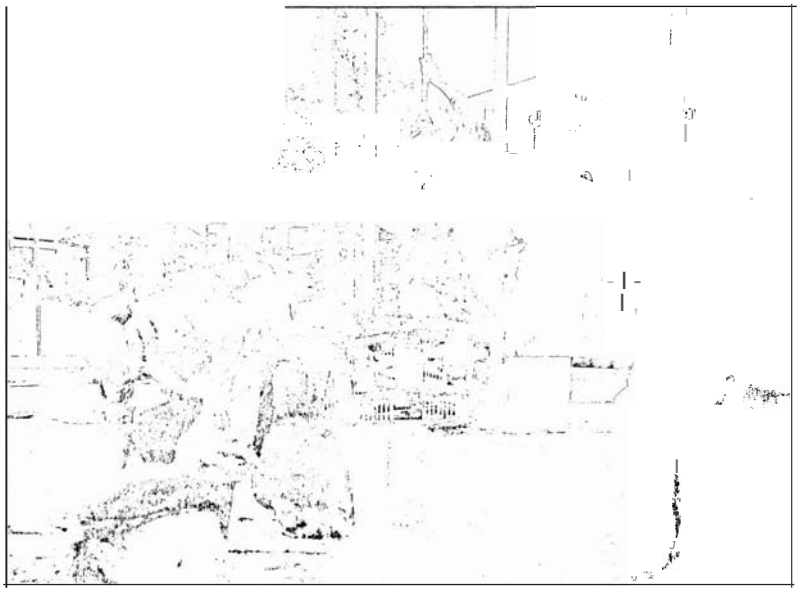
IFMP Socio-economics Series 3

CONTRIBUTION OF LAKE VICTORIA FISHERIES TO ECONOMIC GROWTH, POVERTY REDUCTION AND DEVELOPMENT

Literature Review and Data



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EXECUTIVE SUMMARY

Introduction

This is a report of the study on the contribution of Lake Victoria fisheries to economic growth, poverty reduction and development in Uganda. Tl1e purpose of the study was to establish the existing l{nowledge and data on fisheries contribution to Uganda's economy at the national and household levels and asses gaps that would be addressed through further research and data collection.

Tl1e study was conducted using two 1nethods: A review of literature was done by reviewing documents, references, reports and published statistics at NaFIRRI, Makerere University, Ministry of Finance, Planning and Economic Development, Depart1nent of Fisheries Resources Entebbe (DFR), lJganda Bureau of Statistics (UBOS) and Ministry of Trade and Industry and to UFPEA. This provided infor1nation about Lal{e Victoria stakeholders covering their incomes, 1narketing chain and revenue data. Secondly, Key Informant Interviews (KIIs) were l1eld with staff at Mal{erere U1uversity, Ministry of Finance, Planning and Econo1nic Development, Depart1nent of Fisheries Resources Entebbe (DFR), Uganda Bureau of Statistics (UBOS), and Ministry of Trade and Industry.

The report covers fisheries contribution in the areas of production and Gross Domestic Product (GDP), emploY1nent, incomes, artisanal and industrial processing, domestic, regional.and international1narketing, consu1nption and public revenues.

Key Findings

Fisl1 production in Lake Victoria has' markedly increased since the lifting of tl1e EU ban on fish. The data revealed that there was a rise in the contribution of Lake Victoria to the total catch from the year 2000, reaching a peal{ in 2003.

The contribution of fish and fish products to the country's GDP is estimated at about 2.48%) althougl1 s01neti1nes it is reported to be as high as 12% (Banks 2003). The average monthly incomes to fishers, processors and traders ranged from 40,756 to 436,530 Uganda shillings.

The number of fishers on Lake Victoria, Uganda, had risen fro1n 34,889 in 2000 to 54,148 in 2006. There was also a steady rise in nU1nber of people e1nployed by the formal fish

1. INTRODUCTION

This is a report of the literature revie,v on t11e contribution of Lake Victoria fisheries to economic growth, poverty reduction and developtnent in Uganda. The purpose of the review was to establish the existing knowledge and data on fis11eries contribution to Uganda's econotny at the national and l1ousehold levels and asses gaps that would be addressed throug11 further research and data collection.

The report covers fisheries contribution in the areas of production and Gross Dotnestic Product (GDP), employtnent, incotnes, artisanal and industrial processing, dotnestic, regional and internationaltnarketing, consutnption and public revenues.

2. OBJECTIVES

i) To assess the importance of fisheries contribution to the national economies through fish consumption, contribution to employment, earnings, GDP and foreign exchange. T11is will include generating a better understanding of l10w foreign exchange earnings from fish exports benefit the Partner States.

ii) To assess the impacts of exporting fish on the availability and price of fish and fish by-products for local and regional food security and on fish prices, and to assess the impacts of increasing or decreasing trade (tnainly Nile perch, but also tilapia).

iii) To assess the extent (quantity over time) and itnpacts of diverting dagaa for animal feed from t11e market for human consumption.

iv) To generate a better understanding of the scale and share of benefits of the fish products al1d by-products for policy-tnaking and for detertn1ning objectives for the management of t11e fisheries resources. This will include estimating the benefits at each stage of t11e production and tnarketing chain (i.e. value chain) and how people have been affected by increasing exports, particularly women processors and traders.

v) Document existing and potential policy scenarios that would affect the share of benefits along the 'value chain, e.g. increasing exports of tilapia; banning export of Nile perch; socio-econotn1c itnpacts of freezing effort at 2006 levels.

3. METHODOLOGY

The study employed methodologies which were undertaken in two phases:

4. RESULTS AND DISCUSSIONS

4.1 FISH PRODUCTION AND GDP

UBOS (2003, 2005) identifies fisheries as a source of production that contributes to Uganda's GDP. It provides information on fisheries as well as total GDP, from which the contribution of fisheries is derived. This contribution has on average been 2.48% of total GDP between 2000 and 2004 (Table 1).

Table 1: GDP froin fis11eries at factor cost at current prices, 1998-2004 (Million shillings)

Period (Years)	Monetary	Non monetary	Total Fisheries GDP	Total GDP	% Contribution of Fisheries to Total GDP
1998	173,680	21,906	195,586	7,114,074	2.75
·1999	163,661	20,642	184,303	7,940,621	2.32
2000	168,069	21,198	189,267	8,650,323	2.19
2001	209,852	36,468	246,320	9,319,016	2.64
2002	228,996	28,882	257,878	9,901,012	2.60
2003	248,282	31,315	279,597	11,667,123	2.40
2004	292,886	36,941	329,827	12,951,938	2.55

Source: UBOS 2003, 2004

Uganda's main concern has been to sustain its high growth rate which rose up to 10% per annum in the 1990s but has since fallen to 5-6% per annUln, due mainly to declining world agricultural prices and unpredictable weather conditions for farming. Stable and rising prices within the fisheries provide t11e sector witl1 a strong potential to contribute to Uganda's GDP and economic growth in general. FCS(U)P (1997 p.55) identifies three areas of interventions in enhancing the capacity of Uganda's fisheries to contribute to GDP, namely primary production, value addition and ancillary services to the fisheries. The report outlines the strategies to improve the contribution of Uganda's fisheries to GDP, including:

i) Exploring the possibility of further increase in total catch, through off-shore exploitation of mukene and harvesting of other aquatic resources sucl1 as mollusks

ii) Minimization of operating costs in the fisheries

iii) Improving fish prices through unproved infrastructures and marketing

iv) Minimization of post halvest losses.

Table 2: Lake Victoria and total fish catch for 1990 - 2004 (thousand tonnes),

Year	Lake Victoria Annual catch	Total Annual Catch	% Contribution of Lake Victoria to Total Catch
1990	119.9	245.2	48.90
1991	124.7	254.9	48.92
1992	129.7	265.5	48.85
1993	134.9	276.0	48.88
1994	103.0	213.3	48.29
1995	103.0	213.2	48.31
1996	106.4	222.0	47.93
1997	106.8	219.5	48.66
1998	105.2	218.7	48.10
1999	104.2	230.0	45.30
2000	133.4	220.0	60.64
2001	131.8	221.0	59.64
2002	136.1	222.0	61.31
2003	175.3	247.0	70.97
2004	253.3	434.8	58.26

Sources: UBOS, 2003, 2005, DFR

Recent efforts at generating reliable production data are now on-going under the Catch Assessluent Surveys (CAS) (NAFIRRI 2006). The surveys produce quantities and values of fish by species for selected months of the year, as shown in Table 3.

Table 3:·Lake Victoria catch and beach ,ralues for selected months

Months	Total catch (tonnes)	Beach values (Mill. Shs)
Jui. 05 .	15,047.5	13,958.2
Aug. 05	12,202.2	10,934.2
Sep. 05	15,203.9	12,597.3
Nov. 05	11,958.4	. 12,593.1
Mar. 06	12,360.2	12,802.2

Source: NAFIRRI 2006

Table 6: Unit Price, Salvage Value and Expected Useful Life of Fishing Units

Enterprise Level	Boat			Engine			Fishing Gear			
	Unit pr1ce (Shs)	Salvage value (Shs)	Useful life (years)	Unit price (Shs	Salvage value (Shs)	Useful life (years)	No. per boat	Unit price (Shs	Salvage value (Shs)	Useful life (years)
Small landline	60,000	0	2				7	180		
Small ongline	118,000	3,200	5				300	8,714		
Small basket ·rap	45,000	0	5				20	2,167		
Small cast net	110,000	3,000	5				1	63,333	0	1
Small gillnet	108,221	3,434	5				18	17,644	673	0
3mall beach seine	105,000	1,500	5				1	300,000	30,000	8
Medium Illongline	268,889	14,667	5				700	75		
Medium gillnet	231,730	32,432	5				45	19,196	833	1
Medium beach seine	244,000	19,000	7				1	295,000	28,333	7
Medium-Mukene	274,211	17,500	4				1	256,421	12,105	1
Large longline	348,000	10,000	5	2,050,000	383,333	"6	700	90		
Large gillnet	543,158	67,105	5	2,458,333	708,333	6	95	42,528	3,056	1

Source Wegoye and Kaidhiwa 2005

4.2.2 Poverty levels

Various studies have attempted to provide inforlnation on poverty in fisheries. Geheb (2000) which attelnpted to characterize the poor fishers through PRAs conducted at Nkombe and Lwalalo. In a similar exercise, UPPAP defined the poor among fishing cOlnmunities of I(alangala through PRA (MFPED 2000). Quantification of poverty in fisheries was provided by Odongkara (2001), which concluded that the crew and some segments of processors and traders were alnong the poorest seglnents in the fisheries. Table xx gives indication of the proportions of people within the different income brackets in fisheries. Most of the people in the group of Ushs 100,000 and below were likely to be below the poverty line.

Table 8: Monthly incomes for the different categories of fishers (0/0)

Income group (UShs) / **Type of operator**	100,000 & Below	100,001 to 200,000	200,001 to 300,000	Over 300,000	Total
Average Fisher	47.0	20.7	13.1	19.2	100
O.niloticus Fisher	63.9	16.4	10.1	9.6	100
R. *argentea* Fisher	39.4	26.6	14.9	19.1	100
L. *niloticus* Fisher	33.2	24.6	15.0	27.2	100
Powered Canoe Fisher	16.0	18.5	13.6	51.9	100
Non-powered Canoe Fisher	48.1	21.0	14.6	16.3	100
Male Fisher	46.5	21.5	13.1	18.9	100
Female Fisher	51.7	13.3	13.3	21.7	100
Labourer: Share system	90.5	7.7	.8	1.0	100
Labourer: Flat Rate	89.8	5.9	2.7	1.6	100

Source: Odol1gkara2001

4.3 EMPLOYMENT

Unemploymentis one of the challenges facing Uganda's economy. Fisheries contributes to emploYlnent within its production, processing, marketing and industrial processing components. The elnploylnent within production is given by the number of fishers recorded

4.4 PROCESSING

FisI1 processing on Lake Victoria can be distinguished between artisanal and industrial processing. FIRRI (2003) reports that artisanal fish processing has been on the decline as industrial processing grows.

4.4.1 Artisanal processing

Several studies have reported on artisanal fish processing on Lake Victoria in the recent past (TDRI 1983, Reynolds & Greboval 1990, FCS(U)P 1997, SEDAWOG 1999, Odongkara 2001, FIRRI 2003, Kyangwa & Odongkara 2005, Odongkara 2006).

The studies describe the different forn1s of artisanal fish processing, namely smoking, sun-drying, salting and frying. Sun-drying is of lilnited importance, being restricted mainly to the processing of mukene and juvenile tilapia. Salting is a traditional mode of processing in the fisheries although salted products are not especially popular amongst Uganda consumers, but have always enjoyed a strong demand on the DRC lnarkets. Frying has become a popular lnethod for the Nile perch. Fried perch, often prepared in its own oil, is widely sold in the regular municipal markets of urban centres around the lakeshore, has also become an extremely comlnon iteln in the nUlnerous inforlnal neighborhood street lnarkets that have beCOlne a standard feature of city life (FIRRI 2003). Hot-smoking is by far the lnost popular processing method and is reputed to provide the best returns to the processor. At many remote islands and lnainland fishing cOlnlnunities most of the catch is slnoked, due to transport cOllstraints.

4.4.2 Industrial fish processing

Fisheries represent one of Uganda's greatest achievelnents in the area of value addition. Several authors have reported on the ,rarious aspects of the developlnent of industrial fish processing since its introduction in tIle early 1990s. The industry has taken advantage of policies aimed at providing enabling environlnent for investment, namely the Investment Promotion, Privatisation and Export Promotion Poliicies, among others (Odongkara & Okaronon 1999). UBOS (various years) gives annual data on number of plants, workforce and output.

Ponte 2005 provides an overview of the industrial fish processing sector, listing the number of companies, processing plants and their features. Table xx shows that in 2004 there were

Table 12: Features of the tnajor private fish processing plants in Uganda

Locations/ Headquarters	Fish Forms/by-Products	Industrial Facilities Present	Market Destination
Jinja Entebbe Kampala Rakai	Swim bladders. Stnoked fillets. Smol{ed whole fis11. Frozen fillets. Fresh whole gutted fish. Fresh chilled fish. Hot smoked fish. Fratnes. Vacuum packed fillets. Chilled filets. Fish steaks.	Off loading dock. Receiving rootn. Filleting room. Flake ice plant. Cold store. Stnoking unit. Stores. Generator room. Processing room. Chill rootns. A workshop. Insulated trucks. Chilled rOOlns. Blast freezers.	European Union USA Japan Asia Middle East Australia Localtnarkets. Local agents

Source: FAO Corporate Document, 2003.

The total investment by pri'Tate investors in fish sector in Uganda is around US$ 200 tnillion. There is a strong private sector involvement in fish processing and export, under their umbrella institution called Uganda fish Processors and Exporters Association (UFPEA), which is comprised of 16 fish processing and export f1ttns. (UFPEA 2005).

To gain appreciation of the importance of industrial fish processing and export, studies have been carried out of the impact of the ban on Lake Victoria fish into the EU market in 1999-2000. Table xx outlines some of the effects

Table 13: Estimated losses to Uganda due to the fish ban

Aspects of the losses	Estimated figures
Export earnings	US$ 36,900,000
Factories that closed down	3 out of 11

v) The lacl< of cold storage and marketing facilities makes fresh and frozen fish distribution to the inland population difficult. Therefore, some of the fish is smoked or salted/dried.

vi) Domestic fish distribution has improved with increased channels involving middle men/boat traders that supply to fish processors/traders who deliver to rural and urban tnarkets.

Fish markets are centres where fish is sold to consumers or traders for onward distribution to other areas. Spatial distribution of tnarkets is provided in Table 14, showing I(ampala, Mayuge, Mukono and Wakiso as the districts with the largest numbers of fish markets.

Table 14: Number of tnain fish marl{ets by district, 2004

District	Nutnber of Main Fish Markets
Busia	1
Bugiri	5
Jinja	6
I(alangala	2
I(ampala	10
Masaka	4
Mayuge	10
Mpigi	3
Mukono	9
Rakai	2
Wakiso	9
Total	58

Source: DFR 2004

However, there is no regular data on quantities of fish handled by these markets

a) Landing prices

Incolnes earned do not only depend on the quantities of fish marketed but also on the prices realized. The recent Socio-econolmcs Baseline Survey provides information on prevailing prices for the tnain comlnercial species on the domestic market (Odongkara 2006a). Other

Table 16: Average fish prices for major commercial species (Sh/kg)

Year	Nile perch	Tilapia	Mukene
1990	300	--	--
1999	1,500	1,000	--
2000	1,000		--
2001	1,800	690	310
2002	1,270	660	360
2003	1,700	1,800	936
2004	1,225	1,470	733

Sources: LVEMP 2005

4.5.2 Regional fish trade

Regional fish 1narkets are a second category of markets for fish. Considerable information has been generated on regional trade under the LVEMP, IUCN and IFMP Projects (Odongl{ara *et a12005,* Heck *et al2002* and Odongkara 2006b). The highlights of the findings of the studies are as follows:

i) Uganda is a 1naja! exporter of fish. to the Great Lakes Region. The regional trade has been in existence for a long time especially among border communities but only becatne vibrant in the 1990s with the proliferation of the Nile perch and mukene.

ii) Traders are tnostly organized in fortnal groups and companies for purposes of collectively meeting costs of transport and licensing, collective responsibility in case of a problem and quality concerns that could easily be tracked, basing on groups and companies as opposed to individuals.

iii) Most traders make on average one trading trip in a tnonth. Number of trade trips mostly depends on catch and distance to markets and they are tnostly wholesalers.

iv) The fish is distributed both through the formal as well as the illegal, unrecorded and unregulated (IUU) channels.

v) The IUUs involve itntnature Nile perch and Tilapia.

Table 18: Export performance of fish and·fish products (1990-2005)

Year	Fish Export Prices* (US $/Kg)	Fish Export Quantities (Vol. mt)	Fish Export Values (US$ '000)	All Exports VaL US$ '000	Proportion of Fish to Total Exports (% Value)
1990	0.8	1,664	1,386	177,656	0.78
1991	1.1	4,687	5,313	184,263	2.88
1992	1.3	4,851	6,498	146,767	4.43
1993	1.5	6,138	8,943	201,231	4.44
1994	1.6	6,564	10,403	459,939	2.26
1995	1.1	16,046	32,262	553,938	5.60
1996	3.4	14,075	46,251	703,993	5.65
1997	2.4	11,819	27,864	594,628	4.70
1998	2.7	14,688	39,879	536,747	7.40
1999	2.6	9,628	24,837	478,750	5.20
2000	2.1	15,800	34,360	401,645	7.70
2001	·2.8	28,000	78,839	451,765	17.30
2002	3.2	26,800	87,000	475,530	18.80
2003	3.5	25,080	86,088	---	16.50
2004	---	30,000	105,000	---	15.50
2005	---	36,000	143,618	---	---

Source: UBOS 2003, 2005 and UFPEA 2006
* Prices FOB Entebbe

Bahiigwa and Keizire examined the destinations of the fish products for the years 2002 and 2004. The data reveals that the ED was the Inain destination for chilled fillets, frozen fillets and H&G while most of the fish Inaws went to the Asian Inarkets (Table 19).

Table 19: Comparison of fish exports to various regions (2002-2003)

	FORMS AND BY-PRODUCTS EXPORTED							
	Chilled Fillets *(010)*		Frozen Fillets *(ala)*		H& G *(ala)*		Fish Maws *(ala)*	
REGION	2002	2003	2002	2003	2002	2003	2002	2003

different ethnic cOlnmunities. These factors affect both levels of consulnption and tastes for various products.

Tilapiaand Nile perch are the most widely available fish in Uganda; fresh or processed, they are almost universally accepted and appreciated within the country's fish-eating population. Although it is probably the tilapia or "ngege" that is most liked of the two, Nile perch has proven to be highly popular with consumers. Table xx gives the per capita fish consumption data for Uganda. The data shows that Uganda fish consumption is still low, compared to the 50kg consumption level recomlnended by WHO.

Table 20: Average annual per capita fish consulnption in Uganda

Year	Per capita consulnption (Kg/yr.)
1998	10
1999	7
2000	7
2001	12
2002	10
2003	10
2004	10
2005	10

Source: LVEMP 2005

an englne and Ushs 17,000 for a vessel with an englne. However, recent reforlns have resulted in substantial increases in license fees as indicated by Table 21 below:

Table 21: License fees for fishing on Lake Victoria as of 1st January 2005.

Category of vessel	Citizen vessels License fees (Ushs)	Citizen vessels License fees (US$)	Non-citizen vessels License fees, (Ushs)	Non-citizen vessels License fees (US$)
Vessels of less than 5 metres long	20,000	11	200,000	111
Vessels of 5-11 metres long	30,000	17	500,000	278
Vessels of over 11 lneters long	50,000	28	1,000,000	556

Source: (LVFO, 2005),

b) Fishing permit

The fishing permit, although contained in the principal fisheries law, has not been widely enforced until recently. The annual charge is Ushs 5,000, paid by crew members.

c) Fishmongers license

This is a fish-trading license with a range of values depending on the district and the geographical extent of trading operation. Until recently, annual license fees for traders operating within a single district ranged from Ushs 5,000-15,000 for slnall-scale traders. High fees were charged for vehicle trading between districts. All fishmongers' license fees were increased under a new statutory instrument.

d) Marl{eting permits

Marketing permits· are required by all traders in secondary and higher lnarkets. The charges for tIle perlmts vary across the country and between different sized lnarl{ets. At the primary markets at fishing landing sites, tnarket fees are also charged but these are paid under a systetn of tendering tax collection by the district governments.

Poverty levels and Livelihoods	• Poverty levels of other seg1nents in the industry. • Poverty levels in processing factories. • Earnings from other activities related to fishing. • Household income estimates of Lake Victoria fisher c01nn1.unities. • Opportunities within other activities apart from fishing. • Benefits of fishers' incoines-shops, bars at landing sites.
Consu1nption	• Monthly per capita consu1nption of fish. • Fish as a proportion of fish meals.
Revenues	• Time series totals on different revenue sources
Policies	• Management policies • Industrial policies • Trade tariffs

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

As the fisheries sector continues to support tl1.e livelihoods of 1nany people as well as contribute to Uganda's econo1ny; it beco1nes increasingly important to consider ways and means to sustain the fisheries resources. One of the 1nain strategies that have been employed in most developing countries is provision of information, particularly on 1najor water bodies, to enable fisheries planners, managers and other stakeholders base their management decisions and recommendations.

It is, therefore, unportant that the subsequent socio-econoimc surveys address the infor1nation gaps identified as shown in the table above in order to improve understanding of the fisheries in the future.

5.2 Recommendations

There is need for continued Monitoring Control and Surveillance activities on inajor water bodies, particularly Lake Victoria as this will help improve and update information and statistical data on specific para1neters for 1nonitoring changes in the fisheries resources in Uganda.

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Appendix 1: COU11try Profile for Uganda

Demographic Information and Population

Uganda is an east African country located astride the equator and lying between Latitude 4012'N and 1029'S and Longitude 29034'E and 3500'W. It has a total surface area of 214,038 sq km of which 197,097 sq km is under land and 43,941sq km is area under water and swalnps. Temperatures and rainfall range betweel1 15-30°C and 700 - 2,0001nm/year respectively. The country's estimated population grew from 24.3 million in 2000 to 29.9 million in 2006 with an annual growth_ rate of 3.1% and 3.6% respectively (UBOS, 2006).

General Economy and Sectoral Growth

Overall, the economy recorded higher economic growth during the financial year 2003/4. This was achieved because of continued macro econolnic stability and recovery in the food crop sub sector due to adequate and timely rains (UBOS, 2006). The table below sUlnlnarizes the most important ecol10mic indicators and contribution to GDP by sector. During the financial year 2003/4, the econolny registered a growth rate of 6% compared to 5.2% that was registered in 2002/3. The overall GDP growth rate has been driven by better perforlnance of the agricultural sector, which has grown by 5.2% in 2003/4 compared to a lower growth rate of 2.3% in 2002/3.

Table xx: GDP Growth and Sectoral Growth (2000-2006)

1	2000	2005	20061
IGDP (current US$)	5.9 billion	8.7 billion	9.3 billion
IGDP growth (annual %)	5.611	6.611	5.31
IInflation, GDP deflator (annual %)	3.811	7.811	6.71
IAgriculture, value added (% of GDP)	37.311	32.711	31.71
IIndustry, value added (% of GDP)	20.311	24.811	24.61
IServices, etc., value added (% of GDP)	42.411	42.511	43.71
IExports of goods and services (% of GDP)	11.211	13.111	13.81
IImports of goods and services (% of GDP)	23.011	27.211	30.71

Source: World Development Indicators Database, 2007

Priority Sectors in the Economy

At the 1noment, it is believed tllat about 38% of the people in Uganda depend on US$l or less for their livelihood daily. During the 1990s, income poverty fell dra1natically. The proportion of Ugandans whose expenditures fell below the poverty line fell from 56% in 1992 to 44% in 1997/8 and even faster to 34% in 2000. These changes were driven mainly by increases in average inco1ne, rather than by redistribution. Since 2000, inco1ne poverty trends increased from 34% to 38% between 2000 and 2003 (pRSP 2004/5 - 2007/8).

Sectors most affected by poverty

Tl1e proportion of people below the poverty line varies across major sectors of the economy. In 2002/3, about 84% of all people engaged in the agricultural sector (both crop and non-crop agriculture) fell below tIle poverty line compared to 81% in 1999/2000. 28% of those engaged in the manufacturing sector fell below the poverty line in 2002/3 compared to 23% in 1999/2000. In the construction sector, about 23% fell below the poverty line in 2002/3 compared to 20% in 1999/2000. In the trade sector, the proportion of people below the poverty line reduced froin 13% in 1999/2000 to 17% in 2002/3 while proportions in the services sector reduced fro1n 15% to 130/0 in the years (pRSP 2004/5 - 2007/8).

Explanatory Factors

Why poverty fell between 1992 and 2000

- High rates of consumptioi1 growth (5.3% annually per capita) reflecting the fast rates of GDP growth in the early and mid 1990s.
- Increased world prices, in part due to the liberalization of agricultural marketing.
- After 1997, agricultural growth was healthy whic11 increased rural inco1nes.
- Public expenditure was also increasing during those years.

Why poverty has risen since 2000

The increase in poverty since 2000 is of concern to policy makers. The pattern is a result of a number of factors:

1. 5low growth in agriculture;

Agricultural growth during 2000/03 was disappointing except in the livestock sector. This 11as contributed significantly to the increase in poverty.

Appendix 2: **Work schedule**

Activity	**Person resp.**	**24-28 Jul**	**31 – 4 Aug**	**7 – 18 Aug**	**21 Aug - 8 Sept**	**11 - 29 Sept**
Int. lit review	CDS					
Develop methodolo	CDS					
Comments on lit review, methodology and conce t note	SERWG PM, SE					
Finalise methodolo	CDS					
Regional lit reviews and data collation	SERWG SE					
Gap filling/key informant interviews	SERWG SE, CDS					
Scenario testing and re ort writin	CDS, SE SERWG					
Production of fact sheet	CDS, SE, RWG					

Issues	Variable categories	Indicators	Units	Possible source
	Fish availability: fish for animal feed; variation in prices; competition for frames and dagaa: tilapia and'domestic! regional markets	Average monthly quantities of fish on the domestic markets		CAS and export statistics?
	Fish consumption	Per capita monthly fish consumption		Fish consumption study?

Type of information	**Fisheries coverage**	**Utilisatio11 of information**	**Limitations**
2. INCOMES Questions: What kind/type of information do you collect on incomes? **Gaps** Sources, levels, distribution Poverty levels, livelihood strategies	Questions: What is the coverage of fisheries in all the inforination collected on incoines? OR Do you collect inforination on sources, levels, distribution of incolnes of people in the fisheries sector?	Questions: What do you use the information collected on fisheries incolnes for?	Questions: What are SOlne of the limitations you face in the collection of fisheries inforlnation on incoines?
3. PROCESSING Questions: What kind/type of information do you collect on processing? **Gaps** Outputs, inputs	Questions: What is the coverage of fisheries in all the processing information collected? OR Do you collect inforlnation on outputs and inputs of artisanal processors?	Questions: What do you use the information collected on fisheries processing for?	Questions: What are some of the limitations you face in the collection of fisheries information on processing?
4. MARKETING Questions: What kind/type of information do you collect on inarketing? **Gaps** Nile perch, tilapia, lnul{ene Destinations, quantities, prices	Questions: What is the coverage of fisheries in all the marketing inforlnation collected? OR Do you collect inforlnation on destinations, quantities and prices of (Nile perc11, tilapia and Mukene)?	Questions: What do you use the information collected on fisheries marketing for?	Questions: What are SOlne of the limitations you face in the collection of fisheries information on marketing?

Type of information	Fisheries coverage	Utilisation of information	Limitations
8. INDUSTRIES Questions: What kind/type of information do you collect on industries? Gaps Nile perch, by-products, tilapia, mukene Employment, wage bill	Questions: What is the coverage of fisheries in all the industries information collected? OR Do you collect fisheries industries informatioll on by-products (Nile perch, tilapia and Mukene), employtnent and wage bill issues?	Questions: What do you use the information collected on fish industries for?	Questions: What are some of the limitations you face in the collection of fisheries information on industries?
9. EXPORTS Questions: What kind/type of information do you collect on exports? Gaps Nile perch, tilapia, tnukene. Regional, international. Policies, taxes Contribution to foreign exchange earnings.	Questions: What is the coverage of fisheries in all the exports information collected? OR Do you collect information on major fish species exports and contribution, taxes, and international policies?	Questions: What do you use the information collected on fish exports for?	Questions: What are some of the limitations you face in the collection of fisheries infortnation on exports?
lO.Policy Formulation Questions: What kind/type of information do you collect on policy formulation? Gaps Management policies Industrialisation policies Trade policies	Questions: What is tIle coverage of fisileries ill all the policy forlnulation information collected? OR Do you collect employment infortnation on fisheries lnanagement, industrialisation and trade policies?	Questions: What do you use the information collected on policy fortnulation in fisheries for?	Questions: What are some of the limitations you face in the collection of fisheries inforlnation on policy formulation?