimize these threats: mixed cropping and genetic diversification can reduce the risks that attend reliance on mono-cultures, while monitoring groundwater resource and regulating access to and the take off of water can prevent devastating shortages of water. Operational improvements will have to focus more on increased water use efficiency and better on-farm water management, two vital sustainable components for irrigated areas. In general, better management of natural resources in irrigated regions will require more integration between irrigation management and national resource planning, particularly the links between lowland and upland water catchment areas. Integrated water management needs to be extended outwards from areas with groundwater problems, while forest and soil conservation efforts in adjacent areas must ensure sufficient water supplies for the high potential areas. The importance of these water considerations is emphasized by the fact that for many countries irrigation is the only way of attaining sustainable increases for future populations.

111. In conclusion, in a Strategy for the high potential areas, the following points can be considered:

- (a) for the foreseeable future, relatively intensive use of purchased inputs such as fertilizers and pesticides;
- (b) simultaneously, the development of environmentally safer, lower-input integrated farming systems;
- (c) closer integration is needed between the management of high potential areas and that of the land, water and forestry resources of contiguous areas;
- (d) reform of land tenure and property rights to secure access to high potential land by poor farmers, including households headed by women;
- (e) improved water management to economize on water use, to reduce land loss caused by waterlogging, salinity and sodicity, and to facilitate the safe use of marginal and waste water for irrigation.

112. A strategy for forested areas. Striking the right balance between development and environmental protection is necessary if forests in the developing world are to continue to play their essential economic and environmental role. The following techniques and approaches are essential in a strategy to find this balance:

- Watershed management is necessary to guarantee food production in high-potential areas. Links need to be maintained between forestry and food production through an integrated approach to watershed management. Incentives must be provided to rehabilitate degraded watersheds.
- Agroforestry - which integrates trees with crop and livestock production systems - is a most promising way to link food production, especially in low potential areas, with improved forest management.
- Multipurpose forest management which involves production of timber, non-wood forest products, fuelwood, fodder and fibre, wildlife management and provision of services: water quality, shelter, control of air pollution, protection of soil, recreation and protection of natural heritage and genetic resources.
- Monitoring and evaluation systems, including adequate base line surveys, geographic information systems, application of environmental impact assessment and assessment of local community's benefits and involvement.
- Protection of genetic resources is fundamental to any forest strategy. The establishment in 1987 of the International Fund on Plant Genetic Resources was an important step towards ensuring that the genetic resources of the tropical forests are conserved and wisely utilized. Field projects are being designed to help countries establish and make use of gene bank facilities. Ex situ conservation in gene banks or live collections must be complemented by in situ conservation. Countries must be given help to establish pilot areas where genetic conservation can be combined with

sustainable utilization. They also need help to conserve animal genetic resources. Finally, advances in biotechnology related to plant and animal genetics must be applied in breeding programmes in different ecological conditions.

113. The Tropical Forestry Action Plan (TFAP). Seeking to find the right balance between development and environmental protection, this plan, which dates from mid-1985, represents the first serious international effort to confront the problem of saving the tropical forests in an integrated way. The Plan, supported by FAO, the World Bank, UNDP and the World Resources Institute, has the following main objectives:

- to restore productive capacity of forested land;
- to develop the sustainable use of forest resources;
- to improve food security through better land use;
- to increase the supply of fuelwood;
- to increase income from the sale of locally manufactured products in forested areas;
- to increase local participation in forestry and forest-based industries; and
- to conserve natural ecosystems and genetic resources in the forests.

114. The five Action Programmes of the TFAP contain the essential elements for an operational strategy. The inter-disciplinary and interactive approach of the TFAP and the way it helps, through a dialogue between technical experts, donors, policy-makers and the forest rural people themselves, to establish priorities and projects and the means to finance them, could provide a model for the sustainable development of natural resources in general. Since its inception, 61 countries have begun the process of formulating national forestry action plans arising from the adoption of the TFAP, which has been completed for 20 of them.

115. Marine and Inland Fisheries. In order to satisfy the growing demands on the fisheries sector, particularly for human consumption, the sustained development of the fisheries sector must depend not so much on the exploitation of species hitherto neglected (because of market preferences or extraction costs) but rather on concerted efforts on a number of fronts.

116. First, further improvements in utilization practices could make a significant contribution to increasing the supply of fish. Three main areas merit priority attention: rescuing discards from trawling operations for preferred species, reduction of post-harvest losses through better landing, storage and marketing facilities, and the wider use of small pelagic species for human food products.

117. Second, there remains considerable potential for continued growth in the contribution of aquaculture to food supplies. Major gains may here be obtained from the culture of fin-fish species through extensive aquaculture systems, fishery enhancement in reservoirs, lakes and even in the open seas. Greater support to artisanal aquaculturists could make a significant nutritional and social impact in rural areas of low-income countries.

118. Finally, high priority must be maintained to the better management of the world's fish resources. Management is indeed the key to the sound, sustained development of fisheries. Extension of national jurisdiction

over fisheries, whilst a precondition for rational management, does not of itself ensure the more efficient conservation and use of the fish stocks. The enactment of national sovereignty must be reinforced with the legal and operational institutions necessary to design and implement conservation and management schemes.

119. The 1984 FAO World Conference on Fisheries Management and Development endorsed a strategy for fisheries management and development. Five years later, this strategy and its associated principles and guidelines, remain valid to guide the sustainable development of global fishery resources. The strategy covers eight major elements. While these are interlinked, two are of particular relevance to the issues of sustainable development:

- principles and practices for the rational management and optimum use of fish resources;
- the special role and needs of small-scale fisheries and rural fishing and fish farming communities.

The strategy also underlines the importance of further efforts to develop aquaculture and calls for increased emphasis upon environmental considerations.

120. Strategy for Biological Diversity and Genetic Resources. The maintenance of biological diversity is a precondition for sustainable development. Conversely, sustainable development is, in many respects, the key to the maintenance of biological diversity. Hungry people may have no alternative but to convert ecologically unique habitats into arable land. Thus, the effective implementation of conventions to conserve wetlands, for example, is dependent on the success of FAO and others in helping such people to raise the productivity of existing arable land, thereby taking the pressure off these unique habitats. The strategy in this area is built around two primary objectives. First, the conservation of sufficient inter- and intra-specific diversity to ensure that mankind has the genetic resources to respond to both specific problems such as new pests and diseases; and to general and potential problems such as deterioration in growing conditions as a result of climate and other environmental changes. Second, promoting the utilization of appropriate genetic resources and biodiversity, and raising the economic and social importance of natural resources in specific ecosystems for agro-forestry, livestock or fisheries breeding, for example, and of biodiversity through game cropping in natural savannah areas.

121. The Strategy must also make allowance for the required response to the effects of climatic change outlined earlier (paras. 50-52). While major parts of these effects are expected in later decades, the increased climatic variability, already in the 1990s, will require a greater buffer capacity in food supplies than has been considered necessary in the past, both at national and international levels. In later decades, adjustments of rainfed cropping patterns, extension or modification of irrigation systems, or changes between major land uses (e.g. arable use vs. grazing or forestry) may be necessary.

122. The overall Strategy must aim at achieving sustainable agriculture by promoting meaningful changes in the ways the rural poor live, increasing their income-earning capacity, and helping them to withstand shocks and

stresses that can disrupt their life support systems. At the same time, it is necessary to devise policies at local, national and international levels which will encourage actions at the household level for attaining sustainable agricultural development. It must also be recognized that sustainable agricultural development requires investment which developing countries, and especially their poor, cannot afford. This means more than just increased and improved foreign aid. It also means the easing of debt burdens of developing countries and improvements in their terms of trade.

D. Conclusions

123. The preceding discussion focused on the broad priorities of the Strategy. The more detailed formulation of the recommended policies will be the subject of further work for the preparation of the full Strategy document to be presented at the Ninety-eighth Session of the Council in November 1990, taking into account the results of the Conference discussion of the present document. The main considerations emerging from the present preview on which the Conference may wish to provide guidance for further elaboration of the Strategy may be summarized as follows:

- (a) Food and agriculture (including forestry and fisheries) and the rural sector have a vital role to play in achieving the objectives of an international development strategy in many of its aspects: growth, poverty alleviation, human resources development, and environment and sustainability.
- (b) The Strategy for the food and agriculture sector will need to be built around considerations of human needs, growth, poverty alleviation, production incentives and sustainability.
- (c) The synergistic nature of actions in all these areas must be emphasized. They are all parts of a single Strategy for the development of food and agriculture and the rural sector whose different components should be mutually supportive and reinforcing. At the same time, the existence of trade-offs, both among objectives and inter-temporally, must be recognized.
- (d) Mutually supporting elements as well as trade-offs must be recognized in the Strategy proposals also for the different sub-sectors; for example, agroforestry emphasizes the symbiotic elements in food production and forestry, suitable in particular natural and socio-economic environments. In other cases conflicts may exist and must be recognized, e.g. the competition for land between forestry and agriculture and, in some cases, between the latter and aquaculture. Given the above considerations, an integrated approach to the development of these sub-sectors is needed in order to take into account these relations and particular characteristics and potentials of each sub-sector.
- (e) The Strategy must also recognize the need for identifying different priority action areas for various geographic regions, and for countries at different levels of economic development and with different resource situations and potentials.

- (f) Success of national actions to implement the Strategy recommendations will crucially depend on supportive policies at the international level in the areas of trade, resource flows, debt and technical assistance.
- (g) In the 1990s, issues of sustainable development and structural adjustment and stabilization will continue to loom large in the policy scene, at both national and international levels. These issues will continue to condition the policies of many countries in the sector of food and agriculture and rural development in the 1990s. FAO should be prepared to respond to this challenge.