

SUMMARY

CONTEXT:

The highlands of inland Guinea are the source of major international rivers in West Africa such as the Niger, Senegal and Gambia rivers. Along these rivers there are many flood plains inundated during rainy seasons. When water recedes from the flood plains in dry seasons, numerous marshes are formed in lowland areas. The marshes contain many fish and function as their spawning grounds. Local people eat a lot of fish caught in rivers and marshes, but no marsh had been used for aquaculture in the past. Hence JICA assisted the Upper Guinea region to use the flood plain marshes as ponds for extensive aquaculture. In 2005, a series of production trials were initiated in order to establish a standard methodology for simple and cost-effective aquaculture which enables local villagers to produce fish without continuous external assistance.

OBJECTIVE:

To increase food security and capacity building in rural areas in Guinea through aquaculture.

DESCRIPTION OF THE PROJECT:

The main activity of the project is to excavate ponds (approximately 500 - 2000m² in size) in marsh areas in order to increase fish production by deepening and enlarging pond bottoms and concentrating the fish in the marsh areas into the ponds once floodwater recedes. The trainings and basic materials for pond construction were provided by MPA, JICA and the Embassy of Japan. The beneficiaries of the project are grass-roots level villagers of inland Guinea. The method should be simple and low-cost to ensure continuation of activities by villagers after completion of the project.

The key features of the project are as follows; 1) utilization of existing natural systems, such as natural flooding, wild fish fingerlings and cattle manure as fertilizer, 2) development of community-based ponds, instead of privately-owned ponds, 3) establishment of a management committee which collects revenues from fish sales and pond access tickets and utilize it for various activities such as in-house microcredit or prevention of poaching, 4) full project cycle of 18 months (6 months to select sites and excavate ponds, 6-8 months to let fish grow, and 4-6 months for preparation of the following year), 5) high compatibility with the existing life pattern of villagers (i.e. no special activity is required during the peak of annual crop production seasons).

RESULTS:

The results from 24 community-based ponds are as follows; 1) an average fish harvest of 542 kg per site, 2) an average density of 4,838 kg/ha, which is high due to fish concentration effect, 3) a total fish harvest of 3,532 kg to 13,009kg or 3.7 times, 4) *Clarias anguillaris*, *Oreochromis niloticus* and *Heterotis niloticus*, as dominant fish species, 5) site selection and prevention of poaching as key success factors, 6) villagers actively took part in the project, reinforcing community solidarity and in some cases reviving traditional marsh festivals, 7) villagers, through trainings, obtained knowledge and skill about natural mechanism of extensive aquaculture, selection of suitable sites and group-based construction and management of community ponds.

DISCUSSION:

Extensive aquaculture ; 1) is an appropriate technology for fish production because it is simple and very effective with small establishment cost, taking full advantage of the primary productivity, 2) offers rural communities an additional agricultural activity and another means for income generation, providing a valuable source of sought-after animal protein, and 3) is an environment-friendly and sustainable fish production technique.

PERSPECTIVE:

A total of 45 ponds will be harvested in 2010. Some villagers constructed new ponds without any external assistance, which indicates sustainability (and success) of the project. The method of this project will be applicable to help rural development of other African countries such as Mali, Burkina Faso, Benin, Niger, Cameroon and Gabon.

Excerpt of the test production results

							Harvest after project				Performance Indicators		
Finance	Prefectures	Villages & sites	Pond bottom area (m ²)	Funds (GNF)	Participants (persons)	(A) Harvest before project (kg)	2006 (kg)	2007 (kg)	2008 (kg)	(B) 2009 (kg)	Density at harvest (kg/ha)	Fish per participant (kg)	(B/A) Impact of project
JICA	Dabola	Morigbéya	1,070	300,000	253	90	800	957	903	1,013	9,467	4.0	11.3
		Foulah	546	72,000	68	30	63	95	132	127	2,326	1.9	4.2
		Katiya	390	151,000	151	20		73	354	235	6,026	1.6	11.8
		Koulakoya	775	114,000	74	60		598	507	345	4,452	4.7	5.8
		Kigneko	1,416	130,000	143	50		232	604	484	3,418	3.4	9.7
		Lifara	2,920	130,000	171	200		582	737	459	1,572	2.7	2.3
		Kambaya-Bissikrima	1,200	213,000	213	300		743	866	711	5,925	3.3	2.4
	Kankan	Fodekaria	570	86,000	86	10		70	193	94	1,649	1.1	9.4
		Diankana - Sondalani	1,000	315,500	359	150			843	728	7,280	2.0	4.9
		Sakorola	1,200	250,000	250	65			238	138	1,150	0.6	2.1
	Mandjana	Dogolen	3,000	339,500	328	400			1,150	887	2,957	2.7	2.2
	Dabola	Kalera	600	300,000	238	80				186	3,100	0.8	2.3
Japanese Embassy	Kankan	Diankana - Diankanadalani	1,000	108,500	217	25				330	3,300	1.5	13.2
	Kankan	Balandou	1,000	169,000	338	135				307	3,070	0.9	2.3
None	Kankan	Diankana - Wouloundji	1,000	154,500	309	175				847	8,470	2.7	4.8
JICA	Dinguiraye	Daara	200	600,000	36	60				272	13,600	7.6	4.5
Japanese Embassy	Dinguiraye	Kansaba	1,200	400,000	117	300				933	7,775	8.0	3.1
	Mandiana	Sountoudiana	1,200	222,500	516	265				956	7,967	1.9	3.6
	Siguir	Dalagbeda	800	415,000	461	150				1,511	18,888	3.3	10.1
	Siguir	Diomabana	2,500	0	1,215	420				1,003	4,012	0.8	2.4
	Kerouané	Nolidalanin	400	28,500	34	35				43	1,075	1.3	1.2
	Kerouané	Bafouro	500	130,000	133	55				180	3,600	1.4	3.3
	Kouroussa	Baro Morigyané	1,800	300,000	443	375				900	5,000	2.0	2.4
	Kouroussa	Saraya	600	82,000	292	82				320	5,333	1.1	3.9
Average per site			1,120	208,792	269	147	432	419	593	542	4,838	2.0	3.7
Total 24 sites			26,887	5,011,000	6,445	3,532	863	3,350	6,527	13,009	-	-	-

Of 24 sites, the harvest of 10 sites were more than 700kg, that of 2 sites were less than 100kg.