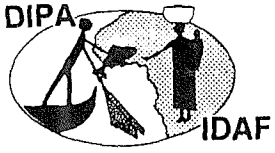
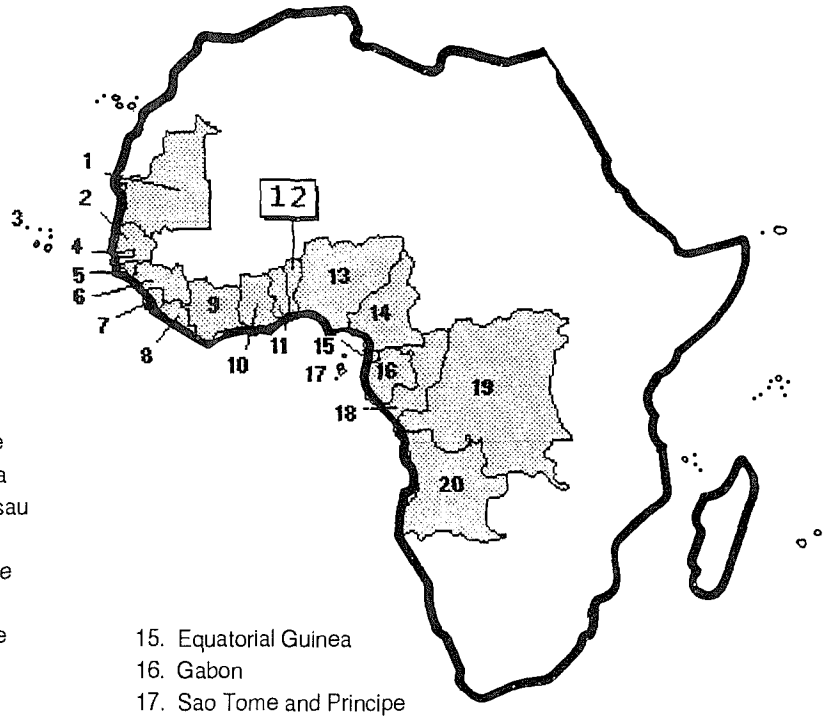


PROGRAMME FOR INTEGRATED DEVELOPMENT OF ARTISANAL FISHERIES IN WEST AFRICA

IDAF PROGRAMME

Technical Report N° 63 November 1994

Population and Development in Fishing Communities: The Challenge Ahead



1. *Mauritania*
2. Senegal
3. Cape Verde
4. The Gambia
5. Guinea Bissau
6. Guinea
7. Sierra Leone
8. Liberia
9. Côte d'Ivoire
10. Ghana
11. Togo
12. **Benin**
13. Nigeria
14. Cameroon
15. Equatorial Guinea
16. Gabon
17. Sao Tome and Principe
18. Congo
19. Zaire
20. Angola

DANIDA DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Technical Report N° 63 November 1994

Population and Development in Fishing Communities: The Challenge Ahead

by

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IDAF Community Development Officer

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Cotonou, November 1994

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EXECUTIVE SUMMARY

The populations in all IDAF countries grew substantially during the last three decades, thereby hampering overall economic growth. Despite remarkable increases in agricultural production including fish, food supply could not keep pace with population growth. The population of the region will continue to grow fast in the years to come and is - based on its current average annual growth rate of 3% - expected to double in about 25 years.

The implications of further population growth for the artisanal fisheries sector, which plays a crucial role within the region as a provider of employment and animal protein, are threefold: (i) the increasing number of (young) people entering the labour force market challenges the labour absorbing capacity of the sector; (ii) increased fishing effort is putting pressure on limited resources; and (iii) the increasing demand for (cheap) animal protein challenges the potential of the fishery resource.

Any efforts to develop appropriate strategies for a sustainable exploitation of the fishery resources harmonized with the increasing demands for employment, income and food of a growing population have to be based on the active participation of the fisherfolk themselves. Consequently, the design of such strategies requires a better knowledge of the perceptions of fisherfolk on population-development interrelationships, their view on the sustainability of artisanal fisheries and its role in providing the livelihood for their children in the future.

In this context, IDAF undertook three case studies during 1992-93, one each in The Gambia, Ghana and Nigeria with the following objectives:

- to appraise the level of awareness amongst fisherfolk in the target communities on the interrelationships between population, resources, and the socio-economic environment;

- to assess the population and development concerns and advise on (i) potential fishery-oriented interventions; and (ii) potential population-oriented interventions.

Based on their own past experience or even that of several generations, fisherfolk generally consider fishing and related activities as good occupations providing adequate employment, income and food. The introduction of improved fishing technology during the last decades pushed the sector substantially in terms of production. During the past few years, however, fisherfolk in all communities investigated observe declining catches, while at the same time the general cost of living are felt to have increased. The majority of fisherfolk people is taking the richness of the fishery resource as granted, and consequently they make mainly the lack of fishing inputs due to unavailability or high prices responsible for the prevailing lower catches. Some fisherfolk are, however, concerned about the increasing number of fishermen exploiting the given resources and link this directly to declining catches. They are apparently aware of the limited nature of the fishery resource and, hence, the need for conservation efforts.

One overwhelming finding of the studies is the importance given to formal education for fisherfolk children in all target communities. Education is carrying two main purposes,

namely to open up alternative employment opportunities outside the fishery sector, and to enable future fishermen to efficiently use modern fishing technology in order to achieve better profits.

Approaches to balance future developments in the artisanal fisheries sector with the increasing population pressure may be found by looking at the two sides of the coin: (i) fishery-oriented interventions to manage artisanal fisheries in such a way to meet the requirements for employment and food of the growing populations; and (ii) population-oriented interventions to curb down population growth.

Fishery-oriented interventions should be community-based, involving fisherfolk in all steps from identifying the problems to the development and implementation of potential solutions. They should focus on (a) assessments of the fishery potential at local levels in order to determine respective labour absorbing capacities; (b) access rights to limit uncontrolled fishing; (c) fishing regulations to control fishing techniques; (d) education and extension for fisherfolk on the efficient use of modern fishing technology; (e) reducing post-harvest losses in order to guarantee as much of the production as possible to be available for human consumption; and (f) to increase the utilization of by-catch for human consumption.

Population-oriented interventions should focus on (a) improved access to health services, where needed by "mobile health teams"; (b) improved access to family-planning methods including proper counselling; and (c) Population Information, Education and Communication (IEC) on population-development interrelationships and all factors involved as well as situation specific solutions.

The empowerment of women plays a vital role in the socio-economic and demographic development process. Therefore, the economic and social status of women in fishing communities should be enhanced in order to put women in a position to jointly decide with their husband about the number and spacing of children they want to have.

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GLOSSARY OF DEMOGRAPHIC TERMS

Birth control	conscious attempt to control the number and/or timing of births
Birth spacing	an attempt consciously to plan the time at which births occur, i.e. the time span between two consecutive births
Child mortality rate	the number of deaths among children under five years of age per 1000 live births in the same year
Contraception	the prevention of conception
Contraceptive prevalence	the extent of contraceptive practice among the population at risk of conception
Crude birth rate (CBR)	number of live births per 1000 total population in a given year
Crude death rate (CDR)	number of death per 1000 total population in a given year
Demography	the scientific study of human population and its size and composition
Family planning	conscious attempts by couples to control the number and spacing of their births
Family planning program	an organised effort by a government or non-governmental organisation to provide the information, supplies, and services for modern fertility control to those interested
Fecundity	the biological capacity of a man, a woman, or a couple to produce a live birth
Fertility	the production of live births by individuals, couples, or populations
Infant mortality rate (IMR)	the number of deaths among infants under one year of age per 1000 live births in the same year
Life expectancy	the average (mean) number of years yet to be lived by people attaining a given age, according to a given life table; if the age is unspecified, it is assumed to be zero, in which case life expectancy means life expectancy at birth
Natural increase	births minus deaths

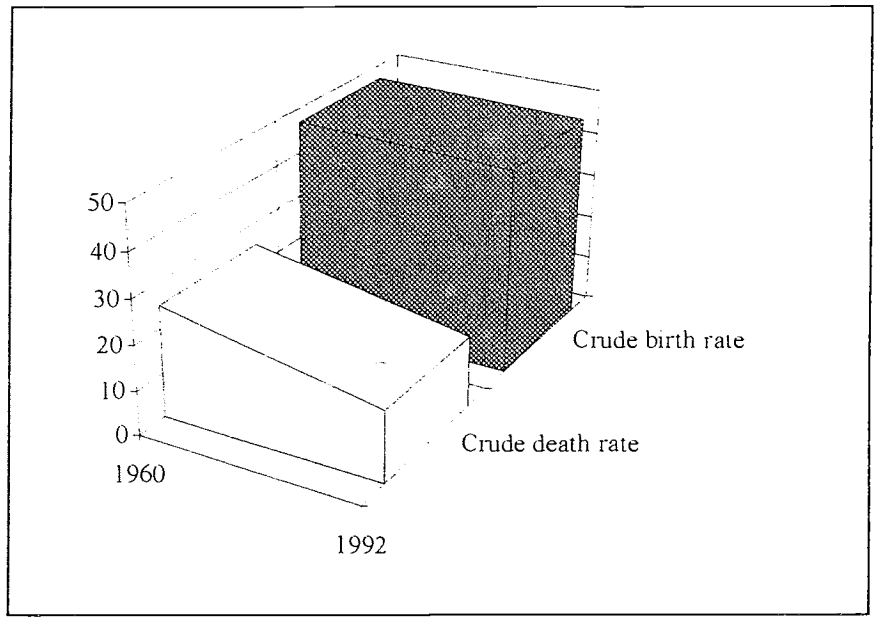
Population	a set of people residing in a given area at a given time
Population growth	change in population size, in either a positive or negative direction; also called population change
Population policy	a series of measures taken by public authorities to influence the trend of population change or distribution, or principles offered as a basis for such measures
Population problem	a believed consequence of a population trend or characteristic that is negatively valued
Social demography	the part of population studies which specifies the relationships among demographic and sociological variables
Total fertility rate (TFR)	the average number of children that would be born alive to a group of women during their lifetime if they were to pass through all their childbearing years conforming to the age-specific (female) fertility rates of a given year

PART I: POPULATION GROWTH AND SOCIO-ECONOMIC DEVELOPMENT IN IDAF COUNTRIES

1. Population dynamics

During the last three decades all IDAF countries have seen a substantial growth in their populations. While death rates fell from an average of 25 deaths per 1000 people to 16 deaths per 1000 people from 1960 to 1992, birth rates remained rather stable during the same period (Figure 1). As of 1992, birth rates were averaging 45 live births per 1000 people, ranging from a low 36/1000 in Cape Verde to 50/1000 in Angola and Mauritania respectively. Women in the IDAF countries are still bearing on average 6 children, compared to 3 in East Asia & Pacific and Latin America & Carribean, and 4 in South Asia respectively (UNDP 1994).

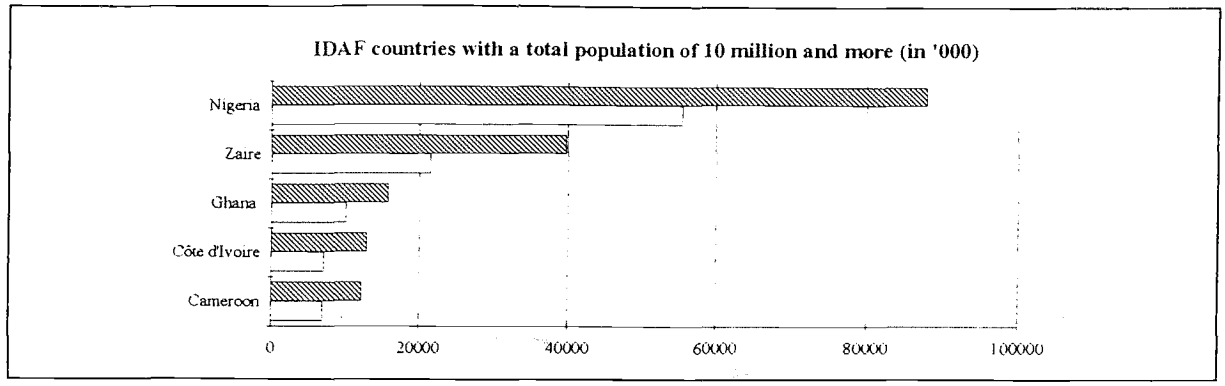
Figure 1: Crude birth and death rates in the IDAF region, 1960-92

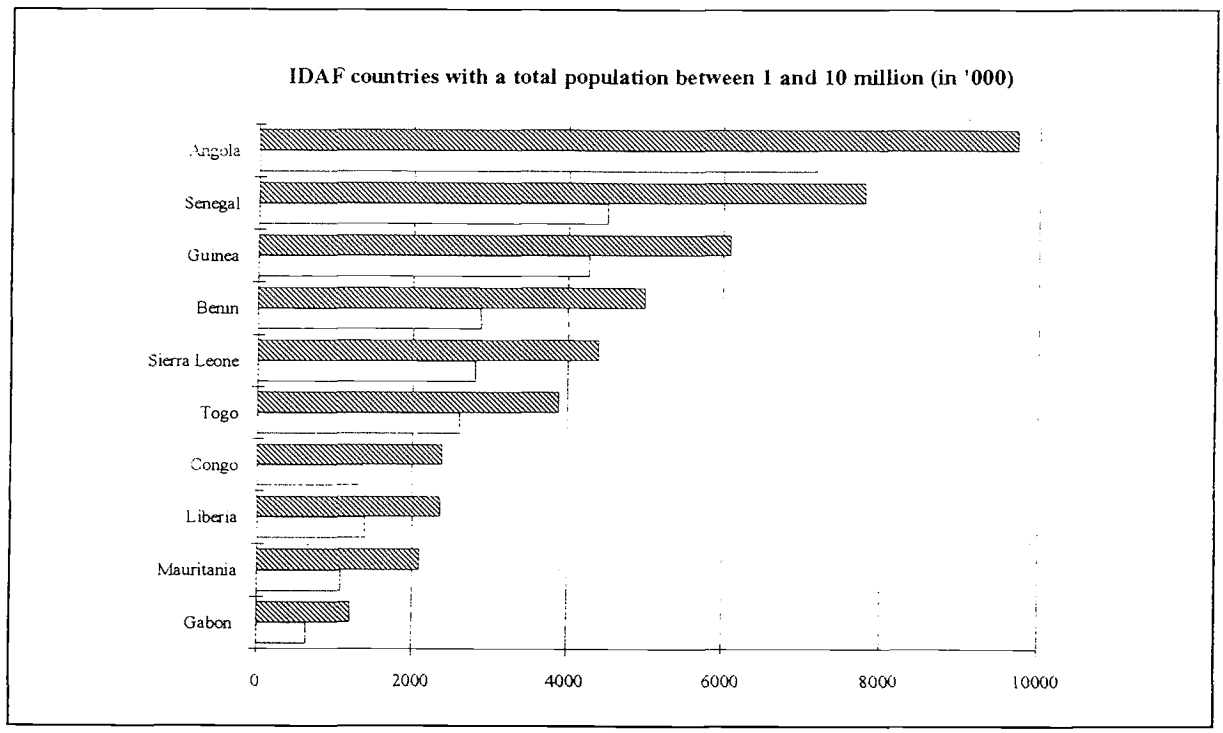


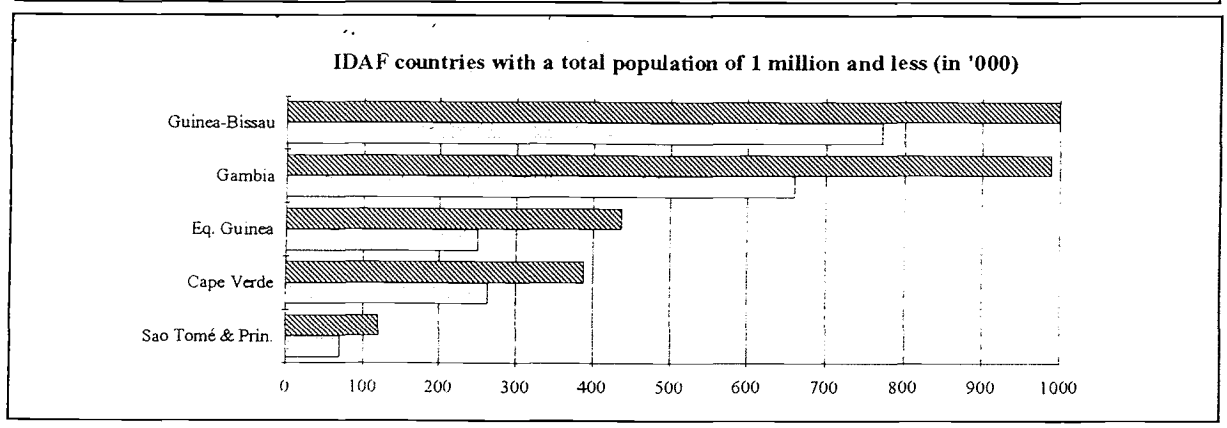
The total population of all 20 IDAF countries reached around 209 million in 1992, representing almost 40% of the total population of Sub-Sahara Africa (543 million respectively). The distribution by country, however, shows a wide range from a low 121.000 inhabitants in Sao Tomé & Principe to 88 million inhabitants in Nigeria, which is the most populous country in the whole of Africa (Figure 2). The overwhelming majority of people is living in the rural areas (World Bank 1994). Particularly fishing communities can often be found in remote areas without sufficient infrastructure. A great number of fishing villages are accessible only by waterways, which contributes a lot to isolation and backwardness.

The populations in the IDAF countries have not yet reached their peak in numbers, but will continue to increase further. On average, the population of the region is expected to grow at an annual rate of 2.9% from 1992 to 2000. Such a growth rate implies that the population is doubling in about 25 years, i.e. the total population of the IDAF region is projected to reach around 420 million by the year 2017.

Figure 2: Total and rural population in IDAF countries, 1992







In artisanal fisheries in the region migrational movements are playing a vital role[1]. The pattern of migration varies widely, comprising movements across country boarders as well as movements within the home country. Migration can further be permanent or semi-permanent or of a short-term temporary nature. Fishermen are leaving their home villages in search for richer natural resources, better access to markets, higher prices for fish, and availability of fishing equipment. Often they are accompanied by their wives to continue family life in the countries of destination, like the Beninese Popo fishermen in Congo or the Ghanaian fishermen in The Gambia. In Benin, improved fishery infrastructure in the port of Cotonou attracted fishermen from all along the Beninese coast to move away from their villages to land their catches in the port instead. But the artisanal fishery sector may also attract immigration from outside traditional fisherfolk communities. In Tombo, a fishing village in Sierra Leone, improvements in the sector initiated by an integrated fishery development project led to a substantial increase in the village population which was not foreseen when the project started. In The Gambia, artisanal fisheries along the coast gained attractiveness for drought-stricken farmers from up-country areas as an alternative to crop production.

2. Macro-economic situation

Like many other countries in the developing world IDAF countries experienced severe macro-economic difficulties during the 1980s as the debt crisis and international recession manifested structural weaknesses.

Even though Gross National Product (GNP) rose in absolute terms over the last decade, it could however not keep pace with the rapid population growth. With the exception of Senegal, Cape Verde, and Guinea-Bissau, GNP per capita decreased during the period 1980-92 in all other IDAF countries for which respective data are available (Table 1). As can be seen from Table 1, GNP per capita in 1992 was less than 1000 US$ in the IDAF region, apart from two countries, i.e. Congo and Gabon. In eight countries it did not even reach 500 US$ per person per year, and was, hence, lower than the average for Sub-Sahara-Africa (530 US$ in 1992).

The poor economic conditions contribute substantially to the existence of poverty in these countries, defined as the inability to attain a minimal standard of living. In general, the majority of people defined as poor is still living in rural areas (World Bank 1990). As is evident from Table 1, poverty is widespread in the rural areas of the IDAF region. In many as eight countries, 70% and more of the rural population have to be considered poor, i.e. lacking the purchasing power necessary to buy a minimum standard of food and other basic necessities as well as to participate in every day life of the society.

Though no precise data are available for fishing communities, it can be assumed that due to the remote location of many fishing villages, the economic situation will be comparable to national average, if not even worse. Those fishing villages which are accessible only by waterway, often enough lack basic social infrastructure like primary schools or health

[1] *See Haakonsen and Diaw (1991) for a comprehensive review of fishermen's migration in West Africa.*

services. Other problems of serious concern are poor public hygiene conditions and the lack of clean drinking water.

The importance fisherfolk is giving to infrastructure may be illustrated with the following examples In Benin, the construction of feeder roads to and wells within coastal fishing villages initiated by the Model Project was considered by the villagers as one of the most important achievements of the project to improve their living conditions In The Gambia, the EEC funded fisheries project initiated the improvement of the coastal road. This infrastructure improvements enhanced the access particularly for transport vehicles to the Community Fisheries Centres and increased the marketability of the catches and, hence, the earning capacity of fisherfolk. A comparable development can also be observed in Matombi/ Congo, in Shenge/Sierra Leone and in Sao Tomé & Principe.

Table 1. GNP per capita and prevalence of poverty, IDAF countries

	GNP per capita		Rural population
	US Dollar 1992	average annual growth (%) 1980-92	below poverty line (%) 1980-90
Mauritania	530	-0.8	80
Senegal	780	0.1	70
Cape Verde	850	3.0	na
Gambia	370	-0.4	85
Guinea-Bissau	220	1.6	75
Guinea	510	na	70
Sierra Leone	160	-1.4	65
Liberia	na	na	23
Côte d'Ivoire	670	-4.7	na
Ghana	450	-0.1	54
Togo	390	-1.8	30
Benin	410	-0.7	65
Nigeria	320	-0.4	51
Cameroon	820	-1.5	40
Eq. Guinea	330	na	70
Gabon	4.450	-3.7	41
Sao Tome & Prin	360	-3	50
Congo	1.030	-0.8	80
Zaire	469	na	90
Angola	na	na	65
Sub-Sahara Africa	530	-0.8	65

Sources: World Bank 1994, UNDP 1994

The rapid growth of the population in IDAF member countries further exacerbates the difficulty of eliminating poverty by undermining efforts to increase the labour income on one side and increasing the cost of expanding social services on the other. The challenge is not only to maintain the current level of socio-economic development for a growing number of people, but to increase the standard of living for populations which increase at the same time substantially. In view of the rather depressed financial situation of most IDAF countries, the outlook for the future may not be too bright. The difficulties of governments in the IDAF

region to keep public expenditure up with requirements can already be felt in the fisheries sector. Maintenance of existing infrastructure or administration vehicles can not always be ensured, and in a number of countries salaries of civil service staff are not paid regularly (Horemans 1993).

3. Nutrition and health situation

Overall agricultural production in the IDAF region increased during the 1980s However, in a number of countries demand brought about by the increasing number of people grew faster than national food production. The food production index per capita decreased partly substantially since the base year 1979/81 in all but three IDAF countries (Table 2). Those three countries achieving increased per capita production are Ghana, Benin, and Nigeria. The success of Nigeria to keep up food production with population growth is remarkable and important for the situation in the whole region in so far as half of the population of all IDAF countries is living in Nigeria.

Table 2: Growth of agricultural production in IDAF countries. 1979-92

	Average annual growth of agricultural production (%) 1980-92	Average annual growth of food production per capita (%) 1979-92	Food production index per capita (1979-81=100) 1991	Prevalence of PEM among children under 5 (%) 1987-92
Mauritania	1.5	-1.5	80	16
Senegal	2.7	-0.2	98	20
Cape Verde	na	na	na	na
Gambia	na	na	90	17
Guinea-Bissau	4.2	1.1	na	23
Guinea	na	-0.5	90	24
Sierra Leone	2.3	-1.2	84	26
Liberia	na	na	66	20
Côte d'Ivoire	-1	0.1	93	12
Ghana	1.2	0.3	116	27
Togo	4.9	-0.7	95	18
Benin	5.2	1.8	119	24
Nigeria	3.6	2.0	123	35
Cameroon	-1	-1.7	78	17
Eq. Guinea	na	na	na	na
Gabon	1.3	-1.2	82	15
Sao Tomé & Prin.	na	na	na	na
Congo	2.8	-0.5	92	28
Zaire	na	na	94	33
Angola	na	na	79	35
Sub-Sahara Africa	1.7	na	96	31

Source: World Bank 1994

Shortages of food supply may differ between regions within a given country as well as between rural and urban areas. In addition, not all population groups are affected to the same extent. It is usually the poorest who suffer most from a lack of food. Fisherfolk living in remote coastal areas where agricultural production is hardly possible or not possible at all, may well face problems to obtain staple foods and vegetables necessary for a balanced diet. In almost all societies, women and small children are the most vulnerable groups exposed to the risk of under- and malnutrition. As can be seen from Table 2, malnutrition among children under five years of age is a widespread phenomenon in IDAF countries. Almost one quarter of all children of this age group suffer from mild or moderate forms of protein and/or energy deficiency.

Poor health and public hygiene conditions are reflected in morbidity and mortality patterns, particularly of infants and children, and in life expectancy at birth. On a global level, Sub-Sahara Africa as a whole is showing the highest infant and child mortality rates and the lowest life expectancy. The continent wide average for 1992 was 99 infant deaths and 160 deaths among children under five per 1000 live births, and a life expectancy at birth of 52 years. But this situation is even worse in eight of the IDAF countries, namely: Mauritania, The Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Equatorial Guinea and Angola (Figure 3). Infant mortality rates in 1992 were well above 100 and one out of five children is going to die before reaching its fifth birthday (UNDP 1994).

Access to basic health services plays a vital role in the well-being of people. But a well established, well working health infrastructure covering the majority of people particularly in rural areas is often far from requirements. Fishing villages, which are accessible only by waterway are especially disadvantaged. Often they do not even have a simple local health station and are hence not covered by public health services at all. Not even mobile health teams will reach these villages, because the health workers may have simple means of transportation like bicycles or motor bikes but certainly never boats. That in principle "mobile solutions" are, however, possible for such situations can be illustrated with examples from Ghana and Nigeria. In both countries, local fisheries officers encouraged by FAO fisheries projects collaborated with local health personnel by offering them transport to fishing villages in their boats whenever the fishery staff visited these villages. Even though such efforts still leave much room for improvement, in Nigeria, this joint effort resulted in launching vaccination campaigns in fishing villages along the Benin River.

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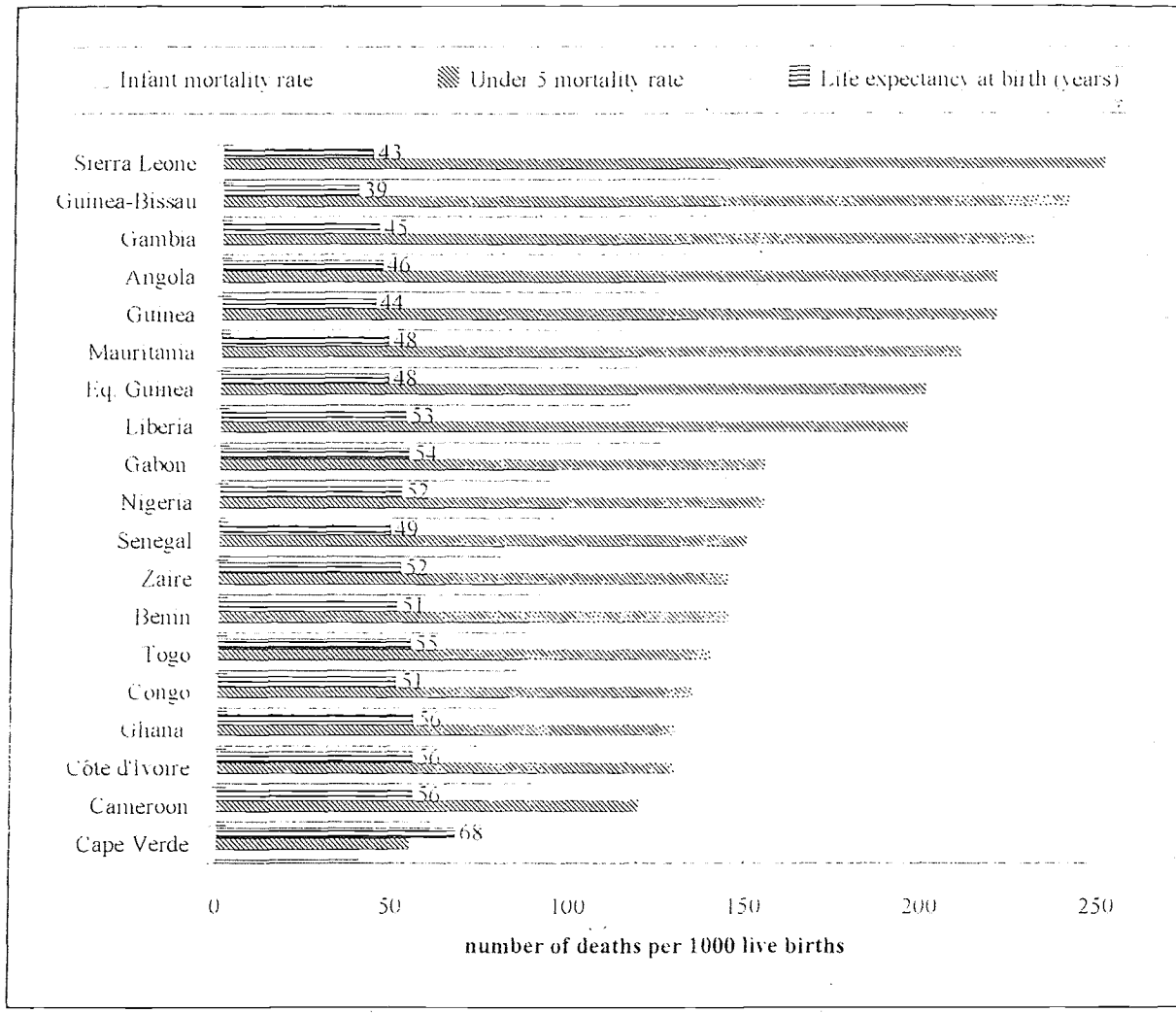
Figure 3: Infant and child mortality rates and life expectancy at birth in IDAF countries, 1992



*Note: data for Sao Tome & Principe are not available.

4. The fishery sector

4.1 General overview

The total indicative **fisheries potential** of marine and inland resources of the IDAF region is estimated at around 4.300.000 mt per year, split into a marine potential of 3.300.000 mt and an inland potential of 1.000.000 mt. The bulk of the marine potential is coming from small pelagics, i.e. around 2.300.000 mt per year (Seki and Bonzon 1993). The geographical distribution of the potential is however rather uneven. With respect to the marine potential, half of it is concentrated in the northern IDAF region (Mauritania to Sierra Leone), while the Gulf of Guinea countries (Côte d'Ivoire to Nigeria) hold only one sixth. The richest inland resources can be found in Zaire (440.000 mt per year), followed by Congo and Nigeria with 120.000 and 100.000 mt respectively.

Fish production has continuously increased in the region over the last decades[2]. In 1991, total marine catches reached 2.066.000 mt, divided by sub-sector as follows: artisanal fisheries 45%, domestic industrial fleets 11%, and industrial foreign fleets 44%. Catches from inland waters also increased during the period and amounted to 473.000 mt in 1991. The most productive artisanal fisheries of the region are those of Ghana, Senegal and Nigeria, who alone contribute 70% of the total marine catches. The marine waters of these three countries are, however, close to overexploitation if not yet already overfished.

In all IDAF member countries, fish forms an important part of the local diets. The **supply of fish** plays therefore a vital role in the food situation of the countries. The amount of fish available for human consumption, however, differs substantially between them. It is lowest in Guinea, Zaire, and Benin with per capita fish supplies of less than 10 kg per year. On the other end of the scale, supply is more than 30 kg respectively in countries like Congo and Sao Tome & Principe (Laureti 1992).

While fish supply increased in ten IDAF countries during the last two decades despite of growing populations, it decreased or stood at best stable in the others. Although overall fish supply increased substantially either through higher domestic production and/or rising imports in Côte d'Ivoire, Ghana, Liberia, Mauritania, Sierra Leone and Zaire, the level of fish protein intakes could not keep pace with high population growth rates. The resulting decrease in fish consumption per capita may not pose a problem in a country like Mauritania which has - out of all IDAF countries - the highest intake of animal protein, but it may deteriorate the nutritional well-being of inhabitants in countries with overall low animal protein intakes like Liberia, Sierra Leone and Zaire. On a regional level, overall fish supply could not keep pace with population growth despite the gains in fish production. For the entire region, fish supply per capita decreased from an average of 15.8 kg in 1980 to 12.9 kg in 1990. Estimates on future demands for fish based on maintaining the current level of 12.9 kg, demonstrate that by the year 2010 the total demand for fish, i.e. around 4,9 million mt will exceed the indicative fisheries potential of the region amounting to 4,3 million mt.

4.2 The role of artisanal fisheries

In all IDAF countries, the artisanal fishery sector is playing a crucial role in the national economies. Its major importance lies in providing employment, income, and animal protein to the region's population.

4.2.1 Employment

The artisanal fishery sector is labour-intensive by nature. The fishing boats commonly used in the region like the Senegalese planked canoes, the dugout and improved dugout canoes of Ghanaian or Nigerian type require crews from one to three members in smaller boats operating along the coast up to more than 20 people in the Senegalese purse seining canoes, for example. These crews are going out on fishing trips for only few hours as well

[2] *See Horemans (1993 and 1994) for a detailed description of the fishery sector in the IDAF countries.*

as for several days, depending on the type of fishing, type of nets, and the motorization or non-motorization of the boat.

But it is not only the catching of the fish, which offers employment opportunities. Even more numerous are income-earning opportunities in the secondary sector, comprising the conservation of fish and the marketing of the product.

In 1992, a total of 530,400 fishermen have been working full-time in the marine artisanal fisheries sector (Table 3). By far the largest number, i.e. 272,000, are Nigerians, followed with some distance by Ghanaian fishermen, numbering around 96,000. Hence, these two countries alone host around two thirds of all artisanal marine fishermen working in the region. But there is also a substantial number of part-time fishermen actively involved in the exploitation of the marine resource. Although no precise data on the exact number of this group are available, Seki and Bonzon (1993) estimate that "there are roughly equal proportions of part-time and full-time operators" (p.17).

As can be seen from Table 3, in some countries inland fisheries is playing an equally or even more important role in providing jobs than the marine sector. In Zaire, the number of marine artisanal fishermen is negligible compared to the number of inland fishermen (900 versus 113,000 respectively). In Benin, more than ten times as many fishermen find their livelihood in inland fisheries including lagoon areas than in marine fisheries. The largest number of inland fishers per se, however, can be found in Nigeria (i.e. 125,650).

The secondary sector comprising the processing, transport and marketing of fish is the other standing leg of employment in artisanal fisheries. Though no data on the labour force employed in this sector are available, estimates can be based on the relation between artisanal fishermen and onshore employment, i.e. calculating 3 secondary sector employees per marine operator and 5 secondary sector employees per inland operator (Seki and Bonzon 1993). Following this calculation, about three and a half million people in the IDAF region are deriving their livelihood from post-harvest artisanal fishery activities (Table 3).

Total employment in the primary and secondary artisanal fisheries sector in the IDAF region stands, hence, at about four and a half million people. For the entire region, this represents around 10% of the agricultural labour force and 6% of the total labour force. These figures, however, vary considerably between the countries. The share of fishery labour force compared to agricultural labour force is highest in the three island states of the region. In Cape Verde, almost half of the population working in agriculture is involved in fishing and related activities. In Sao Tomé & Principe, the respective figure is one third, and in Equatorial Guinea one quarter (Table 3). In six other IDAF countries, i.e. Benin, Ghana, Nigeria, Guinea-Bissau, Mauritania, and Congo, the fishery labour force is more than 10% of agricultural labour force.

Table 3 Labour force and fishery employment in IDAF countries

	Total labour force 1990-92	Agricultural labour force 1990-92	Female labour force as % of total labour force 1990-92	Fishery employment				Fishers labour-force as % of:		Av. annual growth of labour force (%) 1992-2000
				Artisanal fishermen		Secondary sector	Total	Most recent data	agricultural labour force	total labour force	
				marine (full-time)	inland (full- and part-time) 1992						
Mauritania	660 000	417 000	22.0	4 850	5 000	30 500	39 400	1988	11.8	7.5	3.1
Senegal	2 516 000	2 038 000	26.0	35 000	10 000	155 000	300 000	1989	9.8	7.9	2.1
Cape-Verde	130 000	40 000	37.0	4 600	0	13 800	18 400	1989	46.0	14.2	na
Gambia	315 000	265 000	41.0	1 800	560	8 200	10 560	1987	6.1	3.6	na
Guinea-Bissau	294 000	241 000	42.0	7 300	n.a.	21 900	29 200	1988	12.1	9.9	1.6
Guinea	2 225 000	1 734 000	30.0	9 000	6 000	57 000	72 000	1985	4.2	3.2	1.9
Sierra Leone	1 435 000	1 005 000	33.0	14 700	n.a.	44 100	58 800	1990	5.9	4.1	1.5
Liberia	936 000	702 000	31.0	6 600	2 400	31 800	40 800	1987	5.8	4.4	na
Côte d'Ivoire	4 641 000	3 017 005	32.0	20 000	6 000	90 000	116 000	1989	3.8	2.5	2.5
Ghana	5 662 000	3 341 000	43.0	96 400	50 000	419 300	565 600	1989	16.9	10.0	3.6
Togo	1 476 000	959 000	37.0	5 000	2 000	25 000	33 000	1990	3.3	2.2	2.5
Benin	1 645 000	1 152 000	24.0	3 200	30 000	204 000	237 200	1987	21.1	15.0	2.5
Nigeria	27 280 000	13 994 000	33.0	272 000	125 650	1 444 350	1 841 900	1989	14.3	6.8	2.9
Cameroon	4 563 000	3 605 000	30.0	18 000	25 000	179 000	222 000	1986	6.7	4.9	2.3
Eq. Guinea	163 000	126 000	36.0	7 250	400	23 750	31 400	1988	24.9	19.3	na
Gabon	528 000	396 000	38.0	5 000	3 000	30 000	38 000	1991	9.6	7.2	1.1
Sao Tomé & Prin.	n.a.	29 000	n.a.	2 300	0	6 900	9 200	1989	31	n.a.	na
Congo	920 000	570 000	39.0	1 500	10 000	54 500	66 000	1987	11.6	7.2	2.4
Zaire	13 881 000	9 799 000	36.0	900	113 000	567 700	681 600	1988	7.0	4.9	na
Angola	4 100 000	2 993 000	39.0	15 000	7 000	80 000	102 000	1991	3.4	2.5	na
IDAF total	73 288 000	45 523 000	32.0	530 403	385 010	3 516 250	4 431 660		9.7	6.0	

Sources: UNDP 1994, Seki & Bonzon 1993, World Bank 1994, Horemans 1994

Ghana, three field assistants and one Assistant Fisheries Officer took part in the training session, and in Nigeria, a total of four staff members of the Federal Department of Fisheries, one from NIOMR, and two from the local Government in the study sites received training and acted as facilitators

5.5 Field procedures

The field work in the selected target communities in all three countries took place according to the following schedule:

= The Gambia	from 20 July to 31 July 1992
= Ghana	from 18 March to 29 March 1993
= Nigeria	from 29 November to 10 December 1993

The preparatory work of the investigations included introductory tours to each of the target communities to meet key village persons in order to explain the objectives of the study and to ensure the cooperation of the target groups

In all target communities, a day each was devoted to the KAP survey and to the focus group discussions. The KAP sessions lasted from one to two hours, and the focus group discussions on average one hour.

5.6 Limitations of the studies

Investigating the opinion of people on population and development interrelationships and the respective individual fertility behaviour is always a sensitive issue. Though qualitative research methodologies are a suitable vehicle to highlight such aspects they bear, however, certain limitations.

The major bias of studies like the present ones is a certain difficulty to assess the validity of responses given on questions focusing on family building and family planning attitudes and practice. KAP surveys are carrying a certain risk that people respond in such a way they believe the investigators would like to hear to please them rather than giving their own, real opinion on the issues raised. In the present study this may have been the case with respect to responses obtained on family planning practice. But investigating the level of family planning practice in a target community forms part of the common KAP survey, and is actually important in studies emphasizing directly on fertility behaviour. Although in the present studies emphasis was put generally on the perception of population-development interrelationships, two questions on family planning practice were, nevertheless, included in the KAP survey rather for completeness. But in The Gambia, for example, where the overwhelming majority of people are moslems, cultural-religious objections exist to discuss the subject of family planning in more detail (e.g. methods used). In Nigeria, questions on the number of children or the numerical strength of the family are often met with some hesitance by respondents. Therefore, the responses of the participants on this issue should be taken with caution.

Such a bias can, nevertheless, be reduced by combining different methods. In the present study, responses obtained in the KAP surveys could be verified by the other sources of information used, i.e. the informal interviews with key village informants and particularly the focus group discussions with fisherfolk.

In Ghana, apart from these methodological limitations, the study team had to face some problems related to a fishery ban on the use of "illegal gear", which the Fisheries Department was about to enforce within the lake area. This impasse, however, was overcome when the fisherfolk recognised the different nature and the independence of the study from the question of the ban.

6. Description of the study areas[1]

6.1 The Gambia

From 1979 to 1991 an **artisanal fisheries development project**, funded by EEC, was implemented along the Gambian coastline. This project aimed at increasing fish production for local consumption as well as for export and creating employment opportunities in the fisheries sector in order to improve the living standard in the project area.

One major outcome of the project was the construction of community fisheries centres (CFC) in six coastal villages and, thereby, serving almost 90% of the marine fishing population in The Gambia. It should be pointed out that the villages are not directly located at the shoreside but 2 to 3 kilometres away from the sea, nor can they be defined as fishing villages, since a remarkable number of villagers is involved only in agriculture and others engage in agriculture and fishing on a part-time basis.

The fisheries centres, on the other hand, were built directly at the beaches to offer access to the service at the place where it is needed. In general the fisheries centres can offer the following services:

- cement tables for fish cleaning
- smoking houses
- sun-drying racks
- stores for dried fish
- gear stores
- safe deposit boxes
- mechanic workshop & testing tanks
- covered area for net drying and repair.

In addition to the above mentioned services training activities were organized in the fisheries centres and credit provided to fishermen, fish processors, and traders. As an

[1] *The descriptions presented here are based on the individual country reports by Heinbuch and Howard-Saydee (1993), Howard-Saydee (1993), and Bolaji, Heinbuch & Demuynck (1994).*

alternative source of income vegetable gardens were laid out to be run by women involved in the fishery sector.

The three **target villages** selected for the present study, i.e. Brufut, Tanji, and Gunjur are located along the Atlantic coast south of Banjul, the capital of The Gambia (see Map 1).

According to the last population census undertaken in the country in 1983 the total population of these villages was 13 783 at that time, with Gunjur being the biggest village (7030 inhabitants), followed by Brufut (5121 inhabitants) and finally Tanji (1632 inhabitants). Given the high population growth due to natural increase and immigration from up-country areas as well as neighbouring Senegal, the population of these villages, however, should be remarkably higher today. The analysis of the recent population census undertaken in 1993 will provide the revised data.

The main ethnic groups in the selected villages are the Mandinka, Serere, and Jola. Other ethnic groups living in those villages are the Fula in Brufut, the Wollof in Gunjur and the Manjako in Tanji. Around 95% of the Gambian population is muslim, the remaining 5% being mostly christians.

The **living conditions** in the villages are generally rather poor, although there have been some improvements in the recent past. With respect to housing the majority of villagers is still living in houses made of mud bricks with thatched or corrugated iron sheet roofs. However, the number of houses made of cement bricks is increasing.

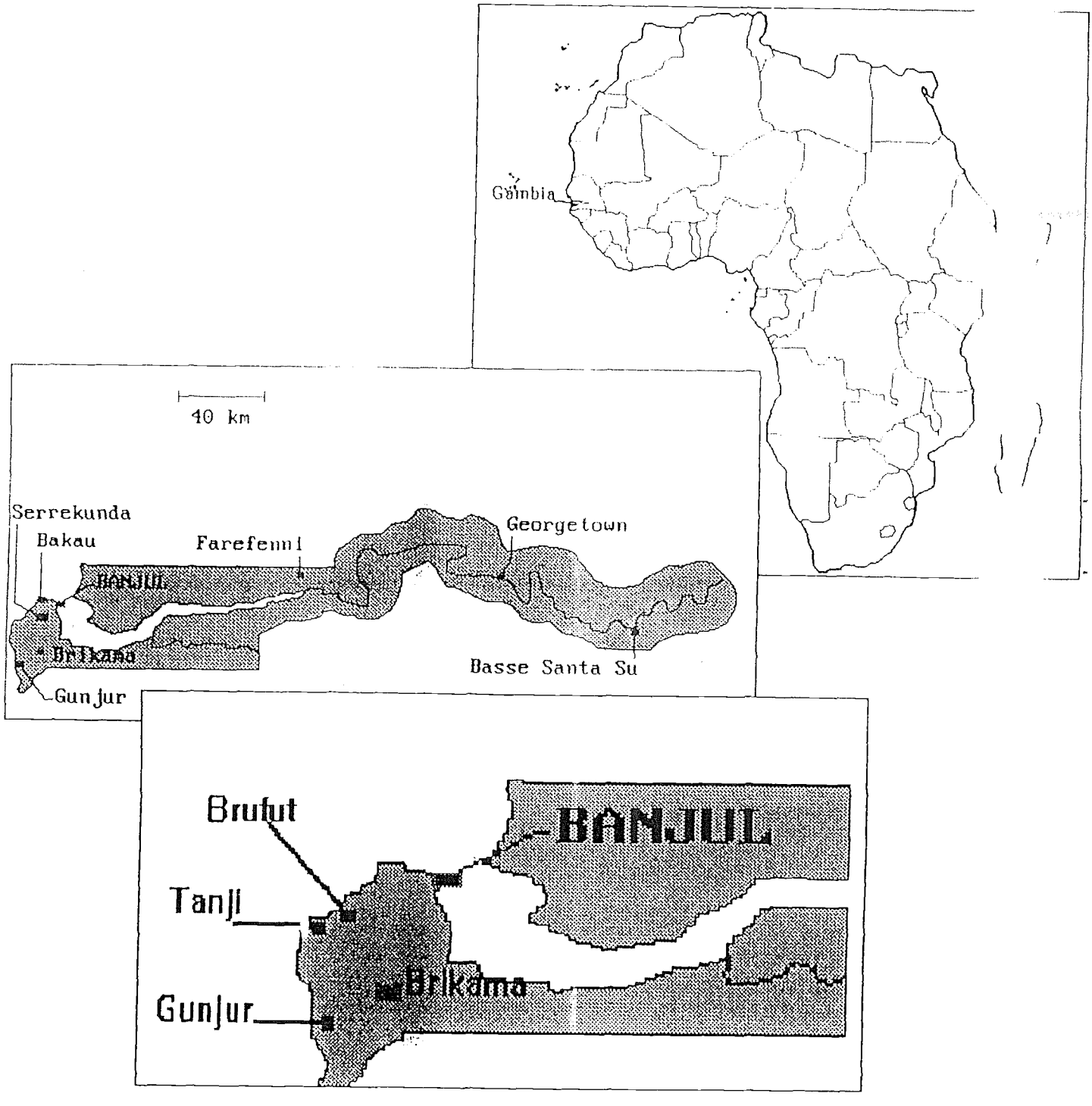
The provision of safe drinking water by public wells in the villages is quite limited. The fisheries centres, on the other hand, all have running water facilities to improve proper fish handling after landing. The water is provided by windmill pumps on a reliable basis.

All three villages do not yet have access to public electricity. Hence, candles and kerosene lamps are the major sources for lighting. Only the fisheries centre in Gunjur is equipped with a generator for lighting and other purposes.

One major achievement of the first phase of the EEC funded project was the construction of laterite roads, linking the six coastal villages with each other as well as with the capital Banjul. These roads allow access to the villages all year round and have let to a remarkable increase of commercial and private traffic, thus, among others, improving marketing opportunities for fish and other goods.

In Brufut and Tanji access to education is limited to primary schools. Only Gunjur has a secondary technical school. It seems that enrolment rates are increasing. According to school statistics in Brufut, for example, enrolment rates reach 95%, with reported low drop-out rates and an increasing percentage of girls in the lower grades. This may be taken as an indicator for increased importance given to education by rural families for boys as well as for girls. These statistics, on the other hand, are in sharp contrast to the general educational level in The Gambia where primary school enrolment was estimated at 57% (62% for boys and 38% for girls) in 1988 (Republic of The Gambia 1992).

Map 1 The study sites in The Gambia



Health care is provided to the villagers by a health centre in Gunjur, a primary health care centre in Tanji and a dispensary in Brufut. Primary health care centres are usually staffed with health workers and traditional birth attendants (TBA), whereas health centres and dispensaries are having trained dispensers, nurses and midwives. Services offered at these centres include curative and preventive medicine, mother and child health care and, in Brufut, family planning.

The **fishery sector** is a major source of employment in the three villages under study. In mid 1991 a total of 2,894 inhabitants were involved in fishing and fishery related activities, out of which 861 were women (Callerholm-Cassel & Jallow 1991). Generally, women are working as fish processors and fish mongers. In Gunjur the overwhelming majority of women, i.e. two-thirds are involved in fish drying. In Tanji about 40% of the women working in the sector are engaged in carrying the fish from the boats to the beach at landing (these women are the so-called "dhunillas").

The majority of men is either a boat-owner or working as a crew member. In total Callerholm-Cassel and Jallow recorded 242 motorized and 13 non-motorized planked canoes at the time of their survey (Table 5). Fishing gear used are surrounding nets, bottom set gill nets and cast nets.

Table 5: Population in the fishery sector, Brufut, Tanji, and Gunjur, 1991

Indicator		Brufut	Tanji	Gunjur
Population (1983 census)		5121	1632	7030
Adult literacy rate (%)		44	7	34
Population active in fisheries				
Fishermen/boat owners		330	414	584
Fish smokers:	male	16	26	37
	female	17	63	48
fish dryers	male	7	25	95
	female	16	62	300
fish mongers	male	50	176	103
	female	10	64	31
dhunillas		17	155	75
boat builders & assistants		10	3	7
others		43	63	47
Total		516	1051	1327
Full time fisherfolk (%)		82	87	87
Canoes	motorized	79	66	97
	unmotorized	5	-	8

Source: Callerholm-Cassel,E. & A.M. Jallow 1991

Fish smoking and drying are the main fish processing activities in the three villages. Improved smoking houses with modified chorkor ovens are under use in Brufut, Tanji, and Gunjur. The smoking houses are mainly used by male fish processors processing large quantities, whereas female fish processors are rather using domestic ovens to smoke smaller quantities of fish. Fish drying is mostly following the traditional method of fermenting, salting and drying for the production of the famous "guedj", a traditional Gambian dish.

A substantial amount of fish landed is sold fresh directly at the beach, partly through middlemen. Bonga and catfish smoked by men are distributed to markets further away in Gambian provinces as well as to neighbouring countries. Bonga and catfish processed by women are directly sold to consumers in the villages. Other smoked products like skates, rays and sharks are mainly exported by middlemen to neighbouring countries. The fermented, salted and dried fish, "guedj", is sold locally in almost all markets, but is also exported to Senegal, where this Gambian product is well appreciated.

6.2 Ghana

Yeji-town, unlike most fishing villages established as a result of the creation of the Volta Lake, is a permanent settlement which has developed into a predominant fish market for over 342 fishing villages situated alongside the Volta Lake area. Yeji was originally inhabited by the Nchumurus (Chumburus), the traditional land owners. Due, however, to the creation of the lake, and the eventual importance of Yeji as a major ferry crossing point in the Volta Lake Transport System, the town has boomed into a peri-urban community of commercial significance and dominance as the largest inland fish market in Ghana.

With the employment opportunities in the fisheries sector available after the construction of the dam, Yeji and the neighbouring villages have experienced a rapid growth of the population from about 50.000 to nowadays about 75.000. The fisheries sector in and around Yeji is currently employing about 15.000 fishermen and about 6.500 women processing and marketing the fish. The number of people in Yeji is ever increasing on a daily rate by the large number of traders and unskilled job seekers coming to find a livelihood in this prosperous town. Population pressure is felt, reinforced also as a result of passengers commuting between Yeji and isolated fishing villages within the lake area, thus flooding the town's population such that the population is observed to almost double during the commercial period of the weekly monday market day, normally lasting up to three days.

In January 1989 a project for the "Integrated Development of Artisanal Fisheries in Yeji", funded by UNDP and executed by FAO, was implemented as part of the Government's Global Development Strategy aiming at "increasing domestic food supplies, particularly protein self-sufficiency through a more effective use of available fisheries resources at the regional and local levels, as a means of satisfying national protein needs while creating employment opportunities, and improving the living conditions of the rural population". The major task of the project was planned to be the construction and establishment of a community fisheries centre (CFC) in Yeji with facilities for fish preservation and marketing including the provision of training for male and female fisherfolk.

With respect to **socio-economic facilities**, Yeji retains the basic characteristics of an African peri-urban centre and thrives on economic activities which are dependent on the fishing industry, including: boat building, outboard motor repair, sale of fishing inputs and spare parts, fish processing and marketing, etc. Other commercial activities include hotels, chopbars and restaurants, gas stations, hair dressing salons and tailor shops which are mostly run by women.

Basic infrastructure facilities comprise postal and telecommunication services linking it with all parts of Ghana and the outside world, a police station headed by a Chief Inspector of Police, a branch of Ghana Commercial Bank, nine Primary Schools, seven Junior Secondary Schools, one High Secondary School, one Technical Secondary School and six church-run (religious) schools; five private Vocational Training Centres, including four tailoring centres for girls and one technical training centre of welding and fitting for boys.

The Volta Lake Transport Company provides lake transport to and from Yeji through ferry link services with Akosombo in the south and with Yape and Buipe in the north of the lake. The company also operates a ferry crossing from Yeji to Makango twice a day. Transportation within the township and to the surrounding villages is provided by tractors partly with trailers, trucks, buses and bicycles. Maembe (1991) identified in Yeji a total of 20 tractors with and without trailers, 135 trucks, 1306 bicycles, 14 motorcycles and one bus, and 35 trucks operating in and out of Yeji-town.

Although at the moment Yeji is not on the national grid for electricity supply from Akosombo, electricity is supplied by generators owned and operated by the Yeji Secondary School, the fisheries project and some private business owners.

Yeji was at one time supplied with water from the lake by the Ghana Water and Sewerage Corporation. The system eventually failed when the pumping system broke down. The 50,000 gallon overhead tank located along the main street not far from the market indeed bears testimony of a foiled attempt to provide water for the needs of a growing population with scarce resources. The town's residents, therefore, rely on the Volta Lake for all their water and related needs. Not only does the lake, hence, serve as the main source for drinking water, but also as a place for washing clothes, cooking utensils, vehicles, etc. as well as for bathing. The lake water, in its untreated state, is also piped for domestic purposes into water reservoirs such as the one at the fisheries project's guesthouse for example. The observed multiple use of the lake water makes it, hence, rather unsafe for drinking.

Health care for the inhabitants of Yeji-town and the people in almost all the 342 fishing communities depending on Yeji as a market and service centre is provided by the newly constructed St. Matthias Catholic General Hospital. Located not far from the town centre, this 80-beds hospital commenced its out-patient services in October 1991 and is now providing the in- and out-patient services on a regular basis.

The hospital's administrative staff reported that the number of out-patients is highest during the regular monday market days. The Hospital Administrator, however, remarked that "as a very young institution people may not know of its existence and/or usefulness". She reported a very strong desire to undertake a vigorous education and sensitisation campaign

to make fisherfolk aware of the need to seek early medical help in order to avoid cases of death.

Other health facilities in Yeji as identified by Maembe (1991) comprise: 4 private maternity clinics, 5 health clinics, 10 drug stores, 35 herbalists, 12 traditional healers, and 29 soothsayer. Drug pedlars were also observed selling drugs in and around Yeji-town, as well as travelling to other fishing villages and surrounding communities to sell common drugs, most of which are "unmarked prescriptions".

Sanitation and public hygiene remain a basic problem for Yeji-town. Maembe (1991) identified 35 public toilets including those built for schools, but the majority of private houses do not have toilets. There is also no garbage disposal system in the town. Residents are expected to burn, bury or throw their garbage at public heap sites or to throw it out at the lake side. The shortage of toilets and the absence of a garbage disposal system, therefore, encourages residents to pollute the town environment as well as the lake.

The three **target fishing communities** selected for the field work were Fante Kroa, Dzaklave 3, and Gbetekpo. Due to the absence of census data and hampered by the frequent movements of fisherfolk the number of people living in the study villages can hardly be estimated correctly. However, the following "Inventory of fishermen and fishing inputs" (Table 6) can shed some light at least on the population actively involved in fisheries activities.

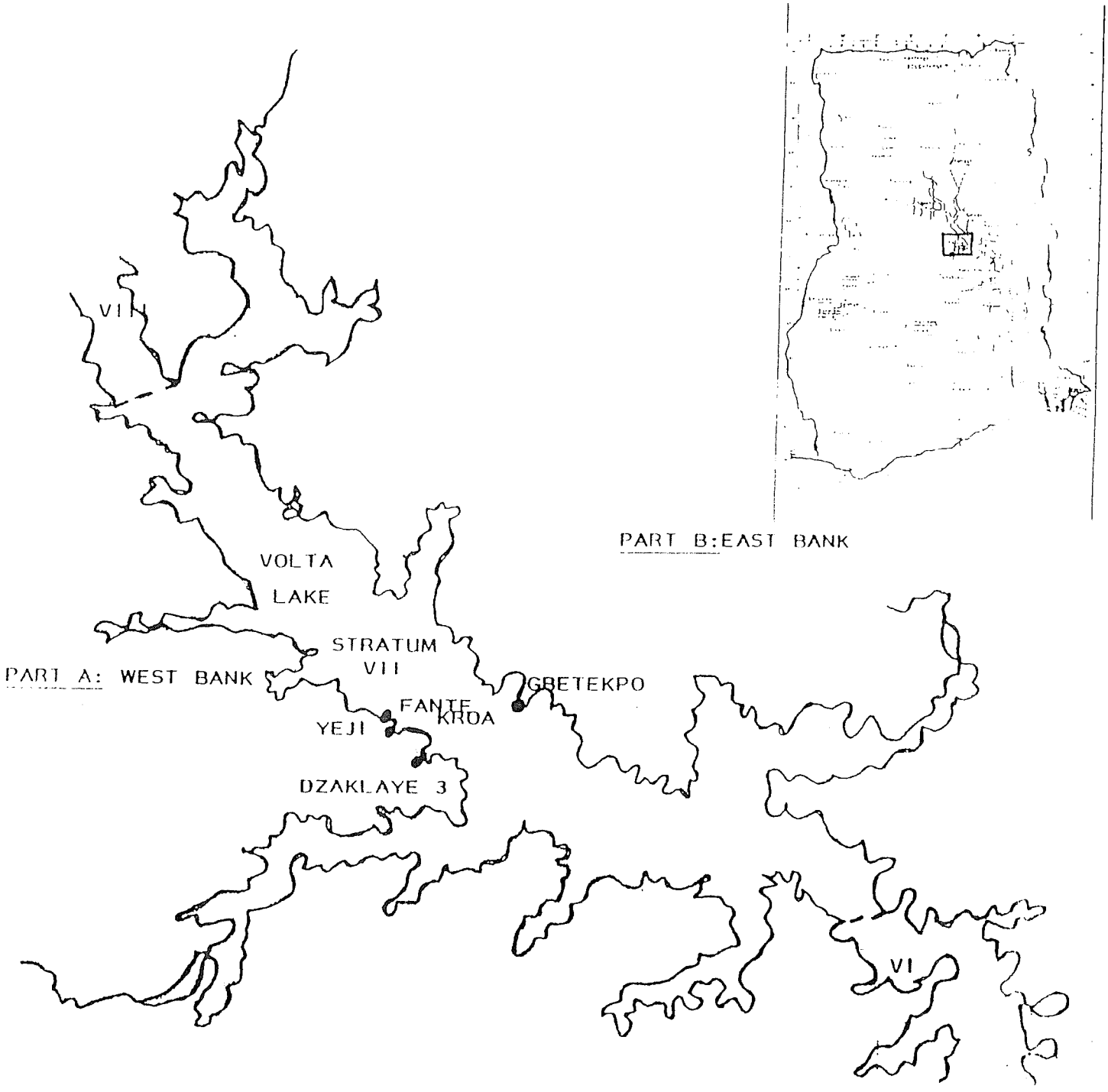
Table 6 Inventory of fishermen and fishing inputs

Location	Fishermen	Fish processors	Number of canoes	Number of winchnet boats	Engines on winchnet boats no hp	Engines on other fishing boats no hp
Fante Kroa	80	40	20	13	8 40	none
Yeji-town	27	(fresh fish sale)	10	none	none	1 8
Dzaklave 3	120	60	54	14	13 40 1 25	none
Gbetekpo	30	17	16	none	none	1 8
Total	257	117	100	27	21 40 1 25	2 8

Source: Maembe 1991

The three fishing communities selected for the field work can be briefly described as follows (see also Map 2).

Map 2: The study sites in Ghana



Fante Kroa is a predominantly immigrant fishing community located on the left side of the Volta Lake Transport Company pier, situated at the end of the main street in Yeji-town, leading to the lake shore (see Map 2). The community has about 65 housing units constructed of mud walls and thatched roofing. The village lacks all infrastructure facilities and is heavily dependent on Yeji for all its needs.

Maembe (1991) reported a number of fish processing facilities available in Fante Kroa, including: 85 cylindrical (round) ovens and 10 rectangular ones.

Dzaklaye 3 is another immigrant fishing community situated at the outskirts of Yeji-town, about five minutes drive away from the pier. The fisherfolk of this community are from the two ethnics of Ewe and Ada. Although lacking all basic infrastructure facilities like Fante Kroa, Dzaklaye 3 is the demonstration site for the fisheries project's improved chorkor oven. At the time of the study, however, the demonstration centre was observed to be in practical disuse, as most fisherfolk prefer to smoke the fish in their immediate court yards, despite the fact that the centre is centrally located between the Ewe and Ada communities of the town.

Gbetekpo, on the other hand, is located at the east bank of the lake. The village is about a 45 minutes motorboat ride away from the Yeji pier. Gbetekpo is a more permanent village than the other two, and although classified as a fishing village, fisherfolk is also engaged in the cultivation of cassava and cocoa yams.

Gbetekpo is having two large transport boats and six smaller ones available to transport fisherfolk to the weekly monday market in Yeji-town. It was observed that fisherfolk from nearby villages came to Gbetekpo in their small dug-out canoes to be transported from there to the Yeji market.

The women in Gbetekpo were observed to be much busier than their counterparts in the other two villages under study, having the full responsibility for smoking fish as well as for processing gari and other cassava products (e.g. fufu).

6.3 Nigeria

The two **target fishing villages** of Ugogegin and Ogheye are both situated on the right bank of the mouth of the Benin River into the Atlantic, Ogheye being about 5 minutes boat ride down stream from Ugogegin. Both villages are only accessible by waterway, with a travel time depending on the speed of the boat between 1 1/2 and 3 hours from Koko, the closest small town up-stream (see Map 3).

Ogheye is a village of about 500 densely arranged houses, while Ugogegin is a smaller, linear settlement of about 200 houses. The estimated number of residents of both villages is given in Table 7. The dominating ethnic group in both communities is the Itsekiri, but there are also some Ijaws and Ilajes constituting minor tribes. Hence, Itsekiri is the commonly spoken language in the villages.

Map 3: The study sites in Nigeria

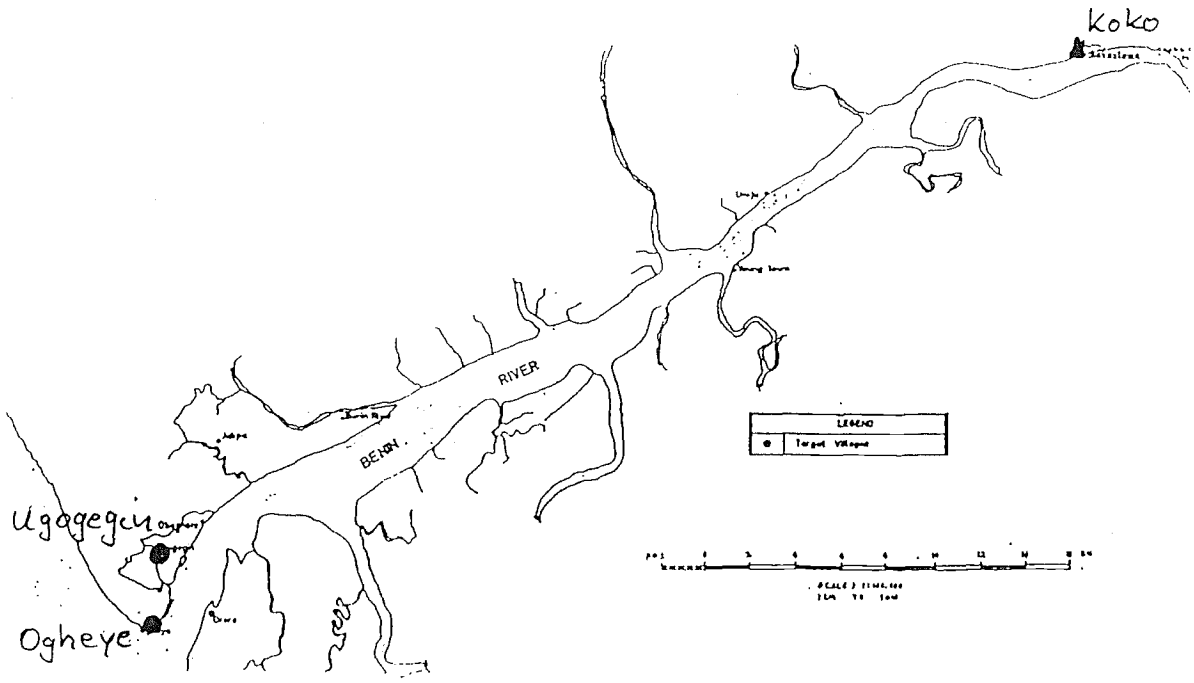


Table 7: Total population and average household size of Ogheye and Ugogegin

	Total number of people		Average household size
Ogheye	3750*	4500**	8
Ugogegin	1180*	1500**	9

Sources * Ijff 1990. ** Osei-Opare 1991

The domestic household structure is basically extended, in Ugogegin polygamy seems to be popular as an estimated 3/4 of the household are polygamous in structure.

The fisherfolks of Ogheye and Ugogegin are adherent to the christian faith as well as traditional religion. Thus there are churches for Baptists and Cherubim and Seraphim sects in the villages next to fetish shrines

With respect to the **socio-economic situation** Ogheye and Ugogegin can be described as two typical rural fishing villages where all economic activities centre around the fishing industry - catching, processing and marketing of fish. Other fishery related activities include boat building, outboard engine repairs and repair and maintenance of fishing inputs like nets. In addition a number of villagers is involved in petty trading.

There is no post office or any other form of telecommunication in these communities. Also there is no government supplied electricity, but only a few private generating plants. However, the Ogheye community acquired a diesel electricity generating plant through the FAO/UNDP project.

Local government authorities are completely non-existent. Noted village elders represent authorities and dispense justice. Cooperatives are many and they serve the functions of the local authorities. There are nine cooperatives for men and women at Ugogegin. They organise the villagers for activities like community development work and other self help programmes.

Formal education is provided in each community by a primary school. The past year has witnessed an increase in the enrolment of pupils at Ugogegin and Ogheye. Enrolment increased from the 1990 figure of 172 and 224 to 371 and 676 at Ugogegin and Ogheye respectively. A common feature of the two communities is a significant drop-out of pupils' registration as the pupils proceed to higher classes.

At lower grades enrolment of females is higher than that of males, a trend which, however, shifts to the opposite picture at higher levels. A major reason for the apparent drop-out of female pupils may lie in early marriage and pregnancies as observed in the villages. The final level of education is, hence, higher among men fisherfolks where qualifications ranged from primary education to secondary, teachers training or technical and vocational training qualifications.

on the socio-economic situation of fisherfolk in the six community fisheries centres along the coast jointly undertaken by the Fisheries Department and IDAF (Callerholm-Cassel and Jallow 1991) eliminated the need to obtain additional socio-economic data for the target communities again. In Ghana, important socio-economic background information could be derived from a report of Maembe (1992). In Nigeria, the socio-economic background information could be drawn from two detailed socio-economic studies that had been carried out in the fishing communities of the study area and other sectors of the Benin River estuary (Ijff 1990, Okpanefe et al. 1991, Osei-Opare 1991).

(b) Direct observation and informal interviews with key village persons

During introductory visits to the selected study sites meetings were held with key village persons in order to obtain general information of the respective communities. Discussions aimed at up-dating the respective information obtained from the above mentioned sources.

(c) Knowledge, Attitude and Practice Survey (KAP)

In socio-demographic research oriented at investigating the fertility behaviour of human beings so-called KAP surveys have been designed in order to find out about the knowledge, attitudes and practice of family planning. Though the conventional KAP survey was mainly oriented towards contraception, it went through several modifications with time to enable the coverage of the broader spectrum of population-development interrelationships as well. The KAP survey format can be used in individual interviews as well as for group interviewing. The latter provides information for a larger number of people in a comparable short period of time. The process guiding the procedure is very simple, and can be conducted with illiterate audiences as well. The KAP technique is discussed in detail in Annex I.

(d) Focus group discussions with fisherfolk

A focus group discussion brings together a small group of informants to talk freely and spontaneously about topics introduced by a facilitator or moderator. This technique was viewed as the main tool to obtain information on the awareness of the relationship between population growth and the development of the fishery sector. In all three case studies, the local fishery personnel, and - in the case of Nigeria - two staff of the local government, all fluent in the respective local languages, acted as facilitators. They all used the focus group discussion guide (Annex II) prepared on the insights gained through secondary background information and the KAP survey. All facilitators were familiar with the circumstances of the respective target communities and could give detailed explanations, and led the groups very well.

5.3 Study sites and sample sizes

In the three selected countries, the studies were carried out in the following villages/communities:

- The Gambia: the coastal villages of Brufut, Tanji, and Gunjur
- Ghana: the villages of Fante Kroa, Dzaklave 3, and Gbetekpo, all located near Yeji-town at Lake Volta
- Nigeria: the villages of Ogheye and Ugogegin, located at the mouth of the Benin River into the Atlantic Ocean

In all villages selected for the investigations, the participation of fisherfolk in the KAP and the focus group discussions was overwhelming. The participants were divided by sex and age into four groups as follows:

- adult females & adult males: all married or ever married male and female participants with children and family responsibilities
- young females & young males: all unmarried male and female participants less than 20 years without children or family responsibilities, but soon to face them

Table 4 summarises the number of participants for both the KAP and the focus group discussions by sex and age for all selected villages in the three countries.

Table 4 Sample size by age group and sex, The Gambia, Ghana, and Nigeria

	The Gambia			Ghana			Nigeria		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
KAP									
Youth (< 20 yrs.)	23	50	73	19	52	71	23	33	56
Adults (> 21 yrs.)	62	65	127	62	67	129	43	44	87
Total	85	115	200	81	119	200	66	77	143
Focus group discussions									
Youth (< 20 yrs.)	4	8	12	7	7	14	8	1	9
Adults (> 21yrs.)	16	29	45	33	53	86	33	26	59
Total	20	37	57	40	60	100	41	27	68

5.4 Training of facilitators

The selected facilitators for the KAP survey and the focus group discussions all received theoretical and practical training on the issues of the investigations as well as the methodology and the various instruments to be used. These training sessions were held over several days prior to the field work.

In the Gambia, a total of ten staff members of the Fisheries Department Banjul and the three target coastal villages served as facilitators and were, hence, trained respectively. In

Ghana, three field assistants and one Assistant Fisheries Officer took part in the training session, and in Nigeria, a total of four staff members of the Federal Department of Fisheries, one from NIOMR, and two from the local Government in the study sites received training and acted as facilitators.

5.5 Field procedures

The field work in the selected target communities in all three countries took place according to the following schedule

= The Gambia	from 20 July to 31 July 1992
= Ghana	from 18 March to 29 March 1993
= Nigeria	from 29 November to 10 December 1993

The preparatory work of the investigations included introductory tours to each of the target communities to meet key village persons in order to explain the objectives of the study and to ensure the cooperation of the target groups

In all target communities, a day each was devoted to the KAP survey and to the focus group discussions. The KAP sessions lasted from one to two hours, and the focus group discussions on average one hour.

5.6 Limitations of the studies

Investigating the opinion of people on population and development interrelationships and the respective individual fertility behaviour is always a sensitive issue. Though qualitative research methodologies are a suitable vehicle to highlight such aspects they bear, however, certain limitations.

The major bias of studies like the present ones is a certain difficulty to assess the validity of responses given on questions focusing on family building and family planning attitudes and practice. KAP surveys are carrying a certain risk that people respond in such a way they believe the investigators would like to hear to please them rather than giving their own, real opinion on the issues raised. In the present study this may have been the case with respect to responses obtained on family planning practice. But investigating the level of family planning practice in a target community forms part of the common KAP survey, and is actually important in studies emphasizing directly on fertility behaviour. Although in the present studies emphasis was put generally on the perception of population-development interrelationships, two questions on family planning practice were, nevertheless, included in the KAP survey rather for completeness. But in The Gambia, for example, where the overwhelming majority of people are moslems, cultural-religious objections exist to discuss the subject of family planning in more detail (e.g. methods used). In Nigeria, questions on the number of children or the numerical strength of the family are often met with some hesitance by respondents. Therefore, the responses of the participants on this issue should be taken with caution.

Such a bias can, nevertheless, be reduced by combining different methods. In the present study, responses obtained in the KAP surveys could be verified by the other sources of information used, i.e. the informal interviews with key village informants and particularly the focus group discussions with fisherfolk.

In Ghana, apart from these methodological limitations, the study team had to face some problems related to a fishery ban on the use of "illegal gear", which the Fisheries Department was about to enforce within the lake area. This impasse, however, was overcome when the fisherfolk recognised the different nature and the independence of the study from the question of the ban.

6. Description of the study areas[3]

6.1 The Gambia

From 1979 to 1991 an **artisanal fisheries development project**, funded by EEC, was implemented along the Gambian coastline. This project aimed at increasing fish production for local consumption as well as for export and creating employment opportunities in the fisheries sector in order to improve the living standard in the project area.

One major outcome of the project was the construction of community fisheries centres (CFC) in six coastal villages and, thereby, serving almost 90% of the marine fishing population in The Gambia. It should be pointed out that the villages are not directly located at the shoreside but 2 to 3 kilometres away from the sea, nor can they be defined as fishing villages, since a remarkable number of villagers is involved only in agriculture and others engage in agriculture and fishing on a part-time basis.

The fisheries centres, on the other hand, were built directly at the beaches to offer access to the service at the place where it is needed. In general the fisheries centres can offer the following services:

- cement tables for fish cleaning
- smoking houses
- sun-drying racks
- stores for dried fish
- gear stores
- safe deposit boxes
- mechanic workshop & testing tanks
- covered area for net drying and repair.

In addition to the above mentioned services training activities were organized in the fisheries centres and credit provided to fishermen, fish processors, and traders. As an

[3] *The descriptions presented here are based on the individual country reports by Heinbuch and Howard-Saydee (1993), Howard-Saydee (1993), and Bolaji, Heinbuch & Demuynck (1994).*

alternative source of income vegetable gardens were laid out to be run by women involved in the fishery sector.

The three **target villages** selected for the present study, i.e. Brufut, Tanji, and Gunjur are located along the Atlantic coast south of Banjul, the capital of The Gambia (see Map 1).

According to the last population census undertaken in the country in 1983 the total population of these villages was 13 783 at that time, with Gunjur being the biggest village (7030 inhabitants), followed by Brufut (5121 inhabitants) and finally Tanji (1632 inhabitants). Given the high population growth due to natural increase and immigration from up-country areas as well as neighbouring Senegal, the population of these villages, however, should be remarkably higher today. The analysis of the recent population census undertaken in 1993 will provide the revised data.

The main ethnic groups in the selected villages are the Mandinka, Serere, and Jola. Other ethnic groups living in those villages are the Fula in Brufut, the Wollof in Gunjur and the Manjako in Tanji. Around 95% of the Gambian population is muslim, the remaining 5% being mostly christians.

The **living conditions** in the villages are generally rather poor, although there have been some improvements in the recent past. With respect to housing the majority of villagers is still living in houses made of mud bricks with thatched or corrugated iron sheet roofs. However, the number of houses made of cement bricks is increasing.

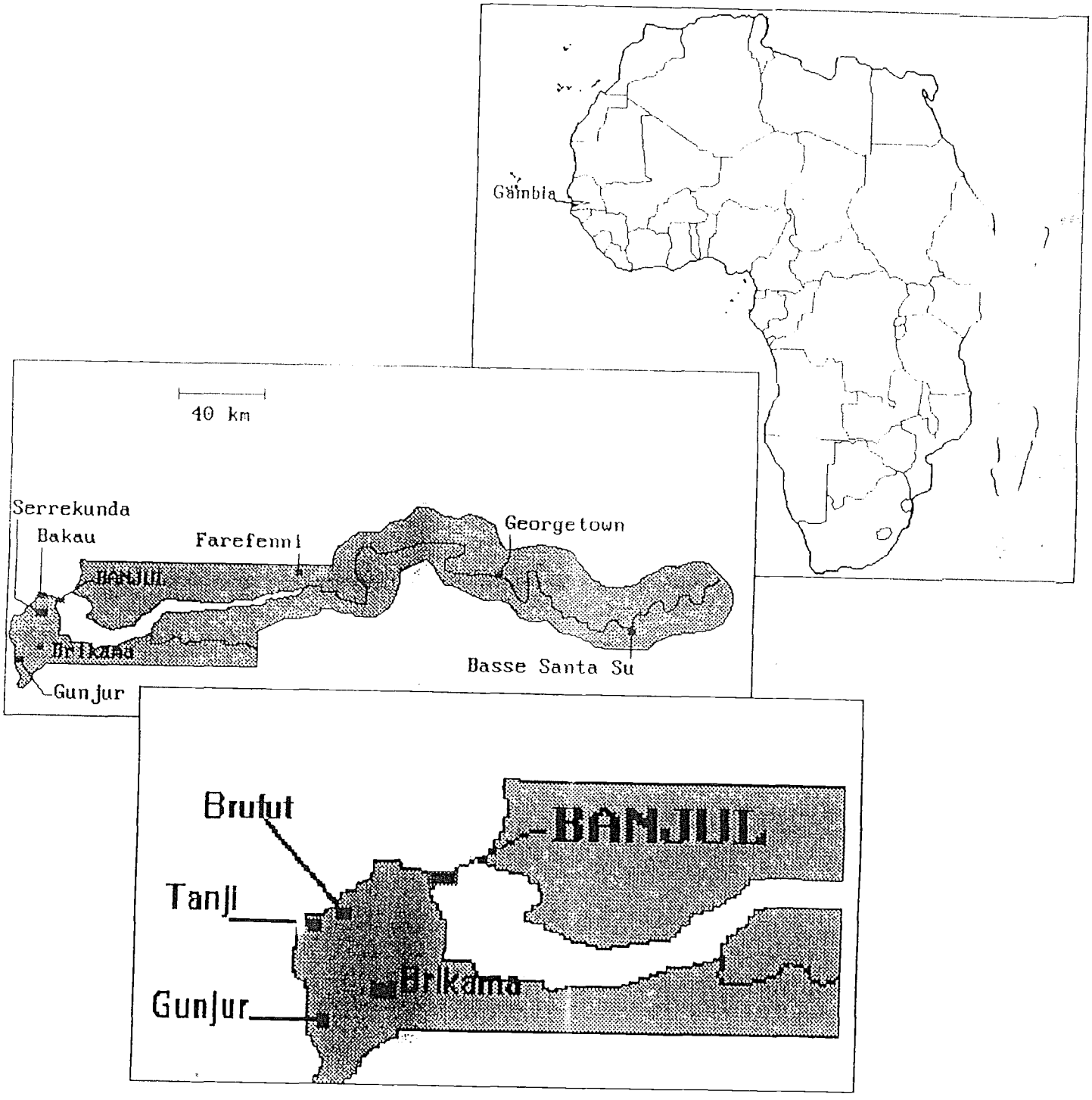
The provision of safe drinking water by public wells in the villages is quite limited. The fisheries centres, on the other hand, all have running water facilities to improve proper fish handling after landing. The water is provided by windmill pumps on a reliable basis.

All three villages do not yet have access to public electricity. Hence, candles and kerosene lamps are the major sources for lighting. Only the fisheries centre in Gunjur is equipped with a generator for lighting and other purposes.

One major achievement of the first phase of the EEC funded project was the construction of laterite roads, linking the six coastal villages with each other as well as with the capital Banjul. These roads allow access to the villages all year round and have let to a remarkable increase of commercial and private traffic, thus, among others, improving marketing opportunities for fish and other goods.

In Brufut and Tanji access to education is limited to primary schools. Only Gunjur has a secondary technical school. It seems that enrolment rates are increasing. According to school statistics in Brufut, for example, enrolment rates reach 95%, with reported low drop-out rates and an increasing percentage of girls in the lower grades. This may be taken as an indicator for increased importance given to education by rural families for boys as well as for girls. These statistics, on the other hand, are in sharp contrast to the general educational level in The Gambia where primary school enrolment was estimated at 57% (62% for boys and 38% for girls) in 1988 (Republic of The Gambia 1992).

Map 1 The study sites in The Gambia



Health care is provided to the villagers by a health centre in Gunjur, a primary health care centre in Tanji and a dispensary in Brufut. Primary health care centres are usually staffed with health workers and traditional birth attendants (TBA), whereas health centres and dispensaries are having trained dispensers, nurses and midwives. Services offered at these centres include curative and preventive medicine, mother and child health care and, in Brufut, family planning.

The **fishery sector** is a major source of employment in the three villages under study. In mid 1991 a total of 2,894 inhabitants were involved in fishing and fishery related activities, out of which 861 were women (Callerholm-Cassel & Jallow 1991). Generally, women are working as fish processors and fish mongers. In Gunjur the overwhelming majority of women, i.e. two-thirds are involved in fish drying. In Tanji about 40% of the women working in the sector are engaged in carrying the fish from the boats to the beach at landing (these women are the so-called "dhunillas").

The majority of men is either a boat-owner or working as a crew member. In total Callerholm-Cassel and Jallow recorded 242 motorized and 13 non-motorized planked canoes at the time of their survey (Table 5). Fishing gear used are surrounding nets, bottom set gill nets and cast nets.

Table 5: Population in the fishery sector, Brufut, Tanji, and Gunjur, 1991

Indicator		Brufut	Tanji	Gunjur
Population (1983 census)		5121	1632	7030
Adult literacy rate (%)		44	7	34
Population active in fisheries				
Fishermen/boat owners		330	414	584
Fish smokers:	male	16	26	37
	female	17	63	48
fish dryers	male	7	25	95
	female	16	62	300
fish mongers	male	50	176	103
	female	10	64	31
dhunillas		17	155	75
boat builders & assistants		10	3	7
others		43	63	47
Total		516	1051	1327
Full time fisherfolk (%)		82	87	87
Canoes	motorized	79	66	97
	unmotorized	5		8

Source: Callerholm-Cassel,E. & A.M. Jallow 1991

Fish smoking and drying are the main fish processing activities in the three villages. Improved smoking houses with modified chorkor ovens are under use in Brufut, Tanji, and Gunjur. The smoking houses are mainly used by male fish processors processing large quantities, whereas female fish processors are rather using domestic ovens to smoke smaller quantities of fish. Fish drying is mostly following the traditional method of fermenting, salting and drying for the production of the famous "guedj", a traditional Gambian dish.

A substantial amount of fish landed is sold fresh directly at the beach, partly through middlemen. Bonga and catfish smoked by men are distributed to markets further away in Gambian provinces as well as to neighbouring countries. Bonga and catfish processed by women are directly sold to consumers in the villages. Other smoked products like skates, rays and sharks are mainly exported by middlemen to neighbouring countries. The fermented, salted and dried fish, "guedj", is sold locally in almost all markets, but is also exported to Senegal, where this Gambian product is well appreciated.

6.2 Ghana

Yeji-town, unlike most fishing villages established as a result of the creation of the Volta Lake, is a permanent settlement which has developed into a predominant fish market for over 342 fishing villages situated alongside the Volta Lake area. Yeji was originally inhabited by the Ntchumurus (Chumburus), the traditional land owners. Due, however, to the creation of the lake, and the eventual importance of Yeji as a major ferry crossing point in the Volta Lake Transport System, the town has boomed into a peri-urban community of commercial significance and dominance as the largest inland fish market in Ghana.

With the employment opportunities in the fisheries sector available after the construction of the dam, Yeji and the neighbouring villages have experienced a rapid growth of the population from about 50.000 to nowadays about 75.000. The fisheries sector in and around Yeji is currently employing about 15.000 fishermen and about 6.500 women processing and marketing the fish. The number of people in Yeji is ever increasing on a daily rate by the large number of traders and unskilled job seekers coming to find a livelihood in this prosperous town. Population pressure is felt, reinforced also as a result of passengers commuting between Yeji and isolated fishing villages within the lake area, thus flooding the town's population such that the population is observed to almost double during the commercial period of the weekly monday market day, normally lasting up to three days.

In January 1989 a project for the "Integrated Development of Artisanal Fisheries in Yeji", funded by UNDP and executed by FAO, was implemented as part of the Government's Global Development Strategy aiming at "increasing domestic food supplies, particularly protein self-sufficiency through a more effective use of available fisheries resources at the regional and local levels, as a means of satisfying national protein needs while creating employment opportunities, and improving the living conditions of the rural population". The major task of the project was planned to be the construction and establishment of a community fisheries centre (CFC) in Yeji with facilities for fish preservation and marketing including the provision of training for male and female fisherfolk.

With respect to **socio-economic facilities**, Yeji retains the basic characteristics of an African peri-urban centre and thrives on economic activities which are dependent on the fishing industry, including: boat building, outboard motor repair, sale of fishing inputs and spare parts, fish processing and marketing, etc. Other commercial activities include hotels, chopbars and restaurants, gas stations, hair dressing salons and tailor shops which are mostly run by women.

Basic infrastructure facilities comprise postal and telecommunication services linking it with all parts of Ghana and the outside world, a police station headed by a Chief Inspector of Police, a branch of Ghana Commercial Bank, nine Primary Schools, seven Junior Secondary Schools, one High Secondary School, one Technical Secondary School and six church-run (religious) schools; five private Vocational Training Centres, including four tailoring centres for girls and one technical training centre of welding and fitting for boys.

The Volta Lake Transport Company provides lake transport to and from Yeji through ferry link services with Akosombo in the south and with Yape and Buipe in the north of the lake. The company also operates a ferry crossing from Yeji to Makango twice a day. Transportation within the township and to the surrounding villages is provided by tractors partly with trailers, trucks, buses and bicycles. Maembe (1991) identified in Yeji a total of 20 tractors with and without trailers, 135 trucks, 1306 bicycles, 14 motorcycles and one bus, and 35 trucks operating in and out of Yeji-town.

Although at the moment Yeji is not on the national grid for electricity supply from Akosombo, electricity is supplied by generators owned and operated by the Yeji Secondary School, the fisheries project and some private business owners.

Yeji was at one time supplied with water from the lake by the Ghana Water and Sewerage Corporation. The system eventually failed when the pumping system broke down. The 50,000 gallon overhead tank located along the main street not far from the market indeed bears testimony of a foiled attempt to provide water for the needs of a growing population with scarce resources. The town's residents, therefore, rely on the Volta Lake for all their water and related needs. Not only does the lake, hence, serve as the main source for drinking water, but also as a place for washing clothes, cooking utensils, vehicles, etc. as well as for bathing. The lake water, in its untreated state, is also piped for domestic purposes into water reservoirs such as the one at the fisheries project's guesthouse for example. The observed multiple use of the lake water makes it, hence, rather unsafe for drinking.

Health care for the inhabitants of Yeji-town and the people in almost all the 342 fishing communities depending on Yeji as a market and service centre is provided by the newly constructed St. Matthias Catholic General Hospital. Located not far from the town centre, this 80-beds hospital commenced its out-patient services in October 1991 and is now providing the in- and out-patient services on a regular basis.

The hospital's administrative staff reported that the number of out-patients is highest during the regular monday market days. The Hospital Administrator, however, remarked that "as a very young institution people may not know of its existence and/or usefulness". She reported a very strong desire to undertake a vigorous education and sensitisation campaign

to make fisherfolk aware of the need to seek early medical help in order to avoid cases of death.

Other health facilities in Yeji as identified by Maembe (1991) comprise: 4 private maternity clinics, 5 health clinics, 10 drug stores, 35 herbalists, 12 traditional healers, and 29 soothsayer. Drug pedlars were also observed selling drugs in and around Yeji-town, as well as travelling to other fishing villages and surrounding communities to sell common drugs, most of which are "unmarked prescriptions"

Sanitation and public hygiene remain a basic problem for Yeji-town. Maembe (1991) identified 35 public toilets including those built for schools, but the majority of private houses do not have toilets. There is also no garbage disposal system in the town. Residents are expected to burn, bury or throw their garbage at public heap sites or to throw it out at the lake side. The shortage of toilets and the absence of a garbage disposal system, therefore, encourages residents to pollute the town environment as well as the lake.

The three **target fishing communities** selected for the field work were Fante Kroa, Dzaklaye 3, and Gbetekpo. Due to the absence of census data and hampered by the frequent movements of fisherfolk the number of people living in the study villages can hardly be estimated correctly. However, the following "Inventory of fishermen and fishing inputs" (Table 6) can shed some light at least on the population actively involved in fisheries activities.

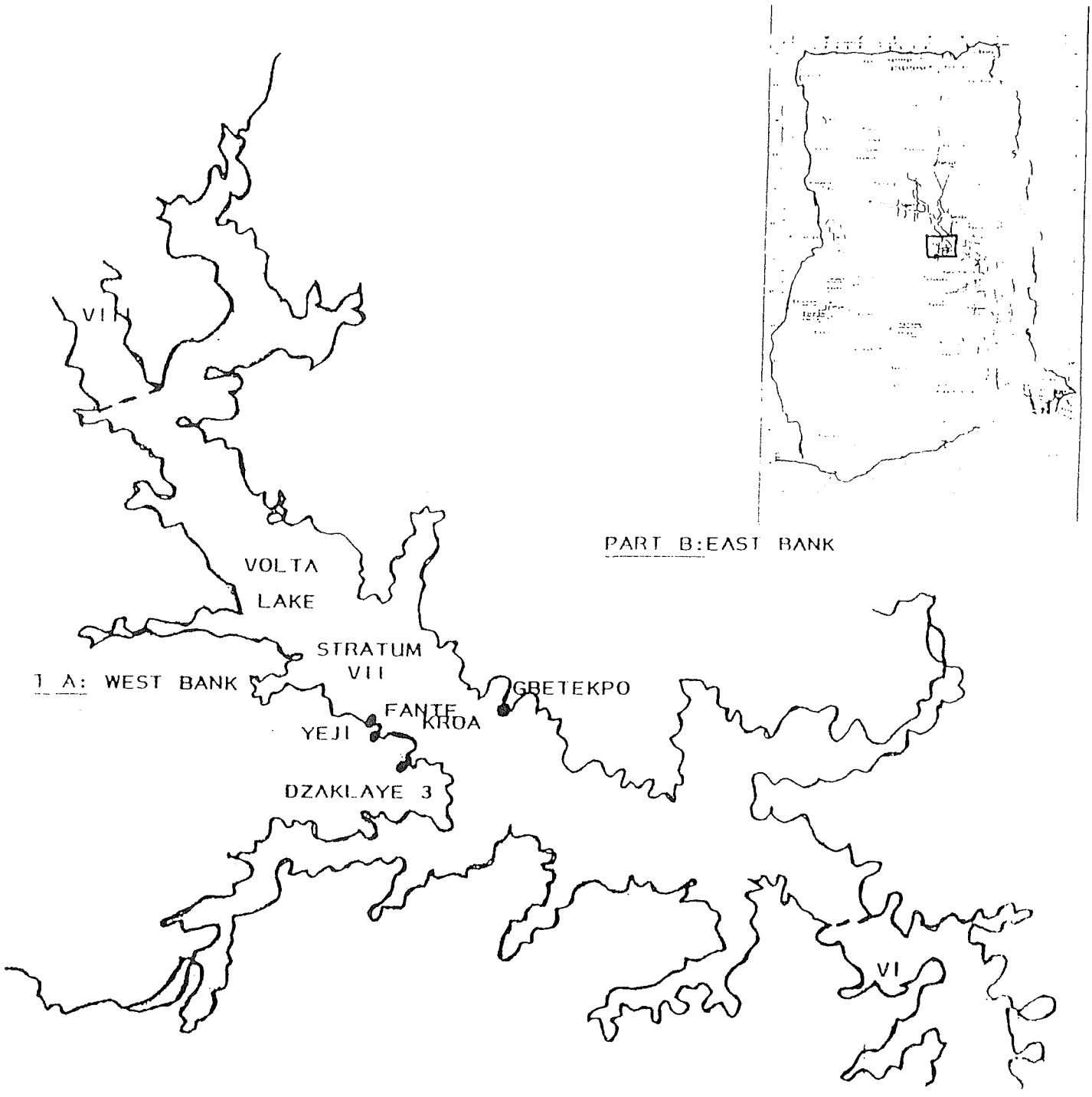
Table 6 Inventory of fishermen and fishing inputs

Location	Fishermen	Fish processors	Number of canoes	Number of winchnet boats	Engines on winchnet boats no hp	Engines on other fishing boats no hp
Fante Kroa	80	40	20	13	8 40	none
Yeji-town	27	(fresh fish sale)	10	none	none	1 8
Dzaklaye 3	120	60	54	14	13 40 1 25	none
Gbetekpo	30	17	16	none	none	1 8
Total	257	117	100	27	21 40 1 25	2 8

Source: Maembe 1991

The three fishing communities selected for the field work can be briefly described as follows (see also Map 2).

Map 2: The study sites in Ghana



Fante Kroa is a predominantly immigrant fishing community located on the left side of the Volta Lake Transport Company pier, situated at the end of the main street in Yeji-town, leading to the lake shore (see Map 2). The community has about 65 housing units constructed of mud walls and thatched roofing. The village lacks all infrastructure facilities and is heavily dependent on Yeji for all its needs.

Maembe (1991) reported a number of fish processing facilities available in Fante Kroa, including: 85 cylindrical (round) ovens and 10 rectangular ones.

Dzaklaye 3 is another immigrant fishing community situated at the outskirts of Yeji-town, about five minutes drive away from the pier. The fisherfolk of this community are from the two ethnics of Ewe and Ada. Although lacking all basic infrastructure facilities like Fante Kroa, Dzaklaye 3 is the demonstration site for the fisheries project s improved chorkor oven. At the time of the study, however, the demonstration centre was observed to be in practical disuse, as most fisherfolk prefer to smoke the fish in their immediate court yards, despite the fact that the centre is centrally located between the Ewe and Ada communities of the town.

Gbetekpo, on the other hand, is located at the east bank of the lake. The village is about a 45 minutes motorboat ride away from the Yeji pier. Gbetekpo is a more permanent village than the other two, and although classified as a fishing village, fisherfolk is also engaged in the cultivation of cassava and cocoa yams.

Gbetekpo is having two large transport boats and six smaller ones available to transport fisherfolk to the weekly monday market in Yeji-town. It was observed that fisherfolk from nearby villages came to Gbetekpo in their small dug-out canoes to be transported from there to the Yeji market.

The women in Gbetekpo were observed to be much busier than their counterparts in the other two villages under study, having the full responsibility for smoking fish as well as for processing gari and other cassava products (e.g. fufu).

6.3 Nigeria

The two **target fishing villages** of Ugogegin and Ogheye are both situated on the right bank of the mouth of the Benin River into the Atlantic, Ogheye being about 5 minutes boat ride down stream from Ugogegin. Both villages are only accessible by waterway, with a travel time depending on the speed of the boat between 1 1/2 and 3 hours from Koko, the closest small town up-stream (see Map 3).

Ogheye is a village of about 500 densely arranged houses, while Ugogegin is a smaller, linear settlement of about 200 houses. The estimated number of residents of both villages is given in Table 7. The dominating ethnic group in both communities is the Itsekiri, but there are also some Ijaws and Ilajes constituting minor tribes. Hence, Itsekiri is the commonly spoken language in the villages.

Map 3: The study sites in Nigeria

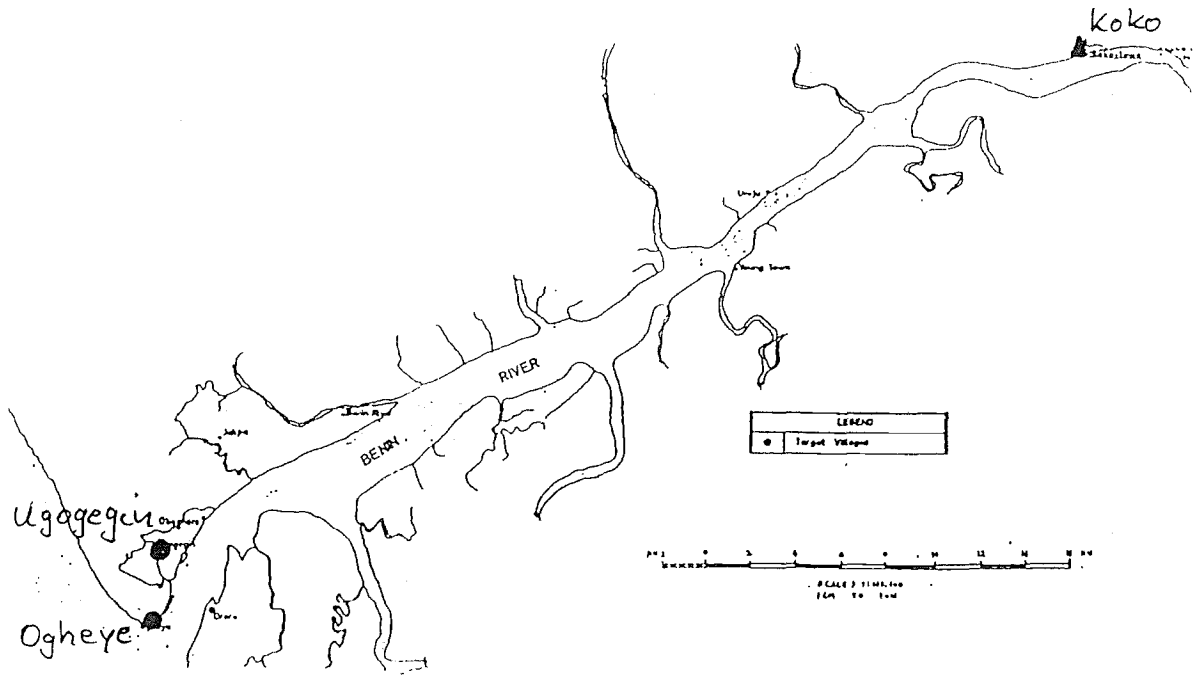


Table 7: Total population and average household size of Ogheye and Ugogegin

	Total number of people		Average household size
Ogheye	3750*	4500**	8
Ugogegin	1180*	1500**	9

Sources: * Ijff 1990, ** Osei-Opare 1991

The domestic household structure is basically extended, in Ugogegin polygamy seems to be popular as an estimated 3/4 of the household are polygamous in structure.

The fisherfolks of Ogheye and Ugogegin are adherent to the christian faith as well as traditional religion. Thus there are churches for Baptists and Cherubim and Seraphim sects in the villages next to fetish shrines.

With respect to the **socio-economic situation** Ogheye and Ugogegin can be described as two typical rural fishing villages where all economic activities centre around the fishing industry - catching, processing and marketing of fish. Other fishery related activities include boat building, outboard engine repairs and repair and maintenance of fishing inputs like nets. In addition a number of villagers is involved in petty trading.

There is no post office or any other form of telecommunication in these communities. Also there is no government supplied electricity, but only a few private generating plants. However, the Ogheye community acquired a diesel electricity generating plant through the FAO/UNDP project.

Local government authorities are completely non-existent. Noted village elders represent authorities and dispense justice. Cooperatives are many and they serve the functions of the local authorities. There are nine cooperatives for men and women at Ugogegin. They organise the villagers for activities like community development work and other self help programmes.

Formal education is provided in each community by a primary school. The past year has witnessed an increase in the enrolment of pupils at Ugogegin and Ogheye. Enrolment increased from the 1990 figure of 172 and 224 to 371 and 676 at Ugogegin and Ogheye respectively. A common feature of the two communities is a significant drop-out of pupils' registration as the pupils proceed to higher classes.

At lower grades enrolment of females is higher than that of males, a trend which, however, shifts to the opposite picture at higher levels. A major reason for the apparent drop-out of female pupils may lie in early marriage and pregnancies as observed in the villages. The final level of education is, hence, higher among men fisherfolks where qualifications ranged from primary education to secondary, teachers training or technical and vocational training qualifications.

Housing and living conditions reflect the standard design and construction of mangrove houses. Typical houses are built on bamboo/wooden stilts to reduce vulnerability to flooding. Construction materials are essentially bamboo, raffia stem and straw supported by wooden frames. However, there are instances where straws and bamboo are replaced by plywood and corrugated iron sheets in the walls and roofs of these houses respectively. Structures like this aptly referred to as "improved houses" abound more at Ogheye than at Ugogegin (where more than 80% are built of straw and bamboo). The standard of housing in these villages can be taken as an economical indicator of their inhabitants, e.g. most painted "improved houses" belong to villagers who are better-off. These houses are often complete with louvres, windows, mosquito screens and a wooden approach bridge.

Ogheye and Ugogegin do not have a safe supply of water. They depend on rain water collection, shallow wells, rivers, creeks and water purchase from water boats.

Rain water constitutes the most important source of drinking water. The supply is, however, limited to the rainy season, i.e. March/April to September/October. Rain water is collected in metal drums (made rust-proof with tar), plastic tanks, or buckets placed at specific points at roof corners. The efficiency of this system is limited to those roofs with corrugated sheets as thatched roofs have a natural tendency to imbibe water. The FAO Integrated Rural Fisheries Development Project (IRFDP - NIR/87/010) donated about 10 plastic water tanks (750 litres each) to directly support the chorkor fish drying centres and the schools in order to stretch the availability of rain water into the dry season.

Water is also purchased from water boats during the dry season and whenever there is a break in rainfall. However, this source is becoming problematic as costs have increased in only two years from between 7.00 and 9.00 Naira[5] per drum in 1991 to 80.00 Naira per drum in 1993, as a result of a 700% increase in the price of petroleum products. The quality of this water constitutes another problem at times, since this water is alleged to have been sourced from areas that are not hygienic, like lagoons, for instance, which are often used for waste disposal by the residents.

Shallow ringed wells (1.5m) also constitute a source of brackish water for washing and supplementing purchased water for cooking. However, the depression of water tables in the dry season means that more time is spent by children at the wells waiting for it to discharge. The rings are also vulnerable to rust, a situation escalated by salty water.

There have been no modern health centres in Ogheye and Ugogegin since the closure of an Ogheye based private clinic/dispensary in 1990. The closest health centre is at Gbokoda which is 30 minutes - 1 hr boat drive away, and the closest hospital is at Koko. Maternal services are rendered by traditional birth attendants and local midwives whose skills derived more from experience than from formal training.

Early marriage among girls (< 18 years) is not uncommon. The implications are early pregnancy and its accompanying complications plus a long child bearing period.

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[5] *Exchange rate: US $ 1 = 40.00 Naira (December 1993)*

Child mortality is also widespread. Most female respondents reported to have lost a child in the family. Major causes of infant mortality include: chronic diarrhoea, convulsion and diphtheria. Measles have been identified as a major cause of infant mortality during the dry season. In order to deal with these infectious infant diseases the "Expanded Programme on Immunization" (EPI) was extended to the riverine villages. Despite this effort, however less than 40% of all children have been immunized (Opare 1991), though visits to the villages by officials of the immunization scheme and other health officials started in 1992 in cooperation with the local fisheries staff.

Sanitation and public hygiene in Ogheye and Ugogegin like other settlements along the Benin estuary depend on the river to flush off both human and other domestic wastes. There are very few pit toilets in these settlements belonging to individual families. Most people use public toilets which are constructed of planks on a less conspicuous or concealed part of the river.

Riverine water transport constitutes the only means of transport through regular boat services to/from Koko and Sapele. There are two types of boats used for this purpose: big transport boats to carry passengers and loads, going every other day at a price of 100 Naira per caput per one way trip. Speedboats are servicing the villages several times per day, but carry only passengers at a price of 150-200 Naira per caput per one way trip. However, the increase in fuel price, cost and maintenance of outboard engines plus other inputs complicated by rampant outboard engine theft make the service costly and irregular.

Due to the complete absence of arable land for farming or gardening, **fishing and related activities** form the only source of employment for the overwhelming majority of people in Ogheye and Ugogegin. Menfolk are involved in active fishing on a full-time basis, while fish processing and marketing are the preserves of the womenfolk though some women also engage in fishing for shrimps and crabs in the rivers and creeks. Secondary activities like mat and trap weaving, miscellaneous trading, sewing, hair plaiting, knitting and wood cutting are undertaken by women to supplement the income from fishery. Another source of additional household revenue is the rearing of domestic animals like pigs, poultry and goats.

The types of fishing include: (i) marine/sea fishing; (ii) river fishing, (iii) estuary fishing, and (iv) creek fishing. Marine/sea fishing attracts most of the men in these communities.

The planked canoe is the preferred fishing craft in these communities. Propulsion ranges from paddles to outboard engines, the former being more common in the river, creek and estuary fishing activities while the latter is predominant in sea fishing. Fishing gears include the modern driftnet, dragnets, and long lines (marine fishing) and cast nets (employed in river fishing). Traditional gears include "Eta or Ita" (net made from bamboo and cane strips) which measures about 20 metres in length and about 6 metres wide in the open front part; crab traps; catfish traps; and shrimp traps locally called "Ekobi" traps (a conically shaped trap made of cane strips).

According to the villagers there has been a slight reduction in sea fishing during recent years. Major problems are the inability to maintain engines due to the non-availability

of spare parts, the destruction of fishing grounds and nets by trawlers, and the loss of engines due to thieves, and menace of the rapid spread of the water hyacinth (Eichhornia crassipes) for riverine fisheries.

Active fishing goes on all seasons, though marine fishermen have a preference for the rainy season (April - October), while the dry season (January - March) is considered a low catch period.

Men and women both own canoes and other fishing inputs. Women normally employ a crew to work on their vessels while the men either hire crew members or fish themselves. Hiring crews becomes necessary in any case, when individuals own more than one or two fishing canoes.

Fish processing activities in Ogheye and Ugogegin are limited to fish smoking and drying. These activities are essentially female concerns. A huge part of fresh fish landed is sold directly or through middlemen to the women. Fish smoking is done in smoking kilns. The majority of women has their own smoking kilns built outdoors, though about 20% rent kilns in Ogheye while about 40% do so in Ugogegin. Smoking and drying are carried out in traditional and modified "Chorkor" ovens. In Ogheye, women who own boats are hiring young men in order to go out to the trawlers to get the by-catch. This trash fish constitutes 40% - 50% of fish supply to Ogheye womenfolk

Smoked fish is sold either wholesale or through retailers. Osei-Opare (1991) identified four main marketing systems for smoked fish, including: (i) customers who purchase directly from smokers; (ii) smokers who buy from other smokers; (iii) smokers taking their products to distant markets; and (iv) fish sent unaccompanied to customers outside the community.

Sapele is the major market receiving over 80% of the fish processed in Ogheye and Ugogegin. Warri is another important market for the products of the two villages, and some quantities are going further to distant markets outside the state.

7. The perceptions of fisherfolk

This chapter presents a joint summary of the results of the KAP surveys and the focus group discussions undertaken in all study sites in the three countries. Based on the rather qualitative nature of the study methods, the results are best presented in a descriptive way. However, Annex III provides the detailed results of the KAP surveys by country as supplementary information.

7.1 Production and potential of the fishery resource

In all study sites, fishing and fishery related activities form the backbone of the local economies. The artisanal fishery industry provides full-time and year-round employment for a large segment of the populations involved. The sector contributes substantially to income generation and animal food-supply not only for the villagers themselves but also - as

fisherfolk in Nigeria pointed out - for the country as a whole. Nevertheless, there are some pronounced differences between the fishing communities in the three countries. In Ghana, fishing is based upon tradition and a long history. Fisherfolk at Lake Volta proudly recount that generations before them had been successfully engaged in fishing. Ghanaian fishermen have always been very mobile in the search for profitable fishing grounds and - as a result - can be found all along the coast of West Africa. After the establishment of Lake Volta, such migrant fishermen moved inland to settle along the lake shores and start fishing.

In the two Nigerian villages of Ogheye and Ugogegin, fishing also has a long tradition but rather due to the remote and isolated geographical location. Here, fishing forms the only source of livelihood (apart from petty trading) since neither the soil supports any form of farming or gardening, nor do any other alternatives exist.

The Gambian coastal villages, on the other side, depict a completely different picture. They are not really "fishing" communities, but rather "rural" communities where people engage in fishing as well as farming and other activities. Some thirty years ago, fishing was not really considered an economic activity like farming, for instance. Fish was caught mainly to supplement the individual households' diet but not so much as a marketable commodity. This attitude changed, however, when people became aware of the potential economic benefits associated with the fishery industry. This change was partly stimulated by the serious and frequent droughts affecting The Gambia since the 1970's. Agricultural production deteriorated substantially and resulted in considerable migration of rural farm populations. Quite a number of these people leaving the hinterlands moved to the coastal areas to enter artisanal fisheries.

In all study sites, fishermen are apparently watching the fishery resources carefully. They are well aware of the catches they bring home and changes which occurred during the past years. The majority of fishermen is realizing a decline in catches over the last years. In Ghana and Nigeria, this decline is foremost attributed to changes in fishing inputs and environmental conditions specific to the respective communities. In The Gambia, fishing operations by fish trawlers are made responsible (Box 1). In Ghana and in The Gambia, about half of the fisherfolk is also aware of the limited nature of the fishery resource and the pressure put on it by an increasing number of fishermen. In Nigeria, on the other hand, the overwhelming majority of fisherfolk is not perceiving the natural limits of the resource's productivity and hence not realising the link to population growth. They believe that the resource has not actually changed, but that the inputs to prosecute its active exploitation are lacking. This lack of adequate inputs is made responsible for the recorded low catches. Those few who point to an increased number of fishermen in this context refer particularly to a (temporary) increase in the number of migrant fishermen. This way of linking the resource and population growth may reflect a general strong competition between indigenous and migrant fishermen, which sometimes even lead to tribal conflicts rather than an understanding of the problem as such.

Box 1: Perceived reasons for declining fish catches among fisherfolk

The Gambia	▸	there are many more fishing boats operating in the same fishing grounds nowadays hence increasing the competition for a limited resource
	▸	fish trawlers are blamed to destroy breeding grounds hence contributing to a reduction in fish stocks
Ghana	▸	the use of illegal fishing gear on the lake contributes to decreasing fish stocks
	▸	overfishing especially during the fish spawning season causes the catching of too many juveniles
	▸	too many fishermen are engaged in fishing nowadays
	▸	changes in the climate affect fishing conditions
Nigeria	▸	inadequate fishing inputs limit fishing efforts
	▸	physical and biological pollution due to oil exploration is believed to ruin fishing grounds, particularly spawning areas
	▸	noise produced by outboard engines is believed to scare off the fish
	▸	traditional resource conservation practices like fishing free days or periods are not longer followed
	▸	the number of fishermen exploiting the given resource has increased, particularly due to immigration of foreign fishermen.

But there are, on the contrary, fishermen challenging the observation of declining catches. In The Gambia, half of the fishermen participating in the discussions on this topic rather see catches to have increased. This is mainly attributed to improvements in fishing technology over the course of the years, particularly the use of modern fishing gear and motorized canoes. The same argument is also prominent among few fishermen in Nigeria.

The two apparently contradictory opinions, i.e. decreasing vs. increasing catches, may well reflect the different perception of the two major factors of fishery development: total catch and catch per unit effort. Those in The Gambia arguing that catches have increased, may refer to total fish catch which indeed has increased over the years as can be seen from

statistics of the Fisheries Department. Those observing declining catches, on the other side, may refer to catch per unit effort, which may in fact have decreased due to the increased number of fishermen exploiting the same resource. They, hence, seem to be aware of the negative implications population pressure can pose on a limited resource.

In Ghana, part of the fisherfolk is paying more attention to the seasonality of fishing in Lake Volta. They observe peak seasons when catches are good and lean seasons when catches are lower, but argue that over the course of the year catches would more or less remain stable.

The fisherfolk in all study sites are convinced that an increase in fish production is possible in their respective environments. They see, however, a number of constraints and conditions which first have to be overcome. Among these, assistance for obtaining inputs like nets and outboard engines is the most prominent help requested in all communities (Box 2).

Box 2: Conditions to increase fish catches as perceived by fisherfolk

The Gambia	▸	limiting the areas of operation for commercial fish trawlers who tend to destroy fish breeding grounds
	▸	provision of outboard engines and duty free fuel
	▸	construction of an ice plant to store fresh fish
	▸	transportation facilities for marketing the products and for bringing in firewood
	▸	providing access to loans for women to enable them extending their fish processing and marketing activities
Ghana	▸	prohibiting the use of illegal fishing gear through the rigid enforcement of the fishery law by the respective governmental bodies
	▸	governmental assistance in providing fishing inputs like improved nets and outboard engines at low prices
	▸	increased efforts by fishermen themselves for proper maintenance of fishing inputs
Nigeria	▸	access to loans for fisherfolk to purchase fishing inputs like improved nets, outboard engines, and boats
	▸	governmental assistance in providing fishing inputs at subsidized rates.

Other constraints are more specific to local situations, like illegal fishing on Lake Volta, for instance. In The Gambia, one major constraint is seen in the limited access to inland fish markets. This concern expressed by fisherfolk is reflecting their awareness of the interplay between the primary and the secondary (post-harvest) sector within artisanal fisheries. It happens indeed in The Gambia during peak seasons that fishermen feel forced to throw catches back to sea, because fish processing capacities at the Community Fisheries Centres fail to provide enough room for frequent large catches. This also explains the request for an ice plant in order to be able to store fresh fish[6].

Apparently, there are only few fishermen who realize that material support alone cannot increase fish production, but that the large number of people involved in fishing nowadays is putting serious pressure on the available resources. The high level of competition for good catches among them is considered a substantial risk towards overexploitation.

7.2 The future for fishing and the need for resource conservation

The fact that so far fishing and related activities have apparently proved to be good occupations providing adequate employment opportunities, income, and food is influencing fisherfolks' attitudes towards the future of artisanal fisheries. Based on own positive experience, many fisherfolk people generally consider the sector to have the capacity to offer promising employment opportunities for their children as well. But quite a number of fisherfolk, on the other hand, are concerned about future prospects in the artisanal fisheries sector. The factors considered to undermine these prospects are, however, not directly linked to the risk of overexploitation of fish stocks by artisanal fishermen. In The Gambia, it is the destructive nature of fish trawlers upsetting artisanal fishermen to an extent that they may not encourage their offspring to enter the sector. In Ghana at Lake Volta, it is the use of illegal fishing gear which is seen as an obstacle for future prospects in fishing for fisherfolk children.

Those fisherfolk aware of declining catches due to the increased number of fishermen exploiting the resources, apparently tend to fear that revenues from fishing and related activities may further diminish, thereby deteriorating the economical viability for the future generation. Other factors considered to hamper the artisanal fishery sector and its future are seen in the shortage of fuelwood for fish smoking, the lack of guaranteed market outlets, and transportation problems.

The need for resource conservation is seen by the overwhelming majority of Ghanaian fishermen exploiting Lake Volta. In principle, they are aware that the sustainability of artisanal fisheries can be ensured through proper management of the resource. The prevailing pattern of the widespread use of illegal fishing gear points, however, into a different direction. In addition, only half of the fisherfolk seems to be in favour towards *own action* for preventing the fishery resource of the lake from overfishing[7].

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[6] *In the meantime, an ice plant was built in Bakau some 10 km away from the capital Banjul.*

[7] *It has to be pointed out here that current production levels of around 40.000 mt per year already coincide with the indicative fisheries potential of the lake.*

Not surprisingly, fisherfolk in Nigeria are generally not aware that the fishery resource needs to be protected. Where people do not see natural limits to a given resource (see above) the need for its conservation is, of course, not perceived. But remarkable is that in one of the two fishing villages investigated, i.e. Ugogegin, more than one third of adult women indeed see a need for resource conservation. A possible explanation for this somewhat surprising finding may be seen in the direct involvement of women from this village in riverine and creek fishing. The areas where they fish are easy to survey and the need for protecting the fish stocks by letting juvenile fish grow may be more visible than is the case in sea fishing.

7.3 The role of education

The study findings reveal that formal and non-formal education is apparently gaining more and more importance among fisherfolk regardless of sex and age. The overwhelming majority wants their children to attend school. In the case of Nigeria, this interest in formal education is evidenced by an increase in the registration of both male and female children in the local primary schools of Ogheye and Ugogegin. Also in The Gambia, there is some indication that particularly school enrolment of girls is on the increase in the coastal communities.

The role of education as perceived by the fisherfolk is twofold: first, a sound formal education is considered a way out of the strenuous and risky business of fishing by opening up employment alternatives outside the fishery sector. In the case of isolated fishing villages like Ogheye and Ugogegin/Nigeria where the local environment does not provide any other alternative to fishing, a certain level of education becomes inevitable to gain a foothold somewhere else.

Secondly, education is seen as playing a vital role within the artisanal fisheries sector, though this opinion is not uncontradicted. For the future of the artisanal fisheries sector, this role is undoubtedly more important than the above mentioned one. Educated fishermen are expected to have a better knowledge and understanding of modern fishing material and techniques and their proper use. This enables them to manage the resources in a more proper way than uneducated fishermen, leading to better catches on a more sustainable basis. It is also felt that a certain level of education is indispensable for fishermen nowadays in order to deal with problems brought about by fisheries legislations as is the case at Lake Volta/Ghana, or environmental hazards caused by multinational companies as is the case in Nigeria.

7.4 Attitudes towards family size and selected socio-demographic issues

The **value of children** is one of the most important determinants of the continuous high fertility in developing countries[8]. Children are fulfilling a number of economic and social roles within families as well as societies, and fishing communities are no exception of this general pattern.

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[8] *See Bulatao and Lee (1983) for a detailed discussion of all determinants involved.*

Children are often considered an economic asset for the family. They participate in income-earning activities, thereby contributing to household revenues. In small-scale enterprises the required labour force inputs are generally provided by family members rather than by hired workers from outside. In artisanal fisheries, it is usually only the wealthier boat owners, often owning more than one canoe, who don't go out fishing themselves but hire crews for the fishing operations. Though the direct participation of children below the age of 10 years in fishing and fish processing may be somewhat limited due to the tedious nature of the work, they can be involved in fetch and carry activities for their parents. By assisting in food preparation and looking after younger siblings, girls often liberate their mothers from domestic chores thus enabling them to put more time and energy into their income-earning activities. Consequently, many fisherfolk people share the opinion that a large family is well-off

Another vital role of children is the provision of **old-age support** to their parents. The complete absence of formal or institutionalised old-age security systems leaves fisherfolk - like other rural dwellers - in dependence on their offspring. The help which grown-up children offer their old parents to maintain the standard of living in economic and social terms is also seen as a return for the resources the parents once spent on raising them.

The **preference for boys** is another driving force for high fertility. As in most African societies, boys in fishing societies are the ones to carry on the family name and guarantee the continuation of the family lineage. Once the father dies, the oldest male offspring takes over responsibility for the family, whereas girls are usually leaving the family once they are getting married. In fishing communities, the need for male labour force in artisanal fishing operations may add further to this preference. As a result, the desire to continue child bearing until having at least one son is apparent in the fishing communities. But there are remarkable differences between the sexes with respect to this issue. It is mostly the men who are reluctant to stop getting children without having a son yet in view of the traditional role and responsibilities attached to male family members. Women, on the other hand, distinguish the value of a child far less by its sex, but acknowledge that in daily life both male and female children are carrying comparable benefits/advantages. In Ghana and Nigeria, an alternative to bring in line these different fertility desires which seems acceptable to males as well as females, is the possibility for a man to marry another wife in hope for the desired male offspring.

The concept of **family planning** is generally known in all fishing communities investigated. About half of the fisherfolk in Nigeria, two thirds in The Gambia, and almost all in Ghana favour the idea to link family size with family resources. It is generally considered easier to support a smaller family properly in terms of food, cloths, housing, and education. Particularly the last aspect - education - is playing a prominent role in this context. As was mentioned before, fisherfolk are placing more and more emphasis on a sound education for their offspring. Since school enrolment of the children charges the family budget more than the other aspects[9], the burden of a larger number of children is more directly felt.

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[9] *To a certain extent, a house may offer room for 5 as well as 10 people, younger siblings can wear the clothes of older ones, and food can be shared among more eaters, for example.*

With respect to family planning methods, even in the isolated villages Ogheye and Ugogegin/Nigeria where almost no health facilities exist, are fisherfolk aware of traditional and modern means of contraception. In The Gambia, fisherfolk have a fairly good knowledge of family health/family planning issues despite the fact that moslem societies often meet this subject with some reluctance. This may be due to the work of the health centres dealing with such topics in one way or the other and providing information and advice.

The awareness of potential health hazards both for the mother and the child caused by pregnancies too early and too frequently is remarkably high among fisherfolk in The Gambia and Ghana. In the former this may be due to the work of the local health centres as mentioned above. In the latter, it may be due to the work of a well developed community-based health unit coordinated by St. Matthias' Catholic Hospital in Yeji. This health unit works in close collaboration with the fisheries project, providing information and advice to fisherfolk even in remote villages, thereby helping to spread knowledge about basic health care, immunization, and family planning and family well-being. In Nigeria, on the other hand, there is obviously quite a lack of knowledge about the negative health implications of early and frequent child bearing. One possible explanation may be the absence of health facilities. In addition, early marriage which usually goes hand in hand with early child bearing is an entrenched tradition in Ogheye and Ugogegin, perhaps due to the isolated geographical location of these villages, and hence is an accepted social behaviour.

8. Concluding remarks and policy implications

The rapidly growing population in the IDAF countries is posing a great challenge on national economies to achieve further socio-economic development. The concern is not to maintain the existing supply of basic needs like food, health care, education, housing, and communication infrastrucure, for example, but to improve it from current poor levels and this for a rising number of people. The young age structure inevitably caused by rapid population increase means at the same time that the national economies have to spend relatively larger parts of their budgets on non-productive purposes like health and school education.

One of the most crucial problems brought about by rapid population growth is the provision of employment opportunites. Millions of young people are entering the labour force market every year searching for jobs which allow a decent standard of living and the building of an own family. In many IDAF countries, the labour-intensive artisanal fisheries sector plays a vital role in providing employment for substantial portions of the populations. The attractiveness of the sector to further win labour in the years to come will certainly continue. It can be expected to be particularly strong in those situations (i) where the sector currently provides visible good profits; and (ii) where hardly any viable employment alternatives exist.

Due to the limited nature of the fishery resource the capacity of the artisanal sector to absorb additional labour is, however, not open ended. In those countries, where resources are already fully or even over-exploited like in the Gulf of Guinea region, any increase in the number of active fishermen will sooner or later result in a decrease in the catch per unit effort. This strongly contradicts the stated objective of national fisheries policies as well as that of the IDAF Programme, namely to improve the living standard of fisherfolk.

Another crucial challenge is the growing demand for food. With the exception of Mauritania, fish is substantially contributing to the overall supply of animal protein throughout the region. In this context, artisanal fisheries is of utmost importance by producing 75% of the total small pelagic catches, which form the bulk of the marine catches of the region and often form the cheapest source of animal protein available in local markets. Maintaining or - where possible - increasing the productivity of the artisanal fisheries sector is therefore an inevitable component of any food security strategy.

At the local level, i.e. in fishing communites, life has changed a lot during the last decades. Improvements in fishing technology have boosted the catches, and those in fish technology and marketing increased the earning capacity of the entire sector. Not surprisingly, fisherfolk generally consider fishing and related activities as a good occupation providing adequate employment, income and food. But they also realize changes of a negative sort during the past years, foremost a decline in catches and a general increase in the cost of living. Even though some fisherfolk people are aware of the population pressure on the resources due to an increasing number of fishermen exploiting the given fishing grounds as one cause of the observed decline, fisherfolk as a whole rather take the richness of the resources for granted. They consider further increases in fish catches as principally possible, provided they receive adequate technical, financial, and legislative assistance by their respective Fisheries Departments.

There is, on the other side, some indication that fisherfolk may not any longer be wholeheartedly convinced of a promising future for their children in fisheries. The increasing importance given by fisherfolk to formal education for their children is mainly based on the desire to keep a backdoor open for employment outside the fisheries sector. But it is also seen, that education for a becoming fisherman may better enable him to deal with modern fishing technology and to achieve better catches.

The high value fisherfolk is giving to sound education nowadays is bearing an important implication for their demographic behaviour as well. School enrolment of children is a relative new but significant cost factor charging a family's budget. Fisherfolk perceive the increasing burden to support a large family with many children mostly when they compare their educational aspirations with their financial capacities. Consequently, they see advantages in having fewer children as the generation before.

Future developments in the artisanal fisheries sector are likely to be tightly twined with population pressure. Approaches to balancing the two in a sustainable way are indispensable and may be found by looking at the two sides of the coin: (i) fishery-oriented interventions to manage artisanal fisheries in such a way to meet the requirements for employment and food of the growing populations; (ii) population-oriented interventions to curb down population growth.

Fishery-oriented interventions

The rapid population growth in the IDAF region is putting three different kinds of pressures on a thorough planning and management of artisanal fisheries, namely (a) the pressure on the labour absorbing capacity of the sector due to the increasing number of people

searching for employment; (b) the pressure on limited resources due to increased fishing efforts; and (c) the pressure to produce sufficient animal protein for more and more people.

To deal with the issues of labour absorption and the pressure on the limited resources is, however, not an easy endeavour. Any interventions in these areas should therefore be **community-based**, involving fisherfolk directly in the identification of the problems as well as the development and implementation of potential solutions.

An **assessment of the fishery potential at local levels** for the different types of fisheries is needed in order to determine the respective labour absorbing capacities of the sector. In all those situations where the resource is already fully or even overexploited, **access rights** given to a fixed number of fishermen may be inevitable in order to limit uncontrolled fishing. In addition, **fishing regulations** particularly concerning the mesh size of fishing gear to be used should not only be passed but the implementation also be closely monitored.

Education and extension for fisherfolk are playing a vital role. Fishermen have to be instructed on the proper and efficient use of modern fishing technology. At the same time, efforts must be directed at educating fisherfolk on the limited nature of the fishery resource, and on the need for its conservation including appropriate conservation methods. With respect to the latter, existing traditional fisheries management techniques already known in fishing communities like, for example, closed fishing seasons or fishing free days, or the establishment of sanctuaries, should receive the necessary attention and be emphasised where they can still play an efficient role in the protection of the fishery resource. The question of resource conservation is perhaps the most crucial one for the need for community-based management. Each single fisherman must have the certitude that his own restraint from fishing in order to conserve the resource is not offset by other fishermen not following this behaviour any longer but exploiting the resource instead. Hence, only community-based planning and management may create the environment of insight and mutual trust needed for a fishery production which is sustainable and not destructive.

In order to deal with the pressure to produce sufficient animal protein for the increasing number of people, interventions do not rely solely on increased fish production, but can be promising in the post-harvest field. To **reduce post-harvest losses** in order to guarantee as much of the production as possible to be available for human consumption can already make a difference considering the amount of such losses of up to 40% of the initial catch. This could be achieved through improvements in fish handling and distribution, which would in addition generally increase the quality and nutritional value of fish. Another area suitable to be looked into more carefully is to increase the **utilization of by-catch** for human consumption.

Population-oriented interventions

To curb down population growth in traditional societies is not an easy undertaking and will take its time. But there are various angles from which it can be tackled.

For fishing communities, which often are remote and isolated, improved **access to health services** will be an important first step to increased family well-being. In areas where

villages are rather small and very scattered so that the establishment of local health stations may not be justifiable, "mobile solutions", i.e. regular visits of health personnel based in bigger villages with the respective infrastructure, should be seriously considered and implemented. To this end, a close collaboration between local health and fisheries services should be strongly encouraged to the benefits of fisherfolk people. At a regional or national level, fisheries departments should approach health departments more directly and claim more and better health infrastructure for fishing villages.

Improved **access to modern family-planning methods** is a necessary though not sufficient precondition to changes in fertility behaviour and goes best hand in hand with access to health services. Proper counselling and advice on advantages and disadvantages of different contraceptive methods and a thorough monitoring of the health of family-planning users are indispensable ingredients of a successful implementation of such interventions in fishing as well as in other rural communites.

In order to increase the awareness of fisherfolk on population-development interrelationships in their respective communities, **Population Information, Education and Communication** (IEC) campaigns should be launched. They should focus (i) on the implications of population changes at the local level for the development and future of the fishery sector and the community as a whole, as well as on the implications of larger versus smaller families in the given environments, and (ii) on suitable approaches to solve the problem from different angles. As such, Population IEC actually forms not only an important part of population-oriented interventions, but plays a role as well in popularizing interventions directed on the fishery sector. Population IEC should generally be addressed to both men and women equally. This holds also true for matters of reproductive health and family-planning, where particularly men often have a greater need for the respective knowledge.

The empowerment of fisherfolk, men and women, as a necessary condition for a sustainable development of the artisanal fisheries sector is gaining more and more prominence. In order to achieve demographic changes, it is the **empowerment of women** in particular which should deserve attention. This is not to exclude men, but demographic research all around the world is pointing to the central role which the social and ecomomic status of women is playing in fertilitiy decisions. In fishing communities, formal education for girls, vocational training and improvement of management skills for female small-scale entrepreneurs, as well as the supply of capital for the post-harvest activities should, hence, be encouraged and implemented. In social terms, women should be encouraged to more actively participate in community and family decisions. This should eventually pave the way for *joint* decisions by husbands and wives on the number and timing of the children they want to have.

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ANNEX I

METHODOLOGY USED IN CONDUCTING A KAP SURVEY

A Knowledge, Attitude, and Practice survey helps to find out what people know, think, and eventually do regarding certain aspects of their lives. The survey technique involves the preparation of carefully selected issues that are relevant for an understanding of the respondent's level of knowledge and attitude on the respective subject matter

During the survey KAP respondents are confronted with statements/questions on a chosen topic, in this case interrelationships between population, the fishery resource, and the environment. They are asked to respond to

(a) Knowledge statements/questions, reflecting what the respondents already know about population and development concerns, and the fishing situation in their communities

(b) Attitude questions, reflecting what the respondents believe or think concerning fishery management and aspects concerning family building and planning one s family

(c) Practice questions, reflecting if respondents have ever done something or are presently doing something to protect the fishery resource, and if they haver ever done something or are presently doing something to plan their families, i.e. space their births or prevent pregnancy.

Each statement/question offers three options of response --- YES --- NO --- DON'T KNOW --- from which each respondent has to choose one for each statement or question posed

A KAP survey can be conducted with individual respondents in a person to person interview manner, but it also proves very valuable when applied to groups of respondents. The latter proved highly effective in other studies (undertaken in Senegal, Burkina Faso, and The Gambia) in obtaining responses from a larger part of the target populations in comparable less time than personal interviews. The process guiding the KAP procedure for groups is very simple using coloured cards, and can be conducted with illiterate audiences as well. In these cases the audience is rather seen as "participants" and not mere "objects of study". This way, a KAP survey proves to be a useful tool to gain qualitative insight into areas that cannot be easily obtained through structured interviews.

The method, though simple, yet requires proper application:

For large (illiterate) groups the preferred technique is using coloured cards. The different colours are referring to selected sub-groups (e.g. one colour for married women, one for married men, etc.) and allow the analysis to be differentiated by sex and age. For each single statement/question, each respondent receives a separate card on which to mark his/her

response with a beforehand specified sign for each of the three possible answers. Each card is coded for identification of the respective statement/question, e.g. K1, K2.., A1, A2.., P1, P2.. When statement/question K1 is going to be posed the coded answer card K1 is distributed to the participants. When all cards are marked by them, i.e. each respondent has given his/her answer, the cards are collected and those ones for the next statement question are distributed, etc.

In order to receive valid results the facilitators of a KAP survey must have

a good comprehension themselves of the subject or topics being posed, to be able to render, where necessary the statements/questions into the local language of the target audience without significantly altering the intention of the statement/question.

the ability to provide animation on issues raised and for which respondents require further clarification, but without providing leads for a proper answer, nor misleading the audience towards an improper answer.

ANNEX II

GUIDE FOR FOCUS GROUP DISCUSSIONS

I. The fishery resource and population changes

A. Main occupation of village folk
- agriculture/fisheries: Full time/part time
  seasonal/year round
  income/savings

B. Is fishing a good occupation?
- why/why not?

C. Why are you a fisherman -woman?

D. Are you catching more fish today than before?
- why/why not?

E. Do you think you could increase your production?
- how/by what means?

F. Do you consider fishing and related activities a promising occupation for your children?
- why/why not?

G. Do you think it is easier, equal, or more difficult to support a family from fishing compared to agriculture?
Reasons?
- was it different in the past?
- what do you expect the future will be for you and your children?

H. Do you think that the number of people in this town can determine
- how many people will have jobs?
- how many families will not have land?
- the number of people who will be able to make a living out of fishing?

II. Attitudes towards family size, resource availability and selected socio-demographic issues

A. Do you think that people plan their families according to how many of the following assets they have to provide for all the needs of their family members: land, cattle, fishing boats/equipment, money?
- why/why not?

B. Do you think that girls in your village are getting married and pregnant early?
- how early and why?
- is this good/bad?
- what can happen in such a case and why?

C. Do you have as many children as your father/mother have?
- why/why not?

D. Do you want your children to have as many, more, or less children than you have?
- why/why not?

E. No matter the size of the family, are there always enough means to take proper care of the family (food, cloth, education, health care, etc.)?
- why/why not?

F If a couple does not have male children, do you think it should continue child bearing until having at least one son?
- why/why not?

ANNEX III

RESULTS OF THE KAP SURVEYS WITH FISHERFOLK RESPONDENTS BY COUNTRY

THE GAMBIA

Knowledge of population and development interrelationships

Statement	Answer defined as correct	Percentage of correct responses
K1. Having a baby before the mother has reached the age of 20 years is not good for the health of the mother and that of the child.	YES	79.4
K2. The fishing resource is always big enough to support the people in our community even if the number of people is increasing fast	NO	52.6
K3. For parents who space their births, God helps them to have less children who die.	YES	77.8
K4. It is more risky to have a baby every year than to plan having one every second or third year.	YES	50.5
K5. If the number of people in a village or town is growing faster than there are jobs and services available, this is bringing about speedy development.	NO	66.5
K6. It is better to have many children because they can contribute to the economic well-being of the family	NO	45.4
Total		62.0

Attitudes related to factors influencing family size and population growth

Statement/question	Answer defined as favourable	Percentage of favourable responses
A1. Even a poor man can have as many children as he wants, there will always be enough food.	NO	40.4
A2. If you do not have a boy child are you willing to continue having children until having a boy?	NO	27.8
A3. Is it preferable to send children to school when they are young rather than to involve them in fishing and fishery-related activities?	YES	72.7
A4. Is it good for a man and his wife to limit the number of children that they will have?	YES	63.3

Practice of family planning

Question	Answer defined as favourable	Percentage of favourable responses
P1. Have you ever done something to space your births or to prevent pregnancy?	YES	38.0
P2. Are you presently doing something to space your birth or to prevent pregnancy?	YES	34.0

GHANA

Knowledge on population, resources, and development interrelationships

Statement	Answer defined as correct	Percentage of correct responses
K1. Having a baby before the mother has reached the age of 20 years is not good for the health of the mother and that of the child.	YES	73.3
K2. The fishing resource is always big enough to support the people in our community, even if the number of people is increasing fast.	NO	49.2
K3. For parents who space their births, god helps them to have less children who die.	YES	67.2
K4. It is more risky to have a baby every year, than to plan having one every second or third year.	YES	73.7
K5. If the number of people in a village or town is growing faster than there are jobs and services available, this is bringing about speedy development.	NO	69.1
K6. Management of the fishery resource will ensure that even our children will benefit from fisheries in the future.	YES	90.8
Total		70.8

Attitudes towards factors influencing family size and population growth

Question/statement	Answer defined as favourable	Percentage of favourable responses
A1. Even a poor fisherman can have as many children as he wants, there will always be enough food.	NO	70.0
A2. If you do not have any boy children, are you willing to continue child-bearing until at least having a boy?	NO	68.0
A3. If we take proper care of our fishery resources, our children will benefit from it in the future.	YES	90.0
A4. It is good for a man and his wife to plan the number of children that they will have based on their resources.	YES	94.0
Total		81.2

Practice of family planning

Question	Answer defined as favourable	Percentage of favourable responses
P1. Have you ever done something to space your births or to prevent pregnancy ?	YES	55.8
P2. Are you presently doing something to space your births or to prevent pregnancy ?	YES	55.2

NIGERIA

Knowledge of population and development interrelationships

Statements	Answer defined as correct	Percentage of correct responses
K 1 Population is the number of persons living in a definite zone or specified area of residence.	YES	87.4
K 2 The factors which cause an increase or a decrease in the population are: births, deaths, migration.	YES	72.0
K 3 If there are as many births as there are deaths, population growth is great.	NO	84.6
K 4 If there are more births than there are deaths, there is a rapid demographic increase.	YES	85.3
K 5 The larger the family, the more food is needed.	YES	98.6
K 6 Family planning allows a couple to decide the number of children that they will have.	YES	89.5
K 7 No matter how many fishermen are fishing the resource is always rich enough to provide a good catch for every fisherman.	NO	2.8
K 8 When a woman gets pregnant before the age of 18 years, the pregnancy represents or poses many risks for her health and that of the child.	YES	36.4
Total		69.5

Attitudes related to factors influencing family size and population growth

Statement/question	Answer defined as favourable	Percentage of favourable responses
A1. Do you think that a family with many children is well-off because every child contributes to the household income?	NO	11.2
A2. If you do not have any boy children, are you willing to continue having children until you have at least one boy?	NO	59.4
A3. Do you think it is preferable to send children to school rather than to involve them in fishing and fishing related activities?	YES	94.4
A4. Do you think it is good for a man and his wife to limit the number of children that they will have, according to their means?	YES	44.8
A5. Do you think it is best for a girl to get married and start childbearing before she is 18?	NO	56.6
A6. Can you count on one hand the number of children you would like to have?	YES	10.5
Total		46.2

Practice of resource conservation and family planning

Question	Answer defined as favourable	Percentage of favourable responses
P1. Can something be done to protect the fishery resources from being over fished?	YES	16.6
P2. Have you ever done something to prevent the fishery resources from being over fished?	YES	4.5
P3. Have you ever used a traditional /modern method to space your births or to prevent a pregnancy?	YES	69.4

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