

Attached Table 1 Chronicle for Tanzanian Fisheries

Year	National Events	Year	Fisheries Related Events
1884	Main Land Colonized by Germany		
1890	Zanzibar and Pemba islands came under British Control after being colonised under Oman		
1920	Trust territory under U.K.	1955	Establishment of Mahima Agriculture Centre
1961	Independence of Main land as Tanganyika	1950-60	Introduction of Nile perch into Lake Victoria
1962	Main land became a republic		
1963	Independence of Zanzibar and Pemba Islands as Zanzibar		
1964	January : Zanzibar has become People's Republic after uprising		
1964	April : United Republic of Tanzania was established under President Nyerere		
		1966	Establishment of Mbegani Fisheries Development Centre
		1967	Establishment of Kunduchi Fisheries Institute (started with 133 students for 2-year course)
		1967	Establishment of Neyegezi Fisheries Research Institute as Experimental Processing Factory (opened as practical training since 1978)
		1970	Enforcement of Fisheries Act
		1979	Establishment of Dept. of Marine Science at DSM University
1982-84	Structural Adjustment	1980	Establishment of TAFIRI
1985	Selection of President Mwini		
1986-88	Economy revival plan, WB/ SAL, IMF/SAF	1987	First export of Nile perch starts (Kenya)
1989-91	Second economy revival plan	1989	Enforcing the territorial water and EEZ
1990	Enforcing National investment Law. Investment promotion center established.		
1991	Cooperative Law Liberalization of banking service		
1991			
1992	Setting target for privatisation and liquidation of 300 over public cooperation.	1992	First export of Nile perch starts (Tanzania)
1992-94	Retrenchment of 50,000 civil servant (15% of all)	1992	Starting Kagera District Fisheries Development Project.
1993	Liberalization of agricultural trade.	1993-99	Expansion of Mbegani Fisheries Development Centre with support from NORAD
1993-	Rolling plan		
1993-95	A riot regarding the non-licensed traders operation in Kariakoo Market	1994	Enforcement of Fisheries Regulation 94 Trawlers and gill net under 5" and beach seine are prohibited
1995	Election of President Mkapa		
1995	Restructure of regional government		
1996	-do-		
		1998	Frame Survey (Coast)
		2000	Frame Survey (Lake Victoria)
		2001	Reviewing Fisheries Act

Source: Compiled by JICA M/P Study Team from Various Sources

Attached Table 2 Geographic Information of the Lakes

	Whole area of Lake (km ²)	Coastline (km)	Sea level (m)	Temperature (c)	Annual Rainfall (mm)	Average Depth (m)	Deepest Depth (m)	Capacity	Fish species
Lake Victoria	68,800	3,500	1,134	20-25	1,034	40	80		200
Lake Tanganyika	32,945 (Tanzania's part 13,510)	800 (Tanzania's part 8%; 670)	773			570	1,470	18,880	200
Lake Nyasa	29,750								300

Note: Data of rainfall is 1999

Source of Tanganyika: <http://www.fao.org/fi/ltr/GEN.HTM>

Attached Table 3 Demographic Prediction Data from All Regions

Year	Demographic
1998	31,953,426
1999	32,931,442
2000	33,952,136
2001	35,013,440
2002	36,112,684
2003	37,246,156
2004	38,349,576
2005	39,420,144
2006	40,460,032
2007	41,471,256
2008	42,455,868
2009	43,501,240
2010	44,559,396
2011	45,625,492
2012	46,694,552
2013	47,761,536
Growth rate Year 1998-2013(%)	49.47

Source: UNFPA

Attached Table 4 Demographic Prediction Based on Census 1988

Regions	Year 1998	Year 2003	Year 2008	Year 2013	Growth rate year 1998-2013 (%)
Tanga	1,755,161	2,030,294	2,326,724	2,664,633	51.82
Tabora	1,428,831	1,666,642	1,930,443	2,236,388	56.52
Shingida	1,063,130	1,228,758	1,419,455	1,639,463	54.21
Shinyanaga	2,533,555	2,999,393	3,534,170	4,166,978	64.47
Rukwa	980,725	1,164,529	1,378,883	1,637,261	66.90
Ruvuma	1,067,539	1,224,503	1,393,624	1,583,848	48.36
Mtwara	1,112,072	1,235,593	1,364,433	1,502,414	35.10
Mwanza	2,621,119	3,048,589	3,486,815	3,967,641	51.37
Morogoro	1,603,489	1,831,905	2,083,649	2,371,748	47.91
Mbeya	2,019,269	2,336,673	2,678,958	3,070,923	52.08
Mara	1,361,225	1,600,270	1,839,815	2,083,342	53.04
Lindi	804,174	900,995	1,011,061	1,136,058	41.27
Kigima	1,178,196	1,387,606	1,623,636	1,881,784	59.72
Kilimanjaro	1,660,396	2,013,082	2,419,021	2,909,453	75.23
Kagera	1,772,739	2,059,092	2,359,679	2,670,422	50.64
Iringa	1,647,077	1,910,736	2,186,082	2,496,536	51.57
Dodoma	1,659,049	1,896,514	2,146,830	2,422,460	47.34
Coast	732,880	802,854	881,584	961,800	31.24
Arusha	1,955,941	2,355,793	2,834,228	3,422,587	74.98
Dar es Salaam	2,015,006	2,389,294	2,788,234	3,219,005	59.75

Source: UNFPA

Attached Table 5 Change in Nutrition Intake Situation in Three East African Countries

	Calories	Protein	Fat	Meat Consumption		Fish Consumption		Contribution
				Consumption Quantity/ head	Protein derived from meat	Consumption Quantity/ head	Protein derived from fish	of fisheries products to protein intake
	(kcal/day)	(g/day)	(g/day)	(kg/year)	(g/day)	(kg/year)	(g/day)	(%)
Average in Africa	2,411	59.7	49.7	14.2	5.5	6.8	2.0	16.0
Kenya	1,886	48.9	45.5	13.7	5.4	4.5	1.4	9.4
Tanzania	1,940	46.8	30.4	9.5	3.7	9.4	3.2	32.7
Uganda	2,238	49.8	31.3	10.3	3.8	8.6	2.6	28.8

Source: FAO Year Book 1999

Attached Table 6 Change in the Number of Fishers /Fishing Vessels/Fishing Gear

		1991	1992	1993	1994	1995	1996
The number of Fishers		76,952	61,497	61,943	61,666	75,516	75,621
The number of Fishing Vessels		24,245	19,955	20,976	19,361	22,464	22,976
The number of Fishing Gear	Gill net	242,398	123,428	155,594	155,537	189,544	178,723
	Drag net	2,610	1,972	2,064	2,064	1,693	1,693
	Lift net	1,010	717	945	945	1,403	1,403
	Ring net	104	92	92	92	221	221
	Hook/Hand Line	594,016	476,158	474,763	474,763	1,693,032	1,699,874
	Purse Seinner	467	--	--	--	--	--

Note: Purse Seinner (Total of commercial and industrial)

Source: Fisheries Division/MNRT

Attached Table 7 Comparison of the Price of Outboard Engines in Three Countries

	(million Tsh.)		
	Price in Kenya	Price in Uganda	Price in Tanzania
Yamaha 8HP		1.41	0.85 (5HP)
Yamaha 15HP	2.28	1.73	1.4
Yamaha 25HP	2.85	2.25	1.7
Yamaha 40HP	3.65	2.82	2.1

Source: Data collected by JICA M/P Study Team, July 2001

Attached Table 8 Change in Production of Seaweed (*Eucheuma*) Farming from 1990 to 1999

Year	Total Production (mt)	Production in TZ (mt)	Share of TZ (%)	Average Price (\$/kg)
1990	21,469	1,200	5.6	0.26
1991	24,503	1,800	7.3	0.24
1992	23,687	2,500	10.6	0.23
1993	22,679	2,500	11.0	0.25
1994	20,207	3,000	14.8	0.25
1995	17,243	4,000	23.2	0.27
1996	21,031	3,000	14.3	0.36
1997	18,240	3,000	16.4	0.33
1998	18,597	5,000	26.9	0.29
1999	25,118	7,000	27.9	0.29

Source: FAO Year Book 1999

Attached Table 9 Score of Preference for Fish and Animal Meat

Preferred Fish and Meat			Disliked Fish and Meat		
1	Beef	1,311	1	Pork	487
2	Fresh Fish	1,160	2	Dried salted fish	271
3	Chicken	785	3	Chicken Egg	191
4	Goat's meat	421	4	Goat's meat	188
5	Dagaa	289	5	Dagaa	140
6	Pork	195	6	Fresh Fish	88
7	Chicken Egg	117	7	Chicken	66
8	Dried salted fish	117	8	Beef	23

Sources: Socio-economic Survey in Fishing Villages

Notes: Survey was carried out with 690 respondents in cities near production sites.

Number is points collected from No.1 to No.3 preference.

Attached Table 10 Intake Frequency of Fish and Animal Meat among Citizen at Dar es Salaam

[Lunch]

	Beef	Goat	Chicken	Fresh Fish	Dried Fish	Dagaa	Total of Fish
Poor	13.7	0.0	0.0	0.9	2.6	4.3	7.8
Medium	21.8	0.0	0.0	9.6	5.1	6.4	21.1
Rich	20.6	0.0	0.0	10.0	0.0	0.0	10.0

[Dinner]

	Beef	Goat	Chicken	Fresh Fish	Dried Fish	Dagaa	Total of Fish
Poor	12.8	0.0	0.0	2.6	8.5	4.3	15.4
Medium	23.7		0.0	7.1	7.1	11.5	25.7
Rich	30.0	0.0	3.3	10.0	0.0	6.7	16.7

Attached Table 11 Price Comparison of Fishery Products and Other Meats

Unit: Tsh/kg

Fresh Fish	Salted/Dried Fish	Goat Meat	Beef
1,271	1,544	1,323	998

Source: Tanzania Statistical Bureau

Attached Table 12 Export of Fisheries Products by Destination, Quantity and Value from 1998-2001

[Quantity] Unit : ton

Destination	1998	1999	2000	2001	Increasing Rate (%)
Europe	20,583	14,481	33,113	30,372	147.56%
Africa	9,228	6,254	5,878	9,773	105.90%
Asia	2,907	4,890	2,481	3,297	113.41%
Middle East	1,720	1,045	258	934	54.29%
America	934	2,626	916	2,159	231.08%
Total	35,373	29,296	42,646	46,535	131.55%

[Money] Unit : US\$

Destination	1998	1999	2000	2001	Increasing Rate (%)
Europe	54,409,092	31,731,968	65,315,345	68,362,660	125.65%
Africa	6,250,693	3,360,906	2,191,738	12,566,146	201.04%
Asia	7,498,277	12,012,172	5,737,749	8,677,386	115.73%
Middle East	4,081,946	2,646,420	681,188	2,469,848	60.51%
America	2,296,423	6,017,313	1,632,823	4,386,150	191.00%
Total	74,536,431	55,768,779	75,558,843	96,462,190	129.42%

Source: Tanzania Revenue Authority

Attached Table 13 Change in Percentage of Total Import/Export and Fisheries Product in Tanzania 1992-2000

U\$million

Year	Total export			Fisheries product			Percentage of Fisheries Product in Total Export(%)
	Export	Import	Balance	Export	Import	Balance	
1992	397.0	1,316.6	-919.6	6.2	n.a.	n.a.	1.6
1993	439.3	1,274.9	-835.6	9.6	n.a.	n.a.	2.2
1994	519.4	1,309.3	-789.9	22.5	n.a.	n.a.	4.3
1995	682.9	1,340.5	-657.6	22.2	n.a.	n.a.	3.3
1996	763.8	1,212.6	-448.8	61.8	n.a.	n.a.	8.1
1997	752.6	1,148.0	-395.4	70.2	n.a.	n.a.	9.3
1998	588.5	1,366.0	-777.5	83.5	0.14		14.2
1999	541.0	1,418.6	-877.7	68.8	0.17		12.7
2000	662.7	1,536.3	-873.43	64.5	n.a.	n.a.	9.7

Source: MNRT/JETRO

Attached Table 14 Change in Export of Fisheries Product from 1990-2000

	Total Fisheries Production US\$ (million)	Nile perch fillet	Prawn	Others
1990	6.3	-	5.4	0.9
1991	8.0	-	6.8	1.2
1992	6.1	-	4.8	1.3
1993	9.6	3.2	4.9	1.5
1994	22.5	8.6	6.0	7.9
1995	22.2	13.1	5.1	4.0
1996	61.8	52.3	5.5	4.0
1997	70.2	54.8	4.3	11.0
1998	83.5	65.8	10.8	6.9
1999	61.8	52.0	5.1	4.7
2000	64.5	45.9	5.6	13.0

Source: Fisheries Division, MNRT

Attached 15 Comparison of the Investment Environment of Three Countries in the East African Community (EAC)

	Tanzania	Kenya	Uganda
1. Legal minimum wages (US\$/month)	37.50	60.41	50-100
2. Electricity costs (Factory cost: KVA)	7.44	1.35	5.37
3. Water cost (Factory cost: Per 1 liter)	0.025	0.049	0.960
4. Telephone installation (US\$)	128.14	21.29	67.11
5. Transport (cost of new truck)	137,520	2,845-140,825	56,376-132,886
6. Fuel (gasoline per liter)	0.68	0.7	0.81
7. VAT	20%	18%	17%

Source: JETRO

Attached Table 16 Specifications of the Landing Site at Kayanze Village

	Scale	Construction Cost	Remarks
Jetty and transport road		Tsh.39.8 million (cost of materials: Tsh.28.1 million, construction labor cost: Tsh.11.7 million)	Presently, there is a steel floating jetty. Would like to construct a permanent concrete jetty if there were adequate funds.
Floating jetty	(L)25m x (W) 10m x (D)2m	Tsh 28 million	There is a access road within the base.
Office building	3 rooms + restroom	Tsh 10.8 million	3000L water tank. Facility is surrounded by a 40m x 90m fence.

Note: The floating jetties (L) 12m x (W) 10m x (D) 1.2m at the other six sites are not attached to the lake shore but are moored offshore. Presently, 52 fishing communities near the lakeside have registered as mooring sites.

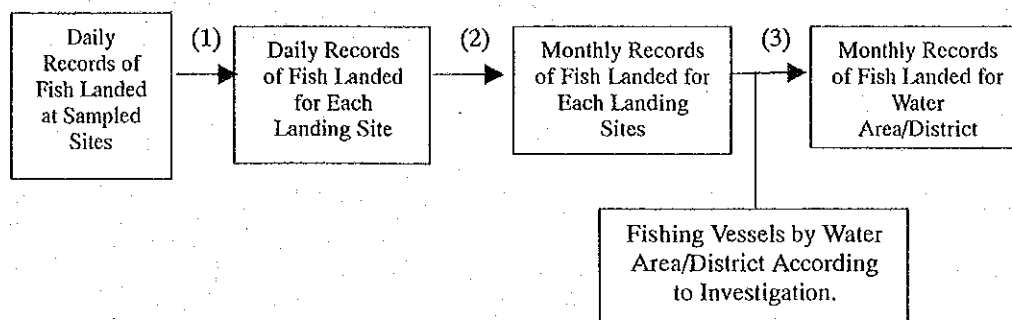
**Attached Table 17 The Number of Sampling Landing Sites for Making Annual Fish Statistics
Data Collection**

Fishing zone/District			The number of Landing site	
			Total	Sample
a)	Marine			
	1	Tanga	46	5
	2	Coast	83	4
	3	DSM	16	3
	4	Lindi	38	4
	5	Mtwara	27	1
	-	Total	210	17
b)	Lake Victoria			
	1	Kagera	140	6
	2	Mwanza	210	8
	3	Mara	101	4
	-	Total	451	18
c)	Lake Tanganika			
	1	Kigoma	88	11
	2	Rukwa	60	6
	-	Total	148	17
d)	Lake Nyasa			
	1	Mbeya	10	3
	2	Iringa	6	6
	3	Ruvuma	88	5
	-	Total	104	14
e)	Mtera Dam			
	1	Iringa	16	4
	2	Dodoma	14	4
	-	Total	30	8
f)	Nyumba ya Mungu Dam			
	1	Kilimanjaro	4	1
	2	Arusha	4	1
	-	Total	8	2
g)	Small water bodies			
	1	Arusha	n.a.	4
	2	Dodoma	n.a.	3
	3	Iringa	n.a.	4
	4	Shinyanga	n.a.	5
	-	Total	n.a.	16
-	Total		951	92

Source: Fisheries Division, MNRT

Attached Table 18 Estimation Method of Fisheries Production by District

Total amount of Fish landed at each landing site in a month is predicted by the following method.



Step 1	Step 2	Step 3
Daily Records of Fish landed (dvl) by each Landing Place	Records of days (rday) for Fish landed by each landing place in a month.	The Number of Fishing Vessels (sboat) by Each Landing Place, and Total Fishing Vessels by Water Area/District Based on Investigation(rboat)
	Total Amounts(rvl) of Fish Landed by Each Landing Place in a Month. $rvl = dvl$	The Total Fishing Vessels by Each Landing place (tsboat) and the Total Amounts(tmv) of Fish Landed by Each Landing Place in a Month (tmv). $Tsboat = sboat; tmv = mv$
	Average Amounts of Fish Landed by Each Landing Place per Day(avl) $avl = rvl / rday$	If Average monthly Fish Landed of Each vessels is Fixed, the Following Formula is Useful to get Average monthly Fish landed of Each Vessels(rmv). $rmv / rboat = tmv / tsboat$ therefore, $rmv = tmv / tsboat * rboat$
	Amounts of Fish landed by each landing place per month(mvl) $mvl = avl * nday$; nday= number of days in the month	

The amount of Fish landed by different species/method of fish and total amount of fish landed can be estimated by using the formula.

Source: JICA M/P Study Team

**Attached Table 19 Comparison of Poverty Indicators among National Average,
Farming and Fishing Villages, 2000 and 2001**

Indicator	National Average 2000	Farming Village 2000	Fishing Village 2001
THE SOCIO-ECONOMIC STATUS OF HOUSEHOLDS Average Household Size			
Number of dependants (age 15-60)	5.4	5.5	Approx. 6.5
Distribution of Households by Source of Drinking Water (%)			
Piped water in the house	3.9	0.8	2.1
Private pipe outside the house	17.4	7.9	2.0
Communal pipe	18.2	19.0	33.8
Protected water source	15.9	18.6	13.5
Unprotected water source	44.4	53.2	41.7
Others	-	-	6.9
Distribution of Households by Type of Toilet (%)			
Flush Toilet	1.9	0.3	2.1
Pit	90.7	91.4	82.2
No toilet/ other	7.4	8.3	15.8
Distribution of Households by Construction Materials – House floor (%)			
Earth	76.5	89.8	68.8
Concrete	22.3	9.0	21.4
Other	1.2	1.2	9.8
- House roof (%)			
Grass/ mud	58.7	71.0	62.6
Metal sheets	39.9	28.3	32.8
Asbestos/ tiles	1.4	0.8	0.2
Other	-	-	4.4
Percentage of Households Reporting Ownership of Selected Consumer Goods (%)			
Telephone	1.0	0.0	1.4
Refrigerator	2.4	0.6	1.0
Sewing machine	3.9	1.9	4.7
Television	2.3	0.3	2.1
Video	1.8	0.3	1.5
Watch	31.4	25.2	44.6
Radio/ cassette	45.0	39.0	56.2
Electric/ charcoal iron	23.7	18.5	22.6
Electric/ gas stove	2.4	0.5	29.0
Other stove	41.8	30.8	20.8
Motor vehicle	1.0	0.6	0.5
Bicycle	31.7	32.0	30.7
EDUCATION AND OTHER SERVICES Distribution of Households by level of Education of the Household Head			
None	28.2	31.5	11.0
Std 1-4	17.3	18.7	17.4
Std 5-8	42.5	40.3	62.3
Form 1-4	4.6	2.9	6.6
Form 5+	3.3	2.0	0.4
Other	4.1	4.7	2.3

Source: National Bureau of Statistics TANZANIA and Oxford Policy Management Ltd. UK (2001) Trends in Poverty and Social Indicators Tanzania 1991/92-2000

A Preliminary Analysis (Final Draft) JICA Study Team for Fisheries Development Master Plan (2001)
Socio-economic Survey of Fishing Communities in Tanzania Mainland

Attached Table 20 Comparative Table between Society and Cooperative Society

Name	Society	Cooperative Society
Where to register	Ministry of Home Affairs	Ministry of Cooperatives & Marketing
Assignment for registration	Registrar 1 person, State Attorney 1 person, Society Officers 2 people at DSM Ministry of Home Affairs.	Registrar 1 person and Assistant Registrars 4 people at Dodoma Ministry of Cooperatives & Marketing. Assistant Registrars are assigned at each regions (20 regions). Few Cooperative Officers are assigned at each district or division (especially at DSM).
The number of assigned people	4	85-100
Law	Society Law 1954 (Societies Chapter 337 of the laws)	Cooperative Societies 1991 (Co-operative Societies Act 1991)
Definition	'Society' includes any club, company, partnership or association of ten or more persons whatever its nature or object but does not include; (a) company registered under the Companies Ordinance or any company which has complied with the requirements of section 321 of that Ordinance, (b) any company, council, authority, association, board or committee lawfully constituted or established under Royal Charter, or Royal Letter Patent, or Applied Act, or any law for the time being in force in Tanganyika, (c) any Lodge of Freemasons regularly constituted under any of the registered governing bodies of Freemasons in the United Kingdom of Great Britain and Northern Ireland, (d) any trade union registered under the Trade Unions Ordinance, (e) any company, association or partnership consisting of not more than twenty persons, formed and maintained for the sole purpose of carrying on any lawful business, (f) any co-operative society registered under the Co-operative Societies Ordinance, and (g) any society which the President may, by order published in the Gazette, declare not to be a society for the purposes of this Ordinance.	An association of persons who have voluntarily joined together for the purpose of achieving a common need through the formation of a democratically controlled organization and who make equitable contributions to the capital required for the formation of such an organization, and who accept the risks and the benefits of the undertaking in which they actively participate.
How to register	Seven required document (a) Application letter, (b) Two sets of Society law which is already admitted by all members, (c) The list of members, (d) Report of meeting for content of society law to conform members' opinion, (e) Two sets of Form (SO.1 and SO.2), (f) The CV of Office bearer, (g) Hand in following document to Ministry of Home Affairs (Recommendation of DC, RC, Parent Ministry). Also registration fee is required: Tsh.40,000 (local), US\$500 (foreign). After these required document are checked, certification will be issued.	Five required document ((a) Application letter, (b) Four sets of Cooperative society law which is already admitted by all members, (c) The list of members, (d) Report of two meeting for content of society law to conform members' opinion (Cooperative Office's attendance is needed), (e) Hand in Basis of Society Management funds to Cooperative Officer. Also Registration fee: Tsh.5,000. (a) Set the share considering Society Management funds, (b) Setting of office, (c) set the check Accounting system at the end of fiscal year, (d) As a board member, Chose board members: Chairperson, Secretary, Treasurer, Rep. members 7 people, Total 10 people, (e) Cooperative Officer will check the place for activity and activity's content. After these required document are checked certification will be issued.
Minimum number of society	10 people	10 people (Special business will be admit as a group, if there is four people.)
Requirement for renewal	Once a year meeting is needed and content report of the meeting/financial and annual fee (Tsh.10,000 or US\$20) have to be hand in to The Ministry of Home Affairs.	June and December meeting is needed. The report on Management and financial for cooperative society members/officers is also required. Board members are chosen every three year through these meeting. Lack of some document mean activity suspending, and if it continues more than three years, certification will be abrogated.
The number of registrar	Approximately 8,559	4,253

Attached Table 21 The number of Primary Co-operative Societies 2000/2001

Region	Fisheries industries		Agricultural Production		SACCOS		Livestock Industries		Construction Industries		Mineral Industries		Manufacturing Industries		Others	
	A*	I**	A	I	A	I	A	I	A	I	A	I	A	I	A	I
ARUSHA	0	0	36	49	58	9	1	5	0	0	0	0	9	1	2	2
DAR ES SALAAM	4	0	20	2	103	39	6	0	2	11	0	0	35	0	8	6
DODOMA	0	0	0	15	30	6	0	0	0	9	0	0	0	0	14	6
IRINGA	5	0	61	56	59	8	0	0	0	0	0	0	13	7	3	0
KAGERA	1	4	216	1	75	20	26	0	1	0	0	0	0	4	2	1
KIGOMA	2	0	25	16	3	4	0	0	0	0	0	0	0	0	3	0
KILIMANJARO	0	0	120	0	69	0	5	0	0	0	0	0	9	0	28	0
LINDI	0	0	76	0	18	0	0	0	0	0	0	0	3	0	33	0
MARA	0	0	149	0	9	0	1	0	1	0	0	0	1	0	6	0
MBEYA	15	1	138	0	105	0	19	0	0	0	0	0	30	0	7	0
MOROGORO	0	0	56	20	24	2	1	0	3	0	0	0	15	0	9	0
MTWARA	2	0	124	3	18	4	0	1	0	2	0	0	3	2	0	1
MWANZA	13	5	342	1	19	3	2	0	6	0	0	0	4	4	16	0
PWANI	0	0	91	2	17	5	4	1	0	0	0	0	93	8	100	0
RUKWA	9	1	56	3	15	1	2	0	0	0	0	0	2	0	2	0
RUVUMA	0	0	95	15	27	2	0	0	0	0	0	0	0	0	0	0
SHINYANGA	3	0	497	9	26	3	5	6	2	0	0	0	4	0	4	0
SINGIDA	0	0	43	11	10	0	1	0	1	0	0	0	2	1	1	0
TABORA	5	0	211	16	22	32	1	0	0	0	0	0	2	3	2	0
TANGA	0	0	42	0	38	0	9	0	0	0	0	0	10	0	28	0
Total	59	11	2,398	219	745	138	83	13	16	22	0	0	235	30	268	16

Source: 2000, Ministry of Cooperatives and Marketing

*Active

**Inactive

Attached Table 22 Budget and the Number of Students at the Three Fishing Training Institutes

	Mbegani	Kumduchi	Nyegegi
Budget for 2000/2001 (Tsh)	126,000,000	80,000,000	56,000,000
Number of students	15	26	80
Annual Fee (Tsh)	3,750,000	4,387,000	11,540,000

Source: Fisheries Division, MNRT

Attached-Table 23 Total Graduates from Training Center of Mbegani/ Kunduchi/ Nyegezi for Years, 1996-2001

Training Center	1996/97	1997/98	1997/99	1999/00	2000/01	Total applicants since established
Mbegani						
Fish Processing Department						
2 year Fish Technology Diploma Course	30	36	28	32	40	
2 year Fish Technology Certificate Course					25	
1 year Aquaculture Certificate Course						
Short Course						
Natural Science Department						
2 year Master fisherman Diploma Course			24		38	
2 year Fishing Technology Certificate Course			20		30	
18 month Class 4/3 of Competence						
6 month Class 4 of Competence						
Short and Tailor-made Courses						
Marine Engineering Department						
2 year Marine Engineering (Mechanical) Diploma Course	36	29		38		
2 year Marine Engineering (Refrigeration) Diploma Course	22	17		24		
1 year Class 3 of Competence						
1 year Marine Refrigeration Engineering Specialist Course						
1 year Marine Electrical Engineering Specialist Course						
1 year Marine Electronic Engineering Specialist Course						
Short Course						
Boat Building Department						
2 year Boat Building Diploma Course	8	6	4	7	11	
2 year Boat Building Certificate Course	5	3		4	5	
Short Courses						
Kunduchi						
1 year course						
2 year course	17	12	11	7	16	2,700
3 year course						
Other courses						
Total	17	12	11	7	16	2,700
Nyegegi						
1 year Fish Culture Certificate Course		1	1	1		3
1 year Fish Handling, Processing & Quality Control Certificate Course		3	4	4		11
1 year Refrigeration Certificate Courses					14	14
2 years Fisheries Certificate Course	19	12	14	12	21	78
Other short courses	1232	246	72	1290	93	2933

Source: Fisheries Division, MNRT

Attached Table 24 Budget of the Ministry of Natural Resource and Tourism 2001

Unit: Tsh

Revenue Estimates		Approved Estimate		
Administration and General		22,803,000		
Wildlife		5,558,458,000		
Forestry and Beekeeping		4,009,542,000		
Fisheries		3,470,383,000		
Tourism		625,703,000		
Antiquities		79,100,000		
Total		13,765,989,000		
Recurrent Estimates	No of Employees	Approved Estimates		
		Personnel	Other cost	TOTAL
Administration	328	248,032,400	751,245,200	999,277,600
Finance and Accounts	83	73,445,700	278,501,700	351,947,400
Policy and Planning	10	12,359,900	298,401,700	310,761,600
Wildlife	883	609,687,800	2,150,713,000	2,760,400,800
Forestry and Beekeeping	1,976	1,328,788,000	2,285,071,100	3,613,859,100
Fisheries	204	185,367,200	2,434,556,000	2,619,923,200
Tourism	43	46,710,400	245,783,600	292,494,000
Antiquities	47	42,892,000	129,516,700	172,408,700
Sub-Total	3,574	2,547,283,400	8,573,789,000	11,121,072,400
TAWIRI	30	39,658,400	85,871,100	125,529,500
TAFORI	156	249,337,600	100,000,000	349,337,600
TAFIRI	170	274,006,400	100,000,000	374,006,400
TTB	31	141,831,900	1,273,519,100	1,415,351,000
National Museum	98	158,568,500	14,834,200	173,402,700
Marine Parks	29	98,670,700	0	98,670,700
Sub-Total	517	962,063,500	1,574,224,400	2,536,287,900
Grand Total	4,091	3,509,346,900	10,149,013,400	13,658,360,300
Total	12,270	10,528,050,700	30,445,040,200	40,973,090,900
Development Estimates		Approved Estimate		
		Local	Foreign	
Policy and Planning		321,205,000	3,100,000,000	
Wildlife		-	1,044,024,000	
Forestry and Beekeeping		-	1,221,440,000	
Tourism		-	145,833,000	
Grand Total		321,205,000	5,511,297,000	

Source: MNRT

Attached Table 25 Budget of Fisheries Division 2001/02

Unit: Tsh 1,000

Objective	Targets	2001/2002
1. To Coordinate and review Policies and Legislation and Monitor their Implementation	1. To Review Registrations	34,900
	2. To Ensure the Better and Timely Services	453,538
	3. To raise and maintain the quality of fish and fishery product	510,315
	4. To Coordinate, Monito and Evaluate the Sectoral Implementation	936,207
2. To create an enabling environment that will lead to active participation	1. To conduct 524 Public awareness campaign	79,690
	2. To strengthen the fisheries information system	102,325
	3. To facilitate establishment of 20 and support 603 BMU	6,145
	4. To support the Kingolwire Fish Culture Center	256,518
3. To undertake human resources development and institutional capacity building	1. To coordinate 10 applied fisheries research programmes	9,580
	2. Improve the working skills of 300 staff	18,560
	3. To improve the skills of staff and conduct 9 training programme for fishermen	227,835
	4. To support the three fisheries training institutes	389,330
4. To protect natural resource	1. To conduct 1000 surveillance patrol to protect resources from illegal use	130,635
5. To promote and strength regional and international cooperation	1. To support co-ordinance and participate meetings	28,625
	2. To participate in one collaboration initiative	1,940
	3. To conduct consultation	13,444
	Grand Total	3,199,588

Source: "MTEF Activity Costing Table", Fisheries Division

Attached Table 26 Change in Export of Fisheries Products, Royalties and Budget in Fisheries Division from 1950-2001

Year		Fish Production (tons)	Fishermen	Export of Fish Products (1000 US\$)	DOF budget (Tsh million)
1950s	Introduction of Nile perch				
1960s	Production of Nile perch 100,000 tons				
1970	Fisheries Act				
1970s	Production of Nile perch 100,000 tons				
1980	TAFIRI Act				
1982	Local Government (District Authorities) Act				
1983	FAO: Kigoma credit facility				
1980s	Production of Nile perch 500,000 tons				
1986	Economic Recovery Programme				
1987	LVEMP start				
1989	Economic & Social Action Plan				
ditto	Territorial Sea & Exclusive Economic Act				
1991		326,713			
1992	KDFDP start	335,501			
1993	Rolling Plan	331,467	61,943		
1994	Marine Park & Research Act	268,792	ditto		
1995		258,212	75,612		
1996	Private investment in processing plant (LV): US\$ 49.5 million	356,800	ditto	52,906	215.3
1997	National Fisheries Policy & Strategy Statement	356,960	ditto	64,212	193.6
1998		348,000	78,672	72,468	1,842.40
1999	Village Land Act	310,000	ditto	61,790	1,828.70
2000					1,620.80
2001					2,619.90

Source: MNRT

Attached Table 27 Tax System for Fisheries

		Charge Basis	Collected by	Objectives	Charge Rate
Local or district level	Annual Fisher Licence	per fisher per year	DFO	Local government revenue Statistical indicator	1,000/- to 3,000/-
	Vessel Registration Fee (<11m)	once off	DFO	Local government revenue	1,000/- to
	Vessel Licence Fee	Annual	DFO	Effort management Local government revenue Statistical indicator	5,000/- 800/- to 3,000/-
	Trading Licence	Annual	Treasurer	Management mechanism Local government revenue	6,000/- to 30,000/-
	Fish Levy (Nile Perch)	per Kg	Private Agent	Local government revenue	5/- to 10/-
	Fish Levy (Dagaa)	per sack (35 Kgs)	Private Agent	Local government revenue	200/- to 600/-
	Fish Levy (Others)*	auction value	Treasurer	Local government revenue	10%
	Landing Fee (Fishing Vessel)	per landing	Private Agent	Local government revenue	200/- to 300/-
	Landing Fee (Collector Vessel)	per day	Private Agent	Local government revenue	1,000/- to 3,000/-
Central level	Vessel Registration (>11m)	once off	RFO	Management measure Central government revenue	52.4 (<15m) 53.0 to 54.8 (>15m)
	Export Royalty	US\$ per Kg	RFO	Central government revenue Resource use tax	
	Filletts (Fresh/chilled/frozen)				0.15
	Dry Nile Perch				0.18
	Fish maws (Dry)				0.36
	Belly flaps (Fresh/chilled)				0.075
	Off cuts (Fresh/chilled)				0.075
	Fish meal (Dry)				0.012
	Fish frames				0.009
	Dagaa (L. Victoria)				0.042
	Dagga (L. Tanganyika)				0.072
	Aquarium fish	advalorem			6%
	Sea shells				6%

Notes: DFO: District Fisheries Office, RFO: Regional Fisheries Office

Sources: "Fish Levy Trust Study" Draft Final Report// JICA Study Team

Attached Table 28 Major Economic Figures by Region

Study area	Region	Population		GRDP 1994	Per Capita 1994	Average contribution 1980-94	Industries Value Added 1999	Electricity 1999	Water urban 1998	Number of Fishermen 1998/99**
		1988 Census	1995 Estimate							
			1000	million Tsh.	Tsh.	%	million Tsh.	mill. KwH	m3/day	
Coastal	Tanga	1,283,636	1,590.4	92,821	60,021	5.52	9,589	129	24,000	4,480
	Pwani (Coast)	638,015	774.3	17,033	22,624	1.00	2,163	6		8,042
	Dar es Salaam*	1,360,850	1,651.5	335,847	197,107	20.33	67,738	771		5,250
	Lindi	646,550	784.7	29,253	38,340	2.00	55	6	1,128	2,640
	Mtwara	889,494	1,079.5	62,491	59,533	3.27	31	15	5,000	2,056
Victoria	Kagera	1,326,183	1,653.0	80,537	50,105	4.60	1,040	16	7,515	5,637
	Mwanza	1,878,271	2,280.2	107,553	48,508	7.67	5,757	72	34,000	16,385
	Mara	970,942	1,178.3	50,127	43,748	3.47	1,366	19	9,560	10,381
Tanganyika	Rukwa	694,974	843.4	66,160	80,669	3.13	5	9		3,056
	Kigoma	853,263	1,043.5	30,545	30,103	2.53	45	8	10,600	5,594
Nyasa	Ruvuma	783,327	950.6	48,565	52,537	3.33	365	10	8,510	4,481
	Iringa	1,208,914	1,467.1	92,021	64,502	5.53	8,622	87	8,500	3,561
	Mbeya	1,476,199	1,791.5	84,903	48,737	6.00	4,443	67	18,000	1,770
Small water	Dodoma	1,237,819	1,502.3	57,856	39,604	3.07	1,026	37	20,000	1,150
	Arusha	1,351,675	1,640.4	145,192	91,024	7.80	19,066	162	40,000	n.a.
	Kilimanjaro	1,108,699	1,345.5	72,898	55,716	3.67	8,663	109	20,500	n.a.
	Morogoro	1,222,737	1,525.6	88,073	59,370	4.67	14,546	98	19,000	1,043
	Singida	791,814	960.9	51,995	55,664	2.87	120	9	1,500	962
	Tabora	1,036,293	1,257.7	55,012	44,984	3.40	768	22	10,500	1,365
	Shinyanga	1,763,960	2,151.5	110,353	52,746	5.80	2,079	40	6,000	368
	Total	22,523,615	27,471.9	1,679,235	n.a.	99.66	147,487	1692	n.a.	78,221

Source: 2001, Ministry of Cooperative and Marketing

*in action at present

**no action at present

Attached Table 29 Change in Income of Fisheries Sector by Regions, 1995-2000

Tanga

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	398.3	141,370.6	7,646.1	n.a.	2,035.0
1996	481.3	180,207.5	12,030.7	n.a.	2,358.1
1997	330.3	101,496.0	9,874.1	n.a.	4,750.2
1998	435.9	172,179.0	7,857.1	n.a.	4,811.9
1999	628.5	328,830.0	6,650.1	n.a.	5,043.9
2000	951.7	464,273.9	9,244.4	n.a.	4,589.8

Source: Tanga District Fisheries Officer

Mheza

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	n.a.	n.a.	n.a.	n.a.	n.a.
1996	n.a.	n.a.	n.a.	n.a.	n.a.
1997	263.5	59,886	671.0	n.a.	n.a.
1998	210.4	94,627	526.4	22	n.a.
1999	269.7	125,432	474.5	11	n.a.
2000	n.a.	n.a.	n.a.	8	n.a.

Source: Mheza District Fisheries Officer

Ilala

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	26,188.86	n.a.	9,008.5	n.a.	5,378.5
1996	n.a.	n.a.	10,432.3	n.a.	7,384.5
1997	n.a.	n.a.	33,783.5	n.a.	13,834.9
1998	n.a.	n.a.	18,071.6	n.a.	6,890.6
1999	n.a.	n.a.	20,047.9	n.a.	7,399.1
2000	n.a.	n.a.	39,955.1	n.a.	35,300.1

Source: Ilala District Fisheries Officer

Kinondoni

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	n.a.	n.a.	n.a.	n.a.	n.a.
1996	167.8	142,766	n.a.	n.a.	n.a.
1997	62.1	77,136	n.a.	n.a.	n.a.
1998	57.2	42,042	2,298.3	100.3	714.8
1999	60.3	40,496	2,350.6	100.25	1,100.5
2000	104.8	83,184	3,257.9	100.1	1,120.1

Source: Kinondoni District Fisheries Officer

Continue Attached Table 29

Temeke

	Amount (1000 Tsh)	Revenue Collection (1000 Tsh)	Collection rate (%)*
1998	692.3	n.a.	n.a.
1999	419.8	n.a.	n.a.
2000	683.0	25.0	3.7
2001	590.8	456.6	77.3

Source: Lindi District Fisheries Officer

Note: Only Fisheries License

Bagamoyo

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	4,181.3	20,294.2	2,900	56	1,300
1996	3,071.0	14,614.2	3,700	60	1,500
1997	1,734.3	13,420.2	4,500	54	1,800
1998	2,974.3	14,614.2	5,000	90	2,000
1999	1,415.8	20,294.2	5,900	90	2,400
2000	1,214.6	18,765.6	6,000 (7,857.5)	95	3,000 (2,349,0)

Source: Bagamoyo District Fisheries Officer () Financial Statement

Mafia

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	n.a.	n.a.	n.a.	n.a.	n.a.
1996	n.a.	n.a.	3,601.3	n.a.	656.8
1997	n.a.	n.a.	2,719.5	n.a.	1,763.4
1998	n.a.	n.a.	4,948.5	n.a.	4,225.0
1999	n.a.	n.a.	5,271.8	n.a.	2,724.4
2000	n.a.	n.a.	5,336.7	n.a.	4,569.2

Source: Mafia District Fisheries Officer

Lindi

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	2,000	300,000	373.2	n.a.	n.a.
1996	2,190	350,000	508.9	n.a.	n.a.
1997	3,903.6	702,648	859.5	n.a.	n.a.
1998	4,200	840,000	1,070	n.a.	n.a.
1999	3,903	819,630	1,465	n.a.	n.a.
2000	4,500	1,125,000	1,530.9	n.a.	n.a.

Source: Lindi District Fisheries Officer

Note: including product cess and licence fees

Bukoba Urban

Year	Weight (ton)	Value (1000 Tsh)	Fishing Levy (1000 Tsh)	Collection rate	License (1000 Tsh)
1995	182.9	18,290	n.a.	n.a.	n.a.
1996	286.1	28,510	n.a.	n.a.	n.a.
1997	239.1	23,910	n.a.	n.a.	n.a.
1998	284.2	85,260	5,600.0	n.a.	362.3
1999	326.1	114,135	2,982.0	n.a.	592.3
2000	1,909.2	671,210	5,910.6	n.a.	630.2

Source: Bukoba (U) District Fisheries Officer

Attached Table 30 Levy Ratio of Royalty at Fish Market at Dar es Sallam,2001

Unit:Tsh.

	January	February
Actual levy collected	11,246,695	6,551,630
Expected amount of levy(5% of Production)	54,070,649	86,205,658
Ratio of levy	20.8%	7.6%

Source: Ilala Municipal

Attached Table 31 Project in Fisheries Sector in Tanzania

Field	Title	Period	Donors	Remarks
1 Resource Management	Tanga Coastal Zone Conservation Development Programme (TCZCP)	Phase I : 1991 - 1993 Phase II : 1994 - 1998 Phase III : 1999 - 2005	Irish Aid / IUCN	
	Outline	The Programme aims to enhance the well being of coastal communities in Tanga Region by improving the health of the environment that they depend on and by diversifying the options for using coastal resources. Phase I was the demonstration and piloting phase and Phase II was the demonstration phase. The objective of Phase III is the improved collaborative coastal and marine resource management by District administrations, resource users and other stakeholders.		
2 Environment	Kunduchi Integrated Coastal Area Management Project (KICAMP)	-----	-----	
	Outline	In listening phase, coastal issues were identified and a strategy for addressing those issues was developed. Priority issues identified include coast tourism development, erosion and dynamite fishing.		
3 Environment	Mafia Island Marine Park (MIMP)	1994 - 2000	NORAD / WWF	
	Outline	MIMP was managed by the Fisheries division with technical assistance from WWF and financial assistance from NORAD. The initial work was to focus on the problem of dynamite fishing in the park area. In the following years, MIMP plans to work closely with Mafia Islands communities to revise the park management plan and operationalize the Park Management Council.		
4 Rural Development	Rural Integrated Project Support (RIPS)	Phase I : 1988 - 1993 Phase II : 1994 - 1998 Phase III : 1999 - 2005	FINNIDA	
	Outline	RIPS is a development co-operation between Government of Tanzania and Finland, which supports rural development in Lindi and Mtwara Region. The overall objective is the improved well-being and sustainable livelihoods of the people in these regions. The main components are 1) public service development, 2) civic development, 3) small enterprise development and 4) participatory methods development.		
5 Environment	Rufiji Environment Management Project	Phase II : 1998 - 2001	NORAD	
	Outline	The goal of the project is to promote the long-term conservation through 'wise use' of the lower Rufiji forests, woodlands and wetlands, such that biodiversity is conserved, critical ecological functions are maintained, renewable natural resources are used sustainably and livelihood of the area's inhabitants are secured and enhanced. The project area is within Rufiji District in the ecosystems affected by the flooding of the river (Floodplain and Delta), downstream of the Selous Game Reserve and also including several upland forests of special importance.		
6 Environment	Integrated Coastal Management for Tanzania (ICM)	1997 - 2002	USAID / URI / TCMP	
	Outline	ICM aims at supporting the effort of the government of Tanzania with ongoing coastal management programs working at regional and district level, private sector and NGO community to establish an effective coastal governance system. The targets are 1) Formulating meaningful ICM policy that is effectively applied to coastal problems at both national and local levels; 2) Defining and application by government, business and communities of sustainable practices for emerging coastal economic opportunities; 3) Putting in place a mechanism to facilitate national support to effective local ICM; 4) Increasing institutional and human capacity for ICM; 5) Tanzania coastal management experience informing by and contributing to global ICM.		
7 Capacity Building	Capacity Building in Planning and Co-management of Tanzanian Prawn Fishery	2001 - 2002	FAO	
	Outline	Tanzania's industrial and artisanal prawn fishery has for some years been facing critical management problem. DOF (including TAFIRI) requires urgent assistance to put it on a sound bio-economic and organizational footing and FAO proposed this project. The long term objective of the project is to develop management capacity and commitment within the DOF, the industrial fishing companies and the artisanal harvest and processing sector, for operating an effective, annually updated Tanzania coastal prawn fishery management system. The immediate project objective is the preparation and implementation of a first annual Prawn Fishery Management Plan covering the industry fishery and two selected pilot areas for the artisanal fishery.		
8 Marketing	Project for Construction of Integrated Fish Market Complex, DSM	1999-2001	Japan	
	Outline	In formulating the development plan of DSM Fish Market, due consideration should be given to the strategies of the National Development Plan which are namely, income generation and elimination of poverty. Also, considering the current problems and demands disclosed by the interview survey for the existing fish market, fish circulation and elimination of losing fresh fish should be improved. For these purpose, the Fish Market is to be constructed in Banda Beach, with the following facilities and equipment: 1) fish landing wharf; 2) revetment and land reclamation; 3) auction hall complex; 4) fish retail market; 5) Fish preparation bldg.; 6) fish fry processing bldg.; 7) vegetable/grocer's bldg.; 8) fuel retail bldg.; 9) cafeteria; 10) water supply and sanitary facilities; 11) power supply facilities; 12) road and parking; and 13) other related facilities (public toilet, garbage yard, etc.).		

Project in Lake Victoria

Field	Title	Period	Donors	Outline
1 Fisheries Development & Credit	Integrated Development of Fishing Villages in Kagera	1991 -1994 1995 - 1999	FAO / UNDP FAO / Netherlands	<p>The main goals are: 1) to improve the access to fishing inputs through a Fisheries Revolving Fund (FRCF) and cash sales facility operated in collaboration with a national banking institution the Cooperative and Rural Development Bank (CRDB); 2) to enhance income earning opportunities in fishing communities; 3) experiment alternative fishing techniques; 4) to increase sales of fish; 5) to assist the DOF in the administration tasks especially those regarding the management and preservation of the fish resources in the Kagera region; and 6) to act as an interface and facilitator to others interested in developing or extending their assistance to the fishing / farming communities.</p> <p>From 1995, 'Integrated Development of Fishing Villages in Kagera' was taken over by Netherlands as a part of 'District Rural Development Programme (DRDP)'.</p>
2 Resource Management	Lake Victoria Fisheries Research Project	Phase I : 1989 - 1990 Phase II : 1995 - 2001 Phase III : 2002 - 2006	EU	<p>Five major components include: 1) institutional strengthening through support of the LVFO committees on fisheries research and management and support for scientific meetings; 2) stock assessment (acoustic, trawl and gillnet surveys and associated biological and statistical studies); 3) trophic web studies; 4) socio-economic assessments of management strategies through baseline information collection and post-harvest studies, including nutritional and health impacts of the fishery; and 5) development of a participatory process through evaluation of appropriate community structure and pilot community management initiatives.</p>
3 Environment	Lake Victoria Environment Management Project (LVEMP)	Phase I : 1997 - 2002 Phase II : 2002 - 2017	WB / GEF	<p>The project involves the three Lake Victoria littoral States of Kenya, Tanzania and Uganda as a joint participants and aims at the rehabilitation of the lake ecosystem. Overall objectives include: 1) maximizing the sustainable use of basin benefits (food, employment, income, safe water supplies and maintenance of disease free environment); 2) conservation of biodiversity and genetic resources; and 3) harmonization of national management programs in order to control and reverse environmental degradation.</p>
4 Human Resources Development	A Human Resource Development Programme (2000 - 2005)	1999 - 2005	Common-wealth Secretariat	<p>The Human Resources Development (HRD) is a planned and systematic attempt to develop the people necessary to achieve specific job objectives. Within the framework, rather than simply identifying Training Needs, the requirements for effective Planning and Management are also addressed. This ensures a more comprehensive and integrated programme.</p>
5 Fish marketing	The Project for the Construction of Kirumba Fish Market Complex	Planning: Applied in June, 2000	Requested to Japan	<p>The project is aimed at improving the quality and quantity of fresh and dried fish to the urban population of Mwanza through the followings: 1) to improve the existing fish marketing activities in Kirumba, by provision of a covered fish handling for dried fish and fresh fish, wholesales market, retail market, fish processing area, ice plant and ice storage, etc.; 2) to construct a small jetty so that to enable local fishermen to load and unload fish safely and also anchor their vessels; 3) to improve the entire environment of Kirumba Fish Market by constructing relevant facilities such as restaurants, parking area, water / fuel supply, shed and sanitary facilities; 4) to enable fisheries staff to supervise and co-ordinate all activities by provision of vehicle & boat transportation.</p>
6 Quality control	The Project for Construction of Fish Quality Control and Assurance center	Planning: Applied in July, 2000	Requested to Japan	<p>To improve the inadequate fish inspection and quality control mechanism, the construction of National Referral Laboratory in DSM and the laboratory upgrading in Mwanza were requested to Japan as a grant aid. The project also provides training on fish handling and hygiene control at all level of fish marketing.</p>

Project in Lake Tanganyika

Field	Title	Period	Donors	Outline
1 Fisheries Research	Lake Tanganyika Fisheries Research and Development Project	1972 - 1978	FAO/UNDP	<p><i>Outline</i></p> <p>Broad objectives to expand all aspects fisheries harvest and post-harvest, including through assessment fish stocks and design permanent monitoring system; research on biological characteristics commercially important species; recommendation on introduction fisheries regulations; improved statistical system; improved fishing methods (industrial and artisanal); improved processing and marketing systems; and provision of advice on investment potential.</p>
2 Fisheries Development	Fisheries Development Project	1976 - ca. 1980	IDA	<p><i>Outline</i></p> <p>IDA credit to provide technical assistance and facilities for establishing Lake Tanganyika Fishing Center (joint venture company) and to support associated activities (village fishing programmed; lake transport facilities; marketing and pollution study; training). Fish Receiving Station constructed in Kigoma but never put into operation and is now abandoned.</p>
3 Credit	Integrated Technical Assistance and Credit for Artisanal Fisheries	1983 - 1993	FAO / Netherlands	<p><i>Outline</i></p> <p>Overall aims of reversing declining trend in fishing production and improving living standards for fishers in Kigoma Region, by means of fishing gear importation and introduction of revolving credit scheme. Project evaluations concluded that most objectives met though adverse operating conditions (poor communications, transport) were major constraints. Long-term intended effects of institution-building and strengthening of extension services reportedly not fully attained.</p>
4 Fisheries Development	Inland Fishery Planning Development and Management Project (IFIP)	1989 - 2001	FAO/UNDP	<p><i>Outline</i></p> <p>A regional project with aim of promoting more effective and rational exploitation of fisheries resources in major inland water bodies. Extensive and well documented work related to management and planning for shared water bodies, including lakes Tanganyika and Victoria. Involved number of national sector overviews and field investigation of the state of particular fisheries.</p>
5 Fisheries Research	Lake Tanganyika Research Project (LTR)	1992 - 1999	FINNIDA / FAO	<p><i>Outline</i></p> <p>The purpose of LTR is to investigate the biological production and fisheries potential of the Lake and to devise modalities for the optimal management, on a regional scale, of its fisheries resources to serve present and future human welfare and biological conservation needs. The major components of LTR research programme include hydrodynamics, limnology, fish and zooplankton biology, remote sensing, fish genetics, fisheries statistics, legal-institutional studies, and socio-economics.</p>
6 Biodiversity	Lake Tanganyika Biodiversity Project (LTBP)	1995 - 2000	UNDP/GEF	<p><i>Outline</i></p> <p>The principal objective is to create a regional basin environmental management plan involving 4 lacustrine states, through which pollution can be controlled and the biodiversity of the lake sustained. Project include 5 components; biodiversity - investigation of species, species complex and to determine which are under threat; Pollution - identification of pollution sources, effects and possible preventative measures; sedimentation - monitoring of impact and evaluating possible way of amelioration; socio-economic and environmental education. Latter two cover subjects including fishing and agricultural practices, appraisal of possible aquatic reserve sites and their local acceptability, and the legal issues.</p>
7 Fisheries Development	Lake Tanganyika Regional Fisheries Programme (TREFIP)	2002 - 2006	AfDB/FAO	<p><i>Outline</i></p> <p>The overall objective of TREFIP is to put Framework Fisheries Management Plan (FFMP) and its underlying processes into full operation. Major emphasis of TREFIP is directed towards building partnerships with local fishing community residents in order first to improve performance and management conditions directly within the fishery industry itself, and secondly, on the village level, to improve facilities and amenities that are generally lacking or insufficient.</p>

Project in Lake Nyasa

Field	Title	Period	Donors	Outline
1 Biodiversity / Conservation	Lake Malawi Project	1995 - 1999	WB / SADC / GEF	<p>Outline</p> <p>A three-country GEF project involving Malawi, Mozambique and Tanzania, with the aim of developing a unified strategy for the conservation of biodiversity and sustainable use of the lake and its catchments. Main scientific aspects of project work involve systematic (taxonomy) and lacustrine ecology and conservation / parks planning. Socio-economic and development aspects include building community awareness, laboratory construction, and preparation of strategy for protected areas.</p>
2 Resource management	Lake Nyasa Trans-frontier Natural Resources Management Area Programme	Planning (1999-)	PPF / WWF	<p>Outline</p> <p>In early 1999, the concept of Trans-frontier Natural Resources Management Area (TFNRMA) is introduced, and the main goals of TFNRMA of Lake Nyasa are: 1) to create jobs and alleviate poverty among the local communities through tourism development; and 2) to conserve biological diversity of the Basin.</p>
3 Conservation	Lake Malawi/ Nyasa/ Nyasa Ecoregion - Based Conservation programme	----	WWF	<p>Outline</p> <p>The objective of the project is to develop the ecoregion based approach to conservation in which biodiversity goals are translated into an 'ecological conservation plan', in the effort to facilitate an integrated approach to the conservation and management of the Lake.</p>
4 Resource Estimation	Pelagic Fish Resource Assessment Project on Lake Malawi / Niassa	1987 - 1994	UK / SADC	<p>Outline</p> <p>The objectives of the project are: 1) to assess the magnitude, distribution and seasonality of the pelagic (offshore) fish resources in the lake and their structure and biology; 2) to investigate the trophic base supporting the pelagic fish resource and their factors affecting its abundance, distribution and variability as a contribution towards fisheries management; 3) to quantify the potential sustainable yield from new fisheries targeted on pelagic species; and 4) to determine appropriate economically variable strategies for the utilization and sustainable management of the pelagic fishery.</p>

Other Area

Field	Title	Period	Donors	Outline
1 Fisheries Investment	Zanzibar Fisheries Investment Project	1994 - 1999	FAO / AfDB	<p>Outline</p> <p>The project would aim at promoting fish production, processing and marketing, in particular to improve the quality of marine products along the harvest and post-harvest chain in order to increase the value added by the local fisheries sector and to allow producers, processors and traders to realize better prices and high incomes. The project would be addressed to mainly private operators and a line of credit would be made available through the banking system mainly to finance capital investment through long-term loans. Possible project components are: 1) Investment in fish production; 2) Investment in fish handling, processing and marketing; 3) Investment in fishing input industries; and 4) Investment in institutional support services.</p>
2 Master Plan	The Master Plan Study on Fisheries Development in the United Republic of	2001-2002	Japan	<p>Outline</p> <p>The objectives of the study are: 1) to formulate a master plan (target period: 10 years) that incorporates measures for increasing the stable income of fishers, using fisheries resources more effectively, strengthening the capacity of both fishers organization and the government, and conserving fisheries resources; and 2) to conduct technology transfer how to formulate and implement of the master plan to the Fisheries Division and other government agencies of Tanzania through this study operation.</p>

Attached Table 32 Resource Management Methods at Lake Victoria

	Restriction of Total Number of Fishing Boats	Restriction of Production Volume of Processing Plants	Restriction of Catch
Management Indicator	- Registration license for fishing boats	A) Shipment volume of fillets B) Delivery volume of raw fish	Catch
Management Method	- Restriction of the number of fishing boat registration licenses issued by the Fisheries Division	A) Shipment volume inspection by an inspector as is currently the case B) Witnessing of the delivery volume measuring by an inspector	- Daily tallying of the catch by fishing boats subject to control by the BMU
Advantages	- Easy enforcement by the Fisheries Division - Suppression of excessive competition between fishing boats	A) - Easy enforcement - Stimulation of plants to develop highly value-added products B) - Easy enforcement - Improved quality control awareness at the purchase and collection stage - Production of high yield and highly value-added products	- Direct management of the catch - Allocation of the allowable catch to the BMU will act as a strong initiative for fishermen to become members of the BMU
Disadvantages	- Need for the policing of fishing by unregistered boats - Because of the increase of fishing gear on board each boat, there is no guarantee that the catch will be accurately controlled - Possible job losses for boat carpenters	- Control of the total catch is impossible as the fish distributed outside plants (including artisanal processing operations) is not counted - Due to the efforts of plants to reduce rejects and remains, small processors depending on them may lose work	- The organizational strength of fishermen is currently insufficient to carry out the necessary work - There is no system to report data on the catch of the BMU to the Fisheries Division - There will be severe competition between fishermen to gain a higher proportion of the catch allocated to the BMU

Source: Study results by JICA M/P Study Team

Attached Table 33 Export of Fish Product (1997-1999)

Product	1997			1998			1999		
	Quantity kg	Value		Quantity kg	Value		Quantity kg	Value	
		Tsh.	US \$		Tsh.	US\$		Tsh.	US\$
Prawns	61,131.0	79,496,790.30	128,537.70	223,639.00	259,170,761.60	390,976.10	1,154,181.00	3,788,215,145.10	5,127,641.90
Lobsters	36,008.0	263,685,602.80	426,807.40	25,999.00	162,581,125.20	255,145.90	161,962.00	611,764,945.00	818,511.90
Live Lobsters									
Crabs	12,848.0	28,518,990.60	46,460.60	17,882.00	66,674,500.00	99,295.00	4,819.00	18,321,220.00	24,696.70
Octopus	638,046.0	1,029,216,002.50	168,584.40	595,783.00	702,011,119.20	1,055,637.10	574,522.00	977,816,816.80	1,357,380.60
Squids	12,523.0	152,064,190.80	250,738.00	12,567.00	20,256,972.80	30,493.90	35,005.00	74,583,797.20	107,571.70
Sea shells	183,172.0	83,592,295.00	324,979.10	154,893.00	19,856,620.80	29,859.10	250,006.00	64,212,429.30	85,538.80
Beche de mer	254,435.0	420,487,768.90	1,156,297.50	872,926.00	133,860,000.00	21,722.00	93,439.00	194,352,449.60	255,513.50
Fish maws							77,162.00	88,364,984.50	122,808.90
Fish offals	194,993.0	235,258,122.60	390,450.00	199,974.00	237,305,110.80	389,169.00	90,050.00	13,805,263.50	181,574.50
Shark jaws	650.0	3,389,316.00	5,525.00	254.00	2,841,983.30	4,273.60			
Marine Fish fillet	14,906.0	18,269,326.20	29,812.00	10,321.00	15,541,032.30	24,248.00			
Dried Nile Perch	143,477.0	65,036,318.40	107,662.90	12,288.00	211,061,705.40	331,307.80	402,509.00	91,442,209.10	128,454.30
Dried sardins	1,531,419.0	676,285,415.40	1,110,235.40	693,329.00	357,194,085.60	556,980.50	665,240.00	302,031,437.40	523,019.20
Nile Perch fillet	23,075,905.0	33,125,889,871.50	54,821,414.10	36,386,214.00	43,258,023,811.90	65,727,795.00	23,757,462.00	37,554,505,909.00	51,992,752.52
Nile Perch jaws	869,187.0	1,563,572,143.30	2,590,811.80	500,504.00	1,076,000,927.90	1,629,494.00			
Nile Perch carcass	530,472.0	253,481,895.30	411,276.30	456,080.00	50,318,799.80	78,209.30	156,300.00	19,167,692.30	25,159.80
Nile Perch chips	112,760.0	48,741,243.40	79,649.20				384,250.00	68,932,604.30	95,986.00
Nile Perch offals							280,080.00	469,966,991.00	594,976.00
Nile Perch belly flaps	2,522,516.0	928,857,841.50	1,527,835.00	2,792,600.00	965,148,516.00	1,477,436.60			
Shark belly flops							715.00	5,519,354.50	7,705.00
Nile Perch fish meal	764,802.0	194,000,138.90	320,028.70	1,002,768.00	1,333,620,349.10	203,075.00			
Fish powder							766,266.00	124,412,379.90	170,809.50
Nile Perch Oil	55,020.0	3,066,225.00	5,032.50	66,200.00	4,308,956.70	6,620.00			
Refrigerated fish							74,814.00	59,002,500.00	86,338.30
Fresh sardines									
Sea weeds	1,085.0	997,409.70	1,615.50						
Sub-Total	31,015,355.0	39,173,906,608.10	63,903,753.10	44,024,248.00	48,875,776,378.40	72,311,737.90	28,928,782.00	44,527,018,128.50	61,706,439.12
Acquarium fish	25536 Pieces	93,699,613.00	308,595.60	22439 Pieces	98,663,048.30	156,258.00	11822 Pieces	61,231,926.70	83,118.60
Grand Total		39,267,606,221.10	64,212,348.70		48,974,439,426.70	72,467,995.90		44,558,250,055.20	61,789,557.72

ANNEX

- 1. Fisher Communities' Activities in Kenya and Uganda**
- 2. Evaluation of Individual Programmes**
- 3. Screening and Initial Environmental Examination (IEE) for Environmental Evaluation**

ANNEX 1 FISHER COMMUNITIES' ACTIVITIES IN KENYA AND UGANDA

1.1 Situation of Fishers in Kenya and Uganda

The survey on the poverty of fishing communities was implemented to obtain information on:

- Unequal distribution of income among fishers (including middlemen and factories)
- Lack of savings by/financial well-being of fishers

In Uganda's case, the poverty situation of fishers is not only dependent on fishers activities but also dependent on their relation with middlemen and factories.

There is difference in the ownership pattern of fishing boats and gears between Kenya and Uganda. In Uganda's case, big fishers and investors own 10 to 20 fishing boats and manage fishing, fish collection, and selling. Investors purchase fishing gears individually. Also, there is not as many middlemen as in Kenya. In Kenya's case, middlemen/agents are very active and some buy fish even from Uganda. They have contracts with fishers by providing fishing boats and gears with help of factories.

Both the governments of Kenya and Uganda pointed out the difficulty of promoting fishing community, however there is big difference between their situation. In Kenya's case, they have price negotiation as a group because some fishing communities have right to fish and sell to factories. They also save part of their sales to strengthen their organizations. They have negotiation rights about adjustment of landing site with government and processing factories. Due to the solidarity of fishers community, needed people are able to get together to have meeting. On the other hand, fisher communities in Uganda are not active and the situation is similar to that of Tanzania.

1.2 Meeting with Fisher Communities in Kenya and Uganda

- A Wichelum/Bond District, Wichelum Fishermen Cooperative Society
- B Liunda /Bond District, Central SAKWA Cooperative Society
- C Uhanya/Bond District, Mr. Jack, Fish Agent
- D Kigingwa/Homabay District, Homabay Fishermen Cooperative Society and ZIWARI (women group)

A Wichelum/Bond District, Wichelum Fishermen Cooperative Society, Kenya

Wichelum is located from one and half hour distance from Kisumu. Wichelum is the most advanced fishing community. It was registered as a landing site in 1965 and developed from 1970 to 1980. There are 118 fishing boats and 450 fishers. Ship owners are not counted as fishers. Detail content is as follows:

Annex Table 1-1 Boats and Fishers at Wichelum Landing Site

(1) Nile perch fishing boat	90 boats (20 boats have outboard engine). 310 people (5 fishers for boats with outboard engine/ 3 fishers for boats and boats with sail) Gill net: 86 boats (all power boats) Long-line: 4 boats
(2) Dagaa fishing boat	21 boats (all unpowered boats). 84 people (4 fishers per boat).
(3) Tilapia fishing boat	7 boats (all unpowered boats). 21 people (3 fishers per boat)

The ratio of gill net is quite high, and this happened not because of fishers' investment but from others.

[Situation of fishers community activities]

The Wichelum Fishermen Cooperative owns office, collecting point, fishers watch office, and transportation tracks. There are 896 members; this number is more than that of the data in the above Table because this number includes ship owners. The following Table shows the organization structure which is more or less similar to the other fisher cooperatives.

Annex Table 1-2 The Organization Structure of the Wichelum Fishermen Cooperative

Management Committee	9 persons. (Chairperson to Treasurer: 4 persons). Committee members are elected by ordinary members.
Chairperson	1 person. Elected by members.
Vice-chairperson	the same as above
Secretary	the same as above
Treasurer	the same as above
Worker	5 persons. The record of landing fish, sale work.
Supervisor	2 persons. Their role is inspection. Independent from organization

The main activity of the fishermen cooperative is the sale of fish consigned to it by the fishers. The cooperative collects 10 percent of sale price as a commission fee for cooperative activity fund. Most cooperatives depend on commission fee which necessitate the high levy ratio. The 5 percent of levy is used for the cooperative activities itself with the rest of the 5 percent saved in each fishers individual account.

This latter 5 percent does not however function as a credit source, unlike SACCOS (Saving and Credit Coop. Society). Some cooperatives have price negotiation right (price changes due to fluctuation of sale price and also price competition among processing factories) commission fee plays an important roles to provide stable fund for the cooperatives.

B Liunda /Bond District, Central SAKWA Cooperative Society, Kenya

The population of Liunda fishing village is about 2,000. There are 55 fishing boats and about 200 fishers. Fish is sold to 5 processing factories. It takes 2 to 4 days to collect fish by trucks. The collecting point was established by the Fisheries Division in 1980 together with the office of Fisheries Division. Long-line is the main fishing method. This method of fishing (Tsh.114,000) does not cost as much as gill net (Tsh.2,850million). The average fish catch is 40kg by long-line (it was 20 to 50kg when checked by survey member). Bait was Clarias which are caught at irrigation canal near Kisumu. It costs Ksh.4 per Clarias and fishers buy 200 to 300 for each fishing trip.

Annex Table 1-3 Boats and Fishers at Liunda Fishing Village

Nile perch fishing boats	Fishers 120. All Fishing boats is unpowered. Gill net:4 boats Long-line net: 36 boats
Dagaa fishing boats	10 boats. Fishers:40.
Dragnet for Nile perch	5 boats. Fishers:40.
Tilapia fishing boats	none

Long-line net can be lost or destroyed by fishing boats and drift net and it is very serious problem currently. Because of problems of long-line as mentioned, Processing factories sometimes support fishers by providing them fishhook. However, the factories never assisted them by providing fishing boats, out boat engine, and Gill net.

[Beach Leadership Committee]

The purpose and social goal of this committee is almost the same as that at Wichelum. In this committee, the fee is not enough to pay the committee members' salary. The number of members is

98 (including the members from branch office which is outside of Liunda). Most of them have fishing boats. This is because this committee aims at commission sale of fish and that the fee of this committee has to be collected by owner of fishing boats.

Therefore, beneficial group of this committee is owner of fishing boats. This committee does not offer fishers social service to improve their environment. The activity of this committee is same as that at Wichelum. The members of this committee includes two women out of 9 members. As the committee's benefit is from commission sale, the money they get is very limited considering the scale of fishing (half the scale of Wichelum). The limited coverage area of the landing site and the small scale activities does not provide the fishers sufficient market opportunities.

C Uhanya/Bond District, Mr. Jack, Fish Agent, Kenya

Mr. Jack buys fish from Ugandan fishers and also fish for Nile perch by gill net. This agent does not do rental of fishing gear any more. The reason for not renting is that collection of investment did not go well because fishers often did not bring fish back or escape with fishing gears (uncollected amount: Ksh.1.2 million). There is many stories like that. People from factories also related the same experience. Controlling fishers with rental fishing gear might be impossible in Kenya. As there are 17 factories in the small water area, the competition is high among the factories to offer fishers good terms. Also there are not many islands in Kenya and this environment make camp difficult. The price of gill net is Ksh.2,500 (Tsh.28,500)/set and normally 80 to 100 sets are required in each fishing boats.

D Kiginga/Homabay District, Homabay Fishermen Cooperative Society and ZIWARI (Women Group), Kenya

It takes two and half hours to south-east by car from Homabay to Kisumu. There are 28 fishing boats in total: Fishing boats for Tilapia are 12, gill net for Nile perch is 8, fishing boats for Dagaa is 8. There are also two fishing boats for long-line from outside. Homabay Fishermen Cooperative Society exists as a fishing society, however it is not active at all. Because of that, fish sales are entrusted to individual fishers (owner of fishing boats). Committee: Beach leader committee (12 committee members) exists and they deal with program mediation among fishers and improving social environment case by case. Weakness in institution, small scale fishing village, and distance from Kisumu influence unfavorably on the price of fish. Ksh.65 for Nile perch at Kisumu is 20 percent lower than that of Wichelum (Ksh.78) (Data from July 14, 2001). As a result of that, agents who buy fish at landing site get Ksh.20/kg margin out of Ksh85 which is the factory price. Fishers who go fishing for Nile perch leave for the shore at 15:00 and set gill net, wait and see, come back the next morning at 11:00. Agent/factory collect fish before 16:00. If landed fish are not collected on time, those fish will be put outside and this reduces the quality and price of fish. Especially during raining season, agents sometimes are not able to collect the landed fish, therefore storage facilities are needed. However, the scale of landing site present difficulties for the agent/factory to collect landed fish. Therefore, development of a collecting center to cover these small landing sites need to be to investigated.

ZIWARI is a women's group established in 1992. They raised funds by collecting committee fee (Ksh.25) at their meeting every week for their procurement fund. Committee fee increased to Ksh.50,100 (1994) and it is also used for assistance in case husband die or to pay for children's education fee, etc. Micro-finance project of LVEMP was established in 1998. Toilet (toilet for each gender, 1 shower room) and water supply facilities were established and the usage fee (Toilet: Ksh.5, Water: Ksh2/20L) was used for the group's activities. They also bought a 6m fishing boat by collecting Ksh.150 each week by volunteer. It was rented to fishers. However because some fishers cheated on the amount of fish, the women's lack of knowledge for fishing, and the women inability to be on fishing boats, this business endeavour did not go well. The number of member was 25 at the beginning and it had increased to 30. However, it decreased to 15 at present. 20 to 30 members are not enough for their purchase power and a bigger membership is required to promote member's motivation.

Annex Table 1-4 Trend of Fish Production in Homabay District, 1997 to 2000

Species	1997 (mt, Ksh.)		1998 (mt, Ksh.)		1999 (mt, Ksh.)		2000 (mt, Ksh.)	
Nile perch	127,909	5,391,765	219,282	7,880,263	13,952	544,522	158,587	6,871,721
Omena	122,595	2,981,015	141,316	3,700,387	4,965	99,300	83,058	1,579,160
Tilapia	73,918	3,752,475	198,677	12,479,110	26,851	1,422,689	245,256	11,544,604
Others								
Total	474,090	17,178,175	756,136	32,142,843	77,001	3,384,809	668,554	25,253,272

Source: Homabay District Fisheries Office

ANNEX 2 EVALUATION OF PRIORITY PROGRAMMES

2.1 Process of Evaluation

Following process was adopted to evaluate priority programmes.

- (1) Specify major benefits and beneficiaries
- (2) Make a rigid distinction between economic projects and social projects
- (3) Trial calculate of benefits on economic projects when it is possible
- (4) Convert costs of economic programmes to economic price
- (5) Specify the economic programmes to analyse profitability
- (6) Examine balance between revenue and O&M costs

2.2 Benefits of Priority Programmes and these characteristics

The benefits of priority programmes and these characteristics are specified in the following table.

Annex Table 2-1 Major Benefits and Type of Programme

Zone	Programme	Major Benefit	Beneficiaries	Type of Programme	Financial Evaluation
Marine	Marine Fisheries Sub-sector Capacity Building	- increase of fish catches - reduction of quality loss - financially strengthen of cooperative union	Fishers Traders	Economic	Yes
	DSM Fisheries Infrastructure Improvement	- improvement of fishery industries - improvement of environment	Fishers Traders DSM citizens	Economic/ Social	Yes
L. Victoria	Fisheries Sub-sector Capacity Building	- strengthen Nyegezi FFI	Fisheries officer Fishers	Social	No
	Fish Marketing Improvement	- increase of working days - decrease of market loss - effective utilization of resources	Traders	Economic	Yes
	Major Landing Beach Improvement	- fundamentally strengthen of cooperative union	Fishers	Economic/ Social	Yes
L. Tanga-nyika	Dagga Fisheries Development	- increase of fish catches - reduction of quality loss	Fishers Traders	Economic	Yes
L. Nyasa	Planked Canoe Extension	- improvement of environment	Tanzanian people	Social	No
National Level	Fisheries Financial Support	- capacity building of fishers - capacity building of MCI	Fishers	Economic	Yes
	Fisheries Information System Improvement	- improvement of management capacity	Fisheries officer Tanzanian people	Social	No
	National Fish Export Promotion	- capacity building to promote fish export	Fisheries officer Tanzanian people	Social	No
	Aquaculture Extension	- contributing food security and nutrition	Local people	Social	No
	Fisheries Master Plan Implementation Training	- capacity building to implement Fisheries Master Plan	Fisheries officer Tanzanian people	Social	No
	Fisheries Co-management	- capacity building of fishers - improvement of environment	Fishers Tanzania people	Social	No
	Fisheries Communities Development	- capacity building of fishers/women	Fishers/women	Social	No
	Fisheries Training Institute Improvement	- improvement of facilities of training institute	Institute staffs Fishers	Social	No

2.3 Results of Analysis

2.3.1 Economic and Financial Evaluation on Marine Fisheries Sub-sector Capacity Building Programme

This programme intends to increase fish-catch and income of fishers, through organizing and/or strengthening the cooperatives or groups, training of young fishers and improving the market system in the central parts of coast area (Mafia, Bagamoyo) in Phase 1.

In Phase 2, the experiences in Phase 1 will be transferred to the southern part of coast area. The same effects can be expected in the programme in Phase 2.

The fishing activity in coast area shares about 20 percent of that in the mainland of Tanzania. And there are big markets and vigorous economic activities. Therefore, more than 20 percent of benefits of Master Plan can be expected from this programme.

- Increase of fish-catch: US\$ 24,785,100 x 0.2 = US\$ 4,957,020
- Increase of household income: US\$ 206,621 x 0.2 = US\$ 41,324
- Total US\$ 4,998,344

On the other hand, the economic costs can be calculated as US\$ 3,021,948.

But it is difficult to get profit as shown in the following table. The programme desired a new credit scheme to make fishers to purchase capital goods, but it needs more than 60 years to repay loan, if the revenue are low as shown in the programme.

Annex Table 2-2 Financial Status on Marine Fisheries Sub-sector Capacity Building Programme in 2012

Unit: US\$

	Revenue	O&M Cost	Balance
DSM	41,096	39,384	1,712
Mafia	14,840	13,356	1,484
South*	14,840	13,392	1,448

Note: The revenue in South area is assumed to be equal of that in Mafia.

The costs in South are calculated by the revenue/cost of Dar es Salaam and Mafia.

2.3.2 Economic Evaluation on Dar es Salaam Fisheries Infrastructure Improvement Programme

This programme consists of Fish market extension component and Mooring improvement in Kivukoni component.

Fish market extension component intends to support and strengthen the new Banda beach fish market and to improve areas from the viewpoint of Urban Planning. Therefore this component has social and/or environmental characteristics.

But the programme has facility construction of ice plant and refrigerator. That generates economic benefits such as quality improvement of fish products and supply of safe foods for peoples. It is difficult to quantify these benefits. About US\$ 342,500/year are expected for the demand of ice plant and refrigerator facility as shown in the following table. And it will contribute to increase income of 500 people of fisheries related such as processing and trading.

On the other hand, Mooring improvement in Kivukoni intends to improve work environment of fishers and to improvement of landscape. About US\$ 6,400/year can be expected for the mooring fee.

But economic costs of these components are calculated as about US\$ 3.2 million, and more than eight times of the benefits above mentioned.

The effectiveness of the improvement of environment and landscape can not be quantified, but it can be supposed to be very big for the infrastructure construction in the central part of Dar es Salaam to promote commerce and other economic activities. And it can be evaluated that this programme is very important to the Tanzanian economy.

Annex Table 2-3 Financial Status on Dar es Salaam Fisheries Infrastructure Improvement Programme in 2012

Unit: US\$

	Revenue	O&M Cost	Balance
Fish market extension	348,100	123,032	225,068
Mooring improvement in Kivukoni	6,376	5,556	820
Total	354,476	128,588	225,888

Note: Almost all of revenue and O&M costs of Fish market are those of ice plant and refrigerator.

The revenue of ice plant and refrigerator is calculated for 20 tons/day of ice production volume of ice based on the revenue estimated in Nyamkaji ice plant and production volume of 20 tons.

The O&M costs include electric charges calculated based on ice plant and refrigerator and maintenance and depreciation costs (15 percent of equipment purchase cost).

Other revenue and O&M costs are calculated as 10 percent of New Banda Beach fish market estimated for Basic Design Study.

2.3.3 Economic and Financial Evaluation on Lake Victoria Fish Marketing Improvement Programme

Fish Marketing Improvement Programme consists of Kirumba Market and Leftover processing plants.

The increase of market volume by 12 percent can be expected in Kirumba market by reason of increase of working days and decrease of market loss. The value is calculated as about US\$ 718,000/year. On the other hand, the economic costs are calculated as US\$ 5.8 million, about eight times of the benefit quantified. In the financial evaluation, it is very difficult to cover O&M costs by the surplus of MWADES as shown in the following table, because the construction costs estimated is very big.

Concerning leftover processing plants generate big benefits. Only the plant proposed for Musoma district, about US\$ 667,800/year can be expected for 30 tons/day processing. In the financial evaluation, this component shows profitable as shown in the following table.

Annex Table 2-4 Financial Status on Lake Victoria Fish Marketing Improvement Programme in 2012

Unit: US\$

	Revenue	O&M Cost	Balance
Kirumba market	28,669	223,155	-194,486
Leftover processing plants	2,231,735	1,572,109	659,627
Total	2,260,404	1,795,264	465,141

Note: The revenue of Kirumba is calculated as 1.12 times of the surplus of MWADES in 2001.

The O&M costs are only facility maintenance cost (5 percent of construction cost).

The revenue of Leftover processing plants is calculated based on the following assumption;

Processing volume: 90 tons/day

Unit price: Tsh65/kg

Working days: 300 day/year

The O&M costs include costs for processing (70 percent of revenue calculated) and facility maintenance costs (5 percent of construction costs).

2.3.4 Economic Evaluation on Lake Victoria Improving landing site Programme

This programme intends to increase efficiency of landing from the viewpoint of sanitation. The economic benefits such as increase of foreign currency in consequence of quality improvement and increase of income through establishing fishers' cooperatives can be expected. But it is difficult to quantified, because the volume of fish-catch and number of beneficiaries are uncertain. Economic costs are calculated as about US\$ 2 million.

But this programme is profitable as shown in following table. If the surplus is distributed to fishers, big benefit of income increase can be expected.

Annex Table 2-5 Financial Status on Lake Victoria Major Landing Beach Improving Programme in 2012

Unit: US\$

	Revenue	O&M Cost	Balance
Total of 3 sites	424,705	142,227	282,479

Note: Revenue is following the annex of programme.

O&M costs include operation costs (following the annex), facility maintenance cost (5 percent of construction cost) and equipment maintenance cost (10 percent of equipment purchase costs)

2.3.5 Economic Evaluation on Lake Tanganyika Dagga Fisheries Development Programme

This programme intends to increase fish-catch of Dagga, which is important protein resources, and decrease post-harvest loss in rainy season. The benefit of decrease of post-harvest loss is calculated as about US\$ 4 million/year. The economic costs are calculated as only US\$ 644,400. Such big difference is caused that this programme has the characteristic as study programme, and not has the characteristic of actual development programme. In future, if the study will finish successfully, actual economic benefit can be expected.

In financial analysis, the programme can be managed in sustainable, if Kigoma districts assist financially, for example 3 percent of own revenue for DFDF.

Annex Table 2-6 Financial Status on Lake Tanganyika Dagga Fisheries

Unit: US\$

	Revenue	O&M Cost	Balance
Dagga Fisheries Development	11,076	6,854	4,221

Note: Revenue is assumed as 3 percent of Kigoma district own revenue.

O&M costs include facility maintenance costs (5 percent of construction cost) and equipment maintenance cost (10 percent of equipment purchase cost).

2.3.6 Economic Evaluation on Fisheries Financial Support Programme

This programme attends to establish new credit scheme for fishers can purchase capital goods. In that meaning, the benefits such as increase of fish-catch and increase of income of fishers.

On the other hand, if fishers fail to repay, the loan suffers them. Sometimes, they have to escape from their villages. Therefore it is necessary to strengthen fishers' cooperatives. The economic costs are calculated as about US\$ 1.8 million, though it is difficult to quantify benefits.

In financial evaluation, the surplus of fishers' cooperative can not cover the O&M costs depending the repayment management by NGOs, as shown in the following table. That will increase the financial burden of districts., which are very weak in financial base.

In order to overcome these problems, the following measures are necessary.

- Fishers do their best to improve their management by themselves
- Fisheries Division improve market systems to encourage them
- The staff of cooperatives and district fisheries officers provide suitable marketing information and management art to get profit to make it possible to repay loans

It is very important to generate multiplied effects of programmes proposed in this Master Plan.

Annex Table 2-7 Financial Status on Fisheries Financial support Programme in 2012

Unit: US\$

	Revenue	O&M Cost	Balance*
Fisheries financial support	17,532	160,000	-142,468

Note: Revenue is assumed the total of 1 percent of districts own and 85 percent of surplus of fishers' cooperatives of DSM and Kigoma.

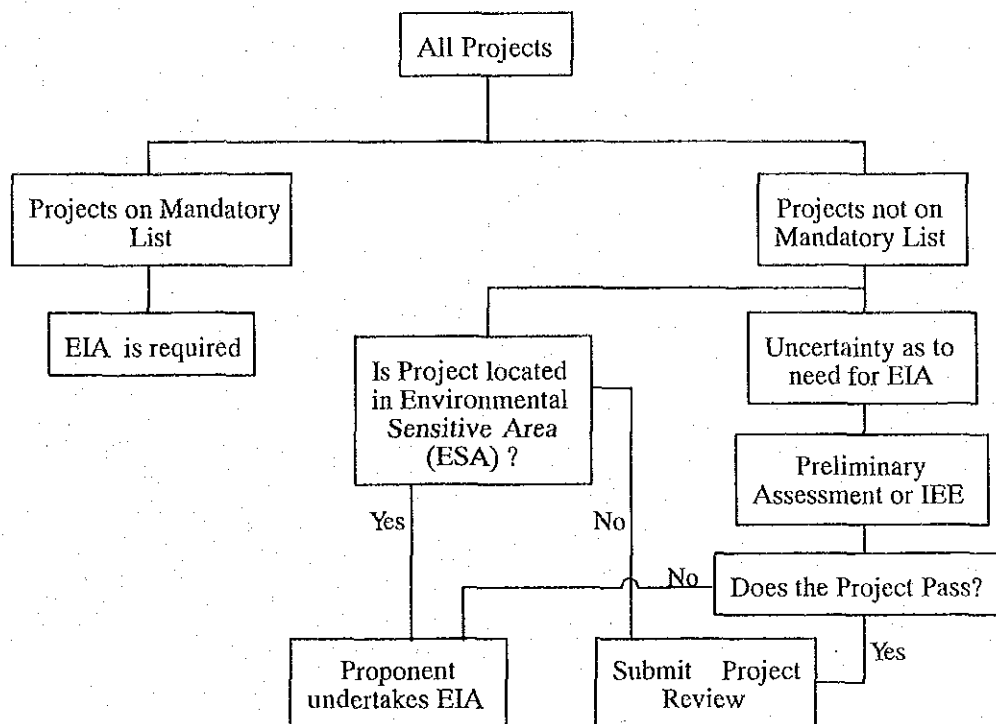
O&M costs include subsidy for interest (5 percent of Credit and Contract-out expense for NGO (35 percent of Credit Fund).

* If fishers do not need subsidy for interest and decrease contract-out expense for NGO, three times of revenue assumed cover the O&M costs and become profitable.

ANNEX 3 SCREENING AND INITIAL ENVIRONMENTAL EXAMINATION (IEE) FOR ENVIRONMENTAL EVALUATION

3.1 Screening Procedure

The screening process to determine whether a project require EIA is illustrated in Annex Fig 2-1 Screening Procedure below;



Annex Fig 3-1 Screening Procedure

3.2 EIA Requirement and Procedure

According to NEMC's Tanzania Environmental Impact Assessment Procedure, Appendix 1, fisheries activities that will require mandatory EIA are:

- medium to large scale fisheries
- artificial fisheries (aqua-culture for fish, algae, crustaceans shrimps, lobsters or crabs)
- introduction of new species in water bodies
- construction and expansion fishing harbours
- development on beach fronts, river basin development
- watershed management projects

Appendix 2 which list small-scale activities and enterprises that require registration (may or may not require EIA) mentions;

- fish culture
- sea weed farming

- fish landing stations
- wood works e.g. boat building
- market places (livestock and commodities)
- technical assistance.

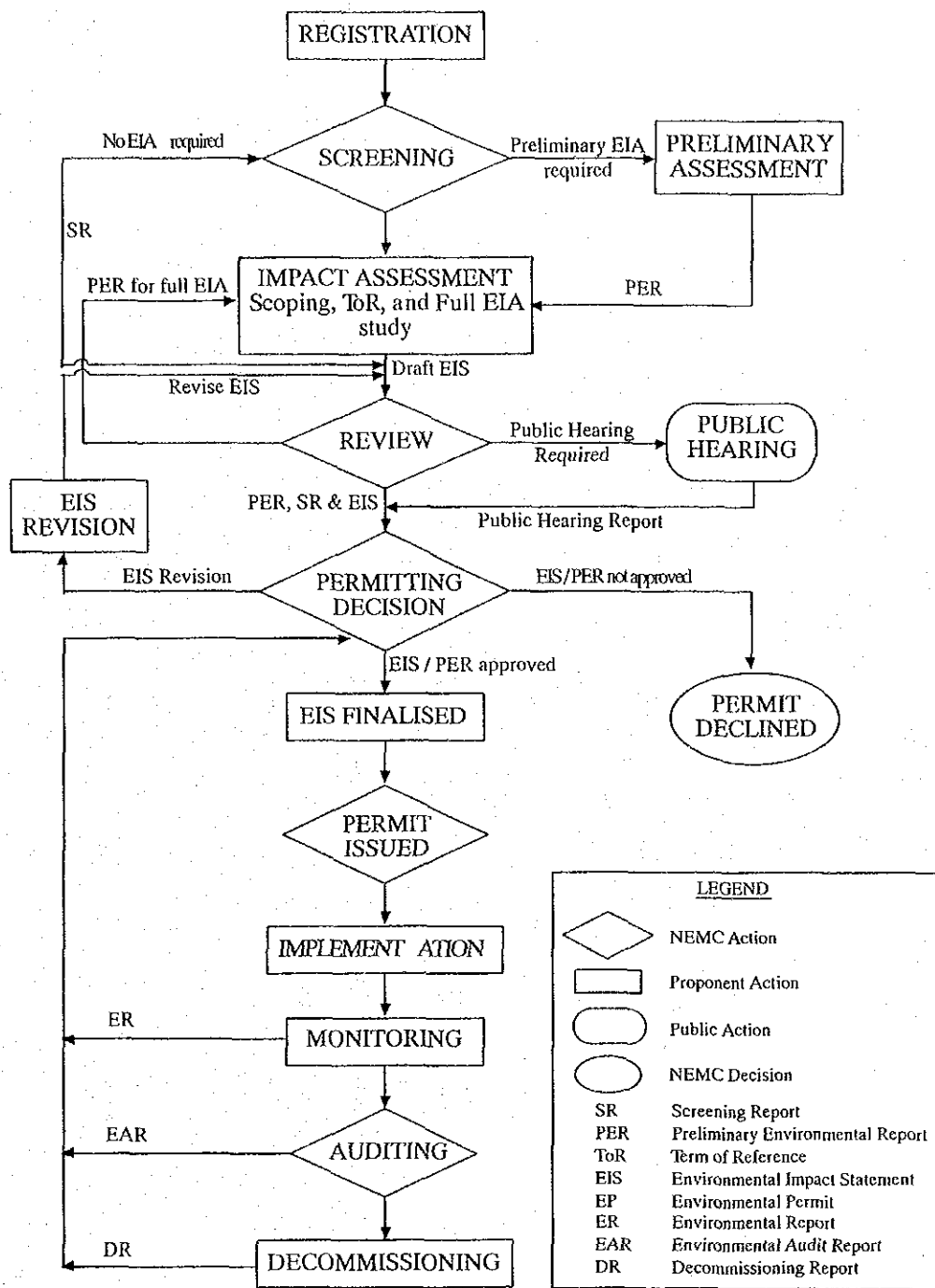
Proposed projects or concept are registered with NEMC through the special application form called "Environmental Assessment Registration Forms". The process from the time of registration to decommissioning of the project is illustrated in Fig 8.1-2 EIA Procedure in Tanzania below.

Other than the above Appendix 1 and 2 list, EIA is not mandatory for all other developments/undertaking that are not likely to have adverse environmental impacts or not located within or near Environmentally Sensitive/ Critical Areas (ESAs) (see attached table below). Projects proposed within or near ESAs will however require EIA. Preliminary assessment may be made based on existing information with extra information gathered from field surveys and should cover:

- Description of the project characteristics
- Boundary of the affected area
- Identification of impacts on local environment and socio-economic impacts
- Evaluation of the significance of impacts
- Consideration of possibilities of modification of the project design (mitigation measures) or need for a full EIA.

After registration, and within a period of 30 days, NEMC will submit a screening report to the proponent of the project, classifying the project into 4 categories, namely:

1. Full EIA required when the project is known to have significant adverse environmental impacts.
2. Preliminary environmental assessment is required (similar to IEE) where the project may have environmental impacts.
3. EIA not necessary where the project is unlikely to cause significant environmental impacts.
4. Project proposal rejected (Stop). No further consideration at all for projects contravening government policies or other legal obligations.



Annex Fig 3-2 EIA Procedure in Tanzania

Annex Table 3-1 Environmentally Sensitive Areas (ESAs) and Ecosystems

1. Areas prone to natural disasters (geological hazards, floods, rain storms, earthquakes, landslides, volcanic activity, etc.).
2. Wetlands:
(Flood plains, swamps, lakes, rivers etc). Water bodies characterized by one or any combination of the following conditions.
(a) Tapped for domestic purposes; brick making;
(b) Within the controlled and/or protected areas;
(c) Which support wildlife and fisheries activities;
(d) Used for irrigated agriculture, livestock grazing
3. Mangrove swamps characterized by one or any combination of the following conditions:
(a) With primary pristine and dense growth;
(b) Adjoining mouth of major river systems;
(c) Near or adjacent to traditional fishing grounds;
(d) Which act as natural buffers against shore erosion strong winds and storm floods
4. Areas susceptible to erosion e.g.
(a) Hilly areas with critical slopes
(b) Unprotected or bare lands
5. Areas of importance to threatened cultural groups.
6. Areas with rare/endangered/or threatened plants and animals.
7. Areas of unique socio - cultural, history, archaeological, or scientific importance and areas with potential tourist value.
8. Polluted area
9. Area subject to desertification and bush fires.
10. Coastal areas and Marine ecosystems: -
 - Coral reef
 - Islands
 - Lagoons and estuaries
 - Continental shelves
 - Beach fronts etc.
 - Inter - tidal zones
11. Areas declared as: -
National park, Watershed reserves, forest reserves, wildlife reserves and sanctuaries, sacred areas wildlife corridors, hot - spring areas.
12. Mountainous areas, water catchment areas and recharge areas of aquifer. (Flood plains, swamps, lakes, rivers etc). Water bodies characterized by one or any combination of the following conditions.
13. Areas classified as prime agricultural lands or rangelands.
14. Green belts or public open spaces in urban areas.
15. Burial sites and graves

The above to be reviewed periodically

3.3 Screening Result

The screening procedure mentioned above was applied to the project components below:

- (1) Programme 1: Marine Fisheries Sub-sector Capacity Building Programme
- (2) Programme 2: Dar es Salaam Fisheries Infrastructure Improvement Programme
 - (a) Expansion of Dar es Salaam fish market
 - (b) Mooring area in Kivukoni Front
- (3) Programme 3: Lake Victoria Fisheries Sub-sector Capacity Building Programme
- (4) Programme 4: Lake Victoria Fish Marketing Improvement Programme
 - (a) Construction of Kirumba fish market
 - (b) Improvement of local fish processing facility for Nile perch left-over from the processing plant
- (5) Programme 5: Lake Tanganyika Dagaa Fisheries Development Programme
- (6) Programme 6: Lake Nyasa Planked canoe Extension Programme
- (7) Programme 7: Aquaculture Extension Programme
- (8) Programme 8: Fisheries Financial Support Programme
- (9) Programme 9: Fisheries Co-management Programme
- (10) Programme 10: National Fish Export Promotion Programme
- (11) Programme 11: Lake Victoria Major Landing Beach Improvement Programme
- (12) Programme 12: Fisheries Communities Development Programme
- (13) Programme 13: Fisheries Information System Improvement Programme
- (14) Programme 14: Fisheries Training Institute Improvement Programme
- (15) Programme 15: Fisheries Master Plan Implementation Training Programme

Of the above 15 programmes, only Programmes 2, 4, and 11 have significant construction components. Programme 2 could be classified as “development on beach front” listed under Appendix 1, and would require mandatory EIA or an environmental consideration report (as was the case for the Banda Beach Fish Market). Programmes 4 and 11 could be classified as “fish landing station” listed in Appendix 2, which may or may not require EIA.

Programme 14 which involves rehabilitation of existing Nyegezi Fisheries Training Institute could be classified “technical assistance” listed in Appendix 2, which may or may not require EIA. As the rehabilitation will be at the same location as existing buildings, significant negative impacts is not expected on the natural environment.

Programme 6 could be classified as “boat building” listed in Appendix 2, but since it is not a boat building project per se but rather a project to introduce plank canoe construction technology to the fishers of Lake Nyasa, this project is not expected to have any significant impact on the environment and thus would not require an EIA.

The other programmes are mainly comprised of “soft” components, are not in the mandatory list, are not located in Environmentally Sensitive Areas, and not expected to impact significantly on the natural environment, therefore EIA would not be required.

For this Master Plan Study, IEE will be performed on programmes 2, 4, and 11 to identify possible significant impacts and to proposed mitigation measures to lessen or avoid these impacts. Subsequently according to the NEMC’s screening procedure, if the programme is “Passed”, the

programme will be submitted for review and implementation. If the programme "Failed", the proponent or implementation body will then need to carry out an EIA and comply with the EIA Procedure in Fig 8.1-1.

The final decision on whether a project component will require an EIA or not, or a less stringent assessment report, will depend on NEMC's evaluation of the "Environmental Assessment Registration Forms" for the programme's components.

3.4 Initial Environmental Examination (IEE)

3.4.1 IEE Checksheet

The Initial Environmental Examination (IEE) comprise initial environmental evaluation and screening of the proposed project components with the main objective of identifying potential significant impacts from the project's activities. It will look at the physical, ecological resources, human use values, and socio-political aspects of the project's components to identify potential significant impacts.

Significant impacts identified by the IEE may then require a more detailed investigation during project preparation and implementation in order to more accurately clarify the impacts and mitigating / avoidance / alternative actions to be taken by the implementation authorities to lessen or avoid the impacts.

The IEE will make use of a checklist of environmental resources that are stated in Volume 5 of the Tanzania Environmental Impact Assessment Procedure, General Checklist of Environmental Characteristics (see Annex Table 3-2 to 3-4 for IEE Checksheets).

IEE will look into the natural and social environment, i.e.:

1. Natural Environment will comprise:

i) Physical resources

- water resources (surface, ground water, hydrology, etc.)
- air resources (climate, wind, temperature, typhoon, air quality, etc.)
- land resources (soils, soil erosion/sedimentation, fertility, geology, mineral etc.)

ii) Ecological resources

- aquatic resources (exploitation of fisheries, aquatic biology, etc.)
- terrestrial resources (forest, vegetation, wildlife, etc.)
- endangered (rare) species

2. Social Environment will comprise:

iii) Human use values

- beach use (housing, market, fish landing / processing, etc)
- industries (marine product processing, industries, etc.)
- water supply
- transport
- rubbish disposal
- agriculture
- flood control/drainage
- power (electricity, fuel, firewood)

- recreation
- mining (iron, phosphate, petroleum, etc.)
- working environment (noise, odour, vibration)
- land use
- environmental degradation from industrial processing, pollution

iv) Socio-political / Cultural

- regulation/ law on environment and related matters
- national policy and emphasis for development
- institutional aspect
- social organization of communities, GIE and women groups (WID issues)
- encroachment into precious ecological zones or areas of historical/cultural values
- environmental / visual aesthetics
- resettlement (if applicable)

3.4.2 IEE Result

IEE check sheets were completed for Programmes 2, 4 and 11 (see Annex Table 3-2 to 3-4). The significant impact identified in these check sheets are analysed in each programmes in Chapter 3 and mitigation measures are suggested.

(2) Dar es Salaam Fisheries Infrastructure Improvement Programme

(a) Expansion of Dar es Salaam fish market

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Relocation of existing users & facilities			
• Commercial areas	±ve	The relocation of the existing users & facilities will have both a positive and negative impact on the surrounding commercial areas. The -ve impact will be the loss of commercial activities that will impact on the surrounding commercial areas that may depend on the relocated market. The +ve impact will be better facilities that will be built in its place and the benefits accruing from the new facilities. To lessen the impacts, the relocation exercise must be conducted with general consensus of the existing users and relocated to a new location that is acceptable to all concerned/ affected.	Moderate
• Demography	-ve	The relocation exercise will affect the demography of the market users. This impact will be temporary in nature as the relocated users will be transferred back to the new market once construction is complete.	Slight
• Economy & employment	-ve	The loss of economic activities with the relocation will be temporary. The activities will continue at the new temporary relocated area and eventually transferred back to the newly constructed market once it is completed. The relocation and subsequent return of the users must be conducted fairly with general consensus of the users to lessen conflicts and misunderstandings.	Significant
• Waste management	+ve	The waste management will improve with the new market facilities and more effective market management.	Moderate

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
• Visual pollution	+ve	The haphazard and unplanned existing layout will be replaced with the new market design to improve the <i>visual landscape of the area</i> .	Moderate
• Solid/ liquid wastes	+ve	The new market will have better facilities to improve waste handling and disposal.	Significant
Construction of facilities, utilities, drainage, etc.			
• Compatibility of use	+ve	Positive impact will be the compatibility of the new market with the existing surrounding activities in the area. The new design must take into account the other activities in the surrounding areas to harmonise/ integrate the market activities with these activities.	Moderate
• Economy & employment	+ve	Employment will be generated by the construction activities although the impact will be of temporary nature. The construction labour force will also require services (food, living quarters, transport, etc.) in the area and these demands will impact positively on the local economy although this impact will also be temporary in nature. To minimise conflicts, the contractor should be encouraged to hire local labourers.	Significant
• Transport network, and risk and hazard	-ve	Negative temporary impacts such as increase constructional traffic flow to the area creating noise, dust and increase safety hazard to local inhabitants. Proper traffic control should be considered during the construction to ensure smooth integration of the constructional traffic into the main roads to minimise these negative impacts.	Moderate
Operation /Maintenance of the expanded DSM fish market			
Stall allocation - impact on:			
• Demography • Economy & employment	±ve	The impact from the stall allocation may be positive or negative depending on the transparency and fairness of the allocation exercise. As not all existing users could be accommodated in the new market facilities, equitable and fair treatment must be ensured to reduce conflict and misunderstanding.	Significant
Marketing/ transport/ mamalishc/ food stall activities – impact on:			
• Compatibility of use • Commercial area	+ve	The location of the expanded DSM market within the area of existing ferry fish market will allow efficient and complementary integration of the market activities with the surrounding areas' activities. Due to the limited space in the area, activities that need not be located in this market complex area should be considered for relocation to other more suitable area. The more efficient market activities without the negative environmental problems will enhance the surrounding commercial areas.	Moderate
• Economy & employment • Health and safety	+ve	The operation of the new expanded fish market will generate employment and economic benefits to market users. With better sanitary facilities, the food stalls will be more hygienic and serve healthy food. Proper management and maintenance procedure to maintain the cleanliness and hygiene of the market must be implemented, with also public awareness campaign to to achieve sanitary conditions in the market.	Moderate
Activities at the relocation site			
• Compatibility of use • Commercial area • Economy & employment	±ve	The relocated market site must be chosen carefully considering the appropriateness of the chosen area to accommodate the relocated activities. The impacts on this relocated area could be positive or negative	Moderate

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
<ul style="list-style-type: none"> • Waste management • Transport network 		depending on the characteristics & suitability of the area, the process of relocation, the management & operation of the new area, and the permanency or temporary status of this new relocated market. The possible impacts listed on the left must be considered when selecting the relocation area. The general consensus of the relocated market users and also the residents in the relocated area must be obtained to lessen the negative impacts of the relocation exercise.	

(b) Improvement of the mooring area in Kivukoni Front

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Relocation of existing users & facilities			
• Commercial areas	±ve	The relocation of the existing users & facilities will have both a positive and negative impact on the surrounding commercial areas. The -ve impact will be the lost of certain activities that the surrounding commercial areas may depend on such as the mamalishe stalls in the Kivukoni area. The +ve impact will be better facilities that will be built in its place and the benefits accruing from the new facilities. To lessen the impacts, the relocation exercise must be conducted with general consensus of the existing users and relocated to a new location that is acceptable to all concerned/ affected.	Moderate
• Demography	-ve	The relocation exercise will affect the demography of the area. This impact will be temporary in nature as the relocated users will be transferred back to the new front once construction is complete.	Moderate
• Economy & employment	-ve	The loss of economic activities with the relocation will be temporary. The activities will continue at the new temporary relocated area and eventually transferred back to the newly constructed facilities once it is completed. The relocation and subsequent return of the users must be conducted fairly with general consensus of the users to lessen conflicts and misunderstandings.	Moderate
• Waste management	+ve	The waste management will improve with the new facilities and more effective management.	Moderate
• Visual pollution	+ve	The haphazard and unplanned existing layout will be replaced with the new front design to improve the visual landscape of the area.	Moderate
• Solid/ liquid wastes	+ve	The new facilities will have better facilities to improve waste handling and disposal.	Moderate
Construction of facilities, utilities, drainage, etc.			
• Compatibility of use	+ve	Positive impact will be the compatibility of the new facilities with the existing surrounding activities in the area. The new design will be able to better accommodate the activities in the area, and to harmonise/ integrate these activities with these of the surrounding areas.	Significant
• Economy & employment	+ve	Employment will be generated by the construction activities although the impact will be of temporary nature. The construction labour force will also require services (food, living quarters, transport, etc.) in the area and these demands will impact positively on the local economy although this impact will also be	Significant

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
		temporary in nature. To minimise conflicts, the contractor should be encouraged to hire local labourers.	
• Transport network, and risk and hazard	-ve	Negative temporary impacts such as increase constructional traffic flow to the area creating noise, dust and increase safety hazard to local inhabitants. Proper traffic control should be considered during the construction to ensure smooth integration of the constructional traffic into the main roads to minimise these negative impacts.	Moderate
Operation /Maintenance of the Kivukoni Front			
Stall allocation - impact on:			
• Demography • Economy & employment	±ve	The impact from the stall allocation may be positive or negative depending on the transparency and fairness of the allocation exercise. As not all existing users could be accommodated in the new front facilities, equitable and fair treatment must be ensured to reduce conflict and misunderstanding.	Significant
Shore activities/ transport/ mamalishe/ food stall activities – impact on:			
• Compatibility of use • Commercial area	+ve	The location of the front within the area of existing fish market will allow efficient and complementary integration of the activities with the surrounding areas' activities. Due to the limited space in the area, activities that need not be located in this front area should be considered for relocation to other more suitable area. The more efficient activities without the negative environmental problems will enhance the surrounding commercial areas.	Moderate
• Economy & employment • Health and safety	+ve	The operation of the new front will generate employment and economic benefits to the users. With better facilities, the food stalls will be more hygienic and serve healthy food. The supply of fuel, ice and water will benefit the users and improve the sanitation of the handled fisheries products. Proper management and maintenance procedure to maintain the cleanliness and hygiene of the front must be implemented, with also public awareness campaign to achieve sanitary conditions in the beach front areas.	Moderate
Activities at the relocation beach front site			
• Compatibility of use • Commercial area • Economy & employment • Waste management • Transport network	±ve	The relocated market site must be chosen carefully considering the appropriateness of the chosen area to accommodate the relocated activities. The impacts on this relocated area could be positive or negative depending on the characteristics & suitability of the area, the process of relocation, the management & operation of the new area, and the permanency or temporary status of this new beach front. The possible impacts listed on the left must be considered when selecting the relocation area. The general consensus of the relocated beach front users and also the residents in the relocated area must be obtained to lessen the negative impacts of the relocation exercise.	Moderate

(4) Lake Victoria Fish Marketing Improvement Programme

(a) Construction of Kirumba Mwaloni fish market

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Relocation of existing users & facilities			
• Commercial areas	±ve	The relocation of the existing users & facilities will have both a positive and negative impact on the surrounding commercial areas. The -ve impact will be the lost of commercial activities that will impact on the surrounding commercial areas that may depend on the relocated market. The +ve impact will be better facilities that will be built in its place and the benefits accruing from the new facilities. To lessen the impacts, the relocation exercise must be conducted with general consensus of the existing users and relocated to a new location that is acceptable to all concerned/ affected.	Significant
• Demography	-ve	The relocation exercise will affect the demography of the market users. This impact will be temporary in nature as the relocated users will be transferred back to the new market once construction is complete.	Moderate
• Economy & employment	-ve	The loss of economic activities with the relocation will be temporary. The activities will continue at the new temporary relocated area and eventually transferred back to the newly constructed market once it is completed. The relocation and subsequent return of the users must be conducted fairly with general consensus of the users to lessen conflicts and misunderstandings.	Significant
• Waste management	+ve	The waste management will improve with the new market facilities and more effective market management.	Moderate
• Visual pollution	+ve	The existing under developed facilities will be replaced with the new market facilities to enhance the visual landscape of the area.	Moderate
• Solid/ liquid wastes	+ve	The new market will have better facilities to improve waste handling and disposal.	Significant
Construction of facilities, utilities, drainage, etc.			
• Compatibility of use	+ve	The rationalised activities in the new market will make the market operation more efficient. Positive impact will be the compatibility of the new market activities with the existing surrounding activities in the area.	Significant
• Economy & employment	+ve	Employment will be generated by the construction activities although the impact will be of temporary nature. The construction labour force will also require services (food, living quarters, transport, etc.) in the area and these demands will impact positively on the local economy although this impact will also be temporary in nature. To minimise conflicts, the contractor should be encouraged to hire local labourers.	Significant
• Transport network, and risk and hazard	-ve	Negative temporary impacts such as increase constructional traffic flow to the area creating noise, dust and increase safety hazard to local inhabitants. Proper traffic control should be considered during the construction to ensure smooth integration of the constructional traffic into the main roads to minimise these negative impacts.	Moderate
Operation /Maintenance of the new Kirumba Mwaloni Fish Market			
Stall allocation - impact on:			
• Demography • Economy & employment	±ve	The impact from the stall allocation may be positive or negative depending on the transparency and fairness of the allocation exercise. As not all existing users could be accommodated in the new market facilities, equitable and fair treatment must be ensured to reduce conflict and misunderstanding.	Significant

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Marketing/ transport/ mamalishe/ food stall activities – impact on:			
<ul style="list-style-type: none"> • Compatibility of use • Commercial area 	+ve	Operation of the new market will be more efficient and better complement/ integrate the market activities with the surrounding areas' activities. Due to the limited space in the area, activities that need not be located in this market complex area should be considered for relocation to other more suitable area. The more efficient market activities without the negative environmental problems will enhance the surrounding commercial areas.	Significant
<ul style="list-style-type: none"> • Economy & employment • Health and safety 	+ve	The operation of the new fish market will generate employment and economic benefits to market users. With better sanitary facilities, the food stalls will be more hygienic and serve healthy food. Proper management and maintenance procedure to maintain the cleanliness and hygiene of the market must be implemented, with also public awareness campaign to to achieve sanitary conditions in the market.	Moderate
Activities at the relocation site			
<ul style="list-style-type: none"> • Compatibility of use • Commercial area • Economy & employment • Waste management • Transport network 	±ve	The relocated market site must be chosen carefully considering the appropriateness of the chosen area to accommodate the relocated activities. The impacts on this relocated area could be positive or negative depending on the characteristics & suitability of the area, the process of relocation, the management & operation of the new area, and the permanency or temporary status of this new relocated market. The possible impacts listed on the left must be considered when selecting the relocation area. The general consensus of the relocated market users and also the residents in the relocated area must be obtained to lessen the negative impacts of the relocation exercise.	Moderate

(b) Improvement of local fish processing facility for Nile perch leftover from the processing plant

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Construction of Nile perch processing facilities, utilities, drainage, etc.			
<ul style="list-style-type: none"> • Compatibility of use • Residential area 	+ve	The better facilities will improve the overall environment of the area thus benefiting the surrounding residential area and contribute to better compatibility of the usage of the area for Nile Perch processing.	Moderate
<ul style="list-style-type: none"> • Economy & employment 	+ve	The simple construction will only require a small temporary constructional labour force. The impact of this constructional labour force on the area will be minimal and also be temporary in nature. To minimise conflicts, the contractor should be encouraged to hire local labourers.	Slight
<ul style="list-style-type: none"> • Visual pollution • Transport network 	+ve	The new facilities will positively impact on the visual landscape of the area. The improvement of the access road will also contribute positive benefits to the area.	Moderate
Operation /Maintenance of the Nile perch processing facilities			
Stall allocation - impact on:			
<ul style="list-style-type: none"> • Demography • Economy & employment 	±ve	The impact from the stall allocation may be positive or negative depending on the transparency and fairness of the allocation exercise. Equitable and fair treatment must be ensured to reduce conflict and	Moderate

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
		misunderstanding.	
Processing activities – impact on:			
<ul style="list-style-type: none"> • Compatibility of use • Residential area • Waste management • Solid/ liquid/ by-product waste 	-ve	The processing activities will have negative impacts in the area. To minimise these negative impacts, adequate water and suitably designed facilities to handle the waste discharged are to be provided. Better shelter to protect the products will thus reduce the spoilage and thus wastage.	Moderate
Administration & management – impact on:			
<ul style="list-style-type: none"> • Economy & employment • Waste management • Solid/ liquid/ by-product waste 	±ve	Positive or negative impacts will largely depend on proper management and maintenance procedure to maintain the cleanliness and hygiene of the processing area. Also public awareness campaign to achieve sanitary conditions in the area must be implemented.	Moderate

(11) Lake Victoria Major Landing Beach Improvement

Activity & Impact On	Type of Impact	Mitigation	Significance of Impact
Landing facilities (jetty), ice maker, storage, handling area, services, etc.			
<ul style="list-style-type: none"> • Compatibility of use • Commercial area 	+ve	The better facilities will improve the overall environment of the area thus impacting on nearby commercial area and contribute to better compatibility of the usage of the area for Nile Perch landing, marketing and distribution.	Significant
<ul style="list-style-type: none"> • Economy & employment 	+ve	The small scale construction will only require a small temporary constructional labour force. The impact of this constructional labour force on the area will be minimal and also be temporary in nature. To minimise conflicts, the contractor should be encouraged to hire local labourers.	Moderate
<ul style="list-style-type: none"> • Transport network 	+ve	The improvement of the access road will also contribute positive benefits to the area.	Moderate
Operation /Maintenance of the landing facilities			
<ul style="list-style-type: none"> • Economy & employment • Waste management • Solid/ liquid/ by-product waste 	±ve	Positive or negative impacts will largely depend on proper management and maintenance procedure to maintain the cleanliness and hygiene of the processing area. Also public awareness campaign to achieve sanitary conditions in the area must be implemented.	Moderate

Type of activities	Environmental resources										Physical resources										Social resources										Other											
	Land	Fresh Water System	Marine and Estuarine Systems	Climate	Flora/Fauna	Agro-plant	Forest/vegetative cover	Terrestrial wildlife	Endangered species	Comprehensibility for use	Recreational Areas	Residential Areas	Commercial Areas	Industrial Areas	Cultural Resources	Demographic	Economic & Employment	Wellfare Profile	Health Profile	Cultural Profile	Energy	Water	Waste Management	Transport Network	Education	Housing	Telecommunication	Financial Institution	Health Services	Emergency Services	Recreational Facilities	Air Pollution	Water Pollution	Noise, vibration and lighting	Visual Pollution	Salinity/Intrusion by products water	Risk and Hazard	Health & Safety	Policy Consideration	Awareness and Publicity	Cumulative & Synergistic Effects	Positive Enhancement
Programme 2: Dar es Salaam Fisheries Infrastructure Improvement Programme																																										
1. Expansion of DSM Fish Market																																										
Execution / Construction																																										
- Relocation/demolition of existing facilities																																										
- Construction of facilities	2																																									
- Access road, utilities, drainage	2																																									
Operation/ Maintenance																																										
- Stall allocation																																										
- Marketing/ transport activities																																										
- Administration and Management																																										
- Mamas/food kiosks/ stalls, etc.																																										
Future Induced Effects																																										
- Increase value of surrounding land																																										
- Promote related activities nearby																																										
Extension Activities																																										
- Training/education/ capacity building																																										
Relocation Activities																																										
- Activities at new relocation site																																										
2. Mooring Area (Kivuluni Front)																																										
Execution / Construction																																										
- Construction of facilities	2																																									
- Access road, utilities, drainage	2																																									
Shoreline Activities																																										
- Boat mooring																																										
- Supply of fuel, ice, water, etc.																																										
- Boat building and repair																																										
Operation/ Maintenance																																										
- Stall allocation																																										
- Marketing/ transport activities																																										
- Administration and Management																																										
- Mamas/food kiosks/ stalls, etc.																																										
Future Induced Effects																																										
- Increase value of surrounding land																																										
- Promote related activities nearby																																										
Extension Activities																																										
- Training/education/ capacity building																																										
Relocation Activities																																										
- Activities at new relocation site																																										
3. Expansion of DSM Fish Market																																										
Execution / Construction																																										
- Relocation/demolition of existing facilities																																										
- Construction of facilities																																										
- Access road, utilities, drainage																																										
Operation/ Maintenance																																										
- Stall allocation																																										
- Marketing/ transport activities																																										
- Administration and Management																																										
- Mamas/food kiosks/ stalls, etc.																																										
Future Induced Effects																																										
- Increase value of surrounding land																																										
- Promote related activities nearby																																										
Extension Activities																																										
- Training/education/ capacity building																																										
Relocation Activities																																										
- Activities at new relocation site																																										
4. Mooring Area (Kivuluni Front)																																										
Execution / Construction																																										
- Construction of facilities																																										
- Access road, utilities, drainage																																										
Shoreline Activities																																										
- Boat mooring																																										
- Supply of fuel, ice, water, etc.																																										
- Boat building and repair																																										

Notes:
 (i) Numbers indicate magnitude of significant impacts: 3=major, 2=intermediate, 1=slight
 (ii) Positive numbers indicate positive impact, negative numbers indicate negative or adverse impact

Annex Table 3-2 IEE Checksheet for Dar es Salaam Fisheries Infrastructure Improvement Programme

Environmental resources	Type of activities																				
	Physical resources	Ecological resources	Land Use/Influence	Cultural/Socio-Economic	Infrastructure Services	Social Services	Process/Activity Pollutants	Others													
	Land	Fresh Water System	Marine and Ecosystem Systems	Climate	Fisheries	Aquatic flora	Terrestrial wildlife	Endangered species	Compatibility for use	Recreational Areas	Residential Areas	Commercial Areas	Industrial Areas	Cultural Resources	Demographic	Economic & Employment	Welfare Profile	Health Profile	Cultural Profile		
	Energy	Water	Waste Management	Transport Network	Education	Housing	Telecommunications	Financial Institution	Health Services	Emergency Services	Recreational facilities	Air Pollution	Water Pollution	Noise, vibration and lighting	Visual Pollution	Soil/ liquids by products waste	Risk and Hazard	Health & Safety	Policy Consideration		
	Awareness and Publicity	Cumulative & Synergistic Effects													Positive Enhancement						
Impact on Environment from Activities	PROGRAMME 4: Fish Marketing Improvement Programme																				
	1. Construction Of Kluumba Market																				
	Execution / Construction																				
	- Relocation/demolition of existing facilities																				
	- Construction of facilities																				
	- Access road, utilities, drainage																				
	Operation/ Maintenance																				
	- Stall allocation																				
	- Marketing/transport activities																				
	- Administration and Management																				
	- Mammals/ food kiosk/ stalls, etc.																				
	Future Induced Effects																				
	- Increase value of surrounding land																				
	- Promote related activities nearby																				
	Extension Activities																				
	- Training / education/ capacity building																				
	Relocation Activities																				
	- Activities at new relocation site																				
	Impact of Environment on Activities	2. Construction Of Local Nile Perch Processing Area																			
		Execution / Construction																			
- Construction of storage & shed facilities																					
- Access road, utilities, drainage, etc.																					
Operation/ Maintenance																					
- Stall/shed allocation																					
- Processing (drying, smoking, frying) activities																					
- Surface water drainage discharge																					
- Administration and Management																					
Future Induced Effects																					
- Acquire more land																					
- Increase value of surrounding land																					
- Promote related activities nearby																					
Extension Activities																					
- Training / education/ capacity building																					
Relocation Activities																					
- Activities at new relocation site																					
Impact of Environment on Activities		3. Construction Of Kluumba Market																			
		Execution / Construction																			
		- Relocation/demolition of existing facilities																			
	- Construction of facilities																				
	- Access road, utilities, drainage																				
	Operation/ Maintenance																				
	- Stall allocation																				
	- Marketing/transport activities																				
	- Administration and Management																				
	- Mammals/ food kiosk/ stalls, etc.																				
	Future Induced Effects																				
	- Increase value of surrounding land																				
	- Promote related activities nearby																				
	Extension Activities																				
	- Training / education/ capacity building																				
	Relocation Activities																				
	- Activities at new relocation site																				
	Impact of Environment on Activities	4. Construction Of Local Nile Perch Processing Area																			
		Execution / Construction																			
		- Construction of storage & shed facilities																			
- Access road, utilities, drainage, etc.																					
Operation/ Maintenance																					
- Stall/shed allocation																					
- Processing (drying, smoking, frying) activities																					
- Surface water drainage discharge																					
- Administration and Management																					
Future Induced Effects																					
- Acquire more land																					
- Increase value of surrounding land																					
- Promote related activities nearby																					
Extension Activities																					
- Training / education/ capacity building																					

Notes:

(i) Numbers indicate magnitude of significant impacts: 3=major, 2=intermediate, 1=slight

(ii) Positive numbers indicate positive impact, negative numbers indicate negative or adverse impact

Annex Table 3-3 IBE Checksheet for Fish Marketing Improvement Programme

Environmental resources		Type of activities																																																	
		Physical resources		Biological resources		Land Use/ Landscape		Cultural/ Socio-Economic		Infrastructure Services		Social Services		Present/Future Pollution		Others																																			
		Land	Fresh Water System	Marine and Estuarine Systems	Climate	Fisheries	Aquatic plant	Forests/vegetative cover	Terrestrial wildlife	Endangered species	Compatibility for use	Recreational Areas	Residential Areas	Commercial Areas	Industrial Areas	Cultural Resources	Demographic	Economic & Employment	Welfare Profile	Health Profile	Cultural Profile	Energy	Water	Waste Management	Transport Network	Education	Housing	Telecommunication	Financial Institution	Health Services	Emergency Services	Recreational facilities	Air Pollution	Water Pollution	Noise, vibration and lighting	Visual Pollution	Solid/ liquid/ by products wastes	Risk and Hazard	Health & Safety	Policy Consideration	Awareness and Publicity	Cumulative & Synergistic Effects	Positive Enhancement								
Impact on Environment from Activities	PROGRAMME 11: Lake Victoria Major Landing Beach Improvement Programme																																																		
	- Landing facilities (jetty)											3		3																																					
	- Ice machine, ice storage room																		2							1																									
	- Fish handling area/ Wholesale/ marketing area																																																		
	- Water supply, toilet, shower facilities																		2																																
	- Access road/ parking	2											3		3				3	3	3					3																									
	- Capacity building/ training/ extension																		3	3	3																														
Impact of Environment on Activities	- Landing facilities (jetty)			3		3					3		3					3																																	
	- Ice machine, ice storage room					3					3		3																																						
	- Fish handling area/ Wholesale/ marketing area										3																																								
	- Water supply, toilet, shower facilities																																																		
	- Access road/ parking																																																		
	- Capacity building/ training/ extension																										2																								

Notes:

- (i) Numbers indicate magnitude of significant impacts: 3=major, 2=intermediate, 1=slight
(ii) Positive numbers indicate positive impact, negative numbers indicate negative or adverse impact

Annex Table 3-4 IEE Chsheetsheet for Lake Victoria Major Landing Beach Improvement Programme