

III. THE STUDY OF FISHERIES CONTRIBUTION TO THE PEOPLE'S DIET
(Objective 2c)

RESEARCH TEAM:

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1. BACKGROUND AND JUSTIFICATION:

Uganda comprises of about 241,000 km² or 18% is water (Lakes and Rivers, swamps, dams, valley tanks and fish ponds) (MPED 1991a). It is estimated that these waters produce 219,000 tonnes of fish (UFD 1991) major contributors being Lake Victoria followed by Kyoga. Other important producers include Lakes Albert, Edward and George and Albert Nile. In terms of species composition, Nile perch and Tilapine species represent by far the most significant proportions of the catch accounting for 51% to 39% respectively (UFD 1989).

Uganda has a population of 16.6 million people (1991 census) of whom 90% live in rural areas with major occupation being peasant agriculture. This population is made up of more than 52 ethnic groupings whose diet is varied depending on cultural influences, geographical location and climate. Per capita fish consumption is estimated at 12 kg per annum (UFD 1990).

The average diet in Uganda particularly among the poor majority of population is unbalanced, mainly based on starchy food crops as roots and tubers, cereals and banana. There are indicators of high prevalence of chronic malnutrition of children of 12 - 56 months (SSALI and SEWANKAMBO 1991). There are also diseases like *Goitre*, *Rickets* and Blindness in the adult population caused by nutritional deficiencies. The production and consumption of protein food is still under-developed, presenting a potential to be exploited.

Fisheries sector is probably the biggest source of untapped potential of cheap protein food. Henceforth, the Fish Commodity Systems Economics Project through the Production to Consumption Systems Research model is simulating the quantification of fisheries sector to nutrition and diet of the people of Uganda. The PCSR within the fisheries sector also aims at evaluating the extent of interaction and dependence to the various fishery sector components (Employment, Processing, Foreign exchange, Marketing).

The Government has recently come up with a programme to improve the health situation in the country by encouraging a nation-wide immunization and primary health care, with emphasis on balanced diet for the nation.

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The fisheries is expected to make a contribution towards the success of this programme.

2. LITERATURE REVIEW:

Relevant literature was reviewed and data analysed to assess the existing knowledge on levels of protein intake, fish consumption and general consumption patterns in the diet composition of Uganda. Data and information from past studies on nutrition and consumption were analysed. And the following were observed:

- a) No national nutritional survey had ever been conducted in Uganda, instead regional and selected surveys are being done.
- b) Nutritional status of Uganda population is far from ideal (UNICEF 1990). Estimated 30% of pre-school children are retarded and stunted. And the major problem is protein-energy malnutrition and *aneamia*, vitamin A and iodine deficiency in some parts e.g. major cases of death of children under 5 years was given as:
 - i) Diarrhoea 16.7%
 - ii) Malnutrition 13.9%
 - iii) Malaria 13.9%
 - iv) Measles 11.2%

3. OBJECTIVE OF THE STUDY:

The objective is to undertake a study to quantify the contribution of Nile perch, Nile tilapia, and "Mukene" fisheries to the diet in Uganda and to predict the future situation.

The study is intended to determine the levels of protein intake, fish consumption and the general consumption pattern in Uganda to evaluate the contribution of fish to people's diets and predict the situation for the future.

4. METHODOLOGY:

The following methodological steps would be utilised in the implementation of the study:

- a) Review previous studies on nutrition and fish consumption to assess existing knowledge of the situation in Uganda.
- b) Undertake a search of and analyse data from official consumer surveys to determine the levels of protein intake, fish consumption and the general consumption pattern in Uganda.
- c) Design and implement a small sample survey and compare the findings with those from the official surveys.

- d) Derive conclusions, make predictions on the future situation and draw up recommendations on appropriate interventions based on your studies.
- e) Prepare and submit a detailed and satisfactory report of the work accomplished to the Principal Investigator.

4.1 Sample design:

The country was divided into four regions, namely Northern, Eastern, Western and Southern/Central and Kampala Regions.

In each region, 2 counties in an identified district would be sampled. About 100 households per district are to be sampled. Different strata, namely high, moderate and low fish consumption areas were identified. Kampala District was to be handled separately. The survey would also include hotels, schools/institutions and hospitals. Hotels have been categorized also basing on:

- Low income group hotel
- Medium income group hotel
- High income group hotel

"The Key informant Survey" Method would also be used in which questionnaires would be sent by mail to particular people to fill and return them.

For each district, a rural Sub-county and an urban one would be considered. This was chosen to get away from rural or urban influence on dietary patterns in Uganda.

In the first category regions/areas identified were Central-Rural and Eastern-Rural for fresh Nile perch, Northern-Rural, Northern-Urban and Eastern-Urban for cured Nile perch; Central-Urban, Eastern-Urban and Northern-Urban for fresh Tilapia; Northern-Rural and Urban for cured Tilapia; and Northern-Urban for other fish species. From this category, Arua was identified as a sampling area.

In the second category (medium fish consumption), Mukono-Kayunga side was chosen while in the third category (least consumers), Western-rural and urban were chosen in which Kabarole was identified as the sampling unit.

A case study for Kampala would be undertaken by the two sub-groups to avoid biased data collection. The two days for questionnaire testing and more two days a total of four shall be reserved for this purpose. While in Kampala, hotels, schools/institutions, hospitals and households would be sampled.

Among the city schools/institutions to be sampled are Kibuli Secondary School, Kyambogo Polytechnic, Makerere University (University and Africa Halls), Nsambya Primary School and a primary school near Bahai Temple.

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The hospitals to be visited are Mwana Mugimu of Mulago and then Nsambya hospital.

The fish processing plants to be sampled are:

- i. Kampala
- ii. Masese (UFEL)
- iii. Quality Foods, Entebbe
- iv. The Korean Enterprise (KWANSA)

The research group divided itself into two sub-groups so as to cover the area designed within the budget given to them.

5. IMPLEMENTATION:

- i) What has been accomplished so far include:
 - a) Reviewing previous studies on Nutrition, Fish consumption; and general consumption pattern in Uganda.
 - b) Data analysis from official consumer surveys identified during Literature review.
 - c) Sample survey design and questionnaire preparation.
 - d) Data collection in Western, Eastern, Central and Northern regions of the country.
- ii) What is yet to be done include:
 - a) Data collection in Central region and Kampala city as a case study.
 - b) Data analysis
 - c) Final Report writing and presentation.

6. CONSTRAINTS:

Difficulties encountered during the course of this study so far have included:

- i) Language barriers in some of the districts.
- ii) Bad roads were at times a problem to quick transport thus encroaching on the time for work
- iii) Money for interpreters and aides was sometimes insufficient yet moving around without an indogenous person cannot give confidence to local community.

7. OBSERVATIONS SO FAR:

7.1 Analysis of official survey data:

From official surveys, studies and records on diets, nutrition and consumption patterns and expenditures in Uganda were analysed and the following observations made:

- i) Observations from 1980 - 1991 indicate that fish is becoming an increasingly important food in the diets of Ugandans.
- ii) There is increased demand of fish in the domestic markets.
- iii) For the period of 1981 - 1990 there was a surplus in production as the projected demand was lower than the actual catch. This could have been attributed by introduction of Nile perch in Lake Victoria which increased production tremendously (Orach Meza et al. 1989).

Considering per capita fish consumption based on fish production and consumption per district, the following were realised:

- iv) Mukono has the largest per capita fish consumption of 38.8 kg/capita/year. And there was an abnormal case presented by data analysed, which gave a figure of 21.9 kg/annum to Mbarara district which is predominantly pastoral/cattle rearing area where almost all the protein is got from the oow. The area has few landing sites and cultural strings discourage the consumption of fish.
- v) Tilapia and Nile perch are the mostly consumed species among the fisher communities and Rastrineobola species (mukene) does not feature anywhere in the consumption pattern of these communities.
- vi) Comparison between consumption expenditure on fish and alcohol per region indicate that; Northern region (Rural) spends the highest percentage of total consumption expenditure on alcohol of 8.93% which is 3 times expenditure of fish within the same region.
- vii) Monthly Households Consumption Expenditure on various items of expenditure groups in Uganda per region ref. (Household budget survey MPED 1991) indicates that:

Expenditure on fish - Urban vs Rural areas by regions indicate that Northern region ranks first with percentage mean total of 5.38.

- Western region is not a major spender on fish especially Nile perch.
- Bagrus species (Ssemutundu) is not widely known nor accepted except in Central region and part of Eastern (former Busoga province).
- Low income groups spend more money, percentage-wise on fish than the middle and/or upper income earners.

- viii) Fish production in the North is greatly supplemented by fish farming more than in the East.
- ix) Processing techniques in the North differ from those in the South. Whereas the Northerners accept salted and sundried, the Southerners and Easterners prefer smoked fish.
- x) Fish eating in the North is a strong culture compared to the South and East.
- xi) In many restaurants, fish appears on the menu but is never served. Reasons are; scarcity especially of fresh fish, strong odour is avoided due to poor cleaning techniques of utensils.
- xii) Fresh fish reaches the far off consumers in a poorer quality state such that many prefer cured fish.
- xiii) Fish availability is not sufficient. People get access mainly to small immature smoked Nile perch in Northern and Eastern Uganda.
- xiv) Fish is rather relatively expensive and processing sometimes is undesirable, could be due to poor quality storage handling facilities.
- xv) Some bartering exchange occurs between fish mongers and farmers who cannot afford incurring expenses on fish.

References for reviewed studies are at the end of this report.

8. EVALUATION:

So far the study is moving according to the required pace and hopefully it will be finalized within time schedule.

9. REFERENCES:

- UFD (Uganda Fisheries Department Records), 1980 - 1991. Ministry of Agriculture, Animal Industry and Fisheries, Entebbe, Uganda.
- Kirema-Mukasa, C.T. & J.E. Reynolds, 1991. Fish Markets Survey 1990: Organisation, conduct and preliminary results. SEC Field Report No. 18, FISHIN Notes and Records. Fisheries Statistics and Information Systems, FAO/UNDP Project UGA/87/007. (February, 1991).
- Kirema-Mukasa, C.T. & J.E. Reynolds, 1991. Marketing and Consumption of Fish in Uganda. Occasional Paper No. 4, FISHIN Notes and Records. Fisheries Statistics and Information Systems, FAO/UNDP Project UGA/87/007. (June, 1991).
- MAIF (Ministry of Animal Industry and Fisheries), 1989. Fisheries Sector Survey, 1988. Planning Unit, Kampala, Uganda.
- MAF (Ministry of Agriculture and Forestry, Uganda) Towards a National Food Strategy Vol. 1. Main strategy Report prepared for the Ministry

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of Agriculture and Forestry of Uganda by Royal Tropical Institute Amsterdam, the Netherland.

MH (Ministry of Health). Malnutrition Surveys 1984 - 1988 (Data from five clinics in Kitgum District).

MPED (Ministry of Planning and Economic Development), 1991b. Report on the Uganda National Household Budget Survey (1989 - 90). World Bank/UNDP Project UGA/88/RO1. Entebbe, Uganda: Statistical Department (February, 1991).

MPED "The Population of Uganda: The 1969, 1980 and 1991 Census Results." Statistical Department.

UNICEF, 1990: Surveys of North, East and Western Uganda.

USDA (United States Department of Agriculture), 1975. Handbook of the nutritional contents of foods. New York: Devor Publications.