Chapter 3

Profile of the Study Area

3.1 Benguela Province

3.1.1 Outline

Benguela Province is located in mid-west Angola. Its northern part meets the Province of Kwanza Sul, the east with Huambo, and the south with the Province of Huila and Namibe. The surface area is 39,826,83km^2, and covers 3.19% of the national territory. It consists of 9 Municipalities including Lobito, and 27 *Comuna*s and has a population of 1.93 million. The major Municipalities are Lobito (population: 736,000), Benguela (470,000) and Cubal (230,000).

Its climate is dry and hot in the coastal areas, with an average temperature of 24.2 degrees Celsius with a highest temperature of 35 degrees Celsius. Vegetation is concentrated in the western areas, and in recent years, the forest areas along the coastline are decreasing due to deforestation. It has approx 1 million hectare of potential farmland and can produce various agricultural products thanks to its rich land and water sources. Primary products include bananas, corn, potatoes (potato, sweet potato), wheat flour, coconuts, beans, citrus fruit, mangos, and sugar cane.

It is known nationwide for its variety of production, and the scale of cattle breeding ranks 4th in country. Currently cultivated areas total approx 214,000ha, and the production of primary products reaches approx 247,000 tons.

Table 3-1 Profile of Municipalities in Benguela (As of 2007)

Municipality	Estimated population	Surface area (km^2)	Density/km^2
Benguela	469,363	2,100	223.5
Lobito	**736,978**	**3,685**	**200.0**
Baia Farta	97,720	6,744	14.5
Ganda	190,006	4,817	39.4
Cubal	230,848	4,794	48.2
Caimbambo	44,315	3,285	13.5
Balombo	27,942	2,635	10.6
Bocoio	55,712	5,612	9.9
Chongoroi	75,256	6,151	12.2
Total...	**1,928,140**	**39,823**	**48.4**

Source: Planning/statistics office of Benguela provincial government (GEPE) "RELATÓRIO DO GOVERNO DA PROVÍNCIA RELATIVO AO I SEMESTRE 2007"

Major social indicators are as follows. The infant mortality rate marks a high of 10%, though this is relatively lower than national average of approx 15%

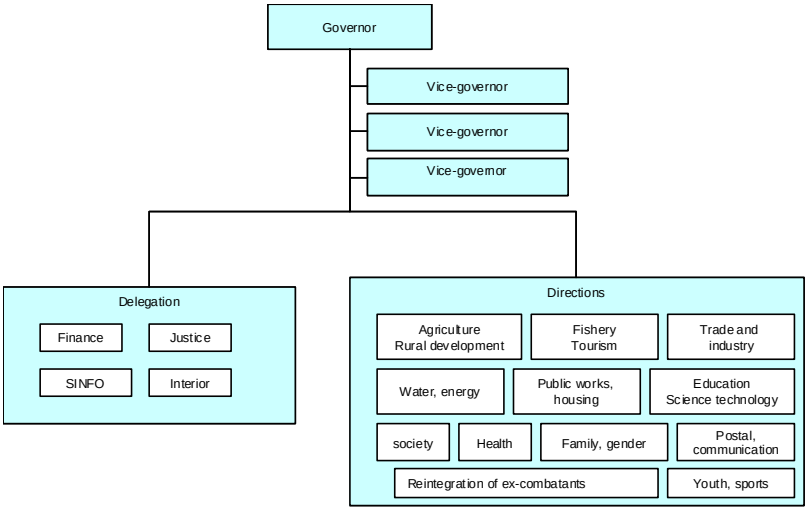
Table 3-2 Benguela Province: Major Social Indicators

Indicators	2004	2005	2006	2007
Birth rate	14.0%	21.7%	21.20%	18.5%
Mortality rate	1.6%	4.2%	2.5%	1.6%
Infant mortality rate	11.4%	7.7%	8.5%	11.7%

Source: Planning/statistics office of Benguela provincial government (GEPE) "RELATÓRIO DO GOVERNO DA PROVÍNCIA RELATIVO AO I SEMESTRE 2007"

3.1.2 Administration/Political System

The administration system of the Benguela provincial government is headed by a governor, with three vice-governors and four delegations (finance, justice, interior, and information services called SINFO)[1] and Director in charge of 13 sectors.



Source: Compiled by the study team

Figure 3-1 Organization Chart: Benguela Provincial Government

3.1.3 Policy and Development Plan

The annual development program is decided by the PIP, or Public Investment Program. The PIP consists of sector-wise general objectives and supplementary targets, and sector-wise projects and targets are described.

However, these projects and targets are merely a long list of the projects requested by the Municipalities and villages, and neither strategic prioritization nor, a clear connection to its objectives is identified.

Overall, the structure is not organized well enough to be called a "program."

According to interviews with provincial government officials, the formulation process of five-year development plan (2009-13) is underway.

General/specific objectives in the 2007-08 PIP are as follows.

(i) General Objectives:

- Improve education services and increase the number of educated children and juveniles
- Improve health-related services
- Increase the supply of power and potable water
- Living environment and logistics (human and goods)

[1] Abbreviation of "Service of Information", in charge of criminal investigation

- Improve the technology network, the basic drainage services, and institutional support
- Stimulate scene fixation of interior cities

(ii) Specific Objectives:

- Continue construction/rehabilitation of schools, hospitals, clinics, residences for teachers and nurses
- Continue expansion/construction of water supply and treatment systems
- Expansion/construction of generation/transmission/distribution system and public lighting systems, and continue procurement of generators including those which use renewable energy.
- Design future urbanization plans
- Develop roads and bridges (2a, 3a standard) for the interior

The Budget plan for 2007 is as follows.

The total of US$31 million is estimated (that of 2005 was US$ 24 million), half of which is occupied by education related expenditures. However, some ambiguity remains concerning the whole picture of the provincial budget, since there are other revenue sources, such as Chinese aid, FAS and direct intervention by the central government.

Table 3-3 PIP Budget Plan for 2007

Sector	Amount (Unit: Kz)	In million US$
Education	1,088,993,500	14.52
Health	81,871,250	1.09
Energy	94,000,000	1.25
Water	94,000,000	1.25
Public works	722,103,419	9.63
Other project	232,400,000	3.10
Total	2,313,368,169	30.84

Source:Planning/statistics office of Benguela provincial government (GEPE)
"RELATÓRIO DO GOVERNO DA PROVÍNCIA RELATIVO AO I SEMESTRE 2007"

3.1.4 Agriculture

(i) Outline

The planted area of Benguela Province was around 215,000 hectares in 2005, out of which 12,568ha, approximately 5.8% of total the area, was located in Lobito.

Table 3-4 Planted Area (2005)

Unit: ha

	Municipality	Planted area
1	Bocoio	49,923
2	Cubal	39,272
3	Caimbambo	32,323
4	Chongoroi	29,468
5	Ganda	28,387
6	Balombo	18,379
7	Lobito	12,568
8	Baia Farta	3,821
9	Benguela	718
10	Total	214,859

Source: Planning/statistics office of Benguela provincial government (GEPE)
"Relatorio do Governo da Provincia Relativo Ano 2005"

According to the quarterly report of the provincial government, agricultural production in 2007 was estimated to reach approx. 247,000 tons. Major products are corn (occupies 55% of whole production), followed by cereals, potatoes and beans. The production in 2007 was good, and it has already reached 90% of the yearly plan. Lobito's quarterly production in 2007 was approx 29,000 ton, consisting of potatoes, manioc and vegetables.

Table 3-5 Major Agricultural Production (2007)

(Unit: ton)

Item	Total				
	Plan	First half	Accumulated	Achieved	**Lobito**
Corn	135,078.0	124,283.8	124,283.80	92.0%	1,610.5
Cereals	21,068.0	36,825.8	36,825.80	174.8%	-
Rice	12.0	-	-	-	-
Beans	18,360.0	16,478.2	16,478.20	89.8%	28.0
Peanuts	4,414.0	6,224.4	6,224.40	141.0%	-
Potatoes	750.0	21,150.0	21,150.00	2820.0%	21,150.0
Sweet potatoes	45,394.0	8,367.1	8,367.10	18.4%	856.0
Manioc	16,642.0	799.5	799.50	4.8%	799.5
Vegetables	5,384.0	4,483.3	4,483.30	83.3%	2,903.7
Bananas	-	6,892.4	6,892.40	-	1,748.0
Total	**247,102**	**225,505**	**225,505**	**91.3%**	**29,096**

Source: Planning/statistics office of Benguela provincial government (GEPE)
"Relatorio do Governo da Provincia Relativo Ano 2005"

Table 3-6 Number of the Major Forms of Livestock (2005)

(Unit: head count)

Business sector					
Municipalities	**Bovine**	**Pigs**	**Sheep**	**Goats**	**Chickens**
Benguela	929	-	673	1,000	14,341
Baia Farta	388	-	425	1,200	-
Lobito	**3,314**	**-**	**-**	**-**	**4,098**
Subtotal	**4,631**		**1,098**	**2,200**	**18,439**
Traditional sector					
Municipality	**Cattle**	**Pigs**	**Sheep**	**Goats**	**Chickens**
Benguela	-	1,632	434	3,066	-
Baia Farta	217	935	440	5,440	-
Lobito	**-**	**1,105**	**591**	**1,000**	**-**
Cubal	6,438	3,753	1,064	1,286	-
Caimbambo	15,022	1,172	885	3,081	-
Balombo	1,355	375	320	1,880	-
Ganda	1,838	677	241	2,896	-
Chongoroi	4,560	508	652	2,984	-
Bocoio	4,234	2,500	350	2,220	-
Subtotal	**36,664**	**12,657**	**4,977**	**23,853**	**-**
Grand total	**41,295**	**12,657**	**6,075**	**26,053**	**18,439**

Source: Planning/statistics office of Benguela provincial government (GEPE)
"Relatorio do Governo da Provincia Relativo Ano 2005"

(ii) Policy and Programs

The agriculture development plan for 2006-07 in Benguela Province prioritized the recovery from the recent nine years of water shortages as the biggest challenge, and the plan aimed at establishing a stable agriculture base through increased use of livestock and a stable socio-economic base for farmers through food storage for self-consumption. As concrete policy, it suggests provision of seeds, farming machineries, cattle, vaccines and fertilizer.

Table 3-7 Targets of Agricultural Production (2006/07)

Item	Area	Target
Planted	Whole Province	258,315ha
Corn	Balombo/Ganda/Bocoio/Chongoroi	Planted 145,240ha (previous year 128,400ha) Production 135,078t Unit production 0.83t/ha
Massambala	Chongoroi, Caimbambo, Cubal and Bocoio (though relatively small scale)	Planted 35,114ha Production 21,068t Unit production 0.6t/ha
Rice	Cubal/Ganda	Planted 24ha Production 12t
Beans	Canjala/ Maka-Mombolo	Planted 52,356ha Production 18,360t
Peanuts	Chongoroi	Planted 8,830ha Production 4,414t Unit production 0.49t
Potatoes	Balombo, Ganda, Cubal, Bocoi, Chongoroi	Planted 75ha Production 750t Unit production
Sweet potatoes	No specific description given	Planted 12,120ha Production 65,394t Unit production
Manioc	Interior Municipalities with humid land	Planted 3,210ha Production 16,642t
Fruits (mangos, bananas, etc)	Cubal, Caimbambo, Chongoroi, Ganda	Planted 1,346ha Production 5,384t
Cotton flower	Cubal, Caimbambo, Chongoroi	Planted 300ha
Palm oil	Canjala, Hanha	Planted 300ha
Sunflower oil	Balombo, Bocoio, Cubal, Ganda	Planted 500ha

Source: Benguela provincial government/Delegation of agriculture, rural development

In addition, there are other plans such as the distribution of 600 farming livestock animals to agricultural cooperatives and households in rural areas, vaccinations to reinforce livestock, and the development of infrastructure for breeding livestock.

Table 3-8 Outline of the Agriculture Development Plan (2006-07): Benguela Province

Policy	Outline
Special objectives	1. Reinforce capacity of agro-business 2. Increase food production by small and enterprise farmers by restoring production opportunities 3. Secure food self-sufficiency without external aid 4. Increase production in undeveloped areas by promoting logistics for humans and commodities 5. Securing technical assistance 6. Promote commercial transactions between rural and urban areas by sustainable rural agro-business 7. Rehabilitation of rural infrastructure in interior areas (seed storage, warehouses, sanitation facilities, education centers, CDA, etc) 8. Development of an animal technology center (at Ganda), a demonstration farm (at Cubal), a nursery farm (at Balombo/ for production of citrus, mangos and others) 9. Strengthen project management 10. Promote regional soil studies to identify fertilizers that match respective geological features
Activity	1. Continue acquiring agricultural input 2. Distribution of input (seeds, farming equipment, fertilizer, farming cattle and plows) 3. Development of farmland by traditional/mechanized methods 4. Spread/continue technical assistance 5. Rehabilitate rural road networks 6. Rehabilitate rural infrastructure in the interior areas (seed storage warehouse in CDA) 7. Rehabilitate traditional irrigation facilities in rural areas 8. Develop the labor environment, and technicians

Source: Benguela provincial government/Delegation of agriculture, rural development

(iii) Donor Assistance

There is only limited donor assistance in the agriculture sector of Benguela Province, which consists of the technical cooperation of GTZ (with fund support from the World Bank and the EU) and FAO. The outline of the assistance is as follows.

Table 3-9 Donor Assistance to the Agriculture Sector of Benguela Province

Donor/Project name	Outline
GTZ: assistance for small farmer production (2005-08 / total cost of 3 million EURO)	With fund support from the World Bank and EU, the GTZ (Germany) and NGOs like ADRA implement financial support for production of small-sized farmers in 3 Municipalities, Balombo, Ganda, and Bocoio. The project is mainly technical cooperation, which aims to develop their technical capacity by the provisioning of farming equipment and farming livestock. The project also includes small-sized irrigation projects and the rehabilitation of bridges.
FAO: Re-arrangement of land division (2006-09 / total cost of 2.75 million EURO)	Re-arrangement of land divisions by the EU's fund support. It conducts re-arrangement of land divisions, which have been traditionally owned by communities, and provides legal confirmation of joint ownership.

Source: Benguela provincial government/Delegation of agriculture, rural development

3.1.5 Education Sector

(i) Outline

According to the Education Delegation of the Benguela provincial government, there are mainly three problems in the education administration.

- Public education: huge numbers of unenrolled children
- Teacher quality issues: education methods and communication with students (how to deal with the trauma of the civil war)
- Literacy education: lack of materials, training of teachers for literacy education

The delegation recognizes the background of these problems and their physical constraints, such as the number of schools, teacher training institutions, and teachers in remote rural areas.

The following table shows the data related to the number of schools and enrolled children in Benguela Province.

It is reported that there are still approx 218,000 unenrolled children in the Province.

Table 3-10 Number of Schools in Benguela Province

	Public								Private	Total
Municipalities	I	II	III	I & II	I, II & III	II & III	Secondary	Total		
Baia Farta	41					13	2	56	-	56
Balombo	49	1	1				1	52	-	52
Benguela	49	2	3	11	9	3	4	81	7	88
Bocoio	28					1		29	-	29
Caimbambo	69					1		70	-	70
Chongoroi	63					1		64	-	64
Cubal	141	3			1	2	1	148	-	148
Ganda	45	2	2				1	50	-	50
Lobito	**52**	**4**	**2**	**2**	**5**	**6**	**2**	**73**	**6**	**79**
Subtotal	**537**	**12**	**8**	**13**	**15**	**27**	**11**	**623**	**13**	**636**

Source: Governo da Provincia de Benguela "Relatorio do Governo da Provincia Relativo Ano 2005"

(ii) Education Policy

Since neither a medium nor long term plan for the education sector has been formulated, its implementation is based on the annual action plan. The action plan is a mere list of school constructions or implementation schedules, and it doesn't include other necessary components in its plan, such as target and program objectives.

Therefore, sector analysis in this section is described based upon the interview with the Education delegation of the provincial government.

The core programs in the current action plan are as follows. Please note most of the programs, at their implementation stage, depend on donors and NGOs.

Public Education

1. School construction (mainly primary and junior high school)
2. Reduction of the dropout rate by provisioning school lunches (in Baia Farta)
3. Training and seminars for teachers
4. Nationwide reform of the educational system

These plans have been implemented as a part of the long-term plan of the province (based

upon MDGs), aiming at 100% enrollment rate by 2015. In relation to the reform of the educational system as a national policy, provincial officials attend seminars in Luanda and conduct training for the Municipalities upon completion of the seminar. The training includes teacher education methods, institutional development and evaluations.

Literacy Education

There are no plans for the construction of literacy classrooms, and the plan focuses on teacher training for literacy education. In actual terms, it plans to continue seminars for teacher training.

(iii) Donor Assistance

The assistance areas of donors are school rehabilitation and teacher training, characterized by UNICEF's aid for school rehabilitation, UNICEF's aid via the FAS, and indirect support via NGOs.

In addition to UNICEF, there is also aid provided by the Norwegian government, the World Bank and the EU.

Table 3-11 Major Donors to the Education Sector in Benguela Province

Area	Major donors / NGOs
School construction, rehabilitation	The FAS (social development fund jointly funded by the World Bank, EU and the government of Angola) UNICEF (via local NGOs) The Catholic church The NRC (Norwegian NGO, supported by the Norwegian government and UNICEF): The total education program includes distribution of education materials, teachers training and school rehabilitation in 8 Municipalities including Benguela and Lobito.
Teacher training school/organizations	International organizations UNICEF NRC (see above) NGO ・Oxfam ・Christian Children Fund (CCF) ・ADPP ・ADRA
Education programs	UNICEF: Literacy education program via local NGOs Oxfam: HIV/AIDS education at school, public health campaign, jointly implemented with the Ministry of Health NRC (see above description)

Source: Directório das ONG´s e Agência das N.U e ONG´s Nacionais - 2007

3.1.6 Health/Sanitation Sector

(i) Sector Profile

As described below in Table 3-12, the infant mortality rate in the Province is approx 10%, mainly due to the high risk of epidemic diseases. The number of people who have contracted diseases that are epidemics in the region during 2004-05 is detailed in Table 3-12. It illustrates the serious damage of malaria, which has caused 160,000 infections including 2,121 deaths.

In addition to malaria, there are a considerable number of patients with respiratory diseases, diarrhea, tuberculosis and typhoid fever.

Table 3-12 Number of Patients of Major Epidemics in Benguela Province

	Benguela	**Lobito**	Bia Farta	Caimbambo	Cubal	Ganda	Chongoroi	Bocoio	Balmbo	Total
Maralia	**38,410**	**17,017**	**15,068**	**51,340**	**12,552**	**7,595**	**6,660**	**6,634**	**7,805**	**163,081**
Diarrhea	**8,078**	**1791**	**3122**	**15,189**	**2,418**	**1,309**	**1,647**	**941**	**2,189**	**36,684**
Respiratory	9,023	**3,533**	2,230	3,427	2,723	3,660	837	1,582	3,477	**30,492**
Hepatitis	23	**8**	0	413	0	0	4	1	0	**449**
Bilharzias	6	**1**	34	306	0	0	0	28	0	**375**
Blenorragia	0	**0**	0	0	0	0	19	0	0	**19**
Neonatal Tetanus	15	**2**	0	0	0	0	0	0	1	**18**
Tuberculosis	129	**1,661**	121	0	0	219	99	21	36	**2,286**
Measles	5	**0**	0	0	0	0	206	0	0	**211**
Convulsive Cough	3	**0**	0	131	0	0	8	2	7	**151**
Typhoid Fever	2,294	**705**	868	523	8	36	618	82	0	5,134
AIDS	11	**102**	0	0	0	21	0	0	0	134
Meningitis	2	**0**	0	0	1	0	0	0	1	4
Intestinal Amoebas	0	**0**	115	503	0	0	151	67	0	836
Gastronitus	103	**0**	0	0	0	0	159	0	0	262
Conjunctivitis	315	**18**	0	3,042	0	0	114	236	0	3,725
Scabies	0	**0**	0	1,701	0	0	634	162	0	2,497
Tremors	0	**0**	0	337	0	0	14	0	0	351
Human Rabies	2	**0**	0	0	0	0	11	0	0	13
Chicken Pox	0	**0**	0	0	0	0	0	0	0	0
Malnutrition	1,059	**650**	141	115	237	316	264	120	189	3,091
TOTAL	**59,478**	**25,488**	**21,699**	**77,027**	**17,939**	**13,156**	**11,445**	**9,876**	**13,705**	**249,813**

Source: Governo da Provincia de Benguela “Relatorio do Governo da Provincia Relativo Ano 2005”

During the interview with the Planning and Statistics Department of the Health delegation to Benguela Province, two problems were pointed out as background issues of the above mentioned statistics.

1. Supply side: lack of hospitals and medical workers.

   Because of the limited number of hospitals, inhabitants especially in rural areas don't have access to medical services. Also because of the weakness nationwide to train medical workers such as university medical departments, the absolute number of medical workers is low, especially in rural areas.

2. Sanitation environment: Undeveloped water use and inhabitants' perception

   Undeveloped water use is the major cause of malaria and parasite-related diseases. In addition, some mothers don't take proper prevention measures for their children, such as vaccination. Although they recognize these problems, only indirect and limited intervention is possible since a different delegation is responsible for the water sector.

The number of provincial medical facilities and workers are as follows.

The following table (Table 3-13) shows the lack of medical experts such as doctors and nurses which is especially low. Presently the problem is being addressed by inviting foreign doctors from Cuba and Russia. Training domestic medical workers is also an urgent issue.

Table 3-13 Medical Workers in Benguela Province

Type	Doctor	Nurses	Administrative staff	Others (orderly, etc)	Total
Actual number	64	2,663	327	1,714	4,768
Number in shortage	133	1,348	159	803	2,443
Necessary number	197	4,011	486	2,517	7,211

Source: Planning and statistics department of Health delegation of Benguela Province "Plano de Accao 2006"

(ii) Health Sector Policy

The health sector policy is decided by the annual action plan implemented by the health delegation from the provincial government (Plano de Acçao). They are now carrying over the plan from 2006 for use as the present health sector policy.

According to the interview with the health delegation officials, they haven't updated the plan because there is no necessity to do so, as under the current situation, very few requests from the action plan have been approved and budgeted by the central government.

The current budget plan totals approximately US $21.6 million. The Major financial sources come from the following; the general budget of the central government (OGE), the budget of directly controlled projects by the Ministry of Health, and donors (the EU, the Spanish government, China, etc). Estimated expenditures on the health sector in the public investment plan 2007 are approx. Kz81.8 million (equivalent to approx. US$1.1 million), which is less than 5% of the whole budget and are totally dependent on donor assistance.

Table 3-14 Health Sector Budget for 2007

Item	Estimated ($)
Public health program	9,686,268
Training	50,000
Expansion of sanitation network (water supply and sewage)	11,923,350
Total	21,659,618
Provincial government budget (kz)	81,871,250
(Equivalent value in US$)	1,091,617

Source: Planning and statistics department of Health delegation of Benguela Province "Plano de Accao 2006"

Focuses of the provincial governments' plan are as follows.

1. Rehabilitation of large-scale medical facilities at the municipal level (Benguela, Lobito, etc)
2. Creation of university medical departments
3. Implementation of anti-epidemic (malaria, tuberculosis) measures by donor assistance

In addition, the plan has provisions to establish anti-AIDS centers at the *Comuna* level with assistance from the central government.

(iii) Donor Assistance

The major external assistance to the health sector includes infrastructure development such as hospital construction by China, vaccination programs and anti-epidemic measures by multi-lateral aid agencies such as UNICEF and WHO, and technical assistance for health administration by the EU. Japan also provides support for anti-malaria measures (provision of mosquito nets).

Anti-HIV/AIDS measures are also prioritized, for example educational support such as information dissemination programs are provided by a Spanish NGO and UNICEF, the establishment of testing facilities are also underway.

3.1.7 Gender

(i) Profile[2]

In the general perspective, women are relatively vulnerable, with problems like not having the necessary means to make a living, and customs of gender inequality.

Especially female heads of household (such as war widows) in poverty are facing serious circumstances.

In addition, women in the rural areas are significant part of the labor force; consequently an environment that enables them to have an independent life, such as educational opportunities, has not yet been developed, also in part due to cultural habits.

(ii) Government Policy

In Benguela Province, there is no independent program for gender issues. Currently, the women delegation of the provincial government conducts small scale projects as a subcomponent of rural development or educational programs. The women delegation consists of the family department and the women's support and promotion department, which has 31 staff members including regional officers.

Their activities consist mainly of the following three components.

1. Female literacy education

   Literacy education is mainly under the jurisdiction of the education delegation, and the women delegation works jointly with them. However, infrastructure for dissemination is not developed yet in many areas, because of problems like unpaid teachers' wages. Women especially find it difficult to allocate their time because of housework, also, the traditional and cultural habits of discrimination lie as a big obstacle.

2. Microcredit for female groups

   During 2001-04, the government offered two credit schemes; one for financing to support

[2] This chapter was written based upon interview with the deputy chief of the women Delegation of the provincial government, due to the inadequate statistical information.

small-scale businesses, and the other for the lease of agricultural seeds and equipments. However, since other private banks offer finance for small-scale businesses, they now concentrate on agricultural support. During the four years from 2001-04, they financed 666 small-scale businesses. Unfortunately, there are no accurate records for agriculture support businesses.

The results of credit programs to date are generally satisfactory; contributing to their success was the nature of the women, and other factors such as strong solidarity awareness, and a strong perception of their responsibility.

3. Dissemination through seminars

Based upon the states' gender program, training is conducted for municipal level instructors. There are 80 instructors, which is highly insufficient as some Municipalities have only 1-2 instructors. Although no clear changes have been confirmed, some perceptions have been reportedly improved on the perception of sharing of housework.

The Ministry of Assistance and Social Reintegration (hereafter MINARS) is not responsible for literacy education and, even though MINARS had a budget of Kz26 million for 2006, their budget was insufficient. Therefore, only a very small amount of spending was allocated for the women's delegation.

Only Kz1 million for microcredit was properly allocated. In general, this is due to the low priority assigned to it by the government. Thus, their activity is very limited.

(iii) Donor Assistance

According to the women's delegation, there has been no specific external assistance provided for gender related issues.

3.2 Status of Ex-refugees

In July and August of 2008, the Study Team conducted a survey in the following areas listed below to assess the influence of the refugees' migration during the civil war on their current livelihood. Although this Study targeted the coastal areas of Angola, the Study Team conducted a sampling survey in the interior region, to compare the differences of the severely-damaged interior region by the civil war.

In Lobito Municipality, in the coastal zone, the Study Team conducted surveys in the 3 villages of Canjala *Comuna* (Tapela village, Casas Novas village and Canjala Alta) and Culuango *Comuna*. And in the interior region, Kaisasa village and Elembe village in the Tumbulu *Comuna* of Cubal Municipality were the target.

During the civil war, the mountainous area (east) of Canjala *Comuna*, which was divided by the trunk road, had been dominated by the anti-government group. Therefore, inhabitants were forced to reside in areas west of the trunk road. Tapela village was located to the west of the road, and the inhabitants who had settled there hadn't migrated during the civil war.

In the Canjala Alta area, on the other hand, since it was located in the mountainous area, when the battle got harsh, the inhabitants had to evacuate to the vicinity of Tapela village. Those refugees had settled in the area and established Casas Novas village, located next to Tapela village.

In the target villages of Culuango *Comuna*, many inhabitants had evacuated from their village during the civil war. However, after ceasefire they returned home and resettled.

In the target area of Cumbulu *Comuna* of Cubal Municipality, during the civil war, local people had evacuated to various areas, some became refugees in the coastal areas, and refugees in the interior areas, others became permanent inhabitants in areas under the control of anti-government troops, but now they have returned home and live together in their village.

The characteristics of each village are as follows.

Table 3-15 Characteristics of Target Villages

Village name	Tapela	Casas Novas	Canjala Alta	Culango	Tumbulu
Location	Coastal zone along with the trunk road		Coastal zone		Interior
Status	Permanent	Domiciled refugees	Returned refugees	Returned refugees	Mixed
Sample number	9HH	12HH	14HH	10HH	20HH

*HH stands for household
Source: The Study Team

More than five years have passed since approximately 80% of the people have resettled or returned home. About the period of time spent being refugee, half of the respondents reported less than a year, the other half reported less than five years. However, in case of the interior region, more than 80% of the people were forced to be refugees for more than five years. The Study Team inquired about the reasons for staying at the residing area and for returning home respectively.

Reasons for Settlement in the Evacuated Areas

Half of the settled people in the evacuated area answered the reason they were settling in the evacuated area was that they were "living together with their family." The next biggest answer was "possession of a house or farmland."

When the Study Team had conducted a similar survey in 2005 during the period of the project formulation study, an average of 16% of households out of 200 in the sample group were suspicious about the ceasefire and therefore waited to make their final decision until the election.

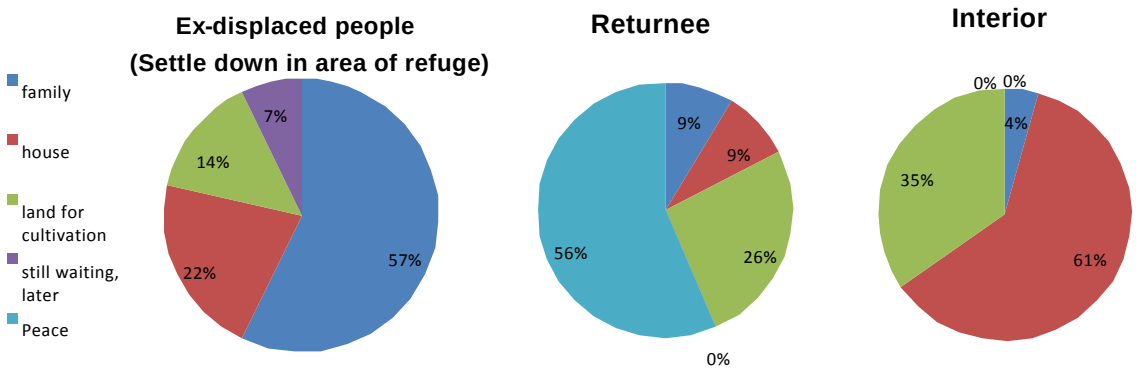
Reasons for Returning to Hometowns

On the question as to why they had returned to their hometowns, half of the respondents replied that "peace" was the reason. When the Study Team had conducted a similar survey in 2005 during the period of the project formulation study, an average of 16% of households out of 200 in the sample group were suspicious about the ceasefire and therefore waited to make

their final decision until the election. The election of the Assembly took place in September 2008, just after this sample survey, and the presidential election is scheduled next year. Despite the fact that they haven't held an election in recent years, peace prevails and already the anxiety which used to hamper people's return has disappeared.

A quarter of the respondents responded that "their or their family's farmland" was the reason. The background meaning of these answers is that they are able to use more appropriate land (in terms of climate and soil quality) and wider farmlands in their hometown compared to the evacuated areas.

Most respondents answered similarly "farmland" or "possession of house" as the reason why they had returned to the interior region.

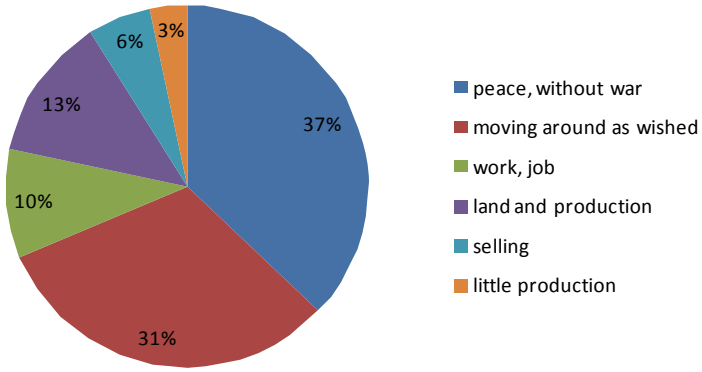


Source: The Study Team

Figure 3-2 Reasons for Returning or Not Returning to Hometown

Changes in Daily Life

Most of all respondents responded positively to questions about their impressions of their livelihood after the ceasefire. The largest answer concerning their impression was "No fear of battle" (37%), followed by the answer "Freedom of migration" (31%). They answered "an improved business environment" such as selling products (6%)" as the result of the free migration of people and goods.



Source: The Study Team

Figure 3-3 Reason for Changes in Daily Lives after Ceasefire

Income

The Study Team compared the level of income among these groups to confirm the influence of the effects of migration from the residing areas after the ceasefire.

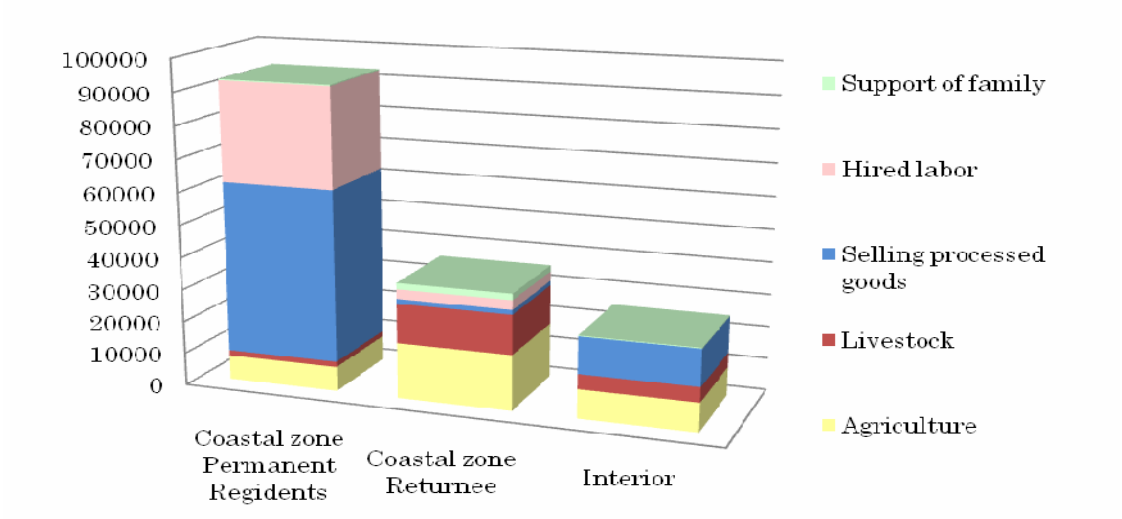
Table 3-16 Average Annual Income per Household (Kz)

	Coastal zone Permanent Residents	Coastal zone Returnee	Interior
Agriculture	7,578.13	17,167.92	8,962.50
Livestock	1,666.67	12,227.92	4,592.50
Selling processed goods	52,883.33	1,439.58	11,327.50
Hired labor	30,666.67	2,933.63	0.00
Support of family	333.33	1,947.89	250.00
Total	93,128.13	35,716.94	25,132.50

Source: The Study Team

When comparing total incomes, that of the permanent inhabitants in coastal zones marked overwhelmingly as the largest figure. One of the reasons might be the income from "labor in commercial farms" as one of the characteristics of the coastal zone, during the peak harvest season; owners of commercial farms hire tenants in the vicinity for by day payment at the rate of Kz200.

Moreover, people in coastal zones can earn a higher income by the "sale of processed goods" of which the majority is engaged in the sale of charcoal. This is especially true in the areas where cultivation is possible only during the rainy season; income from charcoal production is therefore a precious income source. Moreover, when comparing refugees in the coastal zones and the interior regions in terms of their income on the sale of agricultural products and livestock, those of the refugees in the coastal zones are double or triple that of the others. There are various factors in the background that account for these differences, such as the period of evacuation, access and distance to the urban areas, and climate and soil quality.



Source: The Study Team

Figure 3-4 Average Annual Income per Household (by Item)

Despite the huge gaps in the cash income as described above, no major difference were found in terms of the number of meals. Rather, changes were confirmed before and after the harvest, which shows the influences of agricultural production on their livelihood.

Table 3-17 Average Number of Meals/Day

	Coastal zone Permanent Residents	Coastal zone Returnee	Interior
Before harvest	1.9 times	2.1 times	2.0 times
After harvest	2.6 times	2.6 times	2.5 times

Source: The Study Team

Conclusion

During the five years since the ceasefire, refugees during the civil war have gradually restored their livelihood in the evacuated areas or their hometowns. Most people feel an improvement in their livelihood after the ceasefire.

On the other hand, huge gaps between people were confirmed, for example the disparity of cash income between permanent inhabitants and returned refugees, or between the coastal zones and interior regions.

3.3 Lobito Municipality: General Profile

3.3.1 History

Lobito Municipality, one of the youngest cities established during the era of Portuguese colonialism, was founded around 1842-3 by the request of the citizens of Benguela Province. It had been just a small city without drawing much attention until the end of 19th century, the time when the rubber trade grew. As a result of the construction of the port in Lobito, Lobito became a strategically important Municipality for regional development. In September 1913,

Lobito was promoted to a Municipality (administrative division) because of its rapid growth.

Currently, it boasts remarkable, dynamic economic growth as part of Angola's industrial region.

3.3.2 Outline

Lobito, known as a core Municipality in mid-Angola, is located 30km north from Benguela and has a population of approx 740,000. The area is 3,685 km^2, and its climate is tropical dry area with average temperature of 20 degrees (Celsius) and 70% humidity. It is also the origin of Benguela Railway which runs into the interior of Africa. In its interior in the east, there are the regions of Huambo (3rd largest Province in Angola) and central highland. Lobito's primary businesses are trade, industry, agriculture, and fishery.

3.3.3 Development Plan of Lobito

"Plano de Desenvolvimento Económico e Social do Município do Lobito 2009–2013" (hereafter The Plan), known as the development plan of Lobito Municipality, is the mid-term plan for 2009-13.

In its preface, The Plan envisages the future of Lobito Municipality in Angola, as an "International industrial centre with its geographical advantages and its transportation infrastructure (such as the Port of Lobito, The Benguela Railway, and the Airport of Catumbela)".

The Plan is the roadmap to achieve its ultimate goals, and it consists of the following four items.

1. **Status quo:** Brief presentation of Benguela Province and Lobito Municipality in terms of the sector-wise and *Comuna*-wise situation.
2. **Development Potential:** Consideration of development potential using the SWOT methodology
3. **Development Objective:** The Plan is consistent with its upper level plan, the national development plan (Angola 2025), and it consists of four general objectives, and specific objectives corresponding to each general objective. The Plan also sets indicators to measure the level of achievement.

To achieve its materialization, The Plan, develops a **4. Investment Plan**, a consolidated list of projects under the local/central responsibility, and those of public-private partnerships.

The estimated scale of investment in the five years is approximately Kz380 billion (approx US$5.06 billion)[3].

This section explains the outline of the plan in accordance with its four components.

[3] US$1 converted Kz75 (as of Sep. 2008)

(i) Status quo: Sector-wise, *Comuna*-wise Analysis

The plan describes the situation of four *Comunas* in terms of the four perspectives (infrastructure development, cultural and social development, economic development and institutional development). However, Corango, one of the target *Comuna*s of the Study, was not included.

The following table summarizes the *Comuna*s' situation based upon the above mentioned four perspectives. As is clear from the table, there are gaps in the level of progress among the *Comuna*s, For example, Catumbela which relatively satisfies the requirements for development, whereas Canjala or Egito-Pria still has many obstacles. Besides, the problems of institutional capacity there are common issues among all *Comuna*s.

Looking at the development potential by *Comuna*s, urban areas like Catumbela are expected to be industrialized, whereas the potential of the rural areas lie in the agriculture sector. This is a significant implication when considering the development potential of Lobito Municipality.

Table 3-18 *Comuna*-wise Analysis

Perspective	Catumbela	Biopio	Canjala	Egito-Praia
1.Infrastructure	**Relatively good** ・Less damage from the civil war ・Better access by the development of the trunk road	**Relatively good** ・Less damage from the civil war ・Better access by the development of the trunk road ・Stable power supply from adjacent hydroelectric power station	**Not good** ・Limited water/power supply ・Better access by the development of the trunk road	**Not good** ・Limited water/power supply ・Low accessibility during rainy season (due to undeveloped road network)
2.Social and cultural development	**Relatively good** Good education environment	**Not good** Especially child education (such as the distance from school)	**Not good** Especially child education (such as the distance from school)	**Not good** Especially child education (such as the distance from school)
3.Economic development	**Relatively good** Progress of industry development program	**Not good** ・Lack of technical assistance for agricultural technology and fertilizers ・Road network for product transportation	**Not good** ・Lack of technical assistance for agricultural technology and fertilizers ・Road network for product transportation	**Relatively good** Fishery, key industry of the region is in a good state due to the abundant marine resource.
4.Institutional	**Not good** ・Lack of administration infrastructure ・Authority of *Comuna* administration ・Lack of trained public staff	**Not good** ・Lack of administration infrastructure ・Authority of *Comuna* administration ・Lack of trained public staff	**Not good** ・Lack of administration infrastructure ・Authority of *Comuna* administration ・Lack of trained public staff	**Not good** ・Lack of administration infrastructure ・Authority of *Comuna* administration ・Lack of trained public staff
Development potential	Light and heavy industry	Electricity supply, agribusiness	Agriculture, agribusiness, tourism	Fishery-based agribusiness, tourism

Source: Created by the Study Team based upon ”Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013”

(ii) Development Potential (based upon SWOT methodology)

The Plan, based upon the findings of "(i) status quo", reviews the direction and potential of the Municipality's development. The result of the SWOT analysis is as follows.

1. **Strength:** Geographical advantage, low criminal rate, improvement of the health-related environment, improved road infrastructure, public transportation, transport infrastructure such as the Port of Lobito, growth of heavy industries like oil/cement, and tourism.
2. **Weakness:** Education environment for juveniles, lack of basic infrastructure (such as roads, the port of Lobito, information technology), the health/sanitation environment, water/power supply and training of public officers
3. **Opportunity:** Promoting tourism, exploitation of mineral resources, utilization of the Catumbela airport as a hub of Southern Africa
4. **Threat:** Natural disasters, epidemics, and fall of crude oil prices.

(iii) Development Objective

Through analysis of the aforementioned (i) ~ (ii), the development objective of The Plan is formulated.

Initially, the plan suggests a provincial development objective, and places the Lobito Municipality as part of the provincial objective. Specifically however, the detailed development objective of the Municipality has not been formulated and the objective is only part of the provincial development framework. Its structure consists of four general objectives and detailed, sector-wise specific objectives. For monitoring and evaluating of the progress, quantitative and technical indicators are set for each sector.[4]

The following is the outline of the development objective

1. General Objective

(a) Cultural and Social Development

Promote human development of the provincial citizens; eradicate hunger and poverty by enhancing the educational level and basic sanitation of the population, providing equality, social reintegration and opportunity, in a participative and democratic society.

(b) Economic Development

Ensure sustainable economic growth, by utilizing the comparative advantages and potential of its agriculture, fishery, industry, transport and tourism sectors.

(c) Development of Infrastructure and Environment

Develop the Province in a harmonious and ordered way, ensuring mobility, habitation, respect for the environment, and an improvement in the life of the people.

[4] US$1 converted Kz75 (as of Sep. 2008)

(d) Institutional development

Achieve the modernized and inter-sectoral administration system, consistent with the central governments' policy and be responsible for internationally-recognized performance measurement indicators.

2. Specific Objective

The following is the list of specific objectives, a breakdown of the respective general objectives. Specific objectives are not structurally designed and are a mere list of the development issues of the Province.

Table 3-19 List of Specific Objectives

Cultural and social development	a) Improve IDH(Human Development Indicators) to medium levels b) Reduce the maternal, infant mortality rate of malaria, diarrhea and cholera; c) Improve adult literacy teaching and school facilities for all teaching levels to produce technological and scientific knowledge in the Province; d) Support children and teenagers through the development of infant and pre-school education, localization and family re-unification e) Promoting equality, opportunity and social reintegration by supporting the youth, adults, ex-soldiers, families, women, and handicapped people f) Qualifying social services through training, infant educators, social workers for children and senior citizens and social activities; g) Consolidating technical, educational bases, health and sportive activities, reading habits of the young; h) Provide incentives for football, handball, basketball and hockey practice in the communities (mainly at school), to make the Province a "National storage of players"; i) Keep order and tranquility in public places in the Province; j) Overcome TV channel and radio problems which now reach the Municipalities and *Comunas*.
Economic development	a) Achieve sustainable and high social and economic development by creating employment and income in both urban and rural areas; b) Maximize the potential of the agriculture, fishery, industry, tourism and public services by establishing a productive system; c) Establish the position of Benguela Province as a strategic center for the development of West, Central and South Angola as well as all of the Southern Africa region; d) Promote economic equality, by establishing the power to develop the Central and West regions of Angola; e) Reduce the import of products gradually and switch to domestic production; f) Re-establish Benguela Province as the country's best tourist center.
Development of Infrastructure and Environment	a) Promote the development of basic infrastructure (urbanization, environment, electricity, water supply, 2nd and 3rd roads, transport and telecommunications) as a driving force of the medium-term development of the Province; b) Promote urbanization and ordered growth and re-qualification of main urban centers; c) Disseminate internet access and the digitization of all Municipalities; d) Improve the quality and quantity of the urban collective transportation system, reinforcing intermodal train connection, which reaches the quarters and industrial zones (Lobito, Catumbela, Benguela and Baia Farta) with regular service; e) Develop the logistical advantages of the region, by rehabilitating existing infrastructures, such as the railway, the Port of Lobito (the economic base of the Province), and the road network reaching neighboring provinces; f) Revitalize the nationwide postal service; g) Promote the development of the mineral sector by research, and the exploration of the geological potentials.
Institutional reform	a) Modernize the public services and reduce the administrations acts in order to benefit the citizens b) Improve public services for the population with trained public servants; c) Enhance the capacity to maintain facilities, public monuments and national heritage; d) Improve the administration and management capability related to facility construction in order to achieve the medium-term program e) Specialize and modernize the centers of employment to make them more operative in the labor market, raising business and social partners in the practice of collective labor agreements. f) Develop illegal immigrant controls on all borders of the Province; g) Enhance attention to prevention of fire and other natural calamities; h) Create energy in order to boost the productive sector of the prison services

Source: "Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013"

3. Target and indicators

The following tables are the target indicators of agriculture, education, and the health sector, which are closely connected in the Study. Most indicators are quantitative and concrete; however, some vagueness remains in the plan, since no clear explanations are given concerning the link between indicators and objectives or their feasibility.

(a) Agriculture/Stock-Raising

Table 3-20 Agriculture Sector/Target and Indicators

Goals	Indicators	Province	Municipal
Triple the current planted area	Total of planted areas in firm and traditional sectors	840,000 ha	14,553 ha
Double the current productivity (kg/ha)	Total production of both firm and traditional sectors	1,689 millions of ton	204,534 ton
Increase number of cows(cattle) 8 times (base figure;2006)	Number of cows (cattle) in both firm and traditional sectors	400,000	25,720
Increase number of goats(cattle) 8 times (base figure;2006)	Number of goats (cattle) in both firm and traditional sectors	380,000	50,768
Increase number of swine(cattle) 8 times (base figure;2006)	Number of swine (cattle) in both firm and traditional sectors	78,000	4,904
Increase number of hens (cattle) 8 times (base figure;2006)	Number of hens (cattle) in both firm and traditional sectors	112,000	16,072
Promote re-forestation in the dessert areas	Total area re-forested	1,200 ha	nil

Sourve:"Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013"

(b) Education

Table 3-21 Education Sector/Target and Indicators

Target	Indicators	Province	Municipal
Increasing the level of schools	Human Development Rate of Education (IDH-E)	0.867	0.867
Eradicate illiteracy	Literate population above 15 years old	555,000 literates	159,664 literates
Achieve a 100% enrollment rate for children and an 80% participation rate in the education system for children and the youth	The number of enrolled children 5 to 14 years and youth 15 to 19 years old	842,000 enrolled	265,627 enrolled
Achieve 100% of teachers who receive pedagogic training	Number of teachers with pedagogic training	38,098	12,013

Source:"Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013"

(c) Health Sector

Table 3-22 Health Sector/Target and Indicators

Goals	Indicators	Province	Municipal
Increase the average life expectancy	Life expectancy	55 years	55 years
Reduce the infantile mortality rate under 1	Infant mortality rate under 1per 1,000 births	65.5 per 1,000 alive birth	65.5 per 1,000 alive birth
Reduce infant mortality rate under 5	Infant mortality rate under 5 per 1,000 births	193.1 per 1,000 alive birth	193.1 per 1,000 alive birth
Reduce the maternal mortality rate	Maternal mortality rate per 100,00 births	312.9 per 100,000 birth	312.9 per 100,000 birth
Reduce the mortality rate of malaria	Mortality rate of Malaria per 1,000 habitants	29.9 per each 1,000 hab.	29.9 per each 1,000 hab.
Reduce the mortality rate of respiratory disease	Mortality rate of respiratory disease per 1,000 habitants	8.8 per each 1,000 hab.	8.8 per each 1,000 hab.
Reduce the mortality rate of Cholera	Mortality rate of Cholera per 1,000 habitants	1.9 per each 1,000 hab.	1.9 per each 1,000 hab.
Reducing the mortality caused by diarrhea	Mortality rate of Diarrhea per 1,000 habitants	5.2 per each 1,000 hab.	5.2 per each 1,000 hab.
Increase the number of doctors	Number of doctors per 100,000 habitants	165 doctors per each 100,000 hab.	165 doctors per each 100,000 hab.
Increase the number of beds in hospitals	Number of beds per 1,000 habitants	0.8 beds per each 1,000 hab.	0.8 beds per each 1,000 hab.

Source: "Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013"

(iv) Investment Plan

The sector-wise investment plan is as follows. The total investment cost is planned to reach approximately Kz380 billion (approx. US$5.06 billion).

Table 3-23 Sector-wise Investment Plan of the 5-Year Plan

Consolidated Projects				
Sector	No. of project		Amount (KZ)	
	Local	Central	Local	Central
General Total	199		379,969,484,581	
Total	149	50	122,711,062,232	257,258,422,349
Institutional Sector total	25	11	9,677,124,227	95,359,550,000
1. Public Administration, Employment, and Social Security	2	1	266,266,667	1,078,000,000
2. Public Works	10	6	6,760,846,560	93,418,375,000
3. Public Security	13	4	2,650,011,000	863,175,000
Social sector total	95	21	101,283,213,005	56,250,073,061
4. Social Communication	4	0	510,000,000	0
5. Culture	6	2	492,350,000	1,694,000,000
6. Education	12	6	57,757,666,240	8,081,896,138
7. Family, Woman Promotion, Social Assistance, Ex-Soldier and Veteran of War	22	3	1,741,193,257	910,550,000
8. Youth and Sports	6	3	1,275,300,000	1,463,000,000
9. Health	36	2	21,039,437,193	1,875,000,000
10.Urbanism, Environment, Habitation and Territory Order	7	5	6,195,625,465	42,225,626,923
11.Water Supply	2	0	12,271,640,850	0
Production sector total	27	18	11,615,975,000	105,648,799,288
12.Agriculture	13	3	1,031,231,667	852,500,000
13.Oil, Energy, Geology and Minerals	0	6	0	14,832,799,288
14.Hotels and Tourism	9	0	10,112,250,000	0
15.Industry and Trade	1	2	123,750,000	14,630,000,000
16.Fishery	4	1	348,743,333	75,000,000
17.Transports and Mail	0	4	0	72,944,750,000
18.Telecommunications	0	2	0	2,313,750,000
Financial Sector total	2	0	134,750,000	0
19.Public Finance	2	0	134,750,000	0

Source: ”Plano de Desenvolvimento Económico e Social do Município do Lobito 2009 – 2013”

The financial resources of the plan consist of a 32% share from the local government and the remaining 67% share from the central government. The greater proportion of resources is from the central government.

Sector-wise distribution is well-balanced and equally distributed to these three sectors, institutional reform including public works, production, and the social sector.

In terms of the sector-wise distribution of each financial resource, the social sectors, especially the education and health sectors occupy a large proportion of the investment from the local government.

As for the central government, public works, especially for basic infrastructure such as roads, telecommunications, and housing occupy a larger proportion. This shows that the priority of each resource is clearly differentiated.

(v) Issues that Need to be Elaborated

The plan satisfies the basic requirements of a development plan, such as consistency with the

upper level plan, an analytical approach (such as the SWOT methodology) for the current status, the setting of objectives and indicators, and the clarification of investment plans.

On the other hand, the following elaborations are deemed necessary to effectively utilize the plan in the actual implementation process.

1. Clear Link between Components (Objectives, Indicators and Investment Plan)

The respective descriptions of each component are elaborated to some extent, by the logical structure and objective reasoning like statistics. However, the link between components is still somehow unclear.[5]

In order to maintain the effectiveness of the plan in the implementation and monitoring process, it is necessary to consider indicators and projects with a clear link to their objectives.

2. Feasibility of the Indicators

Although target figures are set for each of the indicators[6], no examination, or rationale for their feasibility (whether the plan will be able to achieve its target figures or not) was given, which casts a vagueness over their eligibility as monitoring indicators for the plan.

3. Implementation System

As no description of the implementation and monitoring system was given for the process, the responsible organization, and authority of the management of the plan are not clarified.

Since the current Municipality administration has no experience in implementing and monitoring such an elaborated development plan, in order to maintain its effectiveness, it is necessary to establish a new organization or department to be responsible for it

3.3.4 Port of Lobito

The port of Lobito, located in the gulf made from sandbar, was developed in 1928 from reclaimed land.

It is Angola's second largest port next to the port of Luanda, and is significant as the center of logistics and economic activity in mid-Angola. Major trade items are construction materials and general commodities such as flour, sugar, cereals, groceries, and reconstruction-related materials. It has 1,400 fulltime workers, who have been traditionally engaged in port-related activities. In the surrounding areas, there are farmlands, the inhabitants mainly being farmers and fisherman. But the property of the port of Lobito is owned by a public corporation and is independent from its surroundings.

Port business is the core industry in the Municipality.

On the back of the sandbar, there is a natural port area, with a 300m entrance, 5.2 km length

[5] Although monitoring indicators are set on each sector, it is difficult to directly monitor the achievement of the plan by those indicators, since it does not correspond to the objective framework of the plan (such as general objective).

[6] The agriculture sector aims to increase the number of cattle 8 times from that of 2006.

and 30m depth. Thanks to the surrounding sandbar (4.8km length and approx 740m width), the area is kept tranquil and without sinking in shipping lane. The approach lane has more a depth greater than 18m, with a 10.36m depth at the 2 L-shaped wharfs. There is no necessity to dredge the front wharf at this time (though future expansion plans include dredging). The southeast wharf and surrounding area is leased to the oil refinery company. The north wharf has a troller's mooring. The utilization status of the port of Lobito in the 2007 quarter is as follows, marking improvements by the governments' stabilization plan of maritime traffic.

Table 3-24 Status of Port of Lobito in 1st Quarter 2007

Ship type	Number
Cabotage ships	13(+12)
Long distance ships	88 (-230)
Patrollers	17
Butaners	7
Towers	41
Freezers	3
Fishing boats	8(-11)
Total	**177**
Income 2007 1st quarter	539.401.238.50 (-783.569.779.50)

Source: Planning and statistics office (GEPE) "RELATÓRIO DO GOVERNO DA PROVÍNCIA RELATIVO AO I SEMESTRE 2007"

3.4 Result of Studies and Surveys in Lobito Rural Areas

This section is devoted to explaining the result of studies and surveys in the rural areas of Lobito Municipality.

Table 3-25 Population and Villages

	Population	Number of villages
Egipto Praia	5,323	7
Biopio	5,000	22
Colango	12,415	38
Canjala	57,903	62
Total	80,641	129

Source: Interview with *Comuna* administration

There are more than 80,000 people in the rural areas of the Lobito Municipality, including 129 villages in 4 *Comunas*, Egipto Praia, Biopio, Colango and Canjala. The Population in the *Comuna*s is summarized in the Table 3-25.

The main road between Luanda and Benguela runs in a North-South direction along the Atlantic coast of the target area. Almost all of the target area is rural. But farmers cannot cultivate in all areas, as the target area holds very dry parts as will be discussed later on.

The Study Team conducted the Household Socioeconomic Survey in June and July 2007. The sample size was 216 in total. The sample number of each *Comuna* reflects the proportion of the number of villages.

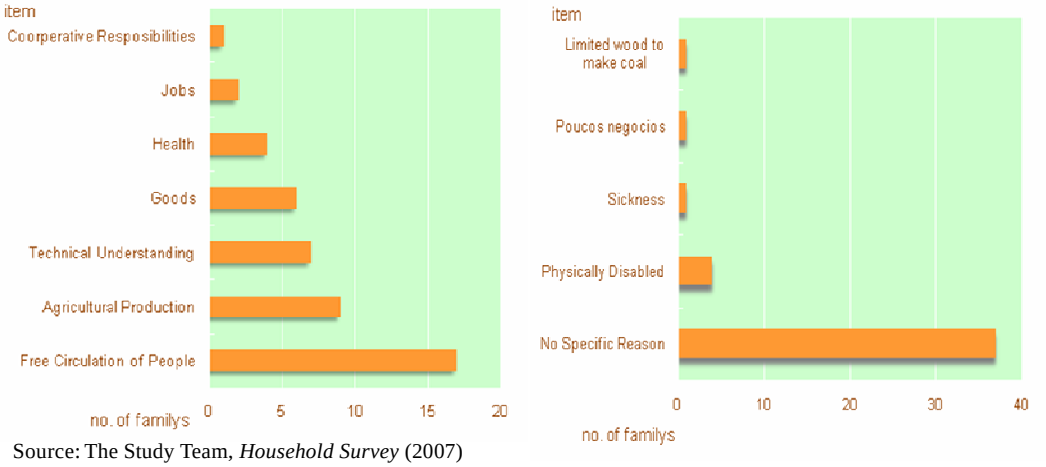
Based on the data collected in the Survey, the economy and society of the target area in the rural parts of Lobito Municipality are discussed in the following sections.

3.4.1 Household Socioeconomic Survey in Lobito Rural Areas

(i) Household

The average household consists of 5.3 persons. Households with fewer than three persons represent 27% of the survey, from four to six persons is 45% and more than seven is 28%, distributed almost evenly. Male is 2.7 and female is 2.6. Over 20 years of age is 2.0, from 12 to 19 years of age is 1.3 and less than 11 years of age is 2.0.

(ii) Life Changes after the War



Source: The Study Team, *Household Survey* (2007)

Figure 3-5 Reasons for the Changes in Lifestyle after the War

The changes in life for the rural zone residents under the recent increment detachment in the national economy after the war can be seen through analyzing the figures.

Regarding the question of whether life has improved or worsened after the war, amongst the 91 people surveyed, half responded that life had improved while the other half responded that it had worsened.

Of those who gave a positive response, the main reason given was the free circulation of people and goods (peace) represented by 17 people (37%), following that, nine people (20%) responded positively citing the increase in agricultural production, seven people (15%) stated an increase in technical understanding and six people (13%) referenced the increase in goods.

Of those who gave a negative response, the majority of people, 37, of the 45 did not specify a reason for his/her response.

We can infer from this survey that there is a high likelihood that the daily life of farmers has apparently improved during the six years since the end of the war (The peace agreement was signed on 4th April 2002).

(iii) Professions of People in the *Comunas*

The professions of the local population in the zone vary among 17 categories. Among the 234

people investigated, the majority, 131, were farmers, corresponding to 53%. Several other relatively prominent professions were: 16 drivers (7%), 14 fishermen (6%), 14 builders (6%) and three artists (5%).

However, there were differences in the numbers of people investigated in the *Comunas*. For example, there were some prominent observations about the differences in the distribution of professions.

For example, a characteristic of the Canjala *Comuna* is that it has more artists, a total of 12 people and seven drivers, because trade is more dynamic here than in the other *Comuna*s.

Other examples are the cases of the Egipto Praia *Comuna*: having seven fishermen, the Biopio *Comuna* including six coal producers, and the Culangu *Comuna* having eight drivers and five fishermen.

In Biopio, the cultivating conditions are difficult, because the land is dry, so the best means for making money is to produce coal. So, compared to the number of people being interviewed, the percentage was very noticeable.

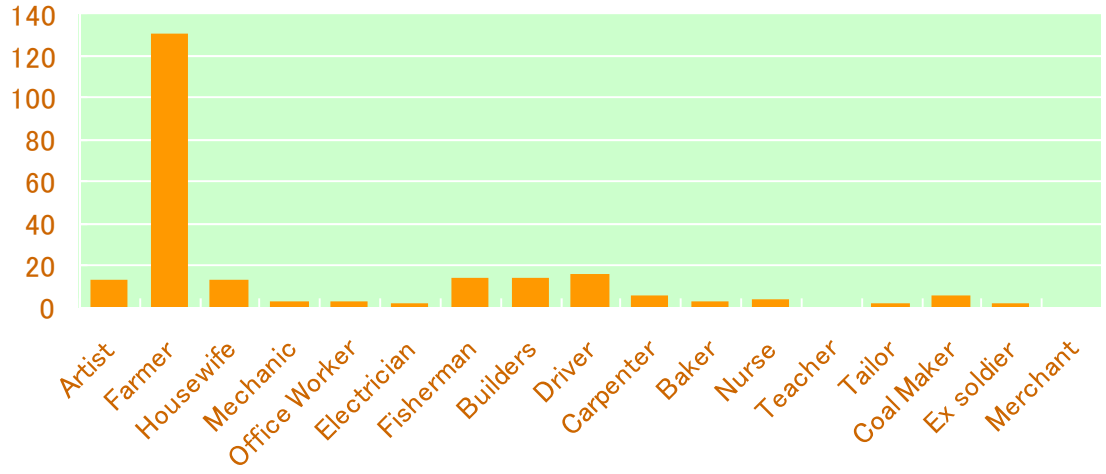
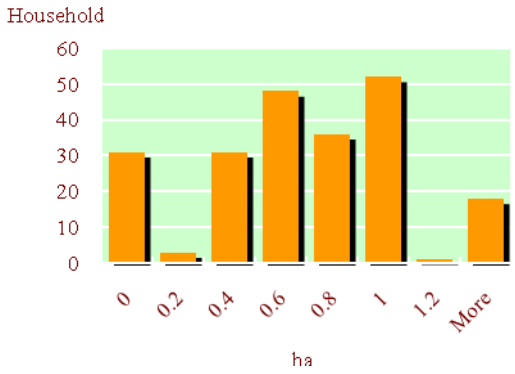


Figure 3-6 Professions of the People in the *Comunas*

(iv) Cultivated Land

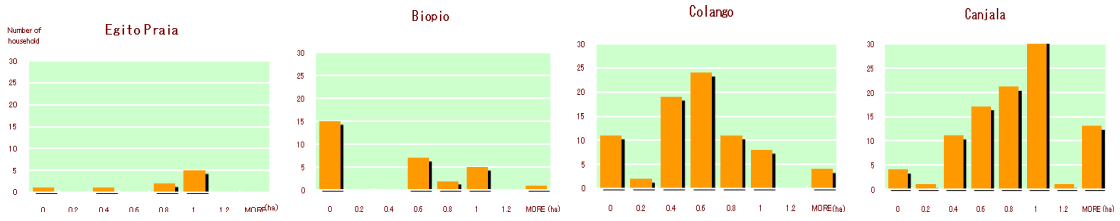
The averaged size of cultivated land per household is 0.66 ha. There are 31 households with no cultivated land, most of which are located in low precipitation areas such as Biopio. One hundred and 67 households, representing 75% of all interviewees, have an average of between 0.4 ha and 1 ha. The average area of cultivated land per person is 0.19 ha.



Source: The Study Team, *Household Survey* (2007)

Figure 3-7 Number of Families per Cultivated Area

Distributions in the size of the cultivated land area vary depending on *Comunas*. Egipto Praia is a semi-farming and semi-fishery *Comuna*. Income from fishing is fairy high and cultivated land is more or less 1 ha per household. In contrast, households with no cultivated land are the majority in Biopio, as Biopio does not have sufficient rain. In Colango many households are distributed between 0.4 and 0.8 ha, whereas in Canjala households with from 0.6 to 1 ha are majority.

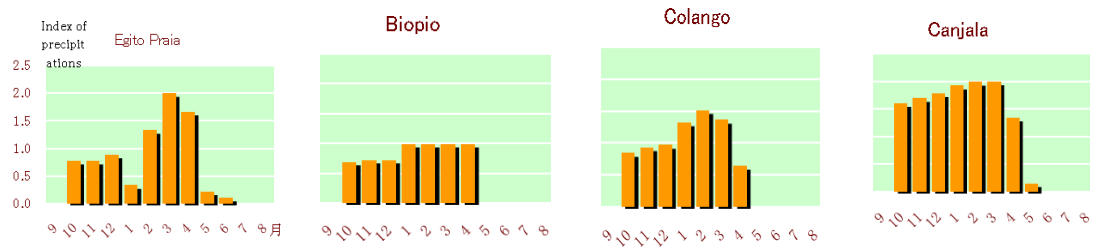


Source: The Study Team, *Household Survey* (2007)

Figure 3-8 Cultivated Land in each *Comuna*

(v) Rainfall

The Study Team asked farmers to describe the level of rain fall in their area by selecting one description out of "much rain" "some rain" or "no rain" for every month. Giving 2, 1 and 0 point, respectively, the Team calculated average points by month and showed them in the figure below. In all four *Comuna*s, the rainy season starts in October. Egipto Praia, Biopio and Colango have "some rain" until the end of the year. On the other hand, in Canjala many places get "much rain" from October. Although Egipto Praia gets "much rain" in January, Colango has "much rain" in only some parts, and Biopio still has "some rain." Canjala has "much rain" in many places continuously. In May, the rain stops in all *Comuna*s and the dry season continues until September.



Source: The Study Team, *Household Survey* (2007)

Figure 3-9 Rainfall in each *Comuna*

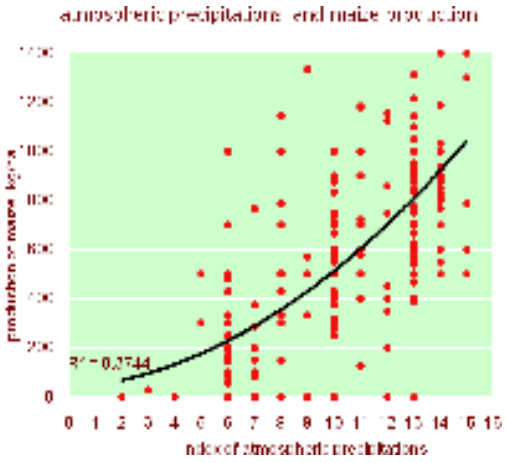
(vi) Agriculture & Agricultural Production

In general, agriculture in the target area has a low yield cultivated in small fields. Subsistence farming of maize, a staple in the target area, is dominant.

1. Maize

Maize is cultivated by 170 households, which are 79% of the total 216 households interviewed. The average yield is 537kg/ha. One hundred and 63 households, 96 % of all maize growers, do not apply fertilizer. As irrigation is limited, most of maize fields are rain fed. As the following figure shows, the more rain they get, the higher the yield.

The areas with a large amount rain get two crops. 60 households, 35% of maize growers, have two crops, and 110 households, 65%, have one crop, respectively. Egipto Praia has one crop in all areas. Colango produces two crops in some parts. Canjala gets two crops in nearly half of the *Comuna* area. As Biopio does not have enough rain as already discussed, they have no crops in many parts of the *Comuna*.



Source: The Study Team

Figure 3-10 Production of Maize against Atmosphere

The F1 hybrid variety of maize produces superior performance due to heterosis. However, it is only shown in the first generation of crossing, and is used mainly in large farms *Fazenda*. Many small-scale farmers in the target area use indigenous varieties. Indigenous varieties are short and have small fruits resulting in one ton per ha even with fertilizer. In

contrast, F1 varieties show 2.5 ton per ha with fertilizer.

Table 3-26 Number of Households on Maize Cropping

	All household	All Maize producing households		2 crops of maize		1 crop of maize	
		Number	%	Number	%	Number	%
Egipto Praia	9	9	100	0	0	9	100
Biopio	30	2	6.7	1	3.3	1	3.3
Colango	76	62	82.3	15	21.1	47	61.8
Canjala	101	97	97,1	44	43.6	53	52.5
Total	216	170	79.5	60	27.8	110	50.9

Source: The Study Team, *Household Survey* (2007)

Although yield potential for indigenous varieties is low, they can be harvested in 50-60 days after sowing. F1 varieties take four months to reach maturity. Small-scale farmers relying on unstable rainfall can reduce risk by adopting indigenous varieties. In addition they have to purchase seeds every time if they use F1 varieties, because harvested seeds, F2, do not perform as well as F1 and farmers cannot use F2 seeds for the next crop. These are contributing factors as to why many small-scale farmers still stick to indigenous varieties.

Annual maize production per household including those with two crops and one crop is 558kg and per person is 156kg. According to the farmers, a desirable amount of maize meal called *fuba*, can be produced from 230 kg of kernels per person per annum.[7] 156 kg is just 68% of the desirable amount. This average of 156 kg includes the marketed amount by relatively large operating farmers. When subtracting the marketed amount, the average annual production of maize becomes 417 kg per household and 118 kg per person. Farming in the target area is described as subsistence farming, but strictly speaking, the necessary amount for self-consumption is not actually produced. It was shown in workshops conducted in 2005 that "Hunger" was the biggest problem for farmers. The results in the survey from 2007 indicate that this problem has not yet been solved (Nutrition intake is discussed in depth in a later section).

There are also insect problems in low maize yields. Some insects such as Procad corma propagate in the wide areas and cause a very low yield. In 2006 in Canjala, maize was attacked by Procad corma heavily and production decreased considerably. It is very difficult for farmers to recover the high cost of insecticide, because maize is primarily for self-consumption and rarely gets marketed.

2. Beans

Many households are consuming beans as a protein source but there were only 26 bean growing households, 12% of the 216 households. In most regions of the target area, the temperature is too high in summer rainy season to grow beans. The winter low temperatures occur during the dry season when farmers can get no rain. Subsequently, the

[7] We assumed 5% of total weight of kernel is lost when milling. 600 grams of maize meal account for 2100 kcal, approximately.

places where beans can be grown are in (1) irrigated land for dry winter cultivation or (2) highland with lower temperatures during the rainy summer.

Canjala was known as a famous bean production area in the past. At present, large farms with irrigation systems produce beans in the dry season. The natural environment is suitable for bean production. If irrigation canals are rehabilitated, bean production can be promoted and increased.

According to the survey, the average yield of beans is 469kg/ha, the average annual production per household is 245kg. 24 households out of 26 households are marketing their beans, the average sales is Kz13,167. They grow beans not for self consumption but as a cash crop. Thus the more beans they produce, the more their cash income may go up.

The normal market price of maize is Kz30 per kg. But when large amounts of products are released in the market, it is not rare that prices go down, even to less than Kz20. On the other hand, beans are Kz100/kg in *Fejão Mantega* and Kz75/kg in *Fejão Raiado* and *Fejão Kalonguba*. If they harvest vegetables, they have to sell them within a couple of days to keep freshness. But beans, which are distributed after being dried, can be kept for a long time. It is therefore easy for small-scale farmers to start beans production.

3. Other Crops

Farmers in the target areas are growing cassava, sweet potatoes and bananas primarily for self-consumption. Vegetables such as tomatoes and onions are planted in the areas close to the main road. It is not easy for farmers, who have cultivated staple crops extensively for a long time, to grow vegetables that are susceptible to diseases and require high level of management. Nevertheless, some farmers are eager to produce vegetables expecting high return.

4. Cash Costs of Farming

The cost item for which the largest number of households spends cash is farming tools such as hoes. Out of the 216 interviewed households, 49 households had spent money on them. Average expenses are Kz1,098 per annum. Other cash cost items are hired tractors and fertilizer. Eight households hired tractor, spending Kz5,375 per annum. Seven households purchased fertilizer, spending Kz5,784 per annum. As the primary objective of their farming is self-consumption and marketed surplus is limited, it is difficult to spend a lot of cash for production. As the number of cattle is very limited in the target area, animal traction is also rare.

5. Net Income of Agriculture

There are 87 households in the survey, 40%, that market any agricultural products as a means of income. Their average sales are Kz12,428. Subtracting the cash cost, they are getting 9,358 in average as net income from agriculture.

(vii) Livestock Production

The following table shows the number of households that rear livestock and the net income of their livestock production. 144 households, 66% of the total, keep some livestock including chickens. As some households rear multiple types of livestock, the sum of each enterprise is bigger than the total household number.

They are getting Kz11,316 per annum from livestock production in average as net income. Biopio shows outstanding figures as four cattle growers, whose sales are much larger than other livestock owners in nature, are only in the *Comuna*. As it does not have sufficient rain for crop production, cattle and goat rearing is more popular in Biopio than other *Comunas*. But according to observation by the Study Team, Biopio is facing a problem of overgrazing, and its vegetation has been already heavily degraded.

There were a fair number of animals in the target area, but they decreased drastically during the civil war. In fact, cattle growers were only represented by four households in the interviews. The average number of cattle per household is 14.3 heads and their average net income is Kz66,406. These figures are lifted by one household that rears 40 heads. The limited number of cattle in the target area leads to "side effects" such as limited opportunity to make use of animal traction, transportation and soil fertility improvement by animal manure.

On the other hand, the number of households that keep pigs and goats are 66 households, 31%, and 62 household, 29%, respectively. The average number of animals is 3.5 heads for pigs and 6.9 heads for goats. Average net income from livestock production is Kz5,656 for pigs and Kz9,385 for goats.

Goats are grass eaters, and are grazed around the houses. Only two households are purchasing feed for pigs and the majority let pigs scavenge around their homes. The number of chicken raisers is 120 households, 56%, and the average number is 8.2 birds. As they also scavenge around the house, they are facing a nutrition shortage and are vulnerable to attack by predators. As a result, productivity is low. Net income from chicken rearing is Kz3,330 per annum per household in average.

Table 3-27 Livestock Rearing Household

	Cattle			Pigs			Chickens			Goats			Total		
	# of households	%	Average net income (Kz)	# of households	%	Average net income (Kz)	# of households	%	Average net income (Kz)	# of households	%	Average net income (Kz)	# of households	%	Average net income (Kz)
Egipto Praia	0	0	0	4	44	11,727	4	44	2,291	4	44	13,194	6	67	18,172
Biopio	4	13	66,406	7	23	3,357	12	40	2,985	12	40	10,420	19	63	23,755
Colango	0	0	0	30	39	5,692	41	54	3,096	22	29	10,714	49	65	10.475
Canjala	0	0	0	25	25	5,286	63	62	3,562	24	24	7,015	69	68	7,560
Total/ Average	4	2	66,406	66	31	5,656	120	56	3,330	62	29	9,385	143	66	11,316

Source: The Study Team, Household Survey (2007)

There is no housing for animals and birds other than the small traditional shed or kraal. As a result, most of their manure is missed somewhere, and the case of applying manure to crop fields for enhancing soil fertility is rare.

(viii) Fishery

The households that engage in fishery are seven in Egipto Praia and four in Colango. One of the most outstanding characteristics of fishery households is their high level of net income. The annual sales of fishery per household for the average of 11 households is Kz204,186 and the average net income after subtracting cash cost such as feed is Kz171,341.

As the fact that salted dried fish is widely consumed even in mountainous rural areas with difficult transportation, the fish eating habits of the traditional culture in the target area seems to support a high income for fishery engaging households. It is not easy for areas other than coastal parts to enter fishery sector. Thus a virtually monopoly situation can easily continue to allow them to keep their high income level.

(ix) Trading

The highest source of income for people in the target area is selling charcoal. There are 113 households, which account for 54% of all interviewees, that get income from charcoal sales, including both selling charcoal produced on their own and charcoal purchased from somebody. The average annual net income from charcoal is Kz82,154 per household. The total income from charcoal accounts for 82% of all income emanating from the trading sector.

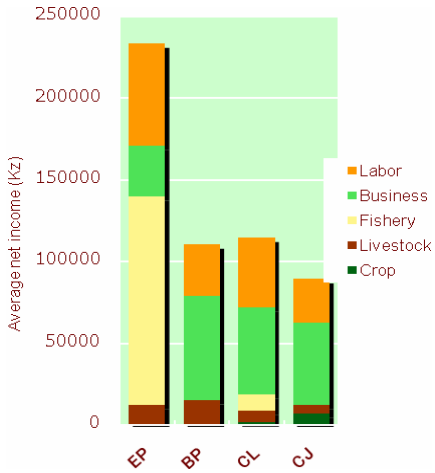
Although charcoal is used in the target area, it is consumed in a larger amount in urban areas such as Lobito and Benguela. Gas is also available in urban areas but poor people use charcoal because instruments for gas are expensive and they cannot afford to purchase them. In order to sell charcoal to trucks heading for the urban areas, there are typically many sacks of charcoal along the main road in the target area.

Trading items other than charcoal include fish, palm oil and vegetables. Fish sellers accounted

for six households, getting Kz78,217 net income per annum, followed by 13 palm oil sellers and 15 vegetable sellers, which have Kz20,551 and Kz18,653 annual net income, respectively.

(x) Hired Labor

The income source following trading is hired labor. 37 households are getting income working as farm laborers in large farms, *fazenda*, and 66 households are getting income through other types of hired labor from small-scale wage labor to public servants. The average income of the former is Kz39,572 and of the latter is Kz97,024. The figure of the latter is heavily influenced by the relatively high-income of public servants such as teachers.



Source: The Study Team, *Household Survey* (2007)

Figure 3-11 Average Income and its Source

(xi) Income and Poverty

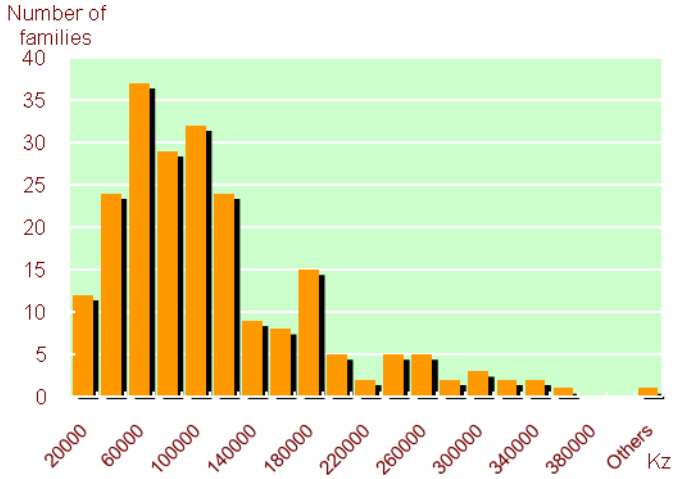
Net income from agriculture, livestock production, fisheries, trading and hired labor is illustrated in the above figure.

Egipto Praia shows the highest net income. This is because the high income from the fishery sector pushed up the entire income level. Excluding the high income from fishery, the following common characteristics can be described.

1. Mainly, charcoal selling and hired labor account for a large portion of the net cash income.
2. Agriculture and livestock production are not big cash income sources in any of the *Comuna*s.

As already discussed, they are not producing enough agricultural products for their own consumption and only a limited number of households produce a surplus to be marketed. The figures in Egipto Praia are negative because they spend cash for self consuming farm products. Among four *Comuna*, Canjala shows a relatively large cash income from agriculture. It is suggested that it rains much in Canjala and therefore the agricultural potential is the higher.

The income from livestock production accounts for 7% of all net income, which is double that of the net income from agriculture. But when compared with trading and hired labor, it is not so big. The average entire income is supported by trading and hired labor. The income of those sectors is 49% and 32%, respectively.



Source: The Study Team, *Household Survey* (2007)

Figure 3-12 Number of Families by Annual Income

The overall average annual net income per household is Kz107,026, or US$1,427.

Income distribution is shown in Figure 3-12. The majority is located between Kz40,000 and Kz120,000. The average income of Kz107,026 is pushed up by high income persons in the right hand side of the graph. The median annual income is Kz88, 319, which is regarded as the average of the majority located between Kz40,000 and Kz120,000.

Dividing the average annual household net income by 5.3, the average household member, net income per capita is Kz20,193 or US$269. This is US$0.74 per day. The World Bank (2006) *Angola, Country Memorandum* says that 25 % of population exists in extreme poverty with the living standard of US$0.75 per day. The result of the survey coincides to this World Bank's data. It is suggested that the target area can be described as a typical poor area in this country.

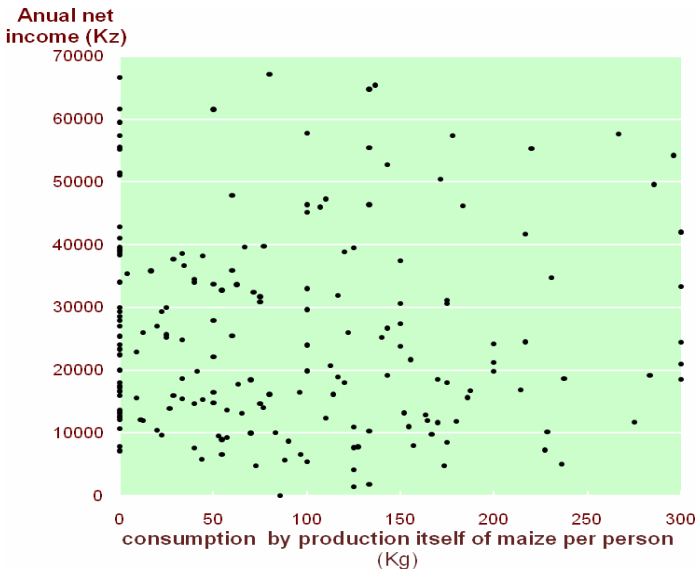
All the interviewed households are plotted in the next graph with X) maize production for self consumption as a sort of environmental index that shows the richness of natural environment and Y) annual net income as economic index. The more right and up area they are plotted in, the more their overall wealth goes up.

Table 3-28 Annual Net Income by *Comuna* and Sector

		Agriculture	Livestock	Fishery	Trading	Hired labor	Total
Egipto Praia	Annual Net Income (Kz)	-283	12,094	127,706	30,933	62,676	233,126
	%	-0.1	5.2	54.8	13.3	26.9	100
Biopio	Annual Net Income (Kz)	2	15,033	0	63,605	31,675	110,314
	%	0.0	13.6	0.0	57.7	28.7	100
Colango	Annual Net Income (Kz)	1,756	7,018	9,676	53,340	42,760	114,550
	%	1.5	6.1	8.4	46.6	37.3	100
Canjala	Annual Net Income (Kz)	6,788	5,197	0	50,279	26,887	89,151
	%	7.6	5.8	0.0	56.4	30.2	100
Average	Annual Net Income (Kz)	3,780	7,491	8,726	52,401	34,628	107,026
	%	3.5	7.0	8.2	49.0	32.4	100

Source: The Study Team, *Household Survey* (2007)

Suppose that US$1 per day represents the extreme poverty line, a person who has no maize production for self consumption needs US$ 1 per day, Kz27, 300 a year. The more right a dot goes, the more self consuming maize they get and cash income can be lower to survive. As the result, the yellow colored part shows extreme poverty. There seems to be almost the same number of dots as green colored part above. Dots seem to be scattered. It implies that natural and economic conditions are diverse household by household.



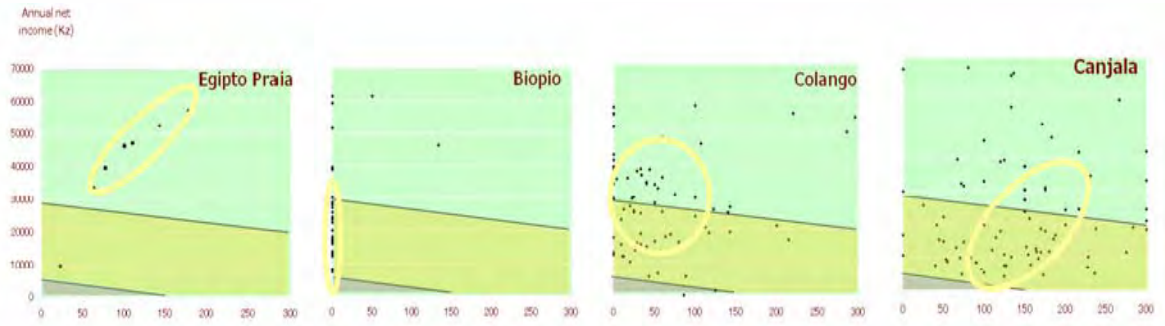
Source: The Study Team, *Household Survey* (2007)

Figure 3-13 Annual Consumption of Maize per Person

The same type of figures for each *Comuna* show different characteristics. Areas in the figure where households are plotted densely are circled by yellow oval.

In Egipto Praia, the income is very high and the maize production level is medium, resulting in many households being plotted in center-high area in the figure. Biopio has a poor natural environment and is surviving on trading and hire labor. Dots are gathered in left and low area. There are more dots in the extreme poverty area than in the green area. In contrast, in Canjala,

many households are plotted on the right half, showing they are living in a relatively rich natural environment. The income level, however, is low and many dots are located in extreme poverty. Colango is in between Biopio and Canjala.



Source: The Study Team, *Household Survey* (2007)

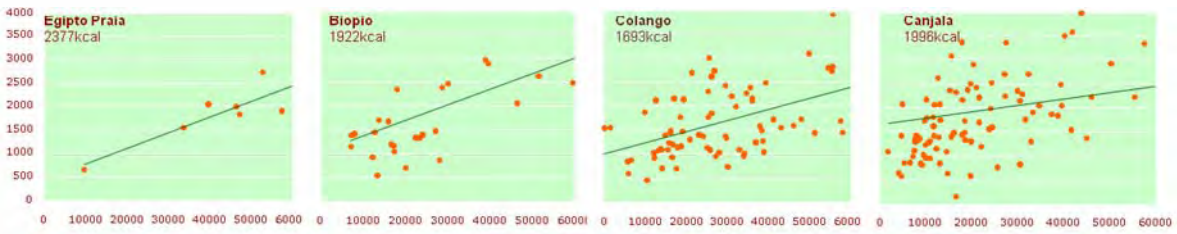
Figure 3-14 Annual Consumption of Maize by each *Comuna*

(xii) Nutrition

The staple in the target area is *funsi* of maize but many households are also purchasing rice, bread and spaghetti. Primary protein sources are cereal foods, beans and fish. Sugar and oil are also substantial calorie sources. The average calorie intake from those items is calculated as 1,895 kcal per day per person.

For example, the Food and Agriculture Organization of the United Nations (FAO) indicates that over 2,300 kcal is "satisfied," from 2,000 to 2,300 kcal is "short" and less than 2,000 kcal is "very short." Thus it is obvious that people in the target area are very short in calorie intake. Though farmers supplement calories by eating sugarcane in the fields, calorie intake is still short, especially when factoring in working hard physically under strong solar radiation in the hot weather. As discussed before, the problem of "hunger," which was indicated as the most serious problem in workshops conducted in 2005, has not been improved yet.

Calorie intake per person varies a great deal. For example, 30 households showed that they were living on less than 1,000 kcal per day per person. In this survey, only self produced and purchased amounts of food are clarified, donated amounts by relatives or neighbors are not included. It is impossible for humans to live on less than 1,000 kcal per day. Naturally, they are being fed by relatives or neighbors who can afford to donate some part of their food. There are persons who theoretically intake more than 3,000 kcal per day.



Source: The Study Team, *Household Survey* (2007)

Figure 3-15 Calorie Intake by each *Comuna*

There are differences among *Comuna*s in terms of calorie intake. The next figure is the

relationship between annual net income and calorie intake per person. These graphs imply that in Egipto Praia people are able to intake a high level of calories due to the high income generated from fishery activities, and they can purchase food. On the other hand, it is difficult for people in Biopio to produce food due to the low rainfall. Selling charcoal gives them income, but the level is not as high as fishery income in Egipto Praia. On balance, the average calorie intake in Biopio per day remains at 1,922 kcal.

In Canjala, in contrast, the average annual income is around Kz10,000 but the average calorie intake is nearly 2000 kcal. A relatively rich natural environment with high precipitation allows them to produce daily food. Colango seems to be between Biopio and Canjala. The reasons for their low level of caloric intake should be investigated.

The calorie sources include 94 kg of self-produced maize, 37 kg of purchased maize, 22 kg of rice, 8 kg of spaghetti, and so on. It should be highlighted that rice, which is not produced in the target area, is a substantial calorie source.

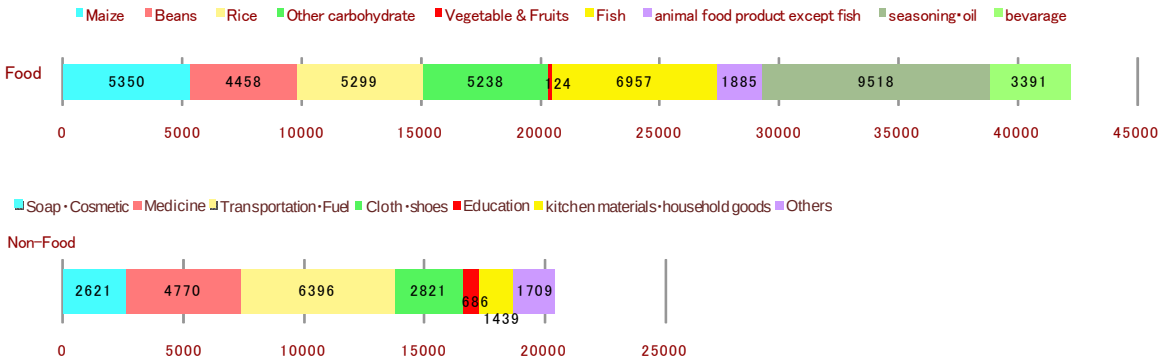
Protein is also an important source of calories. People in the target area get protein from cereals, beans and fish, which totaled 41.2g per day per person on average. The requirements of protein intake vary depending on recommendations by governments and international agencies such as WHO and FAO. The highest requirement is 100g per day and the lowest is less than 40 g. The level of protein intake in the target area is clearing this minimum level, but it is not necessarily very high.

The largest protein source out of the 41.2g is 26.5g from cereals, followed by 8.7g from beans. Fish accounts for 6.0 g, accounting for 15 % of all protein consumed. It is rare that animal-derived protein sources account for 15 % of all protein intake in such poor areas. The meat is not consumed daily, normally only during Christmas time.

(xiii) Household Expenses for Daily Consumption

The average household annual expense is Kz62,663. This includes daily consumption items and does not cover irregular big expense such as house construction or bicycles nor cash used for economic activities such as capital for trading and agricultural inputs.

Food expenditures cost Kz42,221, accounting for 67% of the total Kz62,663. Of the food expenses, carbohydrates such as maize and rice are Kz15,977. This is just the purchased amount and not the physically consumed amount because the latter is more; self-produced food being added to the total (see Nutrition section).



Source: The Study Team, *Household Survey* (2007)

Figure 3-16 Household Expense for Daily Consumption

Typically, Kz11,415 is spent for beans and fish, which are the two big protein sources other than cereals. The total produced amount of beans in the target area is just 10 % of the total consumed amount. If they can produce more beans, they could easily market them within the area accordingly. In contrast, they do not purchase vegetables very much. Thus if they can produce vegetables as a cash crop, they should market them outside of the target area.

(xiv) Market size of the target area

It is possible to estimate the size of the current market using the consumption data of the 216 households. According to the statistics, there are 15,500 households in the target area. If all the households spent the same amount of money on daily consumption, Kz971.77 million would be the total market size in the target area.

Similarly, the following can be estimated as the market size in the target area: [Maize] Kz82.97 million at 1,923 ton; [Beans] Kz69.14 million at 864 ton; [Rice] Kz82.18 million at 1,369 ton; and [Vegetable] Kz1.26 million. In addition meat is 17.83 million, milk is Kz 8.99, fish is Kz94.11 million, palm oil is Kz32.4 million and soap is Kz39.7 million.

Table 3-29 Estimated Size of Market in Target Area

Maize	Kz	82,970,000
	ton	1,923
Beans	Kz	69,140,000
	ton	864
Rice	Kz	82,180,000
	ton	1,369
Vegetables	Kz	1,260,000
Meat	Kz	17,830,000
Milk	Kz	8,990,000
Fish	Kz	94,410,000
Palm oil	Kz	32,400,000
Soap	Kz	39,700,000

Source: Estimated on the data by The Study Team, *Household Survey* (2007)

At present, some items such as beans are already produced in the target area, and some items such as rice are imported at almost 100%. It is expected that when more of these items are produced in the area, cash will not flow out but remain in the area to be accumulated for further investment.

(xv) Education

Below is the situation that was implemented to test the education reform in the rural zone as

well as for starting a new education system.

The Figure 3-17 shows the relationship between age and students grades in the rural zone of Lobito Municipality. Among the 220 people questioned, they had a total of 331 children at schools, constituting 178 boys and 153 girls. Among them the only 19% of the students, 63 were registered in the appropriate grades corresponding to their age. Among the others 265 students, 81%, were not registered in grades corresponding to their age: for example, 121 students between the ages of 10 and 21 were registered in the grades between pre-school and 3rd grade. This gap between suggested ages and actual the ages of the students for the grade is due to various causes, such as the war, poverty, or the parents' lack of knowledge about the importance of school.

Age/Grade	Inf.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th		Sub total
5	12	13	2												27
6	7	10	5												22
7	5	5	8		1										19
8		11	12	6											29
9	1	5	7	3	4										20
10	1	5	9	7	4	1	1								28
11	1	4	3	4	2										14
12		4	10	11	14	4	1								44
13		3	6	6	4	2	1								22
14		2	2	2	4	5	2								17
15		1	5	3	5	3	1	1							19
16		1	3	2	2	4	2	4	2						20
17			1	2	5	3	3		1						15
18				3	7	6	2		1	1					20
19				2	1		1				1				5
20		1	1			1	2	2			1				8
21 – 24													2		2
Sub total	27	65	74	51	53	29	16	7	4	1	2		2		Total 331

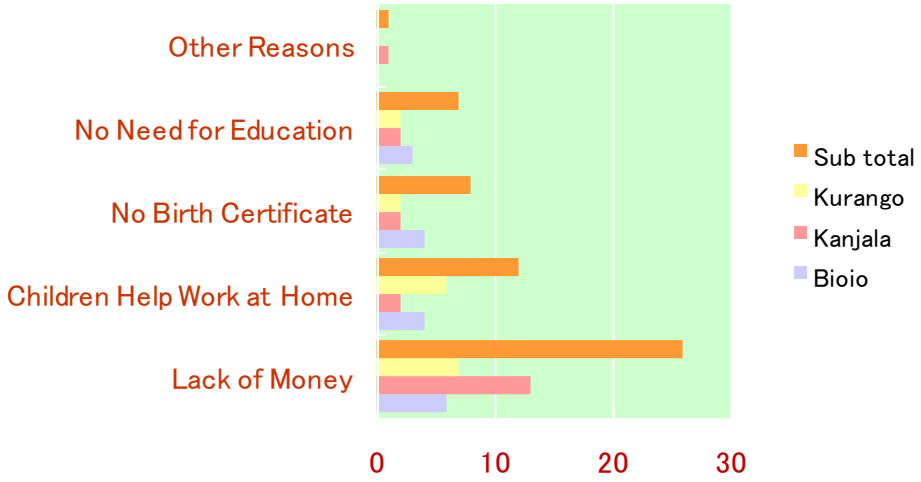
Source: The Study Team

Figure 3-17 Relationship between Grade and Age

(xvi) The Motive for which the Parents Do Not Send Their Children to School

The usable data was obtained from 53 people, and the distribution of reasons for the *Comuna* level except the Egipto Praia *Comuna* can be seen in the Figure 3-18.

The most prominent motive at the general level was financial problems with 50% responding as such, followed by the necessity to help the parents, and a lack of birth certificates and understanding about the necessity of education.



Source: The Study Team

Figure 3-18 Motive of Parents Not to Send Their Children to School

Among the three *Comunas*, Canjala *Comuna* has the strongest motives, as 13 out of 19 interviewees, 70%, corresponded.

The causes of financial problems and the necessity to help for agricultural activities most likely stem from the same origins of the people's financial capacity (or rather incapacity), and in the cases where the parents are conscious of the need for education, a number reaching more that 70%, realized that they could not employ the needed labor for their children to study.

Then it is clear that there is a need to increase the level of family income in order to improve the educational index.

There are two other reasons apart from financial aspect; one is not having a birth certificate and the other is that the parents lack an awareness of the need for education. These motives reached 30% among the total. It is possible to reduce this number by helping them understand the importance of education.

(xvii) Health

Service System

There are five health posts in four *Comuna*s in the target area. That is, a post in each *Comuna* except Culango *Comuna*. The number of nurses in the target area is extremely small. The total number of nurses is 21, which is 0.26 per 1,000 populations. In the whole of Benguela Province, the number of nurse per 1000 population is 1.38, which has increased from 0.86 in 2002, by more than 60%.

The male-female ratio of nurses in the target area is 20 to 1. The urban origin-rural origin ratio is 17 to 4. Male and urban origin nurses surpass female and rural origin ones. The most frequently attained educational level is middle school, or the 8th grade. In general, students graduate from an elementary school that has six grades and enter nursing school spending two

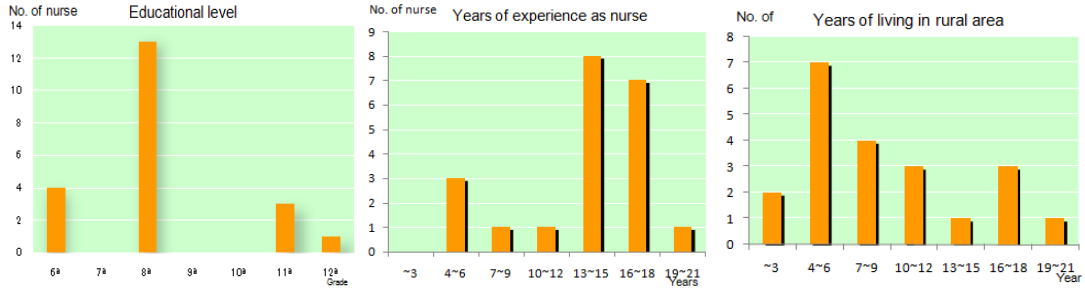
years to get a junior nurse's license[1]. The years of experience as nurse and the years of living in the rural area are 13-18 years and 4-6 years respectively.

As the knowledge level of most nurses in the rural areas is basic, medical practices that they can conduct are limited to basic ones such as administering malaria tests and administering aspirin and antipyretics. They visit communities with community health volunteers, vaccinate for polio[2], instruct on how to clean to prevent malaria, give instructions on how to use mosquito nets delivered by the government and monitor its usage.

Trainings focused on acquiring knowledge of diseases such as cholera is conducted for these nurses once or twice a year. All nurses including promoters, junior and intermediate nurses were majoring in special areas such as emergency medical care, medicine, management, maternal and child health and public health. Many nurses are keen to learn specializations, including clinical examinations.

In the communities, there are health volunteers that are trained in administering vaccinations, traditional midwives and traditional experts of medicinal herbs. Some traditional midwives have participated in training courses offered by international NGOs.

One of the typical problems in medical care is that monitoring and evaluation programs are not functioning well. For instance, although the Ministry of Health has already prepared a well-organized manual on the typical diseases and how to treat them, it does not monitor how it is used in health posts and hospitals. As a result, there are allegedly many wrongly administered prescriptions. It is possible to reduce medical errors through the instruction and better utilization of this manual based on appropriate monitoring.



Source: The Study Team

Figure 3-19 The Background of Nurses in the Rural Areas of Lobito Municipality

Diseases

According to the annual report of the Benguela provincial government, there were 394,206 registered patients in 2006 in the whole Benguela while there were 203,608 in 2004. The breakdown in 2006 was 63.7% cases of malaria (57.4% in 2004), 12.2% of diarrhea (18.0%),

[1] There are three categories of nurses in Angola, promoters, junior nurses and intermediate nurses. A promoter is not an official nurse but a person that has trained from 6 to 12 months in nursing. At present there is no public nursing education in Benguela province but a private school has set up a nursing education section.

[2] The vaccination ratio is more than 80% because community health volunteer system is already established.

15.9% of respiratory diseases (15.0%), 4.3% of typhoid (2.5%), 1% of lung tuberculosis (1.1%), 1% of malnutrition and 0.1% of cholera.

Registered fatalities were 4,834 in 2006 while there were 2,986 in 2004. The breakdown in 2006 was 65.8% attributed to malaria (71.0% in 2004), 5.3% attributed to malnutrition (11.3%), 4.2% attributed to diarrhea (5.2%) and 16.7% attributed to lung tuberculosis (4.8%).

In Lobito Municipality, registered patients in 2006 were 63,629 and its breakdown was 62.4% for malaria (66.8% in 2004), 12.2% for diarrheal diseases (7% in 2004) and 15.9% for respiratory diseases (13.9%). Registered fatalities were 1,824 and its breakdown was 74.4% attributed to malaria (66% in 2004), 7.2% attributed to malnutrition (15.6%), 4.1% attributed to diarrheal diseases (6.6% in 2004), 4.6% attributed to lung tuberculosis, and 1.4% attributed to cholera.

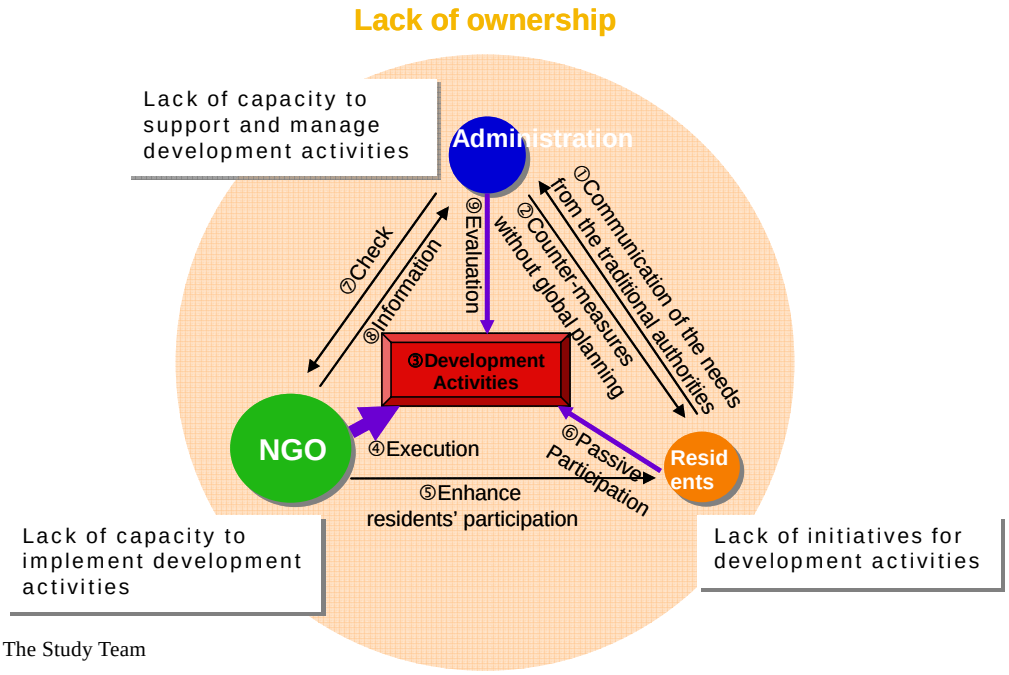
The reason for the patient and fatalities increase from 2004 to 2006 was the increase in visitations due to the continuous setting of health posts.[10] There are the following several characteristics in Benguela Province and Lobito Municipality.

1. The number of diarrheal diseases decreased to a large extent in the whole Province but increased a great deal in Lobito Municipality.
2. The number of fatalities due to malnutrition increased to the large extent in the whole Province but decreased significantly in Lobito Municipality.
3. The number of fatalities due to lung tuberculosis increased to large the extent in the whole Province.

3.5 Existing Approaches to Socioeconomic Reintegration, Community Development and Their Aims

The Figure 3-20 shows the existing system for the socioeconomic reintegration and community development of rural areas.

[10] According to the Benguela provincial office, Ministry of Health, statistical data are collected from all hospitals and health posts. As the number of health posts has increased after the civil war, comparison year by year in several recent years does not have significant meaning.



Source: The Study Team

Figure 3-20 Existing System for the Socioeconomic Reintegration and Community Development of Rural Areas

The following is a list of actions that need to be taken.

1. Communication of the Needs of Communal Development by the Traditional Authorities

   In fact, a system of the inhabitants' participation exists at the level of local administration. This consists of a monthly meeting between the community's traditional authorities and the local administrative authorities.

   Although the traditional community authorities are treated as employees of the government, their influence as the representative of the community is seemingly reduced and has less support by the local inhabitants. Thus, a needs presentation by the community authorities does not always represent what the majority has agreed upon.

   This situation explains that, not all of the needs presented to the communal administration constitute as very high consensus or commonly held opinion for each community.

2. Countermeasures without Comprehensive Planning

   Based on the needs expressed by each traditional authority, the following step is to prepare the development plan from the communal level as elaborated by the administrator, which is presented the provincial government through reports compiled at the municipal level.

3. Development Projects (Activities)

   For the needs of rural development, the government has focused on the areas of education, health and agriculture; this is exemplified in the construction of schools, medical posts and the distribution of seeds and agricultural goods to the inhabitants.

However, the real needs are more diverse, and not only limited to infrastructure but also include personnel training, including some tools with a view to a more balanced development.

4. Implementation

   In development activities, NGOs play a very prevent role in relation to the other actors, such as the various government administrations and the inhabitants, because these have indirect participation. In the inhabitants' case, they participate to a large extent under the condition of incentive, “Food for Work.”

5. Participation Incentives of the Inhabitants

   In the construction of community infrastructure, NGOs act as the executors of development activities, often they need to motivate the inhabitants' to participate in the construction process, this is often done by offering a service known as “Food for Work.” This service is used by NGOs and international organizations.

6. Passive Participation

   In general terms, the reasons for the lack of initiatives on the part of the inhabitants probably have a lot to do with the lack of opportunities for each one of them to develop their initiatives and/or because they were psychologically affected or traumatized during the war.

7. Administration

8. Information

9. Evaluation

   The employees distributed throughout the project, and having different duties and responsibilities, make their progress reports for the project and present them to their hierarchical superiors. In a project dealing with alimentary security, or the distribution of seeds, there is direct intervention from the government through the IDA (Institute of Agricultural Development). The IDA interacts with the NGOs through report forms, the extension workers from the IDA and monthly meetings. When the IDA treats the rehabilitation of communal infrastructure by donors, the administration is informed of the project through the employees of the communal administration that deal with these areas.

A general approach to the reconstruction to the development of the rural areas is shown below. The government of the Provinces and other departments recognize that their challenges consist of surpassing the current situation so that the inhabitants turn into prominent active agents with their own initiatives. They are also challenged to improve the planning, monitoring, and evaluation capacity of the administrative employees and the local NGOs.

Generally speaking all of the actors are inhabitants. The staff of the administration, and the members of NGOs, they should be aware, that this is the basis from which to begin

development activities and allying initiatives.

In the inhabitants' case, because they are the direct beneficiaries of the development projects, they should be primarily aware that they are able to move forward with their own ideas and generate their own initiatives for the development projects.

The administrations have opportunities to participate in indirect projects, given that the organizations and international NGOs implemented them directly.

It is right that the government's role is basically administrative. However during the transition period is very important to have the opportunity to plan, implement, monitor and evaluate the projects directly. This is especially important at the level of community administrations, from the presumption that this experience will strengthen property consciousness in relation to the projects, and from this form open up possibilities to create high quality development planners.

During the emergency aid period, the majority of NGOs played the role of food distributors. Later, they converted into development interveners, driving the construction or rehabilitation of communal infrastructures, where most of the inhabitants participated by means of the Food for the Work service, funded by WFP.

The fact that the NGOs quickly turned into true development actors was really important, but unfortunately they didn’t have the opportunity to practice their new challenges.

3.6 Challenges and Potentials

The following are the summarized challenges and potentials by sector on the basis of comparing the study results by the Study Team and the policies and strategies as shown by the central and provincial government.

3.6.1 Agriculture

Challenges

- Basic food production for food security.
- The need to increasing land productivity.
- Farmland expansion.
- The need to establish a functioning marketing system.
- Farmland should be enhanced to get more harvest from the same land.
- The original soil fertility in many farmlands is low.
- Farmers do not return organic materials such as crop residues to soil.
- Most farmers do not use any organic and inorganic fertilizers.
- Irrigation facility construction and farmland reclamation are necessary to achieve farmland expansion.

- There is a lot of underutilized cropland that could be used if irrigation becomes available.
- It is necessary to create a system for the dissemination of technology for core farmers that adopts progressive technologies in the early stages.

Potentials

- Many communities have lands suitable for farming.
- There are multiple rivers that have abundant amounts of water.
- Many irrigation canals that were used in the colonial days have collapsed during the civil war, and rehabilitation is necessary.
- There are colonial era infrastructure and technologies that can be regenerated.

3.6.2 Education

Challenges

The central government places educational reform promotion as its largest challenge. This is divided into formal education and non-formal education. The former includes from 4-2-2 grade system to 6-3 system in elementary and secondary education and increasing the capacity of teachers for handling increased number of pupils in a class. The latter refers to improving the adult literacy ratio. The following is the list of challenges:

- Formal education: hiring teachers and the provision of educational infrastructure such as school buildings
- Non-formal education: improving the literacy of adults, especially women
- Insufficient numbers of teachers
- Poor educational infrastructure such as school buildings
- Long commutes to schools in far communities
- Parents' low appreciation of the significance of an education
- It is necessary for children to help their parents in farming.

It is a big challenge to make education and literacy classes sustainable and to establish an approach in which ownership by both the administrators and the benefactors is enhanced.

Potentials

- NGOs that rehabilitate school buildings with the participation of community people
- School building provisions are a significant factor for improving the school enrollment ratio
- The results of the survey by the Study Team indicated a strong community demand for school construction.

- In the highly motivated communities, people are very interested in Parents and Teachers Association activities. These people who are eager may be able to persuade the less motivated parents to let their children go to school.
- For adult literacy, many people are eager to participate in literacy classes.
- Some community people have already finished training to become literacy teachers.

3.6.3 Health

Challenges

- Facilities, staff, and medical supplies are insufficient.
- Disease prevention, namely preventing the three big diseases, malaria, diarrheal diseases and respiratory diseases, as well as cholera and HIV/AIDS is very important.
- The question of how to supplement the health services with the self-reliant efforts of the community people is the largest challenge.

Potentials

- Human resources, nurses in particular, are qualified.
- Temperature control of oil refrigerators for keeping vaccines as well as registration of patients is being done almost perfectly.
- Some vaccinations such as polio are covering most communities.
- Traditional midwives and literacy class teachers are being trained in courses on public health, and are working as volunteers in administering vaccinations.

The Study Team feels that, if a system in which the people work more effectively is established, community health could be promoted further.

Chapter 4

The Conceptual Framework for Socioeconomic Development

This chapter is devoted to explaining the conceptual framework for socioeconomic development, which serves as the provisional master plan for the reconstruction and development. This chapter also explains the process for selecting the pilot projects which were implemented to determine the effectiveness of this plan, and the background of each project.

4.1 Framework for Development of Rural Area of Lobito Municipality

4.1.1 Concept of Framework for Socioeconomic Development

Table 4-1 shows concept of framework for socioeconomic development. The policies and measures are based on **a framework for socioeconomic development that supports the government's development policy while also resolving local development issues.** The development issues pertaining to the target region can be roughly divided into four categories: ensuring a stable supply of food, alleviating heavy labor, providing educational opportunities and improving livelihoods. Most of these issues are attributed to poverty. The aim of the master plan is to contribute to the realization of an improvement in the standard of living for the people, which is included in the municipality's vision. It also aims to contribute to the achievement of the "Long Term Development Strategy of Angola 2025." Given that the target region in the reconstruction and development plan was the rural regions of the municipality of Lobito, **reducing poverty in rural regions** was made the development goal of the plan. Accordingly, four basic goals were set to achieve the overall goal: (1) ensuring a stable food supply, (2) alleviating heavy labor, (3) providing educational opportunities and (4) improving livelihoods. These four basic goals, measures and expected results are shown in Table 4-1.

From the perspective of the assistance provider, the four basic goals shown in Table 4-1 can be viewed as demonstrating post-war stepwise approaches in stages of (1) emergency (2) reconstruction and (3) development. But socio-economic conditions differ even within the same region, and there are major differences among villages. This makes it risky to adopt a single approach without ascertaining conditions in the target region. There could be the case in which both goal No. 1 and goal No. 3 need to be implemented at the same time, and under other conditions the stages should be followed in the order 1→2→3. It is essential to address issues appropriately in a manner suitable to the village's socio-economic conditions.

Table 4-1 Provisional Basic Policies and Measures

#	Policy	Measure	Expected result
1	Stable supply of food	Increase production of basic crops, establish agricultural infrastructure	Physical requirements are met. Mental room to think about family life in the future is created.
2	Labor hours reduction	Reduce agricultural labor and domestic labor	Time to think about family life in the future is created.
3	Creation of education opportunities	Improve adult literacy rates and school attendance rates for school-age children	Methods for developing thoughts on family life in the future are provided.
4	Income generation	Multiply farm enterprises and support for the multiplication	Cash income increases.

Source: The Study Team

Four indicators for each goal have been set hypothetically. These indicators, which are confirmed through this Study as being obtainable, are listed below. They are also included in the government's 25-year long-term development plan.

1. Increase of the basic food supply on a calorie basis
2. Reduction of labor time, particularly the time women spend on domestic labor
3. Improvement of literacy rates
4. Increase incomes

A system that will ensure self-sustaining development of the results of the projects implemented according to the measures in the Table 4-1 is indispensable. This system is the implementation process and framework for the project, and indeed the issue assigned to each development actor. These issues can be summarized as follows.

Issues for the community people that are the direct targets of the development projects

Issues for community people are as follows. This shows four steps towards a sustainable development process of the projects at the same time.

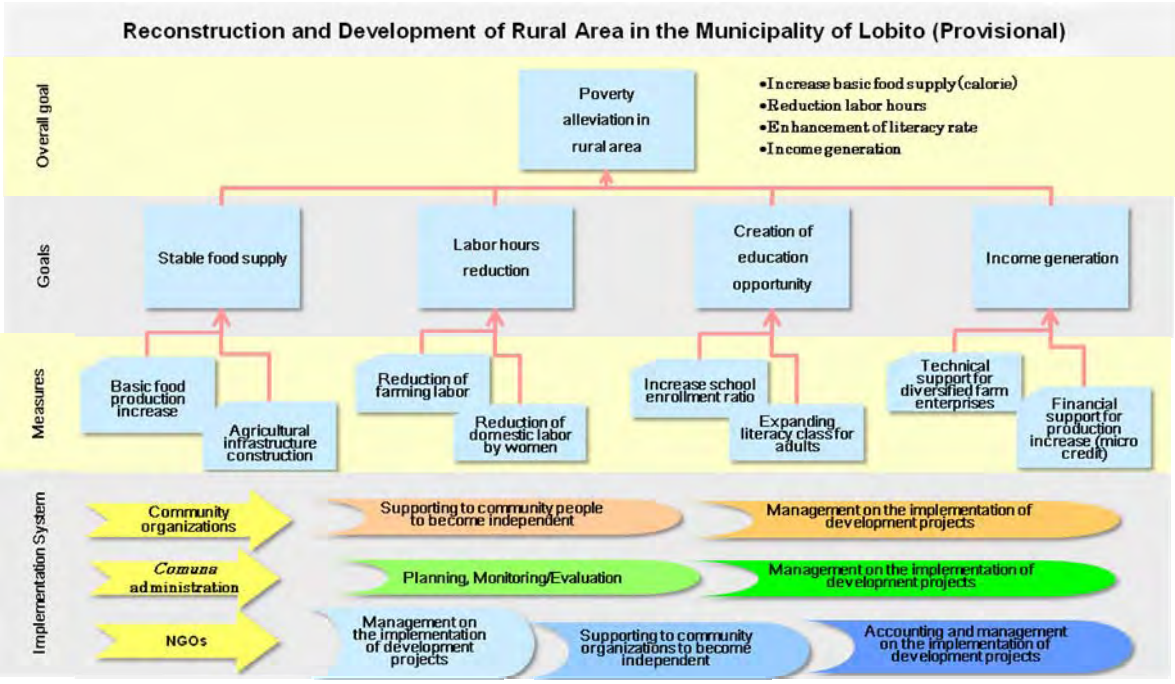
1. Enhancing a sense of ownership in development projects (Awareness-raising of ownership)
2. Realizing the beneficial effects of organized activities that are generated in association with enhanced ownership (Organizing)
3. Increasing organizational capacity through experience and learning from implementing development projects (Developing institutional capacity)
4. Promoting affiliations among local organizations to maintain and develop organizations' capacities (Building networks)

The development projects are implemented upon determining which step/stage the target organization has reached. However, the steps/stages do not necessarily have to be reached in the above order as the four steps are linked closely. For example, a top-down approach for

awareness-raising of ownership in the process of building a network would not necessarily be a mistake.

Issues for administration and NGOs

Both local government administration staff and NGOs must address the issues of enhancing a sense of ownership in development projects and the skills that will motivate community people. In addition, municipal government staff must improve thier capacity in managing development projects, while NGOs work to improve skills in implementing development projects.



Source: The Study Team

Figure 4-1 Provisional Master Plan for Reconstruction and Development of Rural Area of Lobito Municipality

4.1.2 Model for Implementation System

This Study focuses on building an implementation system for the project. In this respect, the pilot projects are intended not only to verify the project's feasibility, but to identify a system capable of sustainability. We will now take a closer look at the implementation system laid out in the provisional master plan.

The municipality of Baia Farta's Dombe Grande *Comuna*, which is not the target region of the provisional master plan but where the pilot project was carried out, has a very active citizens' group organized with a view to the *Comuna*'s overall development[1]. Similar groups have also

[1] The *Comuna* of Dombe Grande has a group called "nucleo." This group was formed as a local development organization centered on residents of this agricultural community by ADRA Angola, a local NGO in Angola (for details, please refer to the project formation study report). Organizing farmers was banned until the mid 1990s as it was seen as a front for UNITA (an anti-government force). However, subsequently such organizations were allowed as long as they did not come under the influence of UNITA. The organization of

been formed in the four *Comunas* in Benguela Province, and an Angolan NGO involved in organizing provides forums for their interaction at the provincial and national level.

If these citizens' groups are developed into full-fledged local development organizations, they could make a significant contribution to enhancing the local people's sense of ownership in social reconstruction and development as well as in revitalizing group activities by community people. Supporting the formation of such community development groups is extremely important during the transition period in which emergency assistance shifts to reconstruction and development assistance.[2]

This requires an approach in which local government administration staff support self-initiated and organized activities by community people. This is shown in Figure 4-2: Model of Development-Oriented Support for Community People, which is the model for the reconstruction and development implementation system.

If comparing this figure to Figure 3-20, Existing System for the Socioeconomic Reintegration and Community Development of the Rural Areas, we see that the biggest difference is the shift from the government's top-down assistance to facilitator assistance. With facilitator assistance, not only are traditional village leaders approached, as previously, but community organizations are also targeted as much as possible. In the future, as part of the process, as Angola shifts from a reconstruction to development phase, it is expected that the local government will have to form a consensus with multiple villages to respond to the increasing diversity of projects. The government would support motivating community people through the formation of a common vision, while NGOs and community organizations could support the establishment of activity plans based on the motivation of community people and the implementation of plans.

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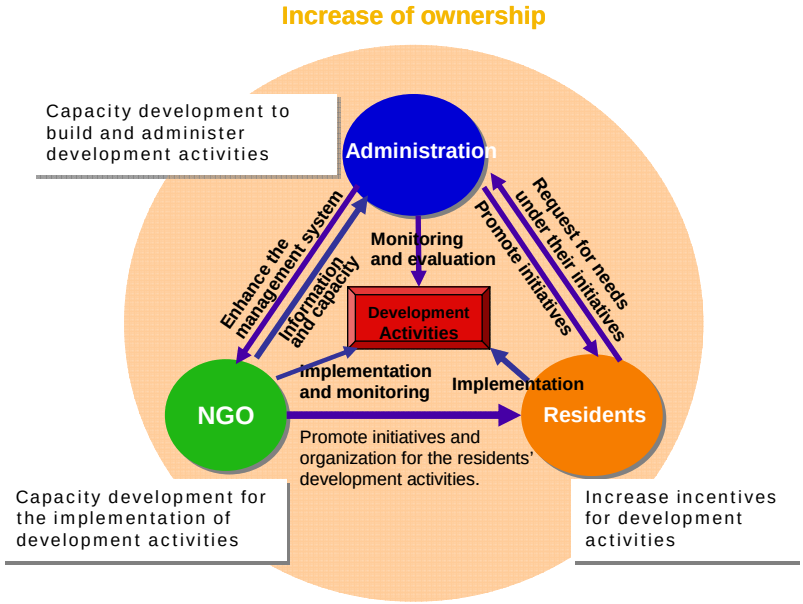
farmers spearheaded by the government was based on the same concept as ADRA Angola in the sense that it aimed to ensure the independence of farmers. However, in reality such efforts were aimed at finding beneficiaries for assistance, and simply repeated the organizational methods based on a top-down approach that had been used in previous assistance efforts.

[2] The government is also beginning to see independent activities on the part of residents of agricultural communities as important. It is making strides in organizing farmers, but as described above, the government uses a haphazard, top-down approach as it has absolutely no experience in assistance to encourage self-initiated activities among residents. Specifically, only organized farmer groups have the right to receive loans from the project providing loans to farmers which started in February 2007. Using these loans as a tool, farmers have been increasingly organized, but only practical training has been carried out, such as training in obtaining corporate status for volunteer groups of farmers wanting to organize and training in loan repayment plans.



Source: The Study Team

Figure 4-2 Model of Development-Oriented Support for Residents

Further, it is also important to shift away from evaluations based solely on confirming a project's results to incorporating a management system using monitoring and evaluation, so that the lessons learned from these assistance activities can serve as feedback for the next project.

The local government administration staff providing the assistance must be able to facilitate participatory workshops with community people and must possess project management skills such as the ability to draft project plans and monitor and evaluate projects. Moreover, project management with these methods and feedback must be institutionalized.

We will take this opportunity to explain the support given to the community for the purpose of development, focusing first on the relationship between community people and the administration office. Previously, the community people's needs were brought to the attention of government administrators via the village's traditional leader. Under the new method, an administrative staff member visits the village him/herself and meets with community people to ask them about their requests. Of course the village leader also participates, but this method is vastly different in that it provides a forum in which the *Comuna* administration staff and community people can speak with each other directly. Moreover, the *Comuna* administration staff does not prepare a list of all the demands as has been practiced up until now, but rather appropriate assessment criteria are set with priorities ranked, and a list of demands with these rankings are then given to the supervising institution.[3]

[3] Technically, projects can be decided at the discretion of the provincial governor, but administrators have not prepared reports that rank needs according to priority, and as a result it must sometimes be left up to the discretion of the supervising institution. The director of the planning office of the provincial government recognizes that the administrators' skills in drafting plans are insufficient.

The motivating factor for the community people participating in projects will change significantly from the previous method of supplying food in a food-for-work approach to a method that shows community people their future potential. If community people believe that their future will improve, they will be motivated even without obtaining immediate rewards for their efforts. Showing them this future potential is the role of the *Comuna* administration staff and the NGOs implementing the project. For example, in the case of an irrigation rehabilitation project implemented in this Study, before the irrigation system was restored, the *Comuna* administration explained to the various villages involved the extent to which the cultivated acreage would increase, the extent to which they could expect production capacity to increase as the result, and the ways in which this increase in production volume could potentially improve households' lives. The NGO[4] in charge of the project also carried out activities on a continuous basis to show the beneficiaries in greater detail and specificity how their lives could improve. Moreover, beneficiaries' motivation was maintained while the project went forward by giving them examples of previous successes.

4.2 Pilot Projects

4.2.1 Objective of Pilot Projects

The pilot project verifies the feasibility of measures that would achieve the development concept laid out in the provisional master plan. In addition to its potential as a project, effective implementation processes and an implementation system must also be identified to ensure the project's sustainability. Further, it should not be forgotten that the pilot projects address the residents' needs. The pilot project plays a role in supporting actual reconstruction in Angola's rural areas. Thus the role of the project is equal to or more important than the study's objectives. This point must be kept in mind when implementing pilot projects.

4.2.2 Framework for Pilot Projects

The objective of pilot projects is to verify the feasibility of the development project as well as the models for the implementation system.

The pilot project was selected based on the needs of community people, but the Study Team devised many means for verifying feasibility in each pilot project. The frames of reference below were set for the selection criteria of pilot projects.

1. By contributing to the four basic goals from staple food supply to income generation; can the project enhance community people's living standards and build up the capacity for development?
2. Can the project verify that the project's effects spread between people and villages, through the four steps from awareness-raising on ownership to organizational network

[4] In Angola, local public employees tend to be assigned until now, while in Japan many of the activities previously conducted by local public employees are now taken on by NGOs. Even if devolution proceeds, major changes in this structure are unlikely.

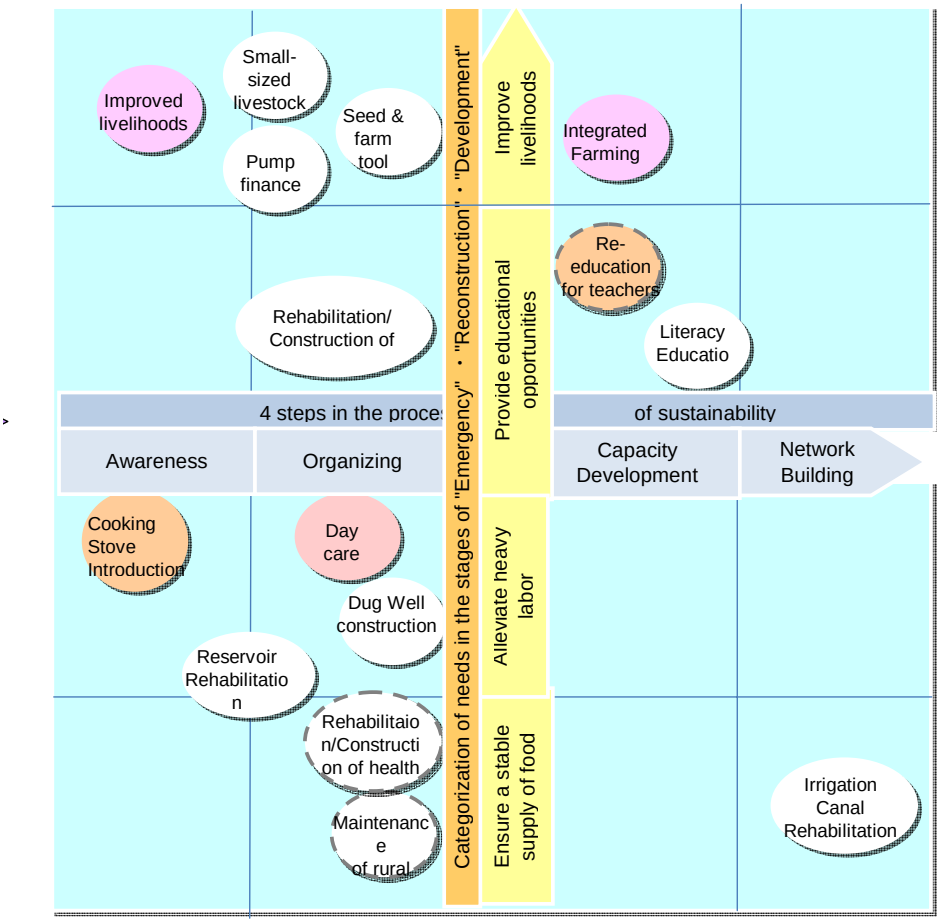
building?

Project Selection

The various projects selected as candidates are placed on the matrix in accordance with Figure 4-3 “Framework for Pilot Project”. The horizontal axis indicates “four steps in the process of sustainability” and the vertical axis shows “the four basic goals based on rural development needs.” When actually making the selection, we endeavored to make it possible to verify the various elements of the framework, while also prioritizing the needs of the community people.

Three projects shown in the circle with the broken lines were not selected, while the others were selected. Of these selected projects, the flame-colored circles for “improved furnaces” and others indicate proposals made by the Study Team itself, while the light orange-colored circles indicate projects consistent with the Study Team’s proposal and community people’s requests. The white-colored circles indicate projects requested by the residents.

Details of the pilot projects are described in the section on pilot projects, but here is the summary of the four types of projects as examples of combinations of the aforementioned framework. (See Figure 4-3)



Source: The Study Team

Figure 4-3 Framework for Pilot Project

Table 4-2 Outcomes Required of Projects

	Pilot project	Output	Target	Outcome
1	Improved furnaces	The introduction of furnaces reduces time spent gathering firewood (**reduction of manual labor time**), and also encourages the adoption of furnaces by other households to use the region's wood resources more efficiently (**consciousness-raising**).	Individual households →Individual households	As furnaces are for individual households, they disseminate from individual to individual. With NGOs', community development organizations' and administration support, improved furnaces spread even into wider areas in the *Comuna* and municipality.
2	Integrated agriculture	Poultry manure from poultry farming is used to grow vegetables. This enables the target group to acquire new skills (**improving skills**) and increase cash revenue (**improving livelihood**).	Individual households→Individual households→Groups	Farming technologies are mastered by individual farmers and the technologies are spread from individual to individual. Later, groups are formed for collective marketing and collective purchase of farming inputs.
3	School restoration	Schools in the villages that were not used due to damage are restored with resident participation (**creating educational opportunities**). At this point, a committee representing parents/guardians is organized (**organization**) so that the school can be maintained and administered after it is restored by the residents.	Village→Multiple villages	A parent committee is set in the village to maintain the school building. But it develops to solve the problems concerning education. Later multiple village committees get together to discuss larger issues.
4	Rehabilitation of irrigation canals	A rehabilitation committee comprising of the villages benefitting from the irrigation canals is formed (**organization**), and the committee takes the leading role in rehabilitating the irrigation canals with the participation of community people (**stable supply of food**).	Multiple villages → Multiple villages	The irrigation canal rehabilitation committee is transformed into the irrigation canal management committee. It can manage more complicated issues such as water allocation and maintenance of the canal.

Source: The Study Team

4.3 Monitoring Method

4.3.1 Project Implementation

The objective of this pilot project is to verify its technological and economical feasibility as a development program.

The progress of project implementation is monitored by the NGO that carries out the project and also by the *Comuna* administrative officials on a daily basis. The NGO submits a monthly progress report to the Study Team. It agreed that should any unforeseen developments occur, they shall be reported separately from the monthly report. The Study Team visits the site every week during its stay to check the progress status on site. Project design matrixes (PDM) [5]are used as monitoring tools. Monitoring includes checking the progress of activities as well as changing processes when necessary. In addition, monitoring has the function of not only verifying the level of progress made in achieving certain outcomes, but it also provides the opportunity to change materials and techniques applied in the project whenever necessary.

In performing the abovementioned monitoring activities, the NGO is responsible for checking the daily progresses and to become familiar with the details of the onsite activities as the project implementer.

The *Comuna* administration is responsible for monitoring the NGO's daily activities.

The steering committee, comprised of representatives from government organizations, including the provincial government and municipal administration, is responsible for visiting the site once every several months to primarily monitor technological quality and economic feasibility.

4.3.2 The Model of the Implementation System

Based on Figure 4-2, the model of the implementation process and system addresses hypothetical measures to achieve the aims of each development actor. These hypothetical measures have been verified during the process of implementing the pilot projects.

Verification Method

In every pilot project implemented during the Study period, relevant development actors have specific functions to perform, as sustainability is the focus. To enable each function, certain aims need to be achieved. To enable the aims, specific measures are necessary. The efficacy of these **measures** must be verified. Projects which target capacity development normally focus on the change of motivation or how people think as being the primary aspects to evaluate; rather than knowledge as a tool, such as the ability to use a computer. Since it is difficult to measure such aspects quantitatively, qualitative evaluation methods have been used.[6] These evaluations have shown only the broadest descriptions without any details. For instance, when

[5] Project cycle management (PCM) training has been provided to the NGO and administrative officials at the start of the project.

[6] Although many attempts have been made to quantify qualitative data, it is almost impossible to ensure universality in the methods for measuring qualitative data in numerical terms.

positive motivational changes in the residents are found, the **measure** used to bring about this change is a broad term like facilitation techniques. Facts the Study Team really wants to know most are 1) the detailed process that brought about the qualitative change and 2) the specific methods used to most effectively and efficiently make that change happen. This report refers to these specific methods as **measures**.

Table 4-3 looks at a pilot project for renovating irrigation facilities and shows different aspects to be verified in accordance with the idea above.

Table 4-3 Pilot Project Areas Requiring Verification
(Renovation of Irrigation Facilities)

Development Actors	Expected Functions	Aims	Measures
Residents (village leaders)	・Recruit people to participate in renovation work from relevant villages. ・Actively get involved and cooperate with the irrigation committee.	・Promote a sense of ownership in the renovation project. ・Ensure continued involvement of residents. ・Participate in irrigation committee activities.	・Help village leaders envision the future of their villages after the irrigation facilities are renovated.[7] ・Administrative officials award them with farming tools as an incentive.[8]
Residents (individuals)	・Actively participate in renovation work. ・Participate in maintenance work. ・Comply with the rules on using irrigation facilities.	・Encourage a sense of ownership in the renovation project. ・Ensure continued involvement of residents. ・Cooperate with irrigation committee activities.	・Hold workshops for village residents, including village leaders, (visioning workshops for individual households) that help residents envision the future of their village after the irrigation facilities are renovated.[9] ・Administrative officials award them with farming tools as an incentive.[10]
Residents (irrigation committee)	・Manage all village committees. ・Coordinate activities of relevant villages (participation in construction work, maintenance, water distribution, etc.) ・Develop a maintenance system.	・Strengthen the involvement of village leaders in the irrigation committee to enhance their problem-solving capabilities. ・Strengthen the authority of the irrigation rehabilitation committee.	・Work with relevant stakeholders on planning ways to maintain open lines of communication with village leaders.[11] ・Help the irrigation committee develop rules on participation in renovation work, maintenance of canals and water distribution.[12] ・Take over NGO's roles described below.

[7] Help village leaders picture the future of their villages after irrigation facilities are renovated.
[8] Make the relevant people aware that they are recognized for their leadership roles.
[9] Help village residents picture the future of their villages after irrigation facilities are renovated.
[10] Make residents aware that they are recognized for their activities.
[11] Devise methods other than visioning, e.g. lending a bicycle to committee members who have no means of transport will significantly enhance their mobility and increase opportunities for them to communicate with village leaders in person.
[12] It is essential to provide opportunities that help residents who have no experience in distributing water develop rules and think about potential problems.

Development Actors	Expected Functions	Aims	Measures
Comuna administrative officials	・Motivate residents and exercise leadership in supporting organized activities. ・Exercise their skills to coordinate residents. ・Report to a supervisory organization on the maintenance of irrigation canals. ・Receive technical advice on water distribution, etc., and give instructions to the committee.	・Shift attitude toward residents from a top-down "supervisor-like" approach to a facilitator-like "support" approach. ・Include evaluation of residents' organized activities in their report to a supervisory organization (advantages and disadvantages to the administration brought by the process of change) ・Gain knowledge on the maintenance of irrigation canals and water distribution.	・Participate in participatory workshops for residents hosted by the Study Team and NGO, and enhance facilitation skills needed to motivate residents. ・Participate in the Study Team's monitoring of residents' organized activities to gain know-how. ・Provide opportunities to see and learn from the examples of other irrigation-related resident organizations.[13]
Project implementer (NGO)	・Motivate residents and support their organized activities in order to ensure that renovation work is conducted smoothly. ・Ensure the smooth progress of renovation work with adequate estimation and construction skills. ・May instruct the irrigation rehabilitation committee during the construction period so that it can serve as an irrigation maintenance committee.	・Recruit people to participate in renovation work through visioning exercises for village leader/residents provided at workshops. ・Facilitate the work of the irrigation committee on developing rules for participation in renovation work, maintenance of irrigation facilities and water distribution. ・Enhance ability to facilitate resident participation. ・Hire good engineers. ・Utilize the experiences of locally available human resources. ・Enhance the ability to provide a clear vision of the future when the renovation work is completed.	・Receive instructions from the Study Team. ・Leverage personal connections with stakeholders. ・Coordinate residents so as to elicit the knowledge and experiences of the residents including seniors.[14] ・Participate in the Study Team's visioning exercise.

* The table above is based on the findings of the study to verify implementation feasibility and includes visions for the future when the construction work is completed.

Source: The Study Team

[13] There is a successful case example in the municipality of Lobito. It is important to explore ways of establishing a framework or a system for disseminating good practices by providing these opportunities since the country does not have such a framework or system.

[14] Provide opportunities in which stakeholders can learn about irrigation and canal-related problem-solving and maintenance methods used when the country was under Portuguese control.

The verification results of these respective measures can indicate to what extent the expected functions of each development actor shown in the table can be achieved during the study period, or will be achieved in the future.

How can we accurately determine to what extent the aims have been achieved and how effective the measures are? The answer is in assessing day-to-day problems, their causes, their countermeasures, and their results. In addition, they need to be categorized so that they can be analyzed by function, aim, and measure related to respective development actors. If they are not appropriately categorized, the verification of how successful the measures are, and the priority levels of the various aims will merely remain at a cursory level. Additionally, the process itself cannot be analyzed; therefore the final assessment will be made on the basis of the results alone. Verification activities involve objectively looking at day-to-day problems and the steps taken to deal with them.

For instance, suppose that the number of people who show up to participate in a renovation work project turns out to be much less than initially expected, and the cause of this problem is simply that the village leader had not motivated enough residents. In this case, the development actor in question is the village leader. The study reveals that the reason why the leader did not take action as expected is due to lack of motivation. In order to solve this problem, workshops are held to help the leader and the residents to envision the improved quality of life they will enjoy once the irrigation canal has been repaired. This action is one of the measures that help community residents and leaders envision the future of the project. Since these resident workshops are held on an ongoing basis during the project period, the effect of such measures can be verified by monitoring how the motivation level of the leaders and residents change. It is possible to verify the expected levels of achievement for each function. This is accomplished by sorting and efficiently organizing day-to-day problems, their causes, their countermeasures and their results. This information arises from workshops and discussions with the residents according to Table 4-3. This process will enable the study team to identify effective measures necessary for enhancing the functions of development actors.

Table 4-4 is a monitoring sheet that will facilitate and efficiently organize the relationship between each function of development actors that need to be verified; and day-to-day problems, causes, countermeasures and results.

Table 4-4 Monitoring Sheet for Verifying Measures

（Example）Irrigation canal rehabilitation pilot project			Problem	Only 20% out of planed number of people participated in rehabilitation work for 3 weeks	Village leaders were not motivated.	…….	Use of the irrigation without permission
			Cause	A commercial farmer in neighbor employed community people temporarily for rehabilitation of his own canal	Lack of allowance ⇨	…….	Lack of publishing the regulations
			Counter measure	Workshop was held at one village to give vision and image of the project goal	Administration officials convinced them	…….	Strengthen the vigilance for the irrigation committee
			Result	The participation rate increased up to 30% after 2 weeks.	Get impact（Participation rate for rehabilitation work increased to 70%）	…….	Gave up in the middle
Items for monitoring							
Target	aims	Measures					
Beneficiaries	Having Ownership	To hold workshop for village leader to give a vision of the project goal		1	1		2
	Keeping collaboration for participation in rehabilitation work	To give incentives					
Rehabilitation committee	Having Ownership	To hold workshops for community people including leaders by each village to give a vision of the project goal					
	Keeping collaboration for participation in rehabilitation work	To give incentives					
	Improving problem-solving capacity.	To have good communication with village leaders		1			2
	Strengthening the authority power of the rehabilitation committee	To elaborate regulations for rehabilitation, maintenance and distribution of irrigation					
Comuna administration	Changing the form of governance from “Top-down” to strengthening community initiatives	To improve capacity of facilitation by participate in workshop for community people held by the study team and NGO		1	1		
	Getting knowledge about maintenance of canal and distribution of irrigation	To give opportunities to meet with experienced and advanced irrigation organizations					2
NGO	Motivate village leaders and people to participate in rehabilitation work by giving a vision of project goal	- The study team gives instruction - To make full use of network of related actors		1			
	Improving capacity of facilitation of motivating people to participate	OJT (On the Job Training) by the study team		1			

Monitoring Procedure

1. Create a monitoring sheet for pilot projects.
2. Starting from the leftmost column of the table; enter the names of the development actors, aims to be achieved by each actor, and measures needed for achieving those aims. There may be more than one measure for each aim.
3. Enter "problem," "cause (light blue box)," "countermeasure (light yellow box)," and "result" on the four lines at the top of the table. As time progresses, additional "problems," "causes," "countermeasures," and "results" will be added on the right (in the direction indicated by the arrow).
4. Among these four areas, use the descriptions of "causes" and "countermeasures" as areas to be verified.
5. First, identify which development actor's "aim" is relevant to a "cause." Next, identify which "measure" for achieving an "aim" corresponds to the "countermeasure" that has been taken in order to solve a "problem." Then check which combination of relevant "aim" and "measure" is most effective. If the "result" of the "countermeasure" was good, enter "1" in the relevant column (top line of the light blue area) to indicate that the relation of the "aim" and "measure" was good. Enter "2" if the "result" shows no change or deterioration in circumstances due to the insufficient capability of the actor who was responsible for implementing the measure. Enter "3" if the selected measure was not appropriate.
6. In step 5 above, you have identified the aims and measures for the actor who is the main player involved in the "problem" and "cause." In this step, you will identify aims for the actor who took the "countermeasure." Identify which aim the "countermeasure" was taken for. Enter "1" in the relevant column (bottom line of the light yellow area) if the aim was achieved to an extent sufficient enough to solve the problem, "2" if the aim was not achieved to a sufficient level, or "3" if the countermeasure taken was not an appropriate choice.

   Although this step may seem similar to step 5, step 5 actually verifies the effectiveness of measures implemented to achieve the aim of an actor who is directly related to the "cause" of a problem while step 6 verifies the significance of the aim related to an actor who takes countermeasures.
7. Add more aims and measures to the monitoring sheet if necessary as the pilot project progresses.[15]
8. At the end of a pilot project, tally the number of "1s," "2s" and "3s" that are relevant to development actors' aims and measures.
9. Make a comprehensive analysis of the tallied results for each pilot project monitoring sheet

[15] It is quite likely that new tasks and measures may arise or that pre-entered tasks and measures may become unnecessary. This verification process is part of hypothesis management.

and sort the aims and measures by development actor into those that are common to pilot projects and those that are specific to each pilot project.[16]

Points to Remember When Using the Monitoring Sheet

1. Members of the Study Team as well as local staff members hired by the Study Team should enter descriptions of “problems/causes” and “countermeasures/results” related to each pilot project.
2. When new aims and measures need to be added to a monitoring sheet, the entire Study Team should work together to arrive at a decision giving full consideration of the opinions of the Study Team members, as well as the opinions of the local staff who conducted the onsite monitoring. The Study Team leader has the final say.

[16] If you take renovation projects for irrigation facilities and schools as an example, you have common tasks of organizing residents while you will probably use different measures (methods) for recruiting residents to participate in the projects. The benefit the residents will receive after the completion of the irrigation project, i.e. they will be freed from hunger as a result of increased production, is expected to be different to the benefit from the school renovation project, i.e. students will have access to education. For this reason, different measures are likely to be adopted.

Chapter 5

Analysis of the Pilot Projects

In this chapter, the results of the pilot projects for verifying hypotheses drawn by the Study Team are explained. The capacity and potentials of the actors involved in the implementation of the pilot projects are also discussed.

The objective of the pilot projects is to verify the provisional plan for reconstruction and development in the rural areas of the Lobito Municipality.

The results of the pilot projects produced meaningful suggestions for building up concrete project plans, and implementation systems applicable to the master plan for reconstruction and development.

It was necessary to clarify the capacity and potentials of actors in the pilot projects to identify possible implementation systems for use in the master plan. The Team adopted participatory methods in the implementation of the pilot projects except several projects in which new technologies were introduced, and the Study Team itself took a strong initiative in their implementation. The incentive used to get the participation of community people was to show future prospects of development potentials. The Study Team therefore tried to avoid providing food, money and materials as much as possible.

In terms of determining the capacity of actors, the team analyzed in detail “Irrigation rehabilitation,” “Day care centers for children,” “School rehabilitation” and “Literacy classes,” in which the participatory approach was emphasized in particular, using the monitoring sheets shown in Chapter 4.3.

5.1 Irrigation Canal Rehabilitation

A. Background

Canjala is a *Comuna* in the municipality of Lobito. The rich fertile land here in this former colony provided Portuguese settlers with an ideal location to establish plantations. The lifeblood of these plantations was supplied by irrigation canals stemming from the flowing waters of the Balombo River that runs across the sloping terrains of the target area. During the early colonial era, plantations grew oil palms and gradually branched off into a variety of agricultural products, making Canjala the most flourishing rural areas in all of Lobito. The *Comuna* was renowned for being one of Angola’s top suppliers of kidney bean seeds.

Independence from Portugal in 1975 followed by a mounting civil war triggered a mass exodus of plantation owners from the country. The control over the largest irrigation canal (Cuvelo canal with a total length of 25 km) in the *Comuna* fell under the jurisdiction of the government and the canal became a source of agricultural water for local residents of the area.

Unlike other canals in Canjala, the Cuvelo canal, which runs along the foot of a mountain, is susceptible to sedimentation due to soil run-off from the mountain above and requires regular maintenance. By 1992, the surrounding area had become engulfed by the civil war, making it difficult to maintain the canal. By 1999, the water had stopped flowing through most of the canal. Before the project formulation study conducted by the Study Team was launched in

2005, a large part of the canal was damaged with breaks, accumulation of soil up to the canal banks, as well as blockage due to fallen rocks.

Many of Canjala's residents first came here when the country was still under Portuguese rule, finding work on the *Comuna's* large-scale plantations. Some of them remained in Canjala as commercial farm owners after the Portuguese left. With the exception of a few, many commercial farm owners are still financially insecure despite an end to the civil war and are unable to make any investments in agricultural production.

The successful large plantation operations are an important asset to Canjala residents since they provide income opportunities through day labor. Unfortunately, they cannot make a living on day labor alone and supplement their income by growing their own food. Since the canal in and around the villages where they live no longer functions, they cannot provide their crops with a steady supply of water. It is very common for families to leave their village for several days when the planting season arrives, seeking cultivable land with more water-rich soil in a distant piedmont area. Despite all the effort, it is still not enough to secure a minimum level of food necessary to survive. Most of the residents have a fervent desire to increase the yields from the subsistence farming they do in the villages where they live while some more entrepreneurial-minded farmers want to produce cash crops.

During the civil war, the government of Angola needed to expand the farm land in order to feed all people who came to Canjala seeking refuge. Although repairing the Cuvelo canal was considered to be the best solution, the government was unable to allocate enough money to do the rehabilitation work because of the extensive damage to the canal as described earlier. The government gave up on repairing the canal and instead allowed the refugees to live on abandoned plantations as an emergency measure. The government repaired privately owned irrigation canals and granted the refugees the right to cultivate the land. An international organization and NGOs that supported these activities adopted the food for work approach where workers were paid with food.[1] Despite such initiatives, the residents' food intake did not really improve even after the civil war was over, and hunger was endemic to the area. The food for work program also resulted in another serious problem. Since workers were continually rewarded with food, it weakened the residents' independence and increased their dependence on external aid organizations.

The road to restoration and stable development of the area lied in paving the way to increased food production and that meant repairing the Cuvelo canal. The project formulation Study Team proposed that a volunteer resident workforce repair the once functioning canal instead of depending on the food for work program.

B. Objective

The aim of the pilot project is to assist in the improvement of food self-sufficiency and to

[1] The World Food Programme (WFP) implemented the food for work program under an emergency aid grant. Workers were paid with food as an incentive for participating in building up the community's infrastructure.

network resident organizations (see 4.2.2 Framework for Pilot Projects). The project also intends to demonstrate an approach for voluntary resident participation in the rehabilitation and maintenance of irrigation canals needing rehabilitation for other *Comunas* of the Municipality of Lobito and other areas in Benguela Province based on the project outcomes and lessons learned during the project's implementation. The details of the project and its expected impact will be explained below.

Improving Food Self-Sufficiency

Rehabilitation of the canal will realize irrigated agriculture and stabilized the production of maize. It will improve the food self-sufficiency of the residents living along the canal who are deprived of an adequate calorie intake as well as the means to produce enough food to feed themselves[2].

The project is expected to significantly impact the lives of local residents by increasing opportunities for improving their livelihood with the production of cash crops such as kidney beans and vegetables. Access to the canal will also significantly reduce the work hours of those who have no choice but to work in the piedmont areas and in turn lead to improved health and increased educational opportunities for their children.

Networking Resident Organizations

Implementation of the project entails the formation of an irrigation canal rehabilitation committee (hereinafter "rehabilitation committee") comprised of resident representatives. Organizing the rehabilitation committee will enable residents who are the beneficiaries of the project to maintain the canal on their own once it has been repaired and strengthen resident organizations in the relevant villages. The committee is also intended to grow into an organization that will manage water distribution in the future.

The following areas were examined by the end of the pilot project.

・Limitations and potential of capacity of residents in participatory work for irrigation canal rehabilitation.

The effectiveness, efficiency and impact of the participatory work by residents are assessed through the observation of repairing 16.6-km sections of the 25-km long canal (the length used as an irrigation canal measures 17.9 km). The estimation of the cost, materials and equipment used, human resource, and duration of work will also help in examining the limitations and potential of the participatory work by residents.

・Most effective process and organizational system for participatory rehabilitation work, post-rehabilitation maintenance, and water distribution

The most appropriate process and system suitable for the current situation is examined through the following activities. The irrigation canal management committee comprised of

[2] According to a household economy survey conducted among 200 households in the farming areas of the municipality of Lobito, the average annual yield was 118 kg per person, far less than the ideal annual intake of 200 kg per person.

residents from several villages and *Comuna* administrative officials (hereinafter "management committee") has been established, and is designed to function as an organization for future canal management and water distribution.

C. Process

(i) Plan

Preliminary Period

1. Organizational Aspect

- *Comuna* administrative officials and the NGO carrying out the project provide explanations about the project to residents in each village.
- Form irrigation canal repair groups comprised of resident representatives from each village.
- List households and land that benefit from the irrigation of the Cuvelo canal. Confirm residents' intentions to participate in the repair work.
- Determine the shifts for irrigation canal repair groups participating in the repair work and notify the residents of the shift schedule.

2. Technical Aspect

- Survey the canal prior to starting the work, create a detailed platform and become familiar with the contours of the land.
- Confirm the areas in need of repair work and make an estimation of construction costs.

Implementation Period

1. Segmentation

In order to make it easier to manage the rehabilitation work, the area actually used as a canal (17,900 m) was divided into the following four sections according to the distance from a water intake.

Section 1: 4,300 m
Section 2: 6,000 m
Section 3: 6,300 m
Section 4: 1,300 m

2. Rehabilitation with Resident Participation

- Residents engage in manual labor including cutting grass, cleaning and dredging with hoes, froes, shovels, pickaxes and tools provided by the Study Team.
- Rehabilitation work that requires skilled technicians such as stone masons will be basically done manually. Residents will help them with carrying sand, gravel, rocks and water.
- Any rocks that are blocking the canal are crushed and removed manually.

Maintenance Period

- Rights guaranteed by the *Comuna* administration to cultivate land will be allocated to residents. The amount of time and labor they invest will be taken into account when allocating the rights.
- Establish maintenance systems (fee collection methods, segmentation of managed area, appointment of persons in charge, etc.).
- Establish rules governing water rights.

Expected Benefits

1. Beneficiary Villages

- Sections 1 and 2: 3,475 people (695 households) in five villages including Primeiro de Maio, Tapela, Casas Novas, Gika, and Carochapa 1
- Sections 3 and 4: 5,831 people (1,166 households) in six villages including Ngagula, Calonama, Primeiro de Junho, Carochapa 2, Goavi, and Cuvelo

2. Area of Irrigated Land

   Approximately 700 hectares in total

PDM

Refer to the following Table 5-1.

Table 5-1 PDM for Pilot Project: Rehabilitation of Cuvelo Irrigation Canal

Pilot project: Rehabilitation of Cuvelo irrigation canal
Target area：Benguela province、Municipality of Lobito, *Comuna* of Canjala

Overall Goal	Indicators	Means of Verification	Important Assumptions
Increase agricultural production by irrigation of Cuvelo canal	Agricultural production of the beneficiaries of Cuvelo canal increases to XX		
Project Purpose	Size of irrigated land increases to XXha		
Water passes through Cuvelo canal and neighboring agricultural fields are irrigated.	Size of cultivated land increases to XXha. Water passes through 16.6km of the canal		
Outputs			
1 Distroyed parts of irrigation canal are rehabilitated.	XX% of rehabilitation plan is realized		
2 The maintenance system for the canal is established and it works	Statute of the rehabilitation committee exists		
	Maintenance plan exists	The maintenance plan	
	XX% of the maintenance plan is realized	Report of NGO	
3 The system for irrigation management is established	The regulation for distribution of irrigation exists	Rule	
	70% of the distribution of irrigation plan is realized		

Activities	Inputs	
1.1 Survey the canal prior to starting the work	【The study team side】	*Comuna* administrative officials responsible for the project keep stay
1.2 Confirm the areas in need of repair work	Materials for rehabilitation (cement, reinforcing bars, gabions, etc)	
1.3 Study techniques of rehabilitation and make an estimation of construction costs	Tools for rehabilitation (pickaxes, hoes, spades, etc)	
1.4 Secure skilled technicians such as stone masons	Transportation of materials	
1.5 Explain rehabilitation work of the canal to beneficiaries and get a consensus for their participation in the work	Machinery for rehabilitation（excavator）	
1.6 Establish rehabilitation committee by represents of beneficiaries and *Comuna* administrative officials	Stone masons	
1.7 Purchase and transport materials	Surveying engineer	
1.8 The committee controls tools for rehabilitation work	Irrigation engineer	
1.9 The committee decides working shift of beneficiaries and inform them	The study team member for village infrastructure	
1.10 The rehabilitation work starts	The study team member for strengthening organization	
1.11 The committee controls participants of the rehabilitation work		
1.12 The committee checks progress of the rehabilitation work and solves difficulties at regular meetings.		
1.13 The NGO and the study team monitors the rehabilitation work.		
1.14 *Comuna* administration supervises the rehabilitation work.		
2.1 The rehabilitation committee understands its role to manage maintenance of the canal	【Beneficiaries side】	
2.2 The committee elaborates maintenance plans.	Materials for rehabilitation（sand, gravel, rock, water）	**Pre-conditions**
2.3 The beneficiaries gets explanation of the maintenance plans and have a consensus	Labor for rehabilitation	Beneficiaries are interested in rehabilitation of irrigation canal and willing to participate in rehabilitation and maintenance work.
2.4 The maintenance work starts		
2.5 Collect the money from beneficiaries for the maintenance fund		
2.6 *Comuna* administration supervises		
3.1 The rehabilitation committee understands its role to manage the distribution of irrigation		Beneficiaries are interested in new techniques and motivated.
3.2 Decide regulation for distribution of irrigation (time, quantity)		
3.3 The beneficiaries gets explanation of the distribution regulations and have a consensus		
3.4 The committee controls the distribution of irrigation		
3.5 *Comuna* administration supervises		There is land for small scale farmers to cultivate along the irrigation canal

Source: The Study Team

(ii) Progress

Project Formation Study (April 2005 through November 2005)

The Study Team planned and implemented a small-scale irrigation canal rehabilitation project in order to verify during the study period the capacity of people who will be involved in the restoration and development of the target area to implement the project. The NGO that was in charge of the project's implementation devised a plan for repairing the two breaks in Section 1 (4,300 m) originating at the intake of the Balombo River as well as cleaning the entire 25-kilometer stretch of the canal and dredging a 5-kilometer section of the canal with resident participation. The banks of the destroyed areas were going to be reinforced with rocks and cement. Estimated costs for this operation included a mere 100 bags of cement since the rocks were going to be supplied by the residents.

The rehabilitation work was basically to be performed with labor donated by the residents. The residents were presented with a vision of being able to resume farming in and around their villages after the completion of the rehabilitation project. This was the only incentive they were given for participating in the project. One of the reasons for adopting this approach was that the food for work programs used by international organizations to motivate residents to participate in repairing schools and other parts of the social infrastructure immediately after the end of the civil war had actually hampered promoting the residents' sense of ownership. The Study Team feared that residents might totally rely on the government for managing the canal after the completion of the rehabilitation work if it were to use the same kind of approach. Another reason was that the Study Team decided that this approach would work well in the given situation. The Study Team discovered that young resident leaders were fully aware of the adverse effect of the food for work programs and they believed this approach would enable the residents to regain autonomy. The study team also liked the fact that this approach didn't require the huge budget needed to implement a large-scale rehabilitation project via the food for work model.

An NGO-led rehabilitation committee comprised of resident leaders, beneficiary village representatives and *Comuna* administrative officials, as proposed by the study team, was established for the purpose of promoting voluntary resident participation.

Although the *Comuna* administrator was initially reluctant to implement participatory rehabilitation work without using the food for work program model, the rehabilitation work was eventually implemented as planned. The rehabilitation committee was actively involved in managing the tools and equipment used and supervising the work performed. A large number of residents also took part in the work. It was discovered during the rehabilitation of the destroyed areas of the canal that the rehabilitation work could not be completed as initially planned due to a significant miscalculation in the amount of cement estimated by the NGO. As more and more people who had come from the relevant villages to participate in the project learned that the work could not be carried out as planned, the number of participants gradually declined until finally the work had to be suspended.

The Study Team decided to take the project reins away from the NGO and since the committee was on the verge of falling apart, the Study Team and *Comuna* administration took the initiative to recruit participants and jump start the rehabilitation work. Although the *Comuna* administration tried to increase the number of participants through a top-down mobilization of residents, it was not as successful as anticipated. Later on, some commercial farmers in the area started hiring residents to maintain their own irrigation canals in return for compensation. Many of the residents who were participating in the project gave priority to this income opportunity over the project, and the number of project participants once again declined. At that point, the Study Team had completed the on-site project formation study and was no longer able to provide support to the project. The rehabilitation work was suspended again in November 2005.

After On-Site Project Formation Study (November 2005 through August 2006)

After the project formation study was completed, people living in the village closest to the canal intake manually excavated a 120-meter long bypass in the canal area which they were unable to repair manually. They repaired the canal through their own efforts using the cement provided by a local commercial farmer for free.[3] As a result of their efforts, water started flowing in Section 1 in August 2006.

After establishing an officially incorporated agricultural cooperative that included 90% of all residents as members in the same year[4], the village has the highest aspirations for autonomy among all villages in Canjala. It is one of the few shining examples of good practices for other resident organizations in the area.

Development Study (First Year: September 2006 through March 2007)

Coinciding with the start of the development study in September 2006, the rehabilitation project was resumed by reinforcing Section 1 near the intake and beginning rehabilitation work on Section 2 (6 km in total). An NGO was selected from among those that had worked in Canjala before and appointed as the organization to implement the project. The NGO had carried out participatory projects for repairing schools and a different type of irrigation canal project under an emergency aid grant. *Comuna* officials were also familiar with the NGO.

In terms of technical aspects, a survey map for the entire canal was created prior to restarting the rehabilitation work. The areas needing rehabilitation were marked on the map to reassess the overall need for repairs.

Organizational aspects entailed reestablishment of the rehabilitation committee. As the first step, the *Comuna* administrator appointed four main committee members. These four as well

[3] The village has a good relationship with a local plantation owner operating in an adjacent area. The plantation owner provided aid after recognizing the village people's enthusiastic commitment to repairing the canal.

[4] In Angola, agricultural cooperatives are required to pay more than US$1,000 to be certified as a legal corporate entity. This fee is prohibitive for most residents living in farming areas and one of the major factors hampering the development of agricultural cooperatives. This village collected a small amount of money from almost all of its residents to cover the cost necessary for obtaining corporate status.

as the NGO and the *Comuna* administration official in charge of the social economy provided explanations to all the residents of each beneficiary village about resuming the canal rehabilitation work. Members of the rehabilitation committee, other than the four were elected from among the village residents at that time. These people as well as the first four leading members, 16 members in total (including four women), comprised the new rehabilitation committee. This number far exceeded the number of former committee members. The *Comuna* administrator thought asking traditional village leaders and church leaders to become committee members would translate into more volunteers for the rehabilitation work.

The only incentive the residents were given to participate in the rehabilitation work was, once again, simply a vision of being able to resume farming in and around their villages after the completion of the rehabilitation project. It was vitally important that everyone share the same vision. The NGO and committee members held two or three discussion meetings for each village in order to help its residents to picture their future after the rehabilitation was completed. During the meetings the administrative official explained that people who did not own land might become eligible for cultivation rights by participating in the rehabilitation work since there was government-owned property which was under the jurisdiction of the *Comuna* administration as well as property available for use by each village in the area surrounding the canal. Immediately following the discussion meetings, families owning land that would benefit from the canal and families who were interested in obtaining cultivation rights signed up to participate.

Registration of volunteers was carried out by each village's rehabilitation committee members. The implementation of the registration process varied somewhat among the villages. Among the six beneficiary villages, the registration process for five of the villages was completed in about three weeks after registration began in October. There was a significant delay in starting the registration process in the sixth village and it wasn't until more than three months later that it finally wrapped up the registration process in late 2006. The final number of registered households totaled 538.

Based on the experience gained from the project formation study, the method for assigning work to registered residents was changed. Originally residents in each village engaged in rehabilitation work in the area that was closest to their village. Since rehabilitation sites were situated apart from each other, it posed some difficulty for the NGO to supervise the operations. It also made it difficult for participants to see how much overall progress was being made since they were unable to see the progress of other groups. This time, as suggested by the traditional leader of a village near the water intake that had the highest rate of participation, the rehabilitation work was going to be conducted by everyone working together at one site at a time instead of assigning people to work in different sites. Work groups formed by village worked in shifts on a daily rotating basis.

Once the rehabilitation began, the construction work by stone masons to repair the breaks in

the canal progressed almost according to schedule. However, the rehabilitation work done by residents lagged behind schedule.

Although the initial plan for the participatory work was to rotate 45 people each day, only 7 to 15 people on average participated in actual day-to-day operations. There were two factors for this low participation rate. Firstly, residents were busy since it was the farming season when the project was resumed. Secondly, since soil flowing into the canal after each rain caused weeds to grow, operations were halted until the rainy season was over (late March) to avoid repeated weeding. Although the work schedule was carefully developed by an NGO with past experience working in the area that had taken the local conditions into consideration, the work during the rainy season was significantly delayed.

Despite the delay, the committee's motivation level remained high. The committee helped stone masons with the rehabilitation work on canal breaks which could be done without resident participation. The committee also tried to persuade more residents to participate in the rehabilitation project. However, the resident participation rate failed to increase, and the committee decided to wait and see if the dry season would bring more participants.

Development Study (Second Year: April 2007 through March 2008)

From the first year's experience, both the Study Team and the NGO saw the weather as the biggest factor for low participation levels. They anticipated that participation would increase in April when the dry season began. Actually the average number of participants did increase from seven during the rainy season to thirty. Unfortunately, this figure still did not reach 70% of the number of participants originally planned, which was 45 people/day.[5]

An underlying factor behind the overall low participation rate was the lack of participants from a village located in the lower reaches of the canal where the village committee members had become less active. One possible reason explaining their lowered level of motivation could be that they failed to recruit participants from their village. Three factors hampering residents' participation were revealed.

First, an increasing number of people, especially those living in the lower reach of the canal, started to wonder whether the canal could really be repaired through the manual labor of the residents alone. Scratching the surface to find out what laid at the root of their fears, the Study Team discovered that there was more to the story:

1. The residents had invested their time and labor into repairing part of the canal before the arrival of the Study Team in 2005 but did not get to use the canal in return for their labor.
2. The rehabilitation work conducted during the project formation study period raised everyone's hopes up so high and then came crashing down when it failed.

[5] It was reported that residents had the false notion that committee members were being paid in cash by the Study Team and complained about the unfair treatment. This significantly lowered the morale of committee members. Later the *Comuna* administration and the NGO held a meeting session for each village to explain that committee members were all non-paid volunteers, which resolved the residents' concerns about this matter.

3. The rehabilitation work by manual labor was still going on after the development study was launched. A very long stretch of the canal was filled with soil which had in some areas become rock hard. Other areas were actually filled with huge rocks. Many of the residents believed that it was impossible to repair the canal through manual labor alone.

The second factor was the incentive for participating in the rehabilitation project. Residents asked for a food for work program or cash compensation for their work.

The third factor was the right to use farming land. Residents were concerned that they may not receive any right to cultivate or the right to use the canal water once it began flowing. They were afraid the rich and powerful large-scale planters and military personnel would cut off their access to the canal. The *Comuna* administration tried to allay the residents' fears about water rights through messages communicated via traditional village leaders.

Due to these reasons, activities aimed at including residents from the village in the lower reach of the canal were temporarily suspended in May. The rehabilitation work was conducted mainly with residents from the four villages that were located closer to the canal's intake area. It was decided that it would be better to wait until the residents of the village in the lower reach could actually see the water flowing in the canal. In the meantime the NGO and the administration continued to hold meetings to raise interest and motivation among the residents.

Then following on the heels of this setback, a neighboring commercial farmer recruited a large number of day laborers to prepare for planting kidney beans. Almost all of the residents of one of the four villages started working for the plantation, which caused the number of participants working on the rehabilitation project to plummet.

At that point in time the number of residents who showed up regularly to work was fixed at about 80 to 90 people, which was less than 10% of all the registered residents from all five villages.

In light of these circumstances in which the project temporarily lost the participation of almost an entire village and the low number of regular participants, the NGO and the rehabilitation committee took the initiative to change the shift work system from a village-based shift work system to an individual based system to make it more flexible. Each individual was required to work at least once a week but could work more frequently if they so desired. This arrangement was made possible by the relation of trust built among the residents who were strongly motivated to complete the rehabilitation work as the number of regular participating residents dwindled down to a small fixed number.

In June, a construction machine (an excavator) was introduced to the project for the first time. The excavator would be employed in digging out the sandy sediment that covered a several kilometer-long stretch of the canal. It was necessary to use a construction machine to remove the sediment. The Study Team discovered that using a machine in such critical areas was very

effective in keeping the resident's motivation level up. The Team also discovered that in a project involving some technical difficulties like this canal rehabilitation project, the NGO did not have the adequate capacity to make detailed cost estimations and provide accurate instructions to the stone masons, so the team decided to hire an irrigation engineer.

The kidney bean planting season was approaching and the residents were now able to draw water from Section 1 of the canal. This proved to be a strong motivational factor as volunteers poured their efforts into maintaining Section 1 and repairing Section 2 with an eye to being able to draw water from Section 2. This resulted in completion of weeding and dredging of a five-kilometer stretch in both Sections 1 and 2. The work on Section 2, in particular, was done completely by hand in just two weeks in late August. With the resident's hopes running high, water was finally drawn into Section 2 of the canal only to be cut off once again after the aqueduct in Section 1 broke destroying the banks of the canal. During the years that the canal had fallen into disuse small animals had dug a hole at the bottom of the canal. Water leaking from the hole had finally destroyed the banks of the canal. This incident quickly shattered the morale of the residents living in the village near the water intake where the participation rate was particularly high.

The Study Team immediately responded to this problem and worked with the NGO to start repairing the destroyed areas in the hopes of rebuilding the residents' motivation. These kind of unexpected incidents resulted in significant work delays. It became clear that if the Study Team stuck with the approach of relying entirely on volunteer labor contributed by the residents the Study Team would be not able to complete the rehabilitation work by the end of the study period. The Team decided to pay participants a daily lunch allowance. The committee carefully selected types of tasks for which an allowance would be paid while being careful not to upset the formula for autonomous maintenance of the canal after the completion of the rehabilitation work. The committee decided to pay an allowance only to those who engaged in the dredging of sediment, which was a more strenuous task than weeding.

Due to the collapse of the aqueduct mentioned above, residents were unable to plant their kidney beans that year. Since then, however, the residents became more active at meetings held by the NGO and the committee and started asking questions. This is in contrast to when they would only listen to the NGO officials and committee members at these meetings. This revealed that the residents, despite the disappointment caused by the accident, were more motivated to repair the canal than ever. The main factor behind this heightened motivation lied in the timely response of the Study Team and the NGO. As the clear progress of the rehabilitation work became more visible, the provincial director of the Ministry of Agriculture and Rural Development in Benguela said in December that he would station two agricultural extension workers in this area after the rehabilitation work is completed. They would also implement a national agricultural input supply program (tools and seeds) which had previously not been available in this area. With this announcement by the Ministry promising support for the project, the small circle of motivated participants began to expand.

In early 2008, the Study Team along with the rehabilitation committee visited Catumbela, a *Comuna* in the municipality of Lobito where the government and residents had been jointly managing irrigation channels. The Study Team hoped that observing Catumbela's model of irrigation canal management and talking to its residents about canal management; it would motivate their committee members to work on renovating and post-rehabilitation management of their canal. The visit showed members of the rehabilitation committee exactly how canal management worked as well as the rights and obligations of users. It was an insightful experience and provided an excellent model for planning future activities. (See Box 5-1)

Box 5-1

Catumbela is a *Comuna* in the municipality of Lobito. Although it is administratively categorized as an urban area, agriculture plays a vital role here. The *Comuna* has a large-scale canal network for irrigating 3,300 hectares of farm land. The canal was originally owned by a sugar factory that had been operating since Angola was under Portuguese control. The land around the canal was later handed over to the Angolan government. As the civil war intensified, the *Comuna* began seeing an influx of refugees from inland areas and settled them on the former sugarcane estates now owned by the government. As more refugees started to settle here, the government granted them farming rights as a way to produce food. Between 1993 and 1996 a local NGO subsidized by an international organization worked on cultivating the sugarcane estates to be used for farming. The NGO organized refugees and local residents including former sugar factory employees to engage in repairing the canal through a food for work program. At the same time land re-demarcation was also being carried out. It was during this time that the predecessor of the current canal management committee was formed.

During the first two years, the former sugar factory workers with knowledge and experience took charge of maintenance and management of the canal while refugees and local farmers worked on repairing the canal through a food for work program. Since this approach failed to boost a sense of ownership in the project among the beneficiary residents, they asked for visible incentives for maintaining the canal after it had been repaired. Occurring during the height of the country's civil war, the NGO merely began distributing food provided by the international organization without any thought to instilling a sense of ownership among the residents. The NGO eventually realized that no one would take responsibility for maintaining and managing the canal in the future if nothing was to be done to change the situation. By the time the NGO's contract expired in 1996, it had just begun working to promote a sense of ownership and initiative among the residents. These activities were later taken over by another NGO. It was about three years until the foundation for the current volunteer committee was formed in 1999. Since the intervention of the Ministry of Agriculture and Rural Development's Irrigation Office in 2002, the canal has been under the co-management of the government and the residents who use the water.

Development Study (Third Year: April 2008 through November 2008)

The NGO had requested for Grant Assistance for Grass-roots Human Security Projects by the Ministry of Foreign Affairs, Japan for financing of the rehabilitation of section 3. This request was approved and rehabilitation work started.

Weeding in canals and plastering of broken facilities were conducted in April and May respectively. All the sedimentary soil in the canals was dug out in June. As this work had to be completed within the contracted period of the Grassroots Grant, the project team paid farmers who were participating.

Inauguration of section 2 was cerebrated in the first week in July. Approximately 150 people, including the vice mayor of Lobito Municipality and its planning director, Ministry of Agriculture, Ministry of Social Development, the Unit for Coordination of Foreign Assistance and beneficiaries, got together. The *Comuna* chief cut the tape and water gate was opened. Later vice the minister of Ministry of Agriculture and Benguela provincial director visited the site and addressed their plan of increasing extension officers and delivering agricultural inputs. Research for model rural house construction projects was conducted[6].

In August, land in section 2, which had been covered by weeds, was revived as cropping field for the first time since after the civil war. These lands changed drastically into beans field in September.

Changes occurred not only in the field. The committee had hardly functioned despite the *Comuna* administration, the NGO, and some core members had dedicated to convocation. But after water was introduced, members in the communities, at least where irrigation water became available, started becoming keen to participate in the activities of the committee.

As the rehabilitation committee was transformed into the water users association, rules for water use were set up and got approved by the municipality and the *Comuna* administration. The committee and *Comuna* administration held an explanatory meeting for farmers in communities in section 1 and 2. (See Box 5-2) In the meeting, it was proven that grazing goats were eating crops and this had hindered expanding crop fields. The *Comuna* administration therefore prohibited grazing. The role of the *Comuna* administration had become clearer than before.

Box 5-2

It is safe to say that the rate of resident participation in the rehabilitation work is higher in the villages that have better potential access to the water flowing through the canal. In other words, the villages located closer to the water intake demonstrated a higher participation rate. There was a dramatic difference in participation rates between the village closest to the water

[6] In rural areas in Angola, houses are scattered and it is difficult to place social infrastructure such as schools and health posts effectively. Administrative service cannot function effectively and efficiently. The Ministry of Agriculture and Rural Development is carrying out a policy to construct collective housing by Chinese contractors to promote agricultural production and to improve the standard of living at the same time.

intake and the village furthest from the water intake in this project. However, the possibility of accessing the canal water is not necessarily the only motivating factor. In the village that is second closest to the water intake, the participation rate was much lower than the Study Team had expected despite the fact that the residents could actually see the water flowing in the canal and knew that the people in the neighboring village located closest to the water intake had been using the canal for irrigation farming. This can be attributed to social attitudes toward outsiders. For these residents, something that is brought into the village by an outsider remains owned by the outsider for ever unless there is some shift that causes them to have a sense of ownership.

This hypothesis was drawn from other pilot projects conducted by the Study Team in the same area. The Study Team was conducting a maize soil building project for increasing food production. According to the NGO that was implementing the project, their staff explained to the residents who were beneficiaries of the project that the project was being implemented for experimental purposes and that the produced crops belonged to the residents who were the beneficiaries of the project. The NGO staff asked the residents to just report the amount of yield when the crops were harvested, explaining that they just wanted to compare the effect of the project, or the amount of yield, against conventional techniques. Despite all these explanations, the residents brought all harvested crops to the NGO, who they thought of as the "owner" of the project.

The NGO had observed the same behavioral pattern when it had implemented participatory school and canal rehabilitation projects under food for work programs. At that time the NGO was instructed by the donor organization that the NGO's role was to control the distribution of food to project participants while letting the residents do the rehabilitation work where they could. The NGO as a result had no interest in fostering the residents' sense of ownership but just simply distributed food to the residents. Looking back on these projects, the NGO came to the conclusion that the residents saw the NGO, who would compensate them for the work they did, as the owner of the school or the canal.

D. Results

Three sections, 16,600 m in total, out of 4 sections planned were rehabilitated, that is all except section 4, 1,300m. This rehabilitation does not have a lining but water was actually introduced up to section 2 and could be introduced into section 3 as of September 2008. In section 2, in particular, the first beans crop to go from planting to harvesting since the civil war was observed.

The reasons why rehabilitation did not progress as expected included physical difficulties in the rehabilitation work; in addition, community participation did not work out as planned. The analysis of its implementation system is discussed in depth in Chapter 7.

E. Lessons Learned

Water should be introduced gradually to canals to check the conditions of canals

After the rehabilitation work, water was introduced at once but water leaked from small holes that could not be identified before the water was introduced, these parts fell in and collapsed eventually.

As the canals did not have water for a long time, small animals dug holes in the walls and bottom parts of canals which were not visible. If the canals collapse, the expenses goes over budget and the rehabilitation schedule is delayed. It has been learned that when introducing

water to canals, gradual water introduction is necessary to check for holes and other structural damages and to repair them before making the canals fully operational.

Direct explaining by outsiders is needed for facilitating community participation

The NGO left the role of facilitating voluntary community participation to the community organization, whose staff was comprised of volunteers from the community. However, many community people had a suspicion that the staff members were getting rewards. Consequently, they had the attitude that they would not take part in the activities without compensation. The NGO and staff members of the community organization went to the target communities many times to explain that they were working without any rewards. As a result, the people understood the truth of the situation, though only gradually.

Outsiders including NGOs tend to leave community participation to community organizations. But outsiders should attempt to understand community relationships directly and take countermeasures to problems as quickly as possible.

Continuous construction work can be the largest incentive for community participation

At first, the Study Team thought that construction machinery introduction and giving incentives such as cash and food would hinder enhancing the concept of ownership. But there were places where it was very difficult or it took a very long time to rehabilitate by human labor. It was proven that avoiding delays in the rehabilitation schedule by giving incentives enhanced the sense of ownership among community people. In the stage of quantity survey, the work that requires machinery and the work that can be rehabilitated by human labor should be clarified technically beforehand and be presented to community people in order to have sufficient discussions.

Budget for a quantity survey should be included in the total project budget.

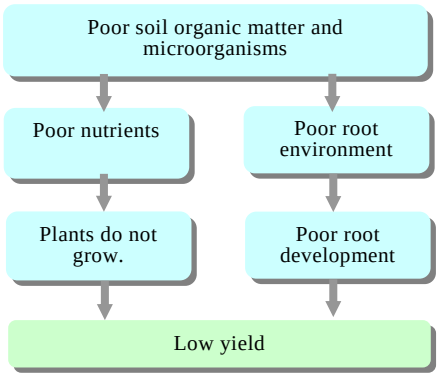
Canals running along contour lines tend to become filled up with soil and stones. Weeds along canals can grow very fast and can hide canals within a month. Weeding is necessary for precise quantity surveying.

During this stage, it was difficult to mobilize people to do weeding as volunteers. Thus it is essential to have a certain amount of budget to pay for weeding labor.

5.2 Maize Yield Increase with Grasses

A. Background

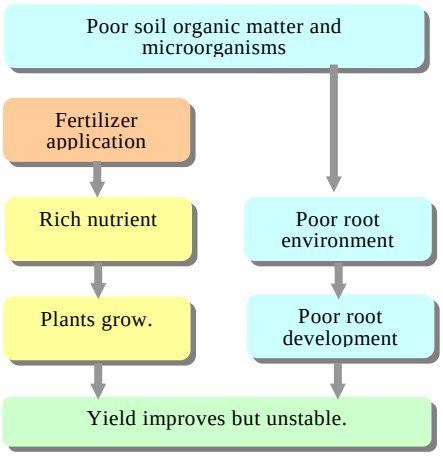
The soil in many parts of the target area does not contain sufficient organic matter; and soil microorganisms are few. Insufficient organic soil matter and microorganisms (1) do not produce sufficient mineralized nutrients for plants and (2) make soil hard resulting in a poor environment for sound root development. Plants do not grow well due to poor nutrients, and root systems do not develop well due to a poor root environment. As a result, yield becomes low. This is what is happening to soil in the target area with the exception of some areas that are getting a constant water supply throughout the year, which are called *naca* in the local language.



Source: The Study Team

Figure 5-1 Problem Structure

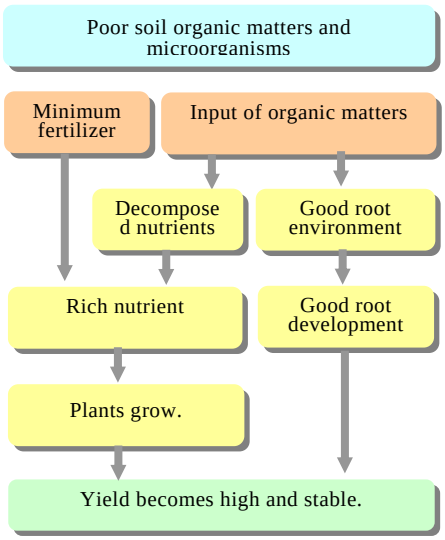
Even if soil has poor organic matter, it can be improved when farming practices are relevant for continuous cultivation. These farming practices include returning crop residues to the soil, applying compost and mulching with grasses. But farmers' practices in the target area are impoverishing soil conditions even further because farmers use up nutrients from the soil and burn almost all crop residue in the field after harvesting with no input grasses from outside.



Source: The Study Team

Figure 5-2 Conventional Intervention

On the other hand, government and extension officers are recommending to farmers to just apply chemical fertilizers. But if farmers input only fertilizer continuously in areas with a long dry season, salinization could occur and the soil will become physically hard, which hinders sound plant growth. As such damaged soil requires strong plowing power; plowing labor could become a serious problem for farmers. When only fertilizer is applied, plants may grow well at first and yield may increase but they may be susceptible to diseases and high yields may not be stable.



Source: The Study Team

Figure 5-3 Project Hypothesis

B. Objective

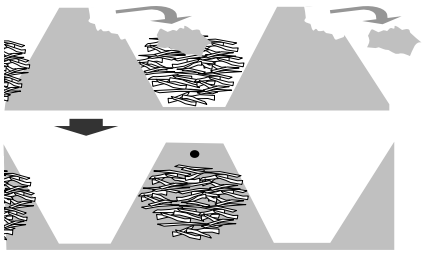
To increase maize yields through improvement of the physical, chemical and biological quality of soil, by inputting grasses with a small amount of fertilizer. Grasses produce nutrients and make soil soft, which is a good environment for root development.

C. Process

The Study Team conducted presentation seminars on the project idea in the target communities of Dombe Grande *Comuna* and Canjala *Comuna* in May 2007. Most of participants at the seminars seemed to understand and were interested in the idea of putting grasses into maize fields with fertilizer. But most of them did not have actual experience in this practice. Only one elderly woman in Canjala said that she knew the advantage of the proposed idea and had actual experience. The target communities selected 3 farmers in Dombe Grande *Comuna* and 6 farmers in Canjala *Comuna* respectively.

The Study Team asked the selected farmers to prepare 2 plots of 30 m by 33 m (0.1ha) each for this project to be conducted in September 2007. The Team also asked the farmers to collect grasses and to place them in piles 2.5 m high at a couple of places in the first 0.1 ha experimental plot (Plot A).

The Team gave instructions on how to mix grasses into soil, putting the grass in the ditches and covering it with the soil from the next row to make a new row. The amount of fertilizer application is as follows. The Team asked farmers to sow maize seeds equally both in Plot A and Plot B after the first rain.



Source: The study team

Figure 5-4 Method of Mixing Grasses with Soil

Plot A 1/4 bag of 12-24-12 fertilizer (50 kg) with grasses

Plot B 1/4 bag of 12-24-12 fertilizer (50 kg) without grasses

The implementation of the project was simple, because the target was not groups but individuals. Related actors were the individual beneficiaries, the NGO or CBO and the Study Team. Extension officers did not work with the project. The basic implementation system is as follows:

New technologies were introduced by the Study Team through presentation seminars. The NGO or CBO followed the proposed technologies in daily operations.

D. Results

During the growing process, plants in Plot A were observed to grow higher and thicker than those of Plot B in all fields of the project. In Dombe Grande *Comuna*, all three farmers planted maize as scheduled, but in Canjala only two farmers out of six planted maize because the others forecasted less rainfall to grow maize and gave up planting. Maize in one farmer's field in Canjala was unfortunately eaten by goats. Just one other farmer harvested maize in Canjala

eventually, though his field could not get sufficient rainfall. In total, four farmers harvested maize in April 2008. The differences in the harvests are summarized in Table 5-2. After threshing the cereals, they measured the amount of harvest using a tin, which can measure approximately 1 kg.

Table 5-2 Results of Grass Input Trial

Farmer	*Comuna*	(Plot A-Plot B)/ Plot B
Farmer A	Dombe Grande	38.3%
Farmer B	Dombe Grande	31.6%
Farmer C	Dombe Grande	100.0%
Farmer D	Canjala	100.0%

Source: The Study Team

Farmers A and B got sufficient water by irrigation. Farmer C also had irrigation water but this field was newly developed and the soil quality seemed to be worse than those of Farmers A and B. The maize of Farmer D was grown in rainfed field and he could not get sufficient rain, also as his field was newly developed the soil quality was not good.

In short, the overall performance in Plot A was better than that in Plot B. It can be suggested that the worse the soil quality was, the more effective the grass mixing practice seemed to be.

After the first harvest, the Study Team asked farmers to try to reduce the amount of applied fertilizer with grasses. Only Farmer B conducted this trial and he got more harvest from the plot where the fertilizer amount was reduced. Farmer B applied 40% less fertilizer in the Plot A than Plot B[7] and harvested 50% more maize than Plot B. This is just one case but may suggest the possibility of reducing the recommended amount of fertilizer.

In accord with these results, the farmers who participated seemed to be strongly impressed by this "new" technology for them and had already become convinced enough through the first trial. Some of them started to disseminate it spontaneously. In Dombe Grande, the traditional leader of the community where this trial was conducted began discussing with the community-based organization, which worked with the Study Team in this trial, how to expand this method to the whole *Comuna*. Later the CBO designed their dissemination project in the *Comuna* on this technology. Though there was only one farmer that was shown the actual results of the project in Canjala in April 2008, there were some farmers that mixed grasses in their own maize fields spontaneously in the next maize planting season, September 2008, according to the observations by the Study Team.

E. Lessons Learned

Appropriateness of introduced technology determines whether the technology actually enhances production and whether the technology disseminates naturally

As soil in the target area was poor in organic matter, the prime requirement was to put organic matter in on a massive scale. Mixing grasses is an extremely simple but crucial measure for productivity enhancement. That is why visible results came more rapidly than expected and

[7] Farmer B applied 92kg of fertilizer "12-24-12" per ha in Plot A and 154 kg per ha in Plot B. The other farmers applied 126 kg per ha in the first trial.

the technology expanded naturally among farmers after the first trial. The most significant factor for the successful result of the pilot project was the appropriateness of adopted technology.

The less investment and risk the technology accompanies, the more acceptable the technology becomes for small-scale farmers.

Mixing crop residues and grasses into soil does not require any cash expense, minimizing accompanied risk. Although it was a totally new technology for the targeted poor, small-scale farmers, no cash investment and no risk softened the resistance. Anyone can try it without hesitation, which leads to a natural expansion of the technology.

Focusing on one goal is better for getting successful results in the initial phase.

Short-term soil fertility enhancement relied on chemical fertilizer in an attempt to improve soil. Even if someone would like to prepare organic fertilizer, there are few materials for organic fertilizer production. If they had input only grasses, it would have been difficult to increase production, though it enhances soil fertility in the long time. The problem of low soil fertility is solved by fertilizer quickly, which enabled the study team to show the effectiveness of soil physical improvement with organic matter to farmers in early stage. That is why farmers accepted and supported this technology.

The project succeeded as maize was the farmers' strong point.

Maize is a staple food and the largest calorie source in the target area and farmers have a long experience in growing maize. Thus 80% of production technology adopted in the project could be done by themselves. When trying to get good performance in a short period of time, the introduced technology should be a small additional component to their experienced strong point.

The presence of experts is indispensable for productivity enhancement.

Opinions and experiences of farmers are emphasized in participatory development. But it is not easy to grasp new technology in areas in which they have no experience. Rather, it is necessary for outside experts to point out the importance of new technologies and to help facilitate the farmers' ability to utilize resources that have been underutilized. Outside experts, therefore, are indispensable for productivity enhancement.

When cultivation areas are expanded, other devices are necessary.

0.2 ha was the standard size of field for this project. As a result of the success of the project, some farmers that succeeded began to consider the expansion of cultivated lands. But when land is scaled-up, farmers will be forced to bear a heavy burden for manual plowing labor and the cash expenses of fertilizer. Mixing grasses is insufficient to clear these problems and other approaches such as introducing cattle will be necessary.

5.3 Cooking Stove Introduction

A. Background

As seen in other African countries, people in the target area use three stones for cooking. Collecting firewood is important work for rural women but the amount of available firewood around communities is declining and the time required for fetching firewood is increasing gradually. In some areas, no firewood is available, and people are forced to purchase firewood and charcoal.

Rural women have a great deal of daily work such as farming, fetching water and the manual milling of maize cereals, in addition to collecting firewood and they are spending a large amount of labor time on these efforts. Firewood collection is causing not only labor problems for women, but is also contributing to local forest resource reduction.

B. Objective

- To examine the impact of introducing cooking stoves on domestic labor time

Through the project formulation study, it was identified that rural women were interested in literacy classes, but they could not attend the classes continuously because they were forced to work doing farming and domestic labor.

A comprehensive approach with several measures is demanded for reducing rural women's labor time. Cooking stoves are one of those countermeasures. But referring to experiences in other countries, there have been many cases in which people stopped using the stoves introduced even if the advantage was clear. The Study Team produced cooking stoves and asked some farmers to use them to determine the appropriate specifications of a stove.

C. Process

(i) Beneficiary Villages

Seku village of Dombe Grande *Comuna*: 1 at the house of a pioneering female inhabitant

Tapela village of Canjala *Comuna*: 1 at a day-care children's center

(ii) Progress

Many stove projects seem to employ the concept of *make stoves as simple and as cheap as possible* for maximizing the possibility of dissemination. For example, to enhance the stickiness of soil, they mix cow dung or use soil from termite mounds, which is locally available and free of charge.

Even if rural people understand the advantages of the stove, once the stove collapses, they do not repair it but return to three stones, even though repairing is not very difficult. The introduction of stoves is meaningless if the stoves are not used, even if they can be produced on a cheaper budget. In contrast heavy-duty all-brick stoves cost more than US$500 and it is

difficult to disseminate them. Thus the Study Team set “a stove that can be sustained for long time and is low cost” as the core concept.

Table 5-3 Materials of a Stove

	Items	Specifications	Number
1	Iron plate (1m x 0.8m x 2mm)	This is for putting pans. Cut 2m x 1m x 2mm iron plate into the size shown in the left column. Cut 2 seat holes for pans. The diameter should be exactly same as diameter of pans.	1
2	Chimney pipe (3m x 150mm in diameter)	Cut a pipe into several pieces and connect them into L shape chimney.	1
3	Iron plate (1m x 0. 2m x 2mm)	Utilize unused portion of iron plate of #1 for a small gate for the fireplace.	
4	Hinge	For #3 iron plate	2
5	Fireplace netting wire (fish griller)	Utilize fish griller and put 2 of them into the fireplace. Using 2 of them prevents the dropping of small pieces of firewood.	2
6	Bricks	Main body of stove	20
7	Cement 25kg	For brick laying. It may not be necessary but effective for preventing rainfall from going into mud blocks.	1
8	Mud bricks 25cm x 25cm x 30cm	Base of stove and outer wall part that sustains iron the plate	50

Source: The Study Team

For the targets of the project, the Study Team selected a rural woman who had a strong leadership role in the Dombe Grande *Comuna* and a “Day Care Center for Children” in Canjala *Comuna* respectively. The Study Team expected that the woman in Dombe Grande would extol the advantages of the stove in her community because of her strong leadership qualities. The Day Care Center for Children in Canjala was chosen because it is a place where many community people stop by.

At first, the Team tried an iron plate 2 mm thick but it was easily bent by the heat and thus changed to using a 4 mm thick plate. The experiment compared the firewood consumption and cooking times of three stones, and the introduced stove in cooking 1 kg of meat and 2 kg of maize porridge.

D. Results

Results were as follows:

Cooking Stove

Cooking time: 2 hours and 3 minutes

Firewood consumption: 1 bundle and 1/2 (3 kg)

Three stones

Cooking time: 2 hours and 42 minutes

Firewood consumption: 1 bundle and 3/4 (3.5 kg)

Cooking time in the stove was 39 minutes or 24% less than three stones. Consumed firewood in the stove was 1/4 bundle or 0.5 kg less than three stones. Thus, it was proven that the

thermal efficiency in the stove was higher than the three stones.

The difference in the consumed amount of firewood may not appear large but all the firewood in three stones configuration changed into ash, while the firewood in the stove was still burning after the cooking had finished.

Based on the results of the experiment, the specifications of the stove should be changed as follows:

- Iron chimneys can be skipped and it is cheaper to lay bricks for a chimney.
- Bricks are difficult to be procured. Airbricks for wall construction can be used for the body of the stove.
- Iron plates should be more than 4 mm thick.
- The total cost is Kz15,000 (US$250) including materials and plastering labor. Depreciation period is Kz15,000/Kz750=20 months.

When thick iron plates are not available, scrap iron plates from discarded cars can be used. This costs less but requires a saw for cutting the metal plates. Small pieces of scrap iron plates should be placed and fixed by clay.

Ownership of the beneficiaries in Dombe Grande *Comuna* seemed to come up, as the following was observed.

- The beneficiary prefers to use the stove even after the experiment.
- She is trying to use charcoal in the stove spontaneously.
- She is trying to bake bread.
- She is adjusting the height of the fireplace to heat pans.
- She and her husband said that they were actually feeling the advantages of the stove due to decreased firewood consumption and shortened cooking time.

The table below shows the calculation of the impact of the stove based on the experiment. If a family switches from three stones to a cooking stove, 54 kg of firewood, Kz750 and 19.5 cooking hours can be saved per month.

Table 5-4 Impact of Cooking Stove

		Day	Month	Difference
Firewood amount	Three stones	3.5kg x 2 = 7.0Kg	7.0Kg x 30 = 210kg	
	Cooking stove	2.6kg x 2 = 5.2Kg	5.2Kg x 30 = 156kg	-54 kg
Cash expense for firewood	Three stones	Kz100	Kz100x 30 = Kz3000	
	Cooking stove	Kz75	Kz75 x 30 = Kz2250	-Kz750
Cooking time	Three stones	162 minutes	4860 minutes (81 hours)	
	Cooking stove	123 minutes	3690 minutes (61.5 hours)	-1170 minutes (19.5 hours)

Source: The Study Team

As the beneficiary is talking about the advantages of the stove, such as saving cooking time and less fatigue due to the standing position while cooking, many community people began to become interested in the stoves. For example, the household of the traditional leader started to collect materials to construct a stove.

The cost for the construction, however, is large for them. If NGOs adopt this technology in their projects, dissemination possibility will go up. Since iron plate and its cutting are costly in particular; the government should support this aspect through subsidies. When scrap iron plate is utilized, the cost goes down dramatically. Materials other than mud bricks have to be purchased in urban areas. If they purchase all materials, the total cost per stove is Kz15,000, which is higher than gas cooking equipment. Thus subsidies become necessary for full-scale dissemination.

E. Lessons Learned

Even if the stove becomes costly to some extent, it is vital for long time use.

As seen in the practices of cooking stoves in other areas, stoves constructed only with local soils are fragile and are not used after they collapse. Even if the cost becomes higher to some extent, the stove should be heavy duty.

It is necessary to involve related ministries from the beginning to realize multiple project impacts

Cooking stoves could have wide impacts on forest conservation, higher attendance in literacy classes through creating disposable time and disease prevention by drinking disinfected boiled water. Projects should be cross-sectoral from the beginning to realize the multiple impacts after the primarily responsible organization is fixed.

5.4 Dug Well Construction

A. Background

Dombe Grande *Comuna* in Benguela Province (target area)[8], was known as an area that accepted refugees from the interior, as such it has received emergency aid. As part of this aid,

[8] People without access to an improved water source (47%) 2004: Human Development Index: UNDP

many manual water pumps had been installed. However, this project was limited to the installation of pumps, and neither a technical transfer of knowledge nor an institutionalization of the inhabitants' responsibilities in relation to the pumps was carried out. As a result, during the finding survey project at the end of 2004, many broken pumps were found, and during participatory workshops there were strong requests from the inhabitants to secure safe water.

In addition, because of the spread of cholera in 2006, inhabitants became more water-and-sanitation-conscious.

Initially, the Study Team designed the project scope as simply pump rehabilitation, and the institutionalization of an Operation & Maintenance committee. However, due to the unavailability of spare parts and the condition of the pumps, the Study Team decided to construct new wells. In Dombe Grande, the Study Team was able to have wells dug by digging several meters. Therefore, the Study Team decided to implement the project by using local human resources without the use of large-scale machinery. It also employed the help of an experienced local NGO.

B. Objective

To secure water for inhabitants, and establish an operation and maintenance system with the construction of the wells

C. Process

(i) Plan

Construction of Wells

The whole construction process was commissioned to a local NGO.

Establishment of an Operation and Maintenance Committee (hereafter O&M Committee)

Major responsibilities: regulations concerning the use of the wells, management of maintenance activities such as cleaning, the collection of a water rate to cover the necessary expenses.

Beneficiaries

Total 500 households / five wells consisting of: two in Canjanga Village, one in Caweto Village, two in Canto Village

(ii) Progress

Presentation to Inhabitants

The Study Team and the local NGO jointly made a presentation about the various aspects of the project.

The Study Team had especially emphasized the importance of the inhabitants' commitment to operation and management. For some villages, the Study Team had discussed and exchanged opinions with the inhabitants about the location of the wells.

Digging

Construction started by making cement pipes (dimension: diameter 120cm / width 70cm).

Then they set the tube on the digging point and started digging inside the pipes. As the pipe gradually went into the ground, they kept digging inside and placing another pipe above. When they reached the depth of underground water, the bottom was covered with pebbles; they then waited until the well had stored a certain quantity of water.

Afterward, they emptied the water and cleaned the pipe and put in chemicals for disinfection. The surrounding area was paved with cement and drainage ditches were installed.

Establishment of O&M Committee

The Study Team organized the O&M committee. Representatives from each village were nominated as committee members, and were given training (seminar) by the NGO.

The training consisted of a presentation concerning the causality of safe water and waterborne diseases, rules and regulation of the O&M, and the role and responsibility of the committee.

Status

When the Study Team conducted its survey on the utilization status at the initial stage, there were timetables for water use, rules for cleaning, and they were respected. Some villages collected a water rate to purchase equipment such as a bucket, some rope and a padlock.

A year and three months later, the Study Team reinvestigated the status of the project. Although one of the wells had been left unused, others were still in service. Some villages did not have a timetable and lost the functionality of the O&M committee, but no troubles were reported and a minimum sanitation level had been maintained by mutual supervision and the traditional leadership of the village inhabitants.

However, duties such as a water rate collection, and joint management of the bucket and padlock, originally expected to be managed by inhabitants, were not carried out in most villages.

Many users noted a reduction in the time necessary to get water, and a reduction in the incidences of waterborne diseases like diarrhea, as characteristics of the impact of the well.

Before the project, they had to spend 20 - 30 minutes, or one hour round trip to fetch water from places like wells in other villages or water pumps near farmlands.

On the other hand, the inhabitants near the unused well could still use the water from pumps at nearby farmlands, a five-minute distance, which might be one of the reasons why they were not interested in the project.

(iii) Implementation System

NGO

Although the commissioned NGO had experience in well construction, they seldom had experienced a project based on the inhabitants' participatory approach. Therefore, at the initial stage they didn't understand the significance of the inhabitants' organization included in their contract responsibility.

However, thanks to the explanation by the Study Team and their actual experience, they came to understand the significance and conducted training classes, and meetings at villages jointly with the Study Team. As a result of this pilot project, by the time of the wells completion, the Study Team noticed a change in their mindset as demonstrated by their words emphasizing the importance of inhabitants' institutionalization.

Actually, although the contract term had concluded by the completion of the project, the Study Team noted that the NGO periodically was conducting disinfections of the wells by their own initiative.

O&M Committee

Because of the efforts of the NGO and the Study Team, each village had established a committee upon the completion of well.

However, their functionality didn't last long since no follow-up by external support was given.

Village, Beneficiaries

The committees nearly lost all their functionality. However, because of the traditional leadership and inhabitants' initiative, the Study Team was able to confirm that minimum rules were respected in using the wells.

As was mentioned earlier, this was presumably due to the fact that the inhabitants were highly interested, and recognized the impact of the wells, thereby motivating them to respect the rules.

D. Results

A total of five wells: two in Canjanga Village, one in Caweto Village, two in Canto Village were constructed and each village has established an operation & maintenance committee.

E. Lesson Learned

Use of locally available technology

It was of significant benefit to find that that the local NGO could produce the large pipes

necessary for well construction by using local resources. Hereafter it is noted that it is quite important to introduce and store locally available technologies, such as traditional agricultural skills.

5.5 Reservoir Rehabilitation

A. Background

Despite its semi-dry climate, the village Capolo in Kuanza Sul Province, used to have a developed cotton flower and livestock business which was made possible by the utilization of irrigation channels and an artificial reservoir.

However, because of the civil war, the local people had for a long time been unable to maintain the facilities, which led to a state of deteriorated functionality. For instance, the reservoir had been unable to store rainwater due to a damaged embankment.

The result of the field survey at the end of 2004 and the participatory workshop revealed that they had had no rainfall for three years and had serious problems with not only agriculture/livestock but also their livelihood. In particular, in order to carry water, some inhabitants had to travel to the Longa River, located 10 km away (one way) from their homes. Therefore, the rehabilitation of the reservoir had been a major priority for them. The reservoir in the Village Maculungo II, a target area of the project, had been a significant water source for neighboring villages, but was on the verge of collapse because of gully erosion.

B. Objective

To rehabilitate the reservoir in Maculungo II to secure water for use in the daily life of the inhabitants, and potable water for the livestock.

C. Process

(i) Plan

Civil Work for Reservoir Rehabilitation

Build an embankment with the following dimensions: length 420m x height 7m x width bottom 23m/top 5m, using 9,400m^3 of soil.

Complete bypass construction for reservoir adjustment (1,455 - 2,671 m^3/ha)[9]: Build a bypass with the following dimensions, width 50m x height 1.3m by digging 2,100 m^3 of soil.

Establishment of an Operation & Maintenance Committee (“O&M committee”)

Responsibility: formulating a regulation system for reservoir utilization, management of supervision staff (selected from the beneficiaries by turns) and promoting forestation for embankment reinforcement.

Estimated Beneficiaries

- 163 households in Cassuada Village
- 83 households in Village Maculungo I

[9] To prevent overflow of the reservoir and soil erosion during the rainy season

- 172 households in Village Maculungo II
- 42 households in Village Maculungo III
- 284 households in Village Campo Kapolo

In total, 790 households. In addition, livestock owners in neighboring villages would also benefit.

* Concerning the civil work portion for phases (i) and (ii), the NGO would entrust the implementation to a specialized engineering works company.

(ii) Progress

Rehabilitation Work

It was necessary to finish rehabilitation before the rainy season began, since the access road to villages was in a bad condition. In November 2007, they started the installation of machineries and finished the rehabilitation in December. During the rehabilitation works, workers had stayed in Village Maculungo II and kept working 24 hours by taking turns.

Village inhabitants cooperated positively with them by providing accommodation space and food.

Establishment of the O&M Committee and its Charter

There had previously existed a reservoir management organization set up by the inhabitants. Inhabitants, on a two-day rotation, monitored the reservoir utilization status; such as checking the approved location for laundry and the approved location for livestock. They also prohibited any passing on the embankment by groups of large livestock such as cattle.

After the rehabilitation, additional rules were created, for example, the collection of a maintenance fund from the inhabitants, and the appointment of a secretary and accountant for the committee's fund management. There had previously been a rule to prohibit cultivation in the area near the water intake area to prevent soil inflows caused by weeding. However, there were still small fields and a banana plantation.

This time, they agreed to strictly respect this regulation and shift the banana plantation after the rainy season. Besides, forestation inside embankment was done by inhabitants (the outside was done after a six months).[10]

(iii) Implementation System

NGO

Since the rehabilitation itself was done by an engineering company, the NGOs' primary role was to provide explanations about the rehabilitation work, and to encourage the inhabitants to participate in and to vitalize the O&M committee.

However, full intervention was not necessary since the inhabitants' motivation as

[10] Casisso (Cana Brava, a type of sugarcane)

"stakeholders" was very high.

***Comuna* Administration**

The *Comuna* administrator of Capolo had been very cooperative and accompanied the field survey and workshop conducted by the Study Team. This attitude remained the same throughout this study, as was confirmed by her attitude to accept monitoring duties from the NGO and the Study Team after the implementation was completed.

She voluntarily visited the benefited villages every three months and monitored the status, and checked for any difficulties in the operation.

O&M Committee and Beneficiary

The existing committee was very open to accept external advice and has gradually developed its management capacity. For example, although the inhabitants were not directly engaged in the works, all village inhabitants fully cooperated with the implementation by providing accommodation space and food for the workers.

During the implementation period, the NGO explained to inhabitants the significance of maintenance fund collection. The committee and the inhabitants, without further intervention by the NGO, understood its significance and voluntarily decided the amount of the fund collection and the persons responsible for it.[11]

Another example of embankment maintenance is that originally they intended to finish forestation inside the embankment first, and planned to wait until the next rainy season to start forestation of outside. However, in consideration of the risk of embankment erosion by rainfall, the Study Team had suggested beginning forestation on the outside before rainy season. The committee accepted this suggestion and finished forestation by mobilizing the inhabitants.

D. Results

- An embankment with the dimensions of: length 420m x height 7m x width bottom 23m/top 5m was built.
- A bypass with the dimensions of: width 50m x height 1.3m was built
- An O&M committee was established.

E. Lesson Learned

The Study Team entrusted the engineering work of the pilot project to a specialized company as was necessary, in consideration of the project scale, the technical level and the terms of the work. Under these conditions, it is important to consider the form of participation which will best develop in the inhabitants' mind the notion of themselves as “stakeholders.”

As a basic policy of this study, the Study Team intended to involve the inhabitants as much as

[11] Although initial fund collection was scheduled at the first harvest season after the reservoir rehabilitation, they haven’t started fund collection to date, due to a lack of rainfall.

possible to insure the sustainability of the pilot project. Therefore, at the initial stage, the Study Team had planned to conduct the rehabilitation by using the manual labor of the inhabitants. However, based on the experiences of past rehabilitation projects in the target area, the Study Team concluded it was impossible to finish the rehabilitation project on schedule if it only relied on manual labor. So the Team decided to introduce machinery works, and, as a result, was able to shorten the schedule.

In addition, the Team could eliminate the concern about inhabitants' perception as "stakeholders," by confirming their positive commitment all through the implementation period.

5.6 Day-care Center

A. Background

The government statistics report that only 7% of children 3-5 years of age have access to pre-school education in Angola. At the National Forum for Infant Child Protection and Growth in June 2004, the government suggested increasing the enrollment rate of pre-school education up to 30% by 2008.

Within the public education system, the Ministry of Education has implemented a single-year program called "Pré" designed for five-year-old children. It has been introduced and is gaining traction gradually. In urban areas, the interest in pre-school education is rising. Following this trend, private kindergartens are increasing which provide childcare support for double-income households.

Additionally, there is "PIC-PEC[12]," the Community Infantile Program-Community Education Program, a national project promoted by MINARS for pre-school education in rural areas.

However, this program has not been expanded as expected. In addition to fiscal problems, little attention has been paid to securing a sustainable project design during the initial stage.

WFP (World Food Programme) had been distributing cereals (a mixture of maize and soy beans),[13] mainly in rural areas including the projects' target area, in order to help alleviate malnutrition among infants during the period of the civil war and as emergency aid after the ceasefire. The target had been region wide, not individual households, and in many cases the cereals were used as lunches at the temporarily-built centers or primary schools. The original objective of day-care centers had been to provide protection and education to young children. However, its original philosophy was overshadowed by the distribution of cereals which was a strong incentive for parents to send their children to the day-care center and they actually kept on going to school.

[12] Programa Infantil Comuntario-Programa Educação Comuntario

[13] FBF, acronym of "Fortified Blended Foods", is the mixture of cereals and other materials (such as beans like soy beans, dried skim milk, sugar and vegetable oil). After grinding/blending/cooking, FBF is mixed with vitamin and minerals to enhance its nutrition.

Unfortunately, after the withdrawal of the donor's food aid, the "lunch" incentives were lost and many centers became inactive.

Current Status of the Target Area

When mothers go out of their village, they carry their children on their back. However, weaned children are left in the village. The older family members, like grandmothers who stay at home, normally take care of them, but there are cases where a brother or sister of similar age takes care instead.

When only children are left at home, they do not cook meals to avoid the risks of using fire.

When older children at the age of primary school take care of their younger siblings, they don't always keep their eye on them as they have to go to school. In reality, these infant children are left without protection. When the Study Team visited the target villages during weekdays in the daytime, the Study Team often witnessed children playing covered with dust. This situation raises the risk of accidents, and actually in the target village there were incidences involving children who went missing, perhaps in the river, during the absence of their parents.

B. Objective

- To establish a sustainable system in which inhabitants are able to operate their own centers.

  The objective of the project was to determine the methodology and a system for center operations which maximizes the inhabitants' initiative without using support from external organizations. In concrete terms, the goal is to secure the sustainable operation of the center. The Study Team examined the feasibility and the management issues (in terms of its institutional and financial capabilities) of pre-school education by conducting interviews with child-care nurses selected from the village inhabitants.

Target objectives during the project period are as follows.

- To establish the basis of a system by which to manage the center by employing an organization comprised of the local inhabitants.
- To select a community income-generating project to fund the center’s operation and establish a system to implement the project.

C. Process

(i) Plan

Workshop

- Develop a day-care center project based on the mutual support of the inhabitants.
- Illustrate the need for a day-care center and to encourage the local inhabitants to take ownership in it.
- Confirm and detail the local inhabitants’ interest in an independent and sustainable day care center management system.

- Discuss ideas for the community's income-generating project.

Community's Income-Generating Project

- Select a project based on the inhabitants' ideas during workshops, while taking into consideration their capacity and the available resources.
- Examine the conditions needed for financial independence and profitability by the community's income-generating project.
- Select and confirm a leader who can familiarize themselves with and manage the needs of the community's income-generating project.
- Organize beneficiary groups, create rules and regulations, and manage the activities (This is the responsibility of the management committee headed by the leader).

Construction and Development of Infrastructure

Construct the center building, sanitation facility, the outdoor kitchen including a cooking stove, and the retail store building.

The following were the requirements during construction.

- Hire village inhabitants as carpenters and plasterers
- Use locally-made soil blocks as building materials
- Beneficiaries were responsible for transporting the water necessary for construction from the river.
- Beneficiaries were to be responsible for cleaning and mowing.

Selection of the Child-Care Nurses

- Select child-care nurses from the village inhabitants

Establishment of the Management Committee

- Establish a management committee comprised of the village leader, the child-care nurses and the parents.
- The committee was responsible for the promotion of the inhabitants' participation in all aspects of the project. This included the construction of the building, formulating the inhabitants' participatory approach, supervising the income-generating project, formulating the rules concerning the center’s management, and the financial audit of income-generating project.

Day-Care Center Management

- Decide the class schedule, the children’s class placement, and the organization of child-care nurses.
- Train candidates who wish to become childcare nurses, provide training on the basic knowledge and skills of nursing, and infant educational programs.

- Identify the role and responsibility of parents to provide food, water transportation, and cleaning for the school. Draw up a roster for these items and delegate the work equitably

Estimated Scale of Beneficiaries

- Approximately 100 young children in Tapela Village and Casas Novas Village

(ii) Progress

Selection of Target Village (November 2006)

The Study Team selected Tapela Village, because no other candidate village existed. During the interviews with females from the group workshop during the project formulation study, a case of a missing child was reported near the Balombo River which runs near the village. This accident happened when parents left their children and went out of the village for farming, at that time the inhabitants did not have an effective solution for this problem. If they had a facility which enabled them to leave their children safely, this kind of accident could have been avoided and they could work free from anxiety. For this, they need a caretaker to be in charge of the facility. However, generally they do not have the custom of asking others to take care of their children. Also, the Study Team thought the system of the center wouldn't be sustainable if the Study Team counted only on their volunteer's contributions.

On the other hand, the village was also the target village for this Study's pilot project "Irrigation Canal Rehabilitation," therefore it was thought that they might be able to operate a community farm if they have water in their canal.

Namely, the fact that the village could produce food locally could be a strong incentive for caretakers and parents to join the day-care center project and achieve a sustainable operation.

The Study Team decided on this village as the target village to examine the synergy of implementing two different types of projects in the same village, and to compare their impact on the inhabitants' participation and institutional development.

Workshops with the Village Inhabitants (November 2006)

The main target of the first workshop was the mothers with infant children. The workshop's objective was to gain a clear picture of village's livelihood and to help the participants better understand the living conditions of their children.

Living Condition of Young Children

Through the series of workshops, the following facts were identified.

- Schedule of women's daily life
- During the period of infancy, mothers take their children to the farmland, and leave them under the shade of trees. When the children cry, mothers carry them on their back. The mothers typically walk two hours to reach farmland.
- Weaned children are left in the village when their mothers go out to do farm work.
- During the absence of their mother, they spend the time alone or with their brothers and

sisters, grandmothers or neighbors. In many cases they do not eat lunch, because their parents cook and eat their lunch out in the farmland.

- When they get sick, they take the medicine that is available to them at the market, never the less, parents still must leave them home and go out for farming.
- Annually, three to four children go missing in the river.
- Other problems for children were malaria, a lack of clean water, sore throats, violence conducted towards them by adults, accidents in the river, and a lack of food by famine, and the absence of their parents.

Needs of Center

The Study Team was able to confirm that mothers do in fact leave their child with friends and neighbors when they go out to do farming. The Study Team had considered the possibility of establishing a system for taking care of the children using small groups, which could be implemented before the development of all infrastructure was put in place (such as a classroom, warehouse, kitchen, office). It was thought that such a system could serve as a prerequisite for the PIC and therefore had searched the possibility as it was a natural extension of the existing idea of mutual support.

However, many of workshop participants (mothers) had a strong interest in developing the infrastructure (center) first. One of them insisted in appointing a person for full service with the claim that a roster of caretakers was an inappropriate idea considering the heavy responsibility involved in taking care of the children.

Therefore, the village leader recommended several child-care nurses, and with the approval of inhabitants, five women and one man were selected.

Confirmation of the Possibility of the Beneficiaries' Participation

All the work including making lists of the necessary materials, preparation, and construction were conducted by a joint effort between the inhabitant’s representative, the Study Team, and the NGO. The importance of providing lunch was confirmed as the best incentive to motivate the parents and children to use the day-care center with the added benefit that it would also improve the children's nutritional status.

Therefore, together with inhabitants, the Study Team made a list of the materials that were available locally, and the materials which needed to be purchased; they also decided on the lunch menu.

As the next step, to maintain the sustainable operation of the center, the Study Team attempted to persuade the community to fully appreciate the necessity of having and maintaining the income-generating project. The Study Team analyzed the potential of the village to identify a possible income-generating project. The inhabitants suggested several ideas like building a mill, a bakery, doing sewing, a motorcycle taxi, and farming. However, they didn't consider the required technical aspects, the profitability, or the initial cost to implement these ideas.

Therefore, the Study Team, as a facilitator, discussed with the inhabitants details concerning the feasibility of the project. During the discussion, the Study Team helped facilitate the decision making process as the community people decided the most feasible project.

In the end, considering their experience and capacity, it was decided that the most feasible project was agriculture. However, they also decided to open a retail store for supplying daily commodities since they recognized that agriculture would not be profitable enough to cover the necessary expenses for the operation of the center.

Establishment of the Management Committee

The local people established a center management committee comprised of the child-care nurses, the parent's representative, and the village leader. Child-care nurses and a parent's representatives had already been nominated, by the recommendation of village leader, and were selected by the approval of participants during a meeting conducted by the inhabitants. It was decided that the church preacher of the village would serve as the committee's supervisor. The preacher was deeply trusted in the village. He actively joined workshops and meetings, and finally became a committee member at the request of the inhabitants.

Preparation of Infrastructure (Since February 2007 -)

The center building, named "Jango," is a semi open roofed building with the dimensions of 3m by 6m with walls of 80cm in height. They hired local carpenters and plasterers for construction, but tried to collect building materials such as water, sand and gravel by themselves.

However, only the candidates for the job of child-care nurse were engaged in these works. This was due to a lack of promoting participation among the inhabitants. In the later stages, however, inhabitants voluntarily and continuously joined the work, and helped in things like water transportation, mowing and cleaning. At the end of the construction project, two "Jangos," one sanitation facility, one retail store, and one outdoor kitchen with an improved furnace were constructed.

Community Income-Generating Project

Retail Store

One of the committee members in charge of the retail store hired one salesclerk, and opened the retail store in February 2008. Although he, the salesclerk, was approved by the committee, he often caused trouble, for example, he would open the store late, and there were often discrepancies in the account book and stock. No improvement had been confirmed despite plenty of chances given to him. Therefore, the committee judged that keeping him might reduce profitability, and consequently requested that he be replaced.

The new salesclerk opened the retail store for the whole day, and increased its sales by responding to the needs of the inhabitants. Moreover, he expanded the lineup of goods to oil, spaghetti and laundry cleansers in addition to the original goods (rice, sugar, salt, and laundry soap). After changing the business hours and goods lineup, the weekly gross profit reached

Kz4,000. The Study Team was able to verify that he had had good management capacity, as was confirmed by the status of the store's stocks and account book which were both appropriately managed.

Farming

In July 2008, target farmland became irrigable by this study's pilot project " Irrigation Canal Rehabilitation," and they started cultivation of kidney beans on 1.5 hectares of land. As a result they were able to harvest 450kg, equivalent to a monetary value of Kz67,500. They also they planted maize and cassava on 1 hectare of land to serve as lunch provisions. Due to the low productivity of the soil and of the lack of fertilizer, the maize's growth was severely stifled.

The Study Team hired a person experienced in gate operation to send water from the irrigation canal to the farmland. Seeding, mowing and harvesting were all conducted by the parents, and the roster and management of the work was supervised by the committee. However, mowing was not completed as planned. This reduced the harvest of kidney beans, causing it to be 40% lower than the original estimation.

Day-Care Center Program

The day-care center program started in June 2008. Parents were responsible for collecting maize flour used for lunch and a total of 75kg was collected. Initially, they were able to collect the flour without any trouble as occurred during the period of harvest. All the children at the center ate lunch regardless of the contribution of maize by their parents.

However, since the harvest time is limited by the rainy season, some beneficiaries hesitated to contribute maize flour as they were worried about securing their own food. With the increase of people who did not contribute, the perception of unfairness among beneficiaries began to spread. Consequently, they emptied the stock of maize flour and stopped lunch service just one and half months after the commencement of the project. With the halt of the lunch service, many children lost their incentive, and the program was suspended temporarily.

During this period, income-generating projects like the community farm went successfully, as almost 100% of the parents participated in the project.

The Study Team decided to provide food temporarily, as they anticipated an adequate profit from the harvest in a few months.

Although the majority of child-care nurses were experienced people in terms of nursing, they had no experience in group nursing. Therefore, they found an appropriate person among the youth of the village for the education program, and he became involved on a part-time basis.

(iii) Project Feasibility

The Study Team estimates a minimum of Kz444,000 to be allocated for the annual expenditures of the center's management. The following is the breakdown.

- Annual Kz144,000 for the salary of the child-care nurses (daily salary of Kz200 for 6

persons, the work schedule being 10 day of duty per month)

- Annual Kz60,000 for the salesclerk (daily salary of Kz200, the work schedule being 25 days per month)
- Annual Kz40,000 for irrigation caretaker (for 4 persons, 50 days of contracted work).
- Kz20,000 for farming salaries such as mowing (for 10 persons, 20 day of work)
- Kz36,000 for kidney beans seeds and insecticide used for farming to avoid damage by harmful insects.
- Monthly Kz15,000 for the general expenses of the day-care center program. This includes subsidies for the provision of lunches.

The Study Team estimated an annual revenue of total Kz490,000 (Kz282,000 from sales of kidney beans and cassava, and an annual Kz208,000 from the profits generated by the retail store (weekly profit of Kz4,000)).

Table 5-5 Annual Business Plan for the Day-Care Center

Unit (Kz)	Unit price	Quantity	Total	Reference
Salary: Child-care nurse	200	720	144,000	For 6 persons, monthly, 10-day shifts
Salary: Shop clerk	200	300	60,000	1 person, 25 days per month
Salary: Irrigation caretaker	200	200	40,000	For 4 persons / annual 50 day shifts
Salary: Farmland worker	100	200	20,000	Unit of Quantity: daily allowance
Seeds, fertilizer			0	
Nursery program	15,000	12	180,000	Unit of Quantity: months
Total expenditure			**444,000**	
Sales: Kidney beans	130	1,400	182,000	Unit of Quantity: kg
Sales: Cassava	200	500	100,000	Unit of Quantity: per pile
Profit: Retail store	4,000	52	208,000	Unit of Quantity: week
Total profit			**490,000**	

Source: The Study Team

The following two things should be considered to maintain the sustainability of the project.

- Pay allowances for farming as an incentive.

  The kidney beans farming ran into trouble during the period of the pilot project, as the harvest was only four times the number of planted seeds, which is normally supposed to reach sevenfold. This was because of the low participation rate of mowing by parents. In order to achieve success in the kidney bean project, the Study Team should consider paying a minimum incentive to maximize the possibility of successful harvests. However, the amount of incentive should only be the half rate for normal farming labor.

- Support by using a tractor

  The rental rate of a tractor in the target area is as expensive as Kz4,500 (=US$60) per hour, which raised concerns about the profitability of the project.

  In *Comuna* Canjala, since a retired serviceman's group operated a tractor with support

from the government, *Comuna* administration should arrange to use that tractor with the condition that they only pay the fuel cost.

D. Results

- Established a management committee with 14 members
- Constructed two classrooms, one storeroom, one outside kitchen and one sanitation facility (toilet)
- Implemented the day-care program with 50 children registered

E. Lessons Learned

Inhabitants' stakeholder mind can be enhanced by continuous follow-ups from "external persons."

At the beginning of the workshop, the inhabitants had agreed to volunteer as the general labor force, and the Study Team had expected their participation in the production of soil blocks, the transportation of sand and gravel, and other construction work. In reality however, they only participated in the transporting of the water used during construction, the digging of a latrine hole, and the cleaning and mowing of the site. As the level of involvement was less than expected, the Study Team was forced to review the methods, processes, and cost estimation for the construction aspect of the project.

As the Study Team wished to respect the inhabitants' initiative to solve the problem, they tried to keep them involved in the construction process even though doing so may have caused some delays The Study Team was able to see that the smaller level of participation was due mainly to a lack of time, rather than a lack of will on the part of the stakeholders. By allowing them to participate at a level that was within their means, they were able to continue to feel connected to their stake in the project. This could be observed by the fact that they continued to supply the charcoal and water used for making lunches at the center.

5.7 Rehabilitation/Construction of School

A. Background

During the emergency aid period after the ceasefire, there was an evident lack of schools in the target area.[14] Therefore, some villages constructed schools made from soil blocks with the help of international donors and local NGOs.

However, some of these projects were not completed due to the limitations of resources and time or due to a lack in the NGO's management capacity. Therefore, the existing facilities had problems such as a low level of durability. These problems led to a poor learning environment, and in the worst cases, children were unable to use the classrooms. This forced them to travel to other villages to attend classes. Attending these classes caused them to spend an inordinate

[14] "Angola 2025", the long-term national development plan of Angola, stated that the schools need to be transformed from "national schools" to "regional schools". This meant there was an expectation that the inhabitants would get involved and strengthening their commitment to school management.

amount of time in the long distances traveled.

Due to these circumstances, it was urgently necessary to rehabilitate the schools and thus provide an adequate learning environment for the children.

B. Objective

To rehabilitate school buildings, and improve the enrollment rates of children using the participatory approach.

The following objectives were suggested during the pilot project period.

- To rehabilitate the incomplete school buildings that were constructed by the inhabitants during the emergency aid period.
- To organize parent committees to manage the operation and the maintenance of the schools.

C. Process

(i) Plan

Selection of Target Villages

The target villages were selected based upon the following criteria

- Villages which had demand were confirmed through participatory workshops during the project's finding survey.
- Condition of the school buildings
- The number of students enrolled in primary school

After the selection of the candidate villages, the Study Team conducted meetings to confirm their commitment to school rehabilitation. At the meetings, the Study Team explained that the local people would be responsible for participating in the construction work, and then confirmed their willingness to become the target village.

Establishment of the Parents Committee

The parents committee was established to promote the local inhabitants participation in construction, and to develop their sense of ownership over the supervision of construction, and their management of the school after completion.

The committee members were selected by the recommendation of village leader and school principal, and were then approved by inhabitants.

Promotion of the Inhabitants' Participation in the Rehabilitation Process

The inhabitants were responsible for making soil blocks, the transportation of construction materials like water/sand/gravel, and providing meals for the plasterers. The parents committee was responsible for making sure the inhabitants' participation remained at adequate levels. The committee controlled rotation work by the inhabitants.

Construction

It was necessary to mobilize plasterers and carpenters for the work which required professional skill beyond the capacity of the inhabitants. NGOs were responsible for construction management.

Beneficiaries

The number of beneficiaries (annual number of students) is estimated by the number of classrooms and their capacity, with the assumption that two classes would be held daily, in the AM and PM.

Dombe Grande *Comuna*	Seku Village	: 240
Canjala *Comuna*	CuioVillage	: 240
	Calonama Village	: 240
	Ceramica Village	: 240
	Kateque Village	: 240

Total 1,200 beneficiaries

(ii) Process

Selection of the Target Villages

In Canjala *Comuna*, many schools were built by international organizations during the emergency aid period after the ceasefire. However, due to the incomplete manner of the aid, many of the buildings made from soil blocks had become deteriorated, and many were made without windows and doors, with only tin-roofs affixed to the buildings by stones.

Since it was impossible to cover the needs completely, the Study Team selected 4 villages, Cuio, Kateque, Calonama, and Ceramica in consideration of the number of students, and the interest and commitment of the participation.

In addition, a local NGO, with funding supported by a Canadian NGO, had started to construct a school in Seku Village in Dombe Grande *Comuna*. However, due to a shortage in the funds the construction work was halted before completion. The Study Team, from the beginning of this study, had conducted workshops and pilot projects in this village. Therefore it was aware of the deteriorated education environment that the children were currently learning in. At that time, a deserted building, originally used as factory workers' residence during the colonial period, was being used as classroom. The children studied, sitting on the dark floor of the classroom. Therefore the Study Team, with the agreement of the former donor, decided to complete the rehabilitation. However, as a result of this policy, other villages were not selected.

Establishment of the Parents Committee

The Study Team had meetings with the NGOs, *Comuna* administrative official responsible for education to organize a parents committee. Five to ten committee representatives were selected by the recommendation of traditional village leader and the school principal and were

then approved by the inhabitants.

The role of the committee's activities differed by village. For example, in Cuio Village and Seku Village, committee members were responsible for the rotation of the inhabitants' contributions, the liaison service and attendance management of the construction work. Some villages demonstrated a positive active commitment to the project like the case of Cuio, which conducted visits to households with frequently absent children, and collected fees to purchase additional materials.

On the other hand, despite establishing a committee, some villages left their responsibility of mobilizing inhabitants to their village leader.

In Canjala *Comuna*, the Study Team and *Comuna* administration endeavored to organize a broader association comprised of the parents committees from the target villages, so that they could share the responsibilities associated with the operation and maintenance of the schools after the completion of the building phase. To distribute the responsibilities of the committee, they had to visit each village. During the visits, if given the chance they invited committees from other villages to explain the necessity of fee collection for the maintenance fund of the school.

Through this activity, there were instances where people discussed the difficulty of collecting the fees by the committee members because they were not authorized to do so like the village leader. Even so, it was possible in some villages. In cases such as this, after a certain period of time, the parents committees were only partially activated. However, the activity of these parent groups stagnated after the Study Team concluded follow-up, probably because the buildings didn't yet require maintenance.

Inhabitants' Commitment to Rehabilitation

Based on the decision of the village leader and the committee participation of all the inhabitants was called for based on the idea that the school should be village's common property, and not only that of households with children (direct beneficiary).

However, the participation of households without children was marked a lower rate. The level of the inhabitants' participation differed by village. As mentioned earlier, the participation rate of Cuio Village and Seku Village, which had active committees, were considerably high.

Following these villages, the rate of Ceramica Village and Calnonama Village were moderately satisfactory.

In Kateque Village, infrequent participation was observed for a certain period of time, but in time they did work to make soil blocks for the walls of the school building.

Construction Works

The scope of construction was different depending on the status of each village. In buildings with walls of soil or cement blocks, the walls and floors were painted with mortar, and windows and doors were put in.

Roofs with wooden beams were replaced with steel beams, considering the risk of moisture and white ants. For buildings which were almost broken or had leaning walls, the builders made a full reconstruction. All of cost estimations made by the NGOs engaged in school rehabilitation project were inaccurate.

And despite the efforts of the Study Team, no improvement was observed in this matter.

D. Results

- A total of five schools with three classrooms were rehabilitated or constructed as planned.
- Each school established a parents committee.

E. Lesson Learned

When commissioning an NGO to do construction work, it is necessary to hire expert support for cost estimations and supervision.

Many local NGOs are not financially capable to maintain a permanent staff on the project site.

Therefore, they tend to arrange their staff only when they have new contracts. Consequently, knowledge gained through experience has not always accumulated within their organizations, even though they have the experience of community-based infrastructure development.

The Study Team contracted with three local NGOs to implement the school rehabilitation and construction project, and all of the construction projects suffered a shortage of materials.

In addition, the performance of the local technicians such as the plasterers was irregular, which caused problems with the quality of the mortar-painting, thatching, and painting.

It is possible to facilitate the participation of the inhabitants without incentives like food or wages, if the Study Team considers the appropriate timing and level of responsibilities.

The Study Team noticed that the participation of the inhabitants is influenced by not only incentives but also by the work-load and time they could commit. In the case of the rural area, it was necessary to take into consideration the harvest season, and the construction workload.

In the school construction project in Kateque Village, the inhabitants achieved the production of hundreds of soil blocks. Also in the school construction project at Seku Village, the inhabitants kept working every day by rotation to provide water and lunch for the plasterers. The transportation of gravel and sand, despite the heavy burden, was implemented on schedule, thanks to the short implementation period.

A strong desire for school construction from the inhabitants is required, and was the defining prerequisite of these successful examples.

During the implementation phase, these two villages experienced various incidents such as frequent changes in donors and NGOs. Due to the unstable nature of the external support, the stakeholders doubted the ultimate success of the project.

Based upon this experience, the Study Team realized the importance of clarifying the

respective burdens of the donor and inhabitants; and explaining to the local inhabitants that they cannot always expect external support for their problems.

For fund collection, it is important to locate understanding leaders as key person.
After the effort by the Study Team to vitalize the parents committees, it was reported that two villages collected fees for the school rehabilitation. What differentiated these villages from others was the existence of strong leaders in the parents committees.

These leaders, though not having any title, were contributing daily to the village (not only limited to the parents committees). Therefore, they were able to convince the inhabitants of the necessity for the fund by explaining the objectives of fund raising.

It is important to confirm the existence of these leaders and to involve them as committee members.

5.8 Literacy Education

A. Background

Statistics indicate that Angola's literacy rate[15] is 67% at best.[16] The adult literacy rate in rural areas, which have been affected by the civil war, is particularly low: the Study Team estimated that it stood below 50% at the time of the project formulation study.[17] In addition, the literacy rate for women is below 20% in some villages.

Given these circumstances, the Angolan government is prioritizing adult education, including improving the literacy rate, but as it cannot secure sufficient funds, the Ministry of Education, which is the responsible government office, has been working on literacy education in partnership with external organizations. However, this literacy education strategy based on partnerships with external organizations is problematic in terms of sustainability, content and results. For example, an interview with the Benguela Provincial Education Office, a target province in this study, reveals that literacy education relies entirely on funds from donors and the activities of NGO organizations and churches. As a result, it is difficult to establish a plan and formulate objectives. The interview also demonstrates that the beneficiaries of the literacy education activities implemented by the Office are limited to employees of administrative organizations, such as guards and cleaning staff.

On the other hand, as the illiteracy rate in the rural areas is much higher than in urban areas, as mentioned above, in some cases literacy education is carried out by external organizations such as NGOs and churches that are able to use their own funds. As the rural areas are economically weak, financial aid from external organizations to those areas must be relied upon to provide salaries for literacy teachers and teaching materials. Although this would be

[15] When measuring literacy rates, the subjects are members of the population who have completed an elementary school education and who are generally over 15 years old.
[16] The most up-to-date information from 1999 to 2005 can be seen at this link: http://devdata.worldbank.org/AAG/ago_aag.pdf
[17] Implemented from November 2004 to January 2006

fine if the financial aid provided by external parties is not interrupted, the activities themselves are frequently halted when the funding ceases for some reason.

Nonetheless, when the workshops identified the needs of the residents in the target *Comunas* in the project formulation study, it became clear that the desire for literacy as well as reading, writing and calculation skills is extremely high. Although insufficient motivation leading to a high dropout ratio is a universal problem in literacy education,[18] it was confirmed that most of the people in the target regions are already motivated. This is because the residents had great expectations that their limited access to education during the civil war would be expanded after the cease-fire. This tendency was not only seen in rural areas and in the area of literacy education, but was also evident throughout the whole of Angola in urban areas and in school education.

Education is one of the basic human rights. A nation has the obligation to guarantee all of its citizens the opportunity for an education.[19] However, the Angolan government is unable to fulfill this condition in practical terms anytime soon. If Angola continues to rely solely on external organizations for literacy education, as it has until now, its education system would be unstable. Even if the activities are stable, there is a strong possibility that they would only provide a temporary solution when a long-term perspective is needed for education. For this reason, this report examines the possibilities of carrying out sustainable activities in literacy education, based on the initiative of the actual students who have a high desire for literacy education.

B. Objectives

- To create a framework that will enable the sustainable implementation of functional literacy education in rural areas.

  This project is aimed at identifying a system and method of implementation for literacy classes that would optimize the initiative of the residents and enable them to run the classes themselves without relying much on external organizations. In concrete terms, this report examines 1) the operational systems and methods from an organizational and economic perspective to ensure the sustainability of the literacy classes and 2) the possibility of enhancing the ability of functional literacy education to improve the livelihood of the beneficiaries. By enhancing achievements in functional literacy training, the opportunities to receive micro-credit will expand and the potential to implement small-scale businesses will increase, which in turn is connected to a rise in income and an increase in food production.

  The objectives of this project within the implementation period are as follows:

- To select income-generating projects to conduct literacy classes in three villages and to

[18] Kobayashi Kazue (2002), "The Challenge to Solve Illiteracy Problems", p.18.
[19] Kuroda Kazuo, edited by Yokozeki Yumiko (2005), "An Essay on the Development of International Education: Theory and Practice."

establish a system to implement them.

- To propose a functional literacy education program that will help to improve the livelihood of the people.

C. Process

(i) Plan

Seminars for Literacy Teachers

- Candidates to become literacy teachers, from among the village residents, to be selected by the *Comuna* administrative official responsible for education and the leaders of each village.
- Study and select literacy education methods (the Ministry of Education, NGOs, etc.).
- Prepare implementation plan for literacy teacher training seminars (selection of the implementation group, appointment of date, time and location, preparation of overnight accommodation and other arrangements for participants from remote areas, etc.).

Selection of Target Villages

Requirements for selection:

- Villages in which candidates for literacy teachers live or, alternatively, have access to ensure that lessons can be given on a continuous basis with seminar participants who passed the final examination at the end of the seminars.
- Villages whose residents wish to acquire literacy and are also interested in community income-generating projects. They should be interested in the potential independent operation of literacy classes in terms of both its organization and its finances and have some desire to implement such a system.
- Villages expected to become economically independent through the generation of earnings from the community project. In concrete terms, this means villages which fulfill the conditions for attaining benefits from income-generating projects, such as land available for use as a community farm in the case of agricultural projects, and the absence of any similar business in neighboring villages in the case of small-scale trade projects. The evaluation of the candidate villages depends on the results of profitability of the project as reviewed by the Study Team, the contributions they can make to the project, and whether they can prepare it.
- Villages with leaders, literacy teachers and others with leadership skills, such as the ability to set up beneficiary groups for the community income-generating projects, establish rules and manage activities.

Community Income-Generating Projects

- The project candidates are identified when selecting the target villages.
- The project is prepared with the beneficiaries, a management committee is set up, and the

role of each committee member is clarified.

- The project details are determined, such as which crops to grow, the area to be used as community farms or what products should be sold and in what amounts in small-scale trade projects. These decisions should be made primarily by the committee members.
- The committee should set and explain rules to the participating beneficiaries and also manage a work roster.

Literacy Classes

- The village leaders and literacy teachers should register applicants for the literacy classes.
- The timetable is decided for the literacy classes. As most of the applicants are engaged in farm work, this process should be based on a consensus formed by holding a meeting with the relevant parties.
- Lessons are conducted.
- Tests are given to measure the level of understanding. In this process, the possibility of holding literacy classes authorized by the Ministry of Education should be examined.

Monitoring

- The Study Team and the *Comuna* administrative official responsible for education monitor the literacy classes and the community income-generating projects.
- A system is established whereby the *Comuna* administrative official responsible for education can continue monitoring even after the Study is completed.

Estimate the Number of Beneficiaries

- The seminar for literacy teachers is expected to have 30 participants.
- Literacy classes accompanying the implementation of community income-generating projects are planned for three villages, with two classes in each village and each class consisting of 35 participants, adding up to an estimated total of 210 direct beneficiaries.

PDM

Refer to Table 5-6 on the next page.

Table 5-6 PDM Pilot Project: Literacy Education

Pilot activity: Literacy Education **Target area: Benguela province, Municipality of Lobito, Comuna of Kanjala**

Overall Goal	Indicators	Means of Verification	Important Assumptions
Increase literacy rate of Kanjala by its own effort	Literacy rate of Kanjala increases from XX% to XX% Literacy project financially sustainable by villages and/or *Comuna* administration is operated 70% at target villages	Study	
Project Purpose Establish a system of sustainable literacy project	After the seminar, 80% of planed program is realized (the number of session, % of contribution)	Report	
Outputs			
1 Literacy teachers are trained and become capable	1.1.The number of participants of seminar reaches 30 1.2 Pass rate of final exam of the seminar reaches XX% 1.3.100% of literacy teacher has teaching manual 1.4 . XX% of literacy teachers passed at evaluation of teaching quality (done by the study team)	Report Report	
2 Literacy lessons are held at villages	2.1. The number of literacy classes by the trained teachers is 8 2.2. The number of learners of literacy is XX 2.3 Presence and absent of learners are controlled 80% 2.4. Timetable exists 2.5. Rule exists 2.6 Literacy teachers give lessons XX% of planed	Report	
3 Secure the fund for operation of literacy project under sustainable condition	3.1. More than 90% of payment is secured by beneficiaries 3.2. *Comuna* administration finds new financial support (commercial farmer, Provincial and Municipal education office)		
4 Learners pass the final exam of each session	4.1. Pass rate of final exam reaches XX % 4.2. XX% of learners pass the quality evaluation (done by the study team)		
5 Literacy project in Kanjala is recognized by provincial education office in Benguela	5.1. Municipal education office recognizes the classes and send inspectors at final exam 5.2. *Comuna* administrative official responsible for education follow literacy lessons and send monthly reports to Municipal education office.		
Activities	**Inputs**		
1.1 Decide criteria of selection of literacy teachers 1.2 Select 30 literacy teachers with *Comuna* administration. 1.3 Make a plan for 1st seminar of literacy teacher training 1.4 Arrange trainers of the seminar with collaboration of provincial and municipal education office 1.5 Prepare materials for the seminar 1.6 Hold seminar of literacy teacher training 1.7 Evaluate the capacity of trained literacy teachers 1.8 Evaluate capacity of teaching quality of literacy teachers 1.9 Make plans of more training as the need arises 1.10 Hold additional training for literacy teacher training	【The study team side】 Fee for holding seminar Transportation fee for monitoring Teaching materials allowance for literacy instructors Operation fee (allowance for literacy teachers) Investment cost for income generation community project The study team member for non-formal education 【Government side】 Teaching materials Instructors for seminar of literacy teacher training *Comuna* administrative official responsible for education Operation fee (allowance for literacy teachers)		Trained literacy teachers do not leave their villages Other organizations (NGO, donors) does not start literacy project in Kanjala in different policy of sustainability
			Pre-conditions
2.1 Motivate community people to participate in literacy classes 2.2 Select learners at villages 2.3 Guide the start of literacy lessons to learners (timetable, rule) 2.4 Monitor the literacy project with *Comuna* administration			There are candidates for literacy teachers with minimum 6th grades education level Community people are interested in learning literacy
3.1 Study every possibility of income generation project at villages 3.2 Promote beneficiaries' contribution for operation of the literacy project 3.3 Negotiate with *Comuna* administration about its contribution for operation of the literacy project 3.4 Regularize the system to secure the operation of co-management (villages and *Comuna* administration) 3.5 Monitor the system of the operation	【Beneficiaries side】 Operation of income generation project (labor)		Ministry of education has national policy to expand literacy
4.1 Monitor the level of capacity of learners 4.2 Monitor the participation of learners			

Source: The Study Team

(ii) Progress

Project Formulation Study: Beginning April 2005

A local NGO was appointed and the training seminar for literacy teachers was held. The seminar used the Ministry of Education's program, while employees of the Lobito Municipal Education Office and staff from the appointed NGO served as instructors. The candidates for teachers were residents with educational backgrounds equivalent to sixth grade or higher and were selected by the *Comuna* administrative official responsible for education, leaders of the respective villages or school principals. 30 people were selected from 10 villages.

The seminar was held over a span of five days at an elementary school in the regions of the administrative centers of *Comuna*. Participants from remote areas or instructors from urban areas were provided with accommodation at facilities arranged by the *Comuna* administration**.**

In addition to Portuguese and mathematics as the main subjects for literacy education, the seminar topics also included health education.

When the seminar was over, completion examinations took place and 25 people passed. They were formally certified by the Municipal Education Office as literacy teachers and were awarded a completion certificate.

After Completion of the Project Formulation Study: Beginning August 2005

The objective at the time of the project formulation study was only to provide teacher training. However, subsequently the NGO, *Comuna* administration and the residents of the target villages independently started their own literacy classes even without the support of the Study Team.

The classes, initiated by 25 literacy teachers in August, had 750 students (521 women). When the classes finished in December, 314 participants (201 women) passed the completion examination. This pass rate only represents 50% of the participants. The main reason of low presence was the withdrawal of the "Food for Work" program, which would have given teachers an allowance. This lowered the motivation of many literacy teachers and resulted in the cancellation of classes.

Development Study: Beginning September 2006

Workshops (April to May 2007)

These workshops were held twice. The target participants were those who had attended the teacher training seminar during the project formulation study. The workshops were held to promote understanding of the objectives to set up autonomous and continuous literacy classes and to confirm the roles of the literacy teachers in line with these objectives. During the first workshop, the literacy teachers only considered their role as teaching literacy. However, during the second workshop, they deepened their understanding of the need for functional literacy education and literacy classes that can be run autonomously and continuously. They were gradually able to understand the important role of literacy classes in the development of

the villages.

Workshops were held in each of the ten villages, with the target participants being the residents of the ten villages, where literacy classes were held after the project formulation study. First, the Study Team explained to the residents the concepts of the literacy classes and the management of community income-generating projects in order to maintain sustainability. Subsequently, the Team held an open discussion-style workshop with the participating residents to examine the actual feasibility of these concepts. Specifically, residents were asked to respond to project proposals, and to express their views on the strengths and resources possessed by villages in order to achieve goals of the project, and the weaknesses and the aid required. For this purpose, the Study Team posed questions regarding the ability of the villagers themselves to participate in the projects. In sum, the workshops showed that, for example, even if the villagers can not pay a small fee in cash for the lessons, they have the potential to offer their labor for the community income-generating projects. Although residents submitted proposals for community land cultivation projects in nearly all of the villages that were candidates for literacy classes, some of the villages submitted ideas that would suit the needs of the villages. Such ideas included shops offering daily goods and food, stockbreeding, or businesses to produce and sell charcoal.

Training Seminar for Literacy Teachers (June 2007)

Although at the time of the project formulation study a seminar based on the Ministry of Education's training program for literacy teachers was held, in this Study the "Don Bosco" literacy teaching method recommended by groups such as Italian churches was implemented. This was done for two reasons, which are particularly relevant in learning the Portuguese language. First, in this method the teaching materials focus on things and situations that are close to the students' everyday lives, giving the learner a sense of familiarity with the material, making it easier for them to understand the content. Second, the literacy teachers do not have to have a particularly high level of education. The Study Team also wanted to compare this literacy learning process with the traditional literacy program run by the government.

In selecting seminar participants, ten villages were initially selected from the candidate villages. The selection was made by the administrative officials from the *Comuna* administration (those in charge of education or socio-economic affairs) and the Study Team. Their criteria for selection were the degree of the residents' understanding of the content of the aforementioned workshops, the potential for income-generating community projects and ease of access for the purpose of monitoring lessons. A total of 30 candidates for literacy teachers were selected from the 10 villages. Most of these 30 people performed well in the literacy teacher training seminars in 2005 and had subsequently set up literacy classes. The actual number of seminar participants increased by five to a total of 35 people from 15 villages.

The seminar took place over six days and was comprised of two sections: lectures on

methodologies for teaching Portuguese and mathematics and teaching practice sessions for participants.

To receive a certificate of completion, participants were evaluated in three areas: preparing lesson plans, teaching practice and a performance in a written examination. Twenty-six out of 35 candidates passed.

Restarting the Literacy Classes

Based on instructions from the *Comuna* administrative official responsible for education at the time, each literacy teacher, with the cooperation of the village leaders, prepared a registry of students in the village. After this process, eight villages independently restarted the literacy classes. The Study Team did not provide any particular advice or support to the literacy classes held during this period. As the instructions to restart the classes came from the *Comuna* administration, it appeared that the literacy teachers and students had begun the classes with expectations of government support. After the seminar for teachers held by the Study Team in June, the Municipal Education Office in Lobito held similar literacy teaching seminars, attracting 30 participants from Canjala *Comuna*. Their expectation of support from the government for the literacy classes was apparent. The literacy teachers seemed to expect that the government would pay an allowance, so they went ahead and held the lessons.

Following the Christmas break at the end of 2007, it was confirmed in 2008 that residents of four villages, or 10 classes in total, restarted classes of their own accord. Of these, three villages, or nine classes, are target villages for income-earning community projects. The other village cancelled classes for a month and a half from April. This was because the beneficiaries were unable to stick to the class times during the busy farming season, and the beneficiaries agreed to cancel the classes.

Selection of the Beneficiary Villages

After the seminar took place, the Study Team and the *Comuna* administrative official responsible for education visited the villages that held the literacy classes and monitored the lessons. This occasion provided an opportunity to have the literacy teachers and students together at the same time to confirm the feasibility of operating autonomous and continuous literacy classes.

As has been previously mentioned, some of the teachers and students participating in the lessons had held lessons hoping for support from the government. These groups had shown an interest in income-generating community projects in the workshops held around April. They had expressed the possibility that they would participate in those projects, but in the actual discussions, two of the eight villages gave a negative response. Their attitude was that if there was no support from the government, then they did not want to do it.

However, six villages regarded the occasion as an important opportunity to gain the support of the Study Team for the income-generating community projects, and expressed a positive attitude toward participating in the projects. As this was a pilot project, not all of the

applicants became beneficiaries, and the Study Team explained in advance that only three or four villages would be selected. After the explanatory meeting, in some villages residents got together in the village and discussed ideas for projects. Among the ideas discussed were potential land for cultivation, products to be cultivated and potential places where products could be sold.

The final selection of beneficiary villages was determined using the three criteria listed below. Particular importance was given to 3.

1. Literacy classes held after the seminar.
2. Interest expressed in income-generating community projects.
3. Concrete autonomous activity to prepare for a project.

Once these criteria were applied, the number of villages was reduced to three.

Commencement of the Community Income-Generating Projects

One of the beneficiary villages that had previously been selected implemented an income-generating project in cultivation, while another village carried out a project in sales. After the Christmas break at the end of 2007, almost none of the villages were holding classes as of the end of January 2008.

One exception was the village of Pedereira, which had restarted lessons in the middle of January. Pedereira village is located at the far end of a *Comuna*. It takes about two hours by car when traveling in a north-easterly direction from the center of Canjala *Comuna*. No other villages are on the way, and it is in an isolated area not often visited by *Comuna* administration officials. The residents of this village make a living in agriculture and by producing charcoal. When the income-generating project was being selected, they decided to operate a sales outlet. There are hardly any markets or shops in this isolated area in which daily necessities can be purchased and it is difficult to acquire agricultural land. A committee consisting primarily of village leaders, literacy teachers and student representatives organized the preparations and ran the project. Under the initial concept for the community income-generating projects, all of the beneficiaries would participate, but as the actual operation of the shops involves handling products and money, for example, it is difficult to determine who is responsible under the roster system. So it was decided to limit the number of people with responsibility and to give the necessary support to the beneficiaries. As the people responsible for operating the sales outlet had to be able to fill in an account book and calculate sales figures, ultimately one of the literacy teachers took the post. Also, a rule was set at the committee meeting to regularly monitor the shop's income, expenditures and stock. When selecting products, the Study Team calculated profitability and other aspects and explained this at the committee meeting. Profitability was calculated based on the results of a household economics study implemented by the Study Team. In other words, it was based on average consumption trends in the target area and calculated by including the purchase price

of selected products (rice, salt, sugar, soap) that were generally and regularly bought by the residents.

The above-mentioned selection of people responsible, products to be sold and the regular monitoring system were discussed with the committee members at a meeting attended by the Study Team and the administrative official responsible for education. Subsequently, those ideas were explained to all of the students and approved by them.

Community income-generating projects began in March 2008. Initially, the Study Team estimated the food and commodity consumption of each household, based on the result of the household survey. On the assumption that all literate households would use this sale stand, the Study Team purchased goods for Kz39,000, equivalent to the optimal quantity of monthly sales. The retail price was set by the Study Team and the committee member, by taking into account the villages' market price, cost price, transportation costs, and teachers' salary. Estimated monthly sales stood at Kz59,500.

However, the aggregate sales by October 2008 (six months since commencement) totaled only Kz32,000. The monthly average was Kz5,333.

Since they still store stock, the sales value was lower than cost price. The beneficiary group has identified various reasons for this, such as the distant location from the center of the village and the frequent absence of the manager due to injury and other duties as a member of the election administration committee.

The beneficiary group allocates partial sales of Kz5,100 for the salary of literacy teachers, Kz11,300 for purchasing new goods, and saves the remainder for the next purchase.

In addition, since they plan to move the sales stand, they have reserved a portion of the sales to purchase a tin roof for the new stand.

After the meetings since 2007 to confirm interest in the projects, Calonama was the next village that showed a positive stance by taking concrete action such as looking for land for cultivation and submitting proposals for products that could be grown. About two hectares of land right next to the village was secured. Maize, which is generally cultivated in the Canjala area, was chosen as the main crop, intercropped with *Macunde* beans. At the beginning of 2008, after confirming that the literacy classes had restarted and that the beneficiaries had started making preparations to cultivate the land, the first stage of the investment was implemented in order to lease tractors and purchase seeds and farming tools. Two months have now passed since cultivation began, and although a roster system has been implemented that includes the participation of all of the beneficiaries in the cultivation work, the rate of participation stands at 80%. Those who had not participated stated that it was due to their residence in a mountainous region.[20] The low participation rate could also be attributed to its

[20] Most of the farmers in the central area of Canjala who rely on rainfall cultivate both mountainous and flat areas.

timing, which coincided exactly with the peak of the rainy season, which is the busiest time for farming. Although this village also cancelled literacy lessons for the same reason, the work in community land cultivation was being continued. As a result, due to the rain-dependent, conventional cultivation, harvest of maize was only 50kg, considerably lower than the planned figure of 400kg.

Another village that had been selected for a land cultivation project was Lombovo. Here, three hectares of land next to the village was secured for cultivation and it was decided to grow maize and peanuts. The beneficiary groups in Lombovo are organized according to residential areas and the lessons are also conducted in each of the different districts. For that reason, the work roster for land cultivation is allocated according to groups, and methods such as using substitute workers within each group were decided so that the planned work would not get behind schedule even if individual members are unable to participate. The result of this is that the work plan has been carried out in accordance with the planned schedule. Similar to the Village Calonama, the peanut and maize harvests amounted to 48kg and 57kg, respectively, due to rainfall. These harvests were much lower than the estimated figure of 600kg and 140kg, respectively.

D. Results

(i) Evaluation of Literacy Education

From September to October 2008, the Study Team independently gave achievement tests to students in the literacy class. The test had two subjects, Portuguese and math, adjusted to fit the progress of the program. The test was also intended to confirm their applicability in daily life.

Accordingly, in addition to a writing test, which is the main focus in the usual test, the Study Team added a reading test.

Questions in the math exam were also designed to test their applicability in daily situations which requires calculation, such as buying and selling goods or measuring the quantity of agricultural products. The results are shown below.

Table 5-7 Results of Literacy Class Held in Canjala *Comuna*

	Pedreira	Calonama[21]	Lombovo	Total
No. registered (Female ratio)	76	27	98	201 (59%)
No. of dropouts[22] (Percentage of women)	16	18	20	54 (26%)
No. of examinees[23]	53	n/a	70	123
No. of applicants passing Portuguese exam	29	n/a	33	62
Passage ratio for Portuguese exam	38%	n/a	34%	36%
No. of applicants passing math exam	28	n/a	35	63
Passing ratio for math exam	37%	n/a	36%	36%

Source: The Study Team

The Study Team used a brochure entitled "Integrated Farming project-- one of the pilot projects of this study," in the Portuguese exam. The students understood the questions and expressed strong interest, and even requested a photocopy of the exam paper.

On the other hand, students had a hard time applying numbers to formulas in questions on addition, subtraction, multiplication and division, and the response rate was quite low.

This exam demonstrated to the students the importance of literacy education and motivated them to study harder. With two months remaining before the end of the program, this exam showed literacy teachers acknowledge the weak points of the students. Together with administrators in charge of education, they showed a willingness to voluntarily discuss planning and measures to promote the remainder of the program.

(ii) Feasibility of Community Income-Generating Project

The Study Team recognized that the risk of community farm projects is quite high, due to its rain-dependent nature. As observed in other pilot projects in *Comuna* Canjala, such as the cultivation of haricot bean and vegetables, its feasibility as an income-generating project is low without an irrigation system. Chapter 5.6 Day care center and 5.10 Microfinance serve as references in this matter.

On the other hand, analysis of the experience of Pedreira Village proved that net profit of the sales stand project amounted to 50% of the cost price after deducting miscellaneous expenses such as transportation costs.[24]

Based upon this figure, in order to cover the monthly Kz11,250 (equivalent to US$150) for the salary of three literacy teachers, they need to ensure sales of Kz33,750. Actual sales in Pedreira Village were Kz32,000 for six months, which comes to an average of Kz5,333 per

[21] Calonama village did not hold exams due to suspension of the class. The suspension can be attributed to both the teachers and students, as can be seen by the absence of the teacher and the dropout rate for students. The class had been held at night, using electricity from a neighbors' generator, but the generator's breakdown prevented them from continuing the class. They did not take any steps, such as changing the timetable. This was one reason for the suspension.

[22] They attributed lack of time as a reason for dropout.

[23] The number of examinees is not equal to the registered number minus dropout number because of absences on the day of the exam.

[24] If they could sell all goods with a stock price of Kz39,000, total sales are estimated to reach Kz59,500, with a net profit of Kz23,000.

month.

The most effective solution to this matter is to locate the store in areas in which people are most likely to gather. Accordingly, the beneficiary group plans to transfer the location to an area with the greatest pedestrian traffic in the district.

As was mentioned above, this village has neither markets nor stores nearby, making the need for commodities from this stand high. If 78 students in the literacy class purchase products worth Kz432 per month, they can achieve the minimum target sales of Kz28,125.

For example, they sell 1kg of rice for Kz100. This level of consumption should be affordable, judging from the results of the household economy survey (please refer to Chapter 3.4.1), which reported annual average purchases of Kz5,000 in rice (Kz416/month) and Kz2,621 in laundry soap (Kz218/month).

The key to a feasible community income-generating project is to attract customers and increase sales. Therefore, it is important that students of literacy education themselves use this stand, and also that the store location be transferred and service hours extended.

E. Lessons Learned

There are various approaches to the "benefit principle." Beneficiaries must therefore be consulted in determining the principle.

At first, the Study Team considered collecting tuition fees from beneficiaries. However, after discussion with the beneficiaries, all agreed that the literacy teachers' salaries should be generated through a community income-generating project supported by the labor of the beneficiaries.

Since most beneficiaries rely on rainwater-dependent agriculture for their food, their cash income and food storage capacity were very limited. Therefore, they cannot afford to pay (teachers') salaries using cash or goods. They also understood that projects dependent on the public sector or donors are not sustainable.

Therefore, the Study Team was able to reach an agreement with the residents that the project would be jointly conducted to earn profits in order to ensure sustainability.

Fully consider the profitability of the community income-generating project.

The Study Team attempted community farms in two villages, but production was disappointing due to rain shortage. On the other hand, the other pilot project involving a plant nursery was able to harvest cash crops like kidney beans (which require careful management) by using irrigation water. The effectiveness of the sales stand project, another community income-generating project, was confirmed as a success, achieved by focusing sales on popular products such as food and luxury goods, and securing stable sales without a competitive market.

These projects originally started through the initiative of beneficiaries. In particular, the community farm project utilized existing beneficiaries' skills and capacity. However, the low

production somewhat weakened the motivation of participants.

Thorough discussion in the workshop could enhance stakeholder mindset.

The Study Team conducted workshops in eight villages. Initially, every village understood (the need for) community income-generating projects. However, once the details were elaborated in workshops, the Study Team was able to accurately evaluate the level of interest. Namely, half of the villages enhanced their stakeholder mindset, while others concluded that it would be impossible to commit to this type of project.[25]

5.9 Integrated Farming

A. Background

Farming in the target area is shifting from pure subsistence farming of maize and bean production to a mixed farming system which includes food crops for self-consumption with some cash crops such as vegetables. Small-scale farmers, however, cannot afford to invest cash in their farming and do not have production technologies to minimize the risk posed by such investments.

When they begin vegetable production, the most significant problem is raising soil fertility to a high level—indispensable in vegetable production--without spending cash. Vegetables require higher nutrition than grain crops such as maize. The present soil fertility in the target area is 500-600kg maize per ha without fertilizer and it is necessary to reinforce this soil fertility with inputs when farmers grow vegetables.

It is difficult to rely on livestock manure in the target area, which is a common method of soil fertilization in Asia, because livestock was decimated in the civil war. On the other hand, indigenous chickens are kept in many households but collecting chicken manure is not easy as they are scavenging animals. In the first place, farmers in the target area, who have only had experiences with extensive farming for a long time, are unfamiliar with ways of utilizing livestock manure. Indeed, they do not use chicken manure in traditional chicken sheds in which birds stay at night.

The Study Team proposed that a semi-confining chicken rearing system and small-scale vegetable production be used as the basis for collected chicken manure. Farmers might be able to produce vegetables without expensive fertilizer and to promote soil improvement through the input of chicken manure compost.

B. Objective

A farmer should master the technique of (1) collecting chicken manure from a semi-confining system efficiently, providing self-produced feed, (2) applying collected chicken manure to a small-scale vegetable garden to make the soil fertile and (3) growing vegetables. Not only vegetable sales, whose profit will be maximized by cutting the cost of fertilizer, but also sales from the chicken unit are expected.

[25] Out of four villages interested in the project, the aforementioned three villages conducted literacy classes, and two of them were still operating the project by the end of this study.

C. Process

(i) Initial implementation Plan

Chicken Unit

A chicken unit consists of a cock and two hens. As a hen hatches eggs a couple of times a year, farmers can market 12-18 chickens per hen per year if the average number of harvested chickens in a unit is six. If they keep two hens, 24-36 chickens can be marketed. Because the market price of a chicken is around Kz600, 30 birds would yield Kz18,000 a year.

Chickens are semi-confined in a shed, not only at night but also for most of the day with the exception of four hours for scavenging, in order to collect as much manure as possible. A chicken excretes 100g of raw manure a day (74% of which is water). There are 15 chicks and three adult chickens in the proposed production system. Assuming that a chick excretes half the amount of manure that an adult chicken does, 10.5 adult chickens excrete 945g per day after subtracting 10% for the loss during short scavenging hours. When this raw manure is composted, 39% is water or 498g per day and 182kg per annum. Composted chicken manure consists of 1.76% nitrogen, 3.13% phosphorus and 1.63% potassium. Thus, on the manure would provide 8.7g nitrogen a day or 3kg a year.

As 1 kg of tomato requires 3-4g of nitrogen, 1-1.5g of phosphorus and 5-6g of potassium, 600 kg of tomato would require 1.8-2.4kg of nitrogen. Though tomato plants never absorb all of the applied nutrients, it is possible to produce 600kg of tomato with the original soil nutrients and 170kg of chicken manure compost containing 3kg of nitrogen.

If farmers prefer to reduce scavenging hours compared to the traditional scavenging system, they have to feed the chickens to make up for the nutrition missed in scavenging. It is necessary to provide sufficient nutrition--particularly in terms of calorie and protein--to improve production performance and to prevent diseases. Feed crops should be produced on the farm, as costs increase when feed materials are purchased from the market.

As the target area is expected to have enough precipitation for at least a crop of maize and there are available arable lands, 0.3ha of maize without fertilizer is estimated to yield a 200kg harvest. Three adult chickens and 30 chicks consume about 200kg of maize per year. 10kg in seeds would be required.

It is not easy to find protein sources for chickens in situations in which even people cannot obtain sufficient protein. However, the success of the chicken production project depends on whether chickens are fed sufficient amounts of protein. Sunflowers and earthworms are proposed as one source of protein. Sunflower could be planted in 0.2ha for 100kg of harvest. Five hundred grams of seed would be required. Earthworms can be cultured with appropriate water and nutrition in a culture bed.

In addition, silage with grasses is planned. Although silage is prepared for ruminants, a report indicates that silage is also good for chickens. Silage does not contain many calories and protein, but it does provide chickens with vitamins and minerals.

Lastly, infectious diseases posing risk of mortality such as New Castle Disease should be prevented with vaccinations. Some vaccines should be administered on the advice of local veterinarians.

Vegetable Garden

When a certain amount of chicken manure compost is collected, it should be utilized for vegetable production. Tomatoes, which have a stable market, are the first candidate for vegetable production.

Gardens should start on a small scale, such as a 10m by 15m plot. Vegetable production requires more intensified growth management, such as irrigation, weeding, fertilizing and pest control, than maize production, and this intensive management work increases in parallel when the area under cultivation increases. Increasing yield per hectare, therefore, is a more efficient way to utilize limited resources than to simply expand the area under cultivation. Farmers can achieve intensive vegetable production if they harvest 300kg of tomatoes from a small garden of 150 square meters.

Tomato prices fluctuate widely, but assuming an average unit price per kg of Kz50, Kz15,000 is expected in crop sales. As the harvesting period is 1.5-2 months, they would be able to produce two crops per year. Annual sales would be Kz30,000.

Some farmers have already started tomato production in the target area, but most of them do not plant in sufficient intervals within a row and between rows for sound root development. The farmers should first be trained in the appropriate intervals within a row and between rows. They should also receive training in soil improvement using grasses in addition to chicken manure compost. Organic matter such as grasses improves soil quality not only chemically, but also biologically and physically. Soil improvement has a significant impact on the production of vegetables, which is more susceptible to disease than grass families.

However, it would take at least a few years to build up the soil. During this process, pests will certainly attack vegetables. Unless farmers protect vegetables with pesticides, vegetables could die without a harvest. The project collects information on pest control programs used on local estate farms and adopts their control methods using pesticides.

Estimated Balance of Payment

The annual balance of payment is summarized in the table below. A profit of about Kz37,000 is substantial for a small-scale farmer. According to the household survey conducted by the Study Team, the average household income per annum was Kz100,000. The profit from this integrated farming project would amount to more than one-third of their current cash income. This Kz37,000 is from just three chickens and a 150 square meter garden. If a farmer has more land to plow and a larger market in which to sell products, an increased income can be expected because the farmer can double or even triple the scale of production technology.

Table 5-8 Estimated Balance of Payment for Integrated Farming, Initial Plan

	Chicken	Vegetable	Total
Project Summary	(1) With 1 cock and 2 hens, 30 chickens are marketed per annum. (2) Chicken unit provides 160kg of chicken manure compost for vegetable garden.	From 150 square meter garden, a farmer produce 600kg of tomato in two crops	
Sales	Kz600×30 chickens=**Kz18,000**	Kz50×300kg×2 =**Kz30,000**	**Kz48,000**
Cost	Adult chickens Kz800×3=Kz2,400 Maize seeds 10kg= Kz350 Sunflower seeds 500g=Kz750 Vaccine=Kz80 Vaccine transportation=Kz1,000 Corrugated iron, 5 sheets =Kz2,750 Total **Kz7,330**	Tomato seeds s 100g=Kz1,200 Pesticide A =Kz1,150 Pesticide B =Kz270 Pesticide transportation =Kz240 Total **Kz2,860**	**Kz10,190**
Profit	**Kz10,670**	**Kz27,140**	**Kz37,810**
Profit Rate	59%	90%	79%

Source: Study Team

(ii) Modified Plan

The design of the chicken unit was modified. First, an almost entirely confined rearing system was changed into a scavenging system, with the exception of two months after birth during which the chickens were in complete confinement. During the confinement period, chicks and the mother hen stay in a mosquito net shed for 24 hours. This makes the following differences.

1. Amount of chicken manure collected decreases due to longer scavenging time.
2. The amount of self-produced feed decreases due to longer scavenging time.
3. Large chicken shed is not needed due to scavenging system.

1. has a negative impact on vegetable production and 2. and 3. have a positive impact on chicken production.

Secondly, the number of introduced hens increased from two to six. If baby chicks succumb to predators or diseases, many of them are killed and production virtually stops. As the result, the motivation of farmers cannot be sustained. The increased number of hens has the following results.

1. The amount of collected manure per bird decreases but total amount is almost the same as the initial plan due to the increased number of hens.
2. Necessary amount of feed to be produced per bird decreases under scavenging system but total amount is almost same as the initial plan due to the increased number of hens.
3. The number of marketed chickens and sales increase.

In short, the amount of collected chicken manure and the necessary amount of feed to be

produced are same as the initial plan, the initial investment for a chicken shed decreases and sales go up. It was difficult for farmers that had been practicing the scavenging system for a long time to adjust to the total confinement system. The total confinement system tends to break down easily when feed is short. Some farmers actually returned to the scavenging system when feed fell short. The scavenging system allows chickens to survive using the nutrition that they take up for themselves while scavenging.

The size of a chicken shed in the initial plan was sufficient, but slits, which were not made intentionally, allowed snakes to invade. Baby chicks cannot escape from these predators due to their lack of mobility. In Dombe Grande *Comuna*, the Study Team identified a farmer who kept his baby chicks in a mosquito net. According to him, he confined baby chicks and mother hen in the mosquito net to protect them from predators. Thanks to the fine net, animals cannot get into the net. After two months when the chicks are grown, he lets birds scavenge. In the project some chicken sheds are needed for chickens after two months and adult chickens in the night, but three to four traditional small sheds made of dirt are sufficient for this purpose.

Nutrients from chicken manure compost provided through this system can be calculated as follows. Six hens hatch eggs twice a year. Assuming that the average number of marketed chickens per hatching is five, sixty chickens are sold annually in total.

1. During two months in mosquito net shed, 60 baby chicks excrete 25% the amount of adult chickens, so the amount of manure from 15 adult chickens and 12 mother hens can be calculated accordingly. An adult chicken excretes 100g of raw manure (74% water), so a total of 27 adult birds excrete 162kg per annum.
2. An adult cock and six hens excrete in the traditional small shed at night. Assuming that 30g of raw manure is produced per night per bird, 30g x 365 days + 6 hens x 30g x (365-120 days) = 55kg excreted.
3. After two months of confinement, scavenging chicks excrete 20g per night. As they live in this way for five months, 60 birds x 20g x 150 days = 180kg produced.

The total is 397kg per year. This is composted into 170kg of 39% water, which is almost the same amount as in the initial plan (160kg). Feed production is almost the same as in the initial plan. Two hundred kg of maize from 0.3ha and 100kg of sunflower from 0.2ha are expected.

Earthworms and termites are fed as a protein source. The first half of the pilot project showed that culturing earthworms was difficult for target farmers. Accordingly, it was recommended that natural earthworms be collected in wet areas and fed primarily to baby chicks in the mosquito net shed. Termites are fed together with their mounds, which contains rich minerals. Moreover, fresh grasses and banana leaves should be fed to chickens as a vitamin source.

Infectious diseases leading to death such as New Castle Disease should be prevented by vaccination, as in the initial plan.

How will the balance of payment change? The sales of chicken units double and the initial

investment for chicken sheds is reduced, yielding a profit of Kz27,720 per annum. The profit from vegetable garden, Kz27,140, brings total profit to Kz54,860.

Table 5-9 Estimated Balance of Payment for Integrated Farming, Modified Plan

	Chicken	Vegetable	Total
Project Summary	(1) With one cock and six hens 60 chickens are marketed per annum. (2) Chicken unit provides 170kg of chicken manure compost for vegetable garden.	From a 150 square meter garden, a farmer produces 600kg of tomato in two crops	
Sales	Kz600×60 chickens=**Kz36,000**	Kz50×300kg×2 =**Kz30,000**	**Kz66,000**
Cost	Adult chickens Kz800×7=Kz5,600 Mosquito net=Kz500 Maize seed 10kg= Kz350 Sunflower seeds 500g=Kz1,500 Vaccine=Kz80 Vaccine transportation=Kz1,000 Total **Kz8,280**	Tomato seeds 100g=Kz1200 Pesticide A =Kz1,150 Pesticide B =Kz270 Pesticide transportation =Kz240 **Total Kz2,860**	**Kz11,690**
Profit	**Kz27,720**	**Kz27,140**	**Kz54,860**
Profit Rate	77%	90%	83%

Source: Study Team

(iii) Progress

The pilot project was planned initially in September in 2006 and Primeiro de Maio village in Canjala *Comuna* of Lobito municipality and Seku village in Dombe Grande *Comuna* of Baia Farta municipality were selected as target villages. The Study Team had kick-off seminars in each village to explain what was going to happen in the project and asked participants to select three beneficiaries, respectively. They selected several people in leadership roles in the area, such as a traditional leader and a secretary.

They planted feed maize in November 2006, but sunflower planting was delayed partly because beneficiaries did not understand the crucial function of protein feeding. In Dombe Grande *Comuna*, they planted sunflower in the beginning of 2007 but Canjala farmers did not plant sunflowers until September 2007, after the dry season lasting from April to September. Though earthworm culture started in January 2007, worms did not propagate well due to insufficient water in the culture bed and high temperatures.

Chicken sheds were constructed by the end of January 2007. The sheds were 2m by 2m with mud bricks and corrugated iron was used for the roof to prevent heavy rain that could destroy sheds.

At this point, an indigenous cock and two hens per farmer were introduced. As feed maize was sufficient but protein sources were short, propagation performance was not good. For instance, about half of the eggs were hatched but the remainder became rotten. This phenomenon sometimes happens when nutrition for mother hens is not sufficient. In Dombe Grande *Comuna* farmers harvested sunflower seeds in June 2007 and began to feed them to chickens. In Canjala *Comuna*, where farmers had not planted sunflowers yet, the Study Team delivered purchased sunflower seeds as a supplemental protein source in order (1) to support hens that require more protein and (2) to demonstrate to farmers the significant function that protein

plays by showing them the actual difference in a hen after sunflower seeds are fed.

In October 2007, the Study Team conducted a training seminar on tomato production and soil building-up both in Dombe Grande and Canjala *Comuna*. As the amount of collected chicken manure was not enough due to poor propagation performance, the Study Team advised farmers to use any available goat manure with chicken manure. Tomato production needed to be started at the appropriate time in terms of temperature and precipitation.

The results of tomato production varied among farmers. Some farmers marketed a fair amount of tomatoes, while others struggled to grow seedlings because the soil quality in the seedling beds was not good or seedlings were washed out by heavy rain. As the temperature rose, red spider mites attacked even well-grown tomatoes of some farmers.

In accordance with the modified plan, additional chickens were delivered. At the same time, six new beneficiaries were selected in Canjala *Comuna*. Chickens were delivered to the new beneficiaries in March, and in May the Study Team held training seminars for new beneficiaries to explain management of the mosquito net production system. Basic tomato production methods were also presented at the training seminar.

As of June 2008, a couple of hens of new beneficiaries have already hatched and baby chicks are growing in mosquito net sheds. The problems with predators seem to have decreased.

(iv) Implementation System

This project was implemented through Nucleo in Dombe Grande and AADC in Canjala. Nucleo is a community based organization (CBO) and AADC is an NGO. When development projects are planned, CBO and the NGO play a significant role because government manpower is extremely limited. Actual participation in this pilot project by *Comuna* administration was indeed limited.

When the Study Team presents something in training seminars, the team required these CBO and NGO staff to attend. If the Study Team goes to the site for consultation and monitoring, the team conducted the task with the CBO and NGO.

However, the project introduced new technologies for farmers and the Study Team took an approach in which it did not try to mobilize the NGO and *Comuna* administration on a systematic basis, but rather the agricultural expert in the Study Team directly trained farmers with the constant attendance of NGO staff and expected farmers and NGO staffs to develop together.

Farmers are still somewhat skeptical and practice as they are instructed. Once they achieve good production and generate cash income, they are motivated for the first time. In the irrigation rehabilitation project, for example, farmers can imagine the potential once irrigation canals are rehabilitated, so showing them the future prospect could motivate them to some extent. But when new technologies are introduced, they cannot imagine the future results, even if they are told what to expect, as they have almost no experience with the

technologies. Needless to say, it is impossible to motivate them by talking about the prospects once the project is completed. In the first half of the project, they perform as they are instructed, with no belief in the newly introduced technologies. If they get good results and cash income, they gain confidence in the technologies immediately. After that, they are expected to take risks to continue or to expand the operation voluntarily.

Technologies introduced in the pilot project were new not only for farmers but also for the staff of the CBO and the NGO. Accordingly, it took time for them to digest the new technologies and to promote them among farmers. However, when the Study Team invited new beneficiaries in Canjala in the beginning of 2008, the NGO staff members were able to explain what a farmer should do. Their understanding of the pilot project seemed to have deepened compared to the beginning of the project.

D. Results

A farmer who was selected in Canjala because he was an elder, indicated as Mr. C in the table, did not seem very interested in new technologies, he did not practice as instructed and performance was poor. Mr. A in the table demonstrated good performance with the chicken unit and actually felt that his tomatoes were grown better than before once he had applied chicken manure compost and had generated a certain amount of cash income. The other farmer, Mr. B, failed in chicken production due primarily to predator attacks, but he felt that his tomatoes grew very well when he applied chicken manure compost. New farmers just started in 2008 and have not yet generated cash income. However, most of them have learned from the first generation and have already begun to show some results in chicken propagation as of August 2008. Vegetable production will start in the next rainy season, beginning October 2008.

Table5-10 Summary of the Results of the Integrated Farming Project

Comuna	Farmer	Enterprise	Marketed amount	Sales
Canjala	A	Tomato	13	13,000
		Chicken	56	45,000
	B	Tomato	8.5	8,175
		Chicken	0	0
	C	Tomato	0	0
		Chicken	7	5,500
Dombe Grande	A	Tomato	32	12,900
		Chicken	15	4,900
	B	Tomato	6	6,000
		Chicken	0	0

Source: The Study Team

Note: Unit of marketed amount of tomato is a box of approximately 20 kg. Unit of chickens is the number of birds.

In Dombe Grande *Comuna*, one out of three farmers fell sick and could not continue farming. The others were a sharp contrast. Mr. A experienced mouse attacks on his chicks in the first year but he changed the floor of his chicken shed into concrete, which resolved the problem. He showed good performance in tomato production and was convinced by the efficacy of chicken manure. In contrast, Mr. B was unable to perform well with his chicken unit due to predators and poor nutrition. He also planted his tomatoes in an inappropriate seedling bed, which had poor result. Eventually, he lost momentum after a long period of poor results.

In summary, most farmers could not achieve the expected results shown in the initial and modified plans because there are many hurdles to overcome in mastering new technologies, and they could not clear those hurdles. One such hurdle is nutrition shortage and predators in chicken production and red spider mites in tomato production. During the project, the Study Team modified from a semi-confinement chicken rearing system into an almost scavenging system, for instance. But it does not seem to be easy to master yet. As integrated farming itself was very new for farmers, the technology system--in the initial plan in particular--might be too complicated. Many farmers, however, claimed that they were convinced of the effectiveness of chicken manure compost for vegetable production.

E. Lessons Learned

Beneficiaries should be limited to those who have technical capabilities when a project has components involving mastering technologies.

There were some hurdles to be crossed in both chicken unit and vegetable unit, and they were too high for farmers without the requisite skills. However, once they overcame these hurdles, they generated satisfactory cash income and were motivated to work harder than before. Thus, when a project has such hurdles, participants should be limited to those who have technical capabilities and experience.

Vegetable production in suburban areas can be effective when products can be marketed in mega markets.

The target area is located in a place in which products can be sold in Lobito, Benguela and even Luanda by travelling on highways. Some small-scale farmers hire a truck to transport their vegetables to Luanda, where vegetable prices are much higher than the target area, and got decent sales. When production areas have access to large cities, vegetable production can be expected to generate cash income.

When farmers with only extensive farming experiences are instructed in intensive farming technologies, the technology package should be as simple as possible.

In both chicken and vegetable production, the components of the project were excessive and they were difficult for the farmers to comprehend. They could not solve problems by themselves. Target farmers had long–term experience with the extensive farming system. When a project plans to introduce intensive farming methods to those areas, it should be designed as simply as possible.

If farmers do not have confidence in the technologies introduced, they do not attempt to solve those problems that occur.

During stages in which farmers do not have confidence in introduced technologies, they are only following instructions. They are not strongly motivated as many farming inputs are given and they have nothing to lose. They never take a personal role in solving problems. It is only after they sell products and acquire cash income successfully that they become motivated.

Technology system should be designed to bring opportunities for cash income forward.

At first this project planned to generate cash income by vegetable marketing. However, chicken production, which was the prerequisite of vegetable production, had some problems such as predators and feed shortage and delays in vegetable production. It took time to get to the point at which farmers actually experience success. The Study Team should have advised farmers to produce vegetables applying substitutes such as cow dung until a sufficient amount of chicken manure could be obtained.

5.10 Microfinance

5.10.1 Background

In 2004, when the Study Team initiated the project formulation study, the country was making the transition from the emergency aid provided after the ceasefire to reconstruction and development aid. Actually, even in the coastal area covered in the study, food donations were almost completed, and projects like provision of agro-related inputs (such as machinery, seeds and fertilizer) and infrastructure development projects adopting citizens' participatory approach were starting.

In terms of microfinance, in Dombe Grande *Comuna*, local NGOs had financed farmers associations' purchases of agro-machinery such as pumps. Given this background, when the Study Team conducted a workshop in Dombe Grande the Team confirmed stronger demand for financing for infrastructure such as pumps, rather than temporary aid like food or agro-inputs.

In Kuanza Sul Province, the department of agriculture financed kidney beans farming through an in-kind repayment system. Likewise, the financing approach rather than a donation approach began to prevail in businesses which benefit individual beneficiaries.

In line with this trend, recently small and medium-sized banks began providing agro-finance using social funds from oil companies and other large companies.

The majority of this financing uses repayment as the source of revolving funds, attempting to expand new beneficiaries. In an attempt to create a development framework for rehabilitation and development, a huge wealth gap began to emerge in the area after emergency aid ended, even among village inhabitants.

In the area covered in the Study, there were cases in which former refugees did not return to their hometowns and stayed in their places of refuge.

However, in cases in which the land was dry, the residents suffered poverty, even resulting in tragedies such as a hungry grandmother taking food away from her grandson.

On the other hand, there were no problems such as this in refuge areas with relatively abundant water sources, and some villages gradually improved their living conditions.

Accordingly, the Study Team conducted several types of microfinance, targeting inhabitants at a higher poverty level, to meet their reconstruction needs.

Through this process, the Study Team tried to examine the feasibility of a revolving fund scheme as much as possible. This section explains the objectives, plans, implementation process and systems for the following pilot projects.

1: Poultry farming

2: Water pumps for irrigation

3: Goats

4: Kidney beans

Box 5- 3: Status of microfinance provided by financial agency in the target area

In Benguela province, two major microfinance projects have been implemented in the sector of rural development. One of them is implemented by UNACA, a union of agriculture associations (União Nacional das Associações de Camponeses Angolanos)[26], and ADRA (a local NGO), with the financial support of a major oil corporation. In addition, CEAR (a Spanish NGO) is conducting a microfinance project. These projects are outlined as follows.

1. UNACA and ADRA

These are the only organizations conducting microfinance business in the field of agriculture in accordance with the government policy. BP (British Petroleum), a major oil corporation, donates fund to the government of Angola, and the actual lenders are the Banco Sol and the BPC.

UNACA and ADRA are responsible for loan appraisal, monitoring progress, implementing institutional development projects with beneficiaries (both organizations and individual), and disseminating the microfinance business.

Eligible borrowers are legal entities such as cooperatives (Cooperativo) or farmers' associations (Asociação);[27] and they do not target individuals are not eligible.

Financed organizations are responsible for repayment, even in cases of subletting to individuals. The average loan amount per household ranges from US$100 to US$1,500. The level and maturity of the organization are reflected in the maximum amount of loan. The interest rate is 8%, and all of the earned interest is used for the next loan.

Business plans are evaluated by UNACA or ADRA and the bank, but no cases have been reported in which they refused applications due to inadequate proposals. In cases in which proposals are found to be inadequate, they advise applicants to elaborate on the plan. This gives the applicants the chance to improve their proposals.

After the loan is made, those in charge at UNACA, ADRA or the bank monitor progress in the field every three months. Once the loan has been fully repaid, they will have received double the amount of the first loan.

The content of the projects differ for the interior zone and the coastal zone. The six interior

[26] Consolidated organization approved as legal body with the name of "Angola's national union of farmers' association". It is located in each province. Activities of UNACA were the dissemination, development and support on farmers' association and cooperatives. Since the start of this microfinance project, in Benguela Province, number of farmers' association under UNACA increased from 75 to 130.

[27] Both Cooperativo and Associação are registered as legal entities. The difference between them is that the former is approved to do business as a corporate body.

cities account for 80% of loans, most of which are loans to introduce farming livestock. Loans to the coastal zones where irrigation agriculture prevails mainly finance the purchase of pumps or the rehabilitation of irrigation infrastructure.

For example, all of the loans made to the rural area of Lobito Municipality were used to purchase pumps.

In Canjala *Comuna*, loans were made to the farmers association (Associação de Palmerinha) to purchase pumps. They wanted to rehabilitate 25km of irrigation canal, but this goal was not accomplished as it was too ambitious for a first loan.

In addition to the monitoring of progress, the Study Team also conducted technical cooperation with the beneficiaries.
Beneficiaries need to improve their capacity in various ways to repay their loans.
Accordingly, technical cooperation is provided alongside the loan. The technical cooperation primarily covers institutional building for the borrower and specialized technical training on the content of the project. UNACA or ADRA conduct training to develop the management and accounting capacity of the senior officials in the borrowers' organization.
The IDA (Institute of Agriculture Development), EDA (Station of Agriculture Development) and agriculture extension workers cooperate with technical cooperation in the agriculture sector. Foreign organizations provide technical cooperation with specific products like bananas and built a demonstration farm called the "farm school (Lavra Escola)" to share and disseminate the farmers' skills.
In Benguela Province, loans were started in 2006, but the repayment status is not yet open to the public as they have just started this project. Repayment delays are accepted in some circumstances, and interest rates are not changed as penalty. Therefore, no defaults have been reported to date, and only repayment delays were confirmed.
The following table describes the status of loans implemented in 2006 and 2007

Table 5-11 Repayment Status in Benguela Province

	2006	2007
No. of borrowers	22	27
No. of beneficiaries	2,965 households	3,880 households
Loan amount	USD 321,144	USD 528,909
Target cities	Benguela, Lobito, Cubal, Ganda, Caibambo	Benguela, Lobito, Cubal, Ganda, Baia Farta, Caibambo, Bocoio Chongoroi, Balombo (all cities in Benguela)
Start of repayment	Changed from initial 1 month after loan start date to 4 months	First harvest season (3-6 months)
Repayment period	12 months	18 months

Source: Prepared by the Study Team based on interview with UNACA Benguela

*Loans for2008 were made beginning in late August

2. CEAR

In Dombe Grande *Comuna*, the same target area as the Study, CEAR has been implementing finance via NRA (same CBO) since 2006. These are agricultural loans (mainly for irrigation pump, seeds, fertilizer and equipments), small retail business loans for individual women, and loans for mill purchases. The rate of repayment after two years stood at 96% in the case of the US$23,000 loan for the mill.

However, the repayment rate for the agricultural loan and the small retail business loan ranges from 20 to 60%, largely varied by group, and has not progressed as planned. When comparing these two businesses, the repayment rate for small retail loans was shown to be relatively higher.

The following are factors that could have affected the low rate of repayment on the agricultural

loans.

Insufficient ability to secure distribution routes might have been the largest factor for the beneficiaries. Specifically, they failed to find transportation vehicles and spoiled many tomatoes before shipping.

Secondly, lack of stakeholder mindset or a low sense of responsibility might also have been issues.

In many cases, not only beneficiaries but also the CBO in charge of supervision tend to explain the reasons for default rather than suggesting modifications in the repayment plan. Although they understand the concept of "loans" which require repayment to provide funds for the next beneficiaries, they are still prey to the traditional mindset fostered during the emergency aid period which regards aid as grants.

5.10.2 Poultry Farming

B. Objective

This project was intended to facilitate poultry farming by socially vulnerable people like female householders and physically handicapped persons. In parallel, the Study Team examines the feasibility of this business and the possibility of establishing mutual support systems among target groups.

C. Process

(i) Plan

Selection of Beneficiaries

In selecting the beneficiaries, priority was given to female householders and physically handicapped people, interest in learning new farming technology including feed production, understanding of the concept of microfinance, and recommendations by villages. Given these criteria, the CBO responsible for implementation and target villages selected the beneficiaries. A total of six households were selected, of which three came from a village in Dombe Grande *Comuna*, and another three came from one village in a rural area.

Concept of Mutual Support System

Multiple beneficiaries in the same village jointly conduct partial labor like construction of chicken house and feed preparation in order to reduce the burden. This idea derived from the nature of target beneficiaries, such as female householders and physically handicapped persons who were generally recognized as socially vulnerable people.

Method of Poultry Farming

The beneficiaries begin farming with a single cock and two hens. They are kept in poultry house during the night to protect them from predators. During the daytime, farmers essentially put the chicken out to pasture in order to save on the cost of feed. Maize, green grass silage, and earthworms are used for feed.

Mechanisms to Expand Beneficiaries

Under this financing system, the target beneficiaries are expanded by using the increased chickens as source of repayment, up to the value equivalent to the financed materials such as

the chicken themselves, the chicken house, equipment for seed production and feed. The repayment number was set at 60 heads.

In detail, they can produce 12-18 heads annually, assuming that each incubation (2-3 times annually) results in six chickens. Therefore, the Team estimates annual production of 24-36 heads per two heads of hen. Namely, beneficiaries repay 60 heads of chicken (equivalent to Kz36,000) in two years.

CBO gives these chickens to the new beneficiaries. CBO sells those chickens, keeping three heads for new financing, and uses those sales to purchase necessary materials such as chicken houses, equipment for feed production and feed.

Monitoring

The Study Team and CBO were responsible for monitoring. The Study Team monitors processes such as growth of chicken, status of egg production, feed production and other issues, and intervenes to help beneficiaries solve problems when necessary. Since the Study Team expected that this might be the first experience for the majority of beneficiaries, periodical follow-up has been required.

(ii) Progress

Beneficiaries were selected by CBO, village leaders and residents, in accordance with the selection criteria set by the Study Team and the CBO in charge of implementation.

Two target villages were selected and beneficiaries themselves decided whether to conduct the business under individual responsibility or group responsibility.

As a result, beneficiaries in Chikulututo Village, located in the center of *Comuna* and in which a person with a disability in the lower half of their body resides, adopted joint implementation to resolve issues such as chicken house construction and feed preparation which are difficult to perform by individual effort. Three members of the beneficiary group who jointly owned a chicken house failed to cooperate, as demonstrated by one of the group members in charge of chicken house maintenance who refused others access to his house. Moreover, he didn't feed the chickens well enough, which led to their annihilation. Therefore, the group was dissolved and CBO selected new beneficiaries in a similar way. The new beneficiary group took over the materials of the chicken house. They built a chicken house and started producing feed such as earthworms and green grass silage in the beginning of 2008. However, as of October 2008, not a single chicken had been repaid and sold. This was due to several reasons, such as sickness, cold weather, and damage by flea and predators.

Beneficiaries in Cahunguluro village, on the other hand, adopted individual implementation on the condition that they would receive family support. One of the three beneficiaries had a blind eye, which made it him difficult for him to continue this business after his family, who had been supporting him, moved away. Therefore, they handed over the materials for the chicken house and feed production to new beneficiaries in the same village. This village had

suffered a high mortality rate with its chicks and the situation hadn't been improved. They suspected, in addition to floods caused by rainfall, cold weather and fleas, that the high density of salt in the soil might be the cause. As a countermeasure for this, they moved soil from other land to the chicken house, which improved the situation.

However, after 18 months of implementation, no chickens had been repaid or sold yet.

(iii) Feasibility of the Project

At the beginning of the project, a total of 18 chickens, consisting of 12 hens and six cocks, were distributed to six households. After 24 months, the number reached total 22 chickens and 23 chicks, and no chickens had been sold.

Due to the high mortality rate from diseases caused by the aforementioned factors, the poultry business is a high-risk business and not suitable for microfinance schemes for beginners. During the project, the Study Team vaccinated chickens, but some chickens died after a few days by diarrhea and other diseases which could not be prevented by vaccinations. Also, some cocks stopped warming their eggs due to fleas, and some hens died because of cold weather. In addition to these factors, the number of chickens decreased due to predator attacks. Of these factors, chicken houses could have been upgraded to prevent animal incursions, and scheduled feedings could have improved nutrition and immunity.

In summary, the Study Team suggests the following as important lessons in ensuring the feasibility of the poultry business: (1) sufficient and nutritious feed, (2) prevention of disease by vaccinations and other measures, and (3) avoiding attacks from predators.

(iv) Implementation System

Residents' Organization (Implementing CBO)

This CBO, a *Comuna*-level organization established by community representatives, had experience with microfinance. Therefore, it was expected to expand and disseminate this business after withdrawal of the Study Team by learning and monitoring the techniques of poultry farming during this project. The project was actually implemented under the initiative of inhabitants. Particularly in the latter half of the project, the CBO tried to improve the situation constructively by voluntarily meeting with people in charge of another pilot project on integrated farming and sharing experiences.

However, the CBO failed to follow up with sufficient monitoring due to the distant location of target village, and it took time to understand the character of the village and its residents.

Weak communication with the Study Team was also a problem when the plan needed to be altered.

Beneficiary Group

The group which chose joint implementation confirmed rules that were suggested by the CBO at the beginning of the project. However, when conducting joint implementation, there was no mutual trust or cooperative attitude, which were prerequisites for this project. Therefore, the

joint implementation was not sustainable and the group was dissolved.

On the other hand, the beneficiaries of Cahungurulo Village who had chosen individual implementation with the support by CBO and the Study Team shared their experiences and jointly implemented partial feed production. However, this was their first experience with feed production, and when facing problems, they didn't try to resolve the problems but rather tended to wait for instructions from the Study Team and CBO. For example, when starting earthworm farming, they failed to finish even simple work such as collecting earthworms at the riverside and closing holes in the chicken house to protect against predators. In fact, they were unable to understand the effect of the new technology, and therefore didn't demonstrate constructive involvement.

In the same Dombe Grande *Comuna*, poultry farming was implemented as part of the pilot project on integrated farming. Therefore, CBO and the Study Team planned a mutual visit to the projects to share their experiences. As a result, beneficiaries were motivated by the advanced status of the integrated farming project and became relatively positive about promoting their own business.

D. Conclusion

As was described in the section on feasibility, the issues in this business were: (1) sufficient and nutritious feeding, (2) the prevention of disease by vaccination and other measures, and (3) avoiding attacks from predators. This section will explain a system to resolve these issues.

In securing feed, it should be possible to reduce the economic burden for beneficiaries by utilizing locally available resources. In addition to maize, which is usually used in the target area, sunflower, earthworms, white ants and green grass silage are possible options as self-sustainable feed production in the area. However, they will need external support to introduce new technology until they are able to recognize its effect. Without this measure, sustainable businesses will be difficult.

Supporting organizations need to secure staff who can participate in this process, especially at the preparation stage, as well as to secure the budget like transportation costs. Disease prevention by vaccination might be possible, but vaccines are only available in the capital city. In addition, vaccines need to be stored in refrigerators and need to be administered by vetrinarian

Therefore, external support such as government officials and NGOs will be indispensable.

In conclusion, in order to develop a stakeholder mindset and independence, external supporters need to follow up on the project until the project is demonstrating results enough to encourage the beneficiaries to learn technology and recognize its benefits.

5.10.3 Irrigation Pump

B. Objective

The goal is to provide irrigation water pumps to agricultural areas dependent on rainwater in order to increase agricultural production. Another goal is to expand financing to new beneficiary groups through a revolving fund.

During the project formulation study, the Study Team financed purchases of water pumps at the strong request of the residents. However, as with a similar financing project implemented by a Spanish NGO, the repayment rate was very low. Given past experiences, the Study Team selected those beneficiaries most likely to succeed and used revolving funds to expand beneficiary group to find possibilities for new financing.

C. Process

(i) Plan

- Targets one existing group of farmers (10 households) in Vilambuili Village of Dombe Grande *Comuna*.
- 7 hectare of cultivation area
- Twelve-month plan to repay US$6,498 in financing (including money loaned to buy pumps, pipeline, seeds, fertilizer, and tractor) using profits from an annual harvest of vegetables such as tomatoes and green peppers

(ii) Progress

- Selection of beneficiaries

  Beneficiaries were several farmers who were interested in microfinance and voluntarily organized themselves for joint shipping of tomatoes in order to receive financing. They had been in contact with the CBO and had been waiting for a chance to receive financing. Meanwhile, they have confirmed its members' commitment to this project.

- Harvest and repayment status

  In the initial stage, they cultivated maize using almost all of the 3-ha field. Since the price of maize dropped at harvest season, they reserved the harvest in a storehouse and waited for the price to go up. Meanwhile, they cultivated 1.5ha of tomatoes and repaid US$500.

  After 24 months since financing had started, the total amount repaid was US$2,111, one-third of the total debt. Repayment decreased with the second tomato harvest because of heavy rainfall during nursery preparation.

(iii) Feasibility

The first tomato cultivation[28] using 1.5ha produced sales of Kz180,000 (equivalent to

[28] They actually cultivated maize first, but the market price was poor as they can be easily cultivated without pumps during the rainy season. Therefore, they failed to farm so as to take advantage of the pumps. Vegetables such as tomatoes have a high value in big cities near the project like Benguela and Lobito, and

US$2,400), out of which Kz120,000 (equivalent to US$1,600) was used for repayment and another Kz60,000 (equivalent to US$800) was invested in the next cultivation. However, the following years' cultivation on the same size field lost US$1,000 in sales due to flood damage. Since floods are a habitual risk in this area, giving a grace period should be considered.

Based on this outcome, the Study Team examined the feasibility of tomato cultivation on 3haof land. Approximately US$4,800 of sales is estimated annually. The Study Team estimates that US$2,000 should be kept for the next cultivation, including contingencies to prepare for risks (such as insecticide).

Based on this estimate, normally repayment of US$2,800 would be possible. Even though the Study Team estimates a risk of natural disasters such as floods once every four years, complete repayment will still be achieved in four years.

During the repayment period, it would be impossible to expand their business since they need to invest the profits they generate in next years' cultivation. However, after finishing repayment, they would be able to utilize an annual US$4,800 at their own discretion, which may enable them to expand their agricultural fields.

Table 5-12 Repayment Plan of Pump Finance

Unit USD	Year 1	Year 2	Year 3	Year 4	Year 5
Amount financed	6,498	0	0	0	0
Personal funds	0	2,000	2,000	2,000	2,000
Total investment	6,498	2,000	2,000	2,000	2,000
Sales	4,800	2,800	4,800	4,800	4,800
Amount repaid	2,800	800	2,800	98	
Profits of beneficiary	2,000	2,000	2,000	4,702	4,800

Source: the Study Team

(iv) Implementation System

Residents' Organization (CBO)

CBO, with their experience with the microfinance business, was expected to play a role in following up on activities with the beneficiary group. Specifically, the CBO followed up on the formulation of business plans including repayment plans, monitoring of implementation, intervention to resolve problems, and institutional development of beneficiary group. Its members were proud of their role as pioneers in the microfinance business; however, their capacity was not adequate in terms of formulating detailed repayment plans.

For example, they formulated repayment plans based only upon sales of products, without considering fuel costs for pumps and transportation expenses. Although they frequently monitored the activities initially, in the later stages they became inactive. For instance, they advised beneficiaries to decide the timing of sales based on market price fluctuations. However, they didn't grasp the problem between beneficiaries and land owner, which made it

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even in the capital city.

impossible to cultivate the fields on a sufficient scale.

In terms of institutional development, they conducted lectures and group discussions about the legal process and institutional management in order to register the group with corporate status. On the other hand, due to the expansion of employment in the targeted area, some members quit their group as they found it difficult to generate profits from agriculture. This movement drastically weakened the production capacity of the group. However, the CBO failed to intervene in these problems.

Beneficiary Group

As mentioned earlier, the beneficiary group worked together jointly.

Therefore, they were expected to implement the business smoothly and repay the debt without delay. In reality, due to unexpected external factors such as the death of the leader and expansion of other employment opportunities, the number of group members decreased. This absence of the leader was one of the major factors that led to the loss of half of the group members.

On the other hand, the activities are still underway because of the stakeholder mindset among the remaining staff and their strong ties. However, the decrease in the number of members meant decreased labor force. Therefore, it was practically impossible to continue cultivating the farmland on the original scale.

On the advice of the Study Team, CBO had a meeting with the beneficiary group to resolve the problem. At the meeting, beneficiaries suggested maintaining the scale of cultivation through the cooperation of their families and relatives.

D. Conclusion

Repayment plan with careful consideration for various risks

Agriculture is always susceptible to the risk of natural disaster. During the pilot project, although no damage through vermin and disease was confirmed, there was damage by flood. In the planning stage, it is necessary to prepare countermeasures and financial sources to address these predictable risks. For example, a budget for insecticide should be secured to address the former problem. An extension in the repayment period should be considered to address the latter problem.

Importance of careful and regular follow-up with debtors

When CBO's follow-up became lax, the beneficiaries experienced the aforementioned problems, which forced them to decrease the size of their agricultural field, despite the fact that they had saved up enough money to maintain cultivation. Not only were the beneficiaries unable to resolve the problem, but their motivation to repay their loan was lowered.

Judging from these consequences, the monitoring institutions must keep their eyes on beneficiaries with periodical visits to the site (not simply during the harvest season) to support the resolution of problems and maintain motivation to repay loans.

5.10.4 Goats

B. Objective

The aim is to finance a goat farming project to improve the livelihood of socially vulnerable people such as female heads of households living on arid land where agriculture is not feasible as an income-generating business.

An in-kind repayment system was adopted, and the idea of a "goat bank" was developed as a way to repay goats to increase new beneficiaries (for the next round of financing).

C. Process

(i) Plan

Methodology

The basic system of a "goat bank" starts with helping beneficiaries understand the finance scheme.

Specifically, the NGO gathers village leaders and inhabitants to explain the basic prerequisites for the loan, responsibility for repayment and the priority given to households with urgent needs to improve their livelihoods. They then reach an agreement with the beneficiaries.

Beneficiaries voluntarily select the first beneficiaries and list the beneficiaries to receive the next round of financing.

The basic system for providing goats is to distribute two female goats to each household and share one male goat among five to six households. Beneficiaries hand over the first-born female goat to the next beneficiaries.

Another important note relates to the goat management system and vaccination. Support from veterinarians will be necessary for vaccination. Therefore, the NGO is responsible for securing their cooperation.

Expected Benefit

The first group of beneficiaries included 64 households from four villages (Maculungo I, II, III, and Cassuada).

If assuming that one female goat delivers two newborn goat every six months, with an estimated 20% mortality rate for newborn goats, approximately 250 households will have benefited during a two-year implementation period.

(ii) Progress

The NGO explained the "goat bank" system to the targeted village inhabitants, and then prepared a list of beneficiaries after confirming their interest and stakeholder mindset. Based on the list, the beneficiaries were divided into a first group and subsequent groups.

The Study Team made these decisions on the NGO's advice and the agreement of village leaders and inhabitants. Initially, 140 goats (128 female, 12 male) were distributed to 64

people.

At the same time, vaccinations were given for disease prevention. The goats submitted as repayment were redistributed to the new beneficiary group as follows.

Table 5-13 Number of Redistributed Goats (by Village)

Village	Group 1	Group 2	Group 3	Total
Cassuada	36	26	32	94
Maculungo I	28	16	10	54
Maculungo II	28	10	6	44
Maculungo III	24	22	14	60
Total	116	74	62	252

Source: the Study Team

Women accounted for three-fourths of the beneficiaries. This was based on the NGO's judgment that women were more suitable beneficiaries, given the evaluation of first beneficiaries about their interest, understanding and attitudes on goat farming. In most cases it was the women who took care of goats, even though they distributed goats to male beneficiary groups. Therefore, they prioritized women in selecting new beneficiaries.

The selection of male beneficiaries was limited to elderly people who were not able to farm and needed a certain level of income. It was planned to expand beneficiaries to 250 households in two years, but it actually expanded to 320 households, more than expected.

(iii) Feasibility

The outcome of the two-year implementation was successful, and it will be possible to expand the total number of beneficiaries up to 576 households if this effort can be maintained. Sales volume per household can be estimated as follows.

If calculating the goat number and sales in five years, assuming a 20% mortality rate for baby goats and that only male goat are sold at a unit price of Kz 4,000, the number of female goats will increase to 50, resulting in aggregate sales of US$6,800.

Table 5-14 Increase in Number of Goats and Sales Estimates

	Year 1	Year 2	Year 3	Year 4	Year 5
No. of female goats	2	3	7.5	19.5	50.5
No. of deliveries	8	12	30	78	202
No. of adult goats	6	9	24	62	161
Number repaid	2	0	0	0	0
No. owned by beneficiary (female)	1	4.5	12	31	80.5
No. owned by beneficiary (male)	3	4.5	12	31	80.5
Sales	0	4.5	12	31	80.5
Sales (in Kz)		18,000	48,000	124,000	322,000
Sales (in USD)		240	640	1,653	4,293

Source: the Study Team

The risk of disease must be reduced to achieve these estimates. Normally, when goats are vaccinated it is not necessary to worry about goat disease and the number of goats can be

multiplied continuously.

However, the problem lies in continuing proper vaccination without external support after the project conclusion. To resolve this issue, beneficiaries had the idea of paying vaccination costs by selling male goats.[29]

(iv) Implementation System

Beneficiaries

Beneficiaries were expected to not only repay goat but also to sustain the "goat bank" system without external support and to prevent disease by group effort (not individual efforts). Repayment proceeded smoothly because of their sense of responsibility for repayments, supposedly maintained by mutual watching among beneficiaries living close by and the presence of the next beneficiaries.

This atmosphere was fostered by the presence of three beneficiary groups in one village, who mutually monitored each others' efforts with breeding and growth of goats. Another important point for goat farming was that vaccination prevented diseases. On this matter, inhabitants did not incur financial costs during the project implementation. When the project concluded, however, beneficiaries voluntarily suggested saving Kz50 per beneficiary annually to cover these costs.

***Comuna* Administration**

The *Comuna* administration has been generally cooperative, but did not adequately understand the concept of inhabitants' participatory approach. Specifically, they were suspicious of the system suggested by the Study Team whereby beneficiaries are expanded through the residents' own efforts.

However, they maintained a certain level of stakeholder mindset, as was verified in the accompanying site visit by the Study Team and NGO.

At a later stage after the goats were distributed, administrators demonstrated a stronger stakeholder mindset and voluntarily visited each village every three months to direct them to sustain the ongoing distribution system to expand beneficiaries.

Also, they understood the importance of vaccination and cooperated with disease prevention efforts to prevent the death of goats. Specifically, they provided typical administration services by expanding the campaign of livestock vaccination to the project area, which was normally conducted as part of provincial and city level services.

NGO

An NGO with similar experiences was expected to help beneficiaries establish the system to

[29] Other diseases are skin disease and diarrhea. The price of anti-skin disease medicine is Kz16,000, which is enough for 200 heads. Beneficiaries can use this medicine by themselves, as they only need to wash the goats with this medicine once a year. Diarrhea prevention requires injection by a veterinarian. US$150 worth of antibiotics is sufficient to cover all goats. Ideally, a veterinarian should be dispatched as part of administration service.

maintain and expand the project and to transfer the technology of goat farming.

In this regard, they correctly understood and met the needs in the field. For example, based on their previous experience, they had planned to put goats inside a fenced-off area jointly owned by beneficiaries. However, given that beneficiaries live in geographically separate areas, they changed the method of farming from joint farming to individual farming. This suggests that they were not determined to stick to their own ideas and experiences, and were flexible enough to apply the method which best fit the actual condition.

The NGO commented that they didn't face major problems and implemented the project as planned thanks to the high stakeholder mindset of beneficiaries. However, they correctly understood our perspective on sustainability and expanding beneficiaries and were able to help beneficiaries realize the importance of sustainability and to resolve problems on their own.

D. Conclusion

Goat breeding and repayment went as planned, and established a foundation for self-breeding by the beneficiary group. Moreover, the administration began providing livestock vaccination services once a year. Although they can receive services from the administration, limited access to veterinarians is the issue, as they live only in urban areas and can visit target villages only in limited cases.

Therefore, the beneficiary group, together with the NGO and administration, plans to select and train village inhabitants to be extension workers (with basic knowledge on practices such as injection methods) so that they can prevent livestock diseases on their own. These efforts are significant in ensuring sustainability in the long run. From now on, when the number of goats increases, management should be carefully considered. Normally, management becomes difficult when pasturing more than 20 heads of goats, and some goats will get separated from the group. In that case, hiring a guard or building a fence would be necessary.

5.10.5 Kidney Beans

B. Objective

The goal is to finance the cost of materials and equipments for farming of kidney beans (cash crop) for the existing farmers' association.

The profitability of the project was examined from several aspects including repayment plan, and using repaid fund as operational cost of the association to vitalize its activity.

C. Process

(i) Plan

Business Plan

The project began after securing irrigable farmland with the partial completion of another pilot project, “Irrigation Canal Rehabilitation.” As institution building is another aim for the project, the association themselves will be responsible for formulating business plans and

calculating profits, supported by the Study Team in OJT-style.

They planned to select three people with have the strongest sense of responsibility out of 93 households, and begin growing kidney beans in a 6-hectare area. The initial investment was estimated to be US$2,000, including rental fees for the tractor, seed purchases and other expenses. The estimated harvest volume was 2,520kg, equivalent to US$3,360.

They estimated profits of US$1,360 after deducting initial investments. Of this, 50% of the profit went to the farmers association, and another 50% to individual farmers. US$2,000 deducted for initial investments was used for materials and equipments for future seasons. They decided to keep part of the harvest for seeds for next season, and saved twice as many as they bought in their initial investment.

Number of Beneficiaries

Three households

(ii) Progress

Before selecting beneficiaries, the Study Team held a meeting with the farmers association to explain the project and confirm their approval. The first three beneficiaries were members of the association who had been positively involved in the previous pilot project, "Irrigation Canal Rehabilitation". After these three, 15 people were listed, including the next beneficiaries.

With the support of the association, the beneficiaries themselves prepared to collect seeds available in the village. The association officials arranged for the equipment that was not available in the village on their behalf. Subsequently, all other work such as planting the seeds and weeding were done by the beneficiaries themselves. They paid for local inhabitants to help with weeding, but they took care of the arrangements themselves.

The first harvest was 2,320kg, almost reaching the target. This was equal to the value of Kz266,000, out of which the net profit amounted to Kz116,000 after deducting the initial investment of Kz150,000 (=US$2,000).

As planned, 50% went to the association. However, the association meeting will decide how to use the Kz150,000 deducted for the initial investment and the above-mentioned 50%.

As of November 2008, they expect to use the Kz150,000 on the farming of cashable crops (like kidney beans, peanuts and vegetables). Part of the harvest is to be saved as seeds for next cultivation.

(iii) Feasibility

Based upon the following assumptions, the Study Team calculated the possibility of expanding beneficiaries and their profits.

- Financing available only for kidney beans (single crop).
- Beneficiaries must repay the full loan by the first harvest, but would be able to receive

loans for the following season if necessary.

- Beneficiaries pay the net profit to the association (50% of gross profit from the first harvest and 15% of the financed amount after the following year), in addition to repaying the loan.
- Beneficiaries allocate 65% of net profits to cover expenses from the second harvest.
- Beneficiaries will receive financing to cover necessary expense since the second harvest.
- Empirical figures from the pilot project are applied, such as the Kz150,000 for the initial investment and Kz226,000 of sales.

Table 5-15 Repayment Plan of Kidney Beans Finance (per Household)

	Year 1	Year 2	Year 3	Year 4	Year 5
Loan amount	50,000	37,433	20,348	7,577	0
Personal funds	0	12,567	29,652	42,423	51,970
Total investment	50,000	50,000	50,000	50,000	51,970
Sales	88,667	88,667	88,667	88,667	88,667
Gross profit	38,667	38,667	38,667	38,667	36,697
Repayment	69,333	43,048	23,400	8,713	0
Net profit of beneficiaries	19,334	45,619	65,267	79,954	88,667

Source: the Study Team

Beneficiaries will be able to invest their personal funds within five years, if they repay the entire capital only through the project. However, it is not expected that they would live solely on funds provided in this project.

There will be 13 beneficiaries five years. With the repayment of the first three beneficiaries, the number of beneficiaries will increase gradually, with one in the second year, two in the 3rd year, three in the 4th year, and four in the 5th year.

As was clarified by the above assumption, it would be possible to sustain the financing system only through kidney beans farming, but it would be difficult to have 15 beneficiaries in five years as originally estimated.

Needless to say, however, if beneficiaries improve the land utilization rate by growing other crops, and if they organize a system of joint shipping to high-price markets like the capital city Luanda, they will be able to shorten the time until they can use their personal funds and greatly expand the number of beneficiaries.

(iv) Implementation System

This association had not been active after it was established due to the shortage of funds. However, in the other pilot project of this Study, "Irrigation Canal Rehabilitation," they had proven their capacity and had been actively and consistently involved in public works, compared to associations in other villages.

Therefore, through this microfinance, the association was expected to prepare a loan repayment plan, to coordinate joint labor works, to follow-up until repayment was completed and to develop a plan on how to use the revolving funds.

The project actually generated harvests and repayment as planned without major troubles, thanks to the fact that they had selected pioneering farmers with a strong sense of responsibility as the first beneficiaries, and the fact that the association members had properly monitored the project by often visiting the farmland. However, despite the weak financial basis of the association, their ideas on how to use the revolving funds were not well thought out, as demonstrated by their idea to finance other villages or transfer to the farming of other vegetables.

Therefore, the Study Team explained the advantage of kidney beans, such as their durability after harvest, and suggested that they consider projects which could minimize the risk of market fluctuations, climate changes and vermin.

5.10.6 Lessons Learned

In this section, the Study Team drew lessons learned from their experiences in the aforementioned pilot projects and interviews with relevant organizations.

When deciding on a project, carefully consider the risk posed by external factors and management capacity in the field.

In many cases, beneficiaries show an optimistic attitude to lenders in order to receive financing.

Particularly in the case of agricultural loans, opinions of administrations as well as residents must be considered in order to assume the risk of external factors such as vermin, floods and other natural disasters. Further, these risks must be reflected in setting the loan amount and the repayment period.

For example, to facilitate beneficiaries' understanding, the Study Team makes a simple estimate of the cost of losing the entire harvest in a flood year, assuming floods every two years. In that case, they reduce half of the annual repayment generated from the harvest’s profit. As in this example, the Team introduces the measure to reduce the risk for both beneficiaries and lenders.

Also, it is quite important to grasp beneficiaries' knowledge and experience in marketing correctly. There were often cases in which valuable products like tomatoes were spoiled and lost due to market price fluctuations and the lack of transportation. Therefore, monitoring organizations like NGOs should take not only farming technology, but also capacity development for marketing into consideration.

Among other internal factors, the beneficiaries' current knowledge and experience and their adaptation capacity must be confirmed with their experience with poultry farming. Among external factors, similarly confirmed by experiences with poultry farming, they must understand systems like vaccination for disease prevention, as well as maintenance services, including spare parts when installing new machineries.

Target of loan should be selected in the same village

One of the factors delaying repayment, other than the aforementioned factors, was the low sense of responsibility for repayment by beneficiaries and the implementing agency (See Box 5-3). It was only in the past one or two years that they had started a microfinance business via a bank.

Past microfinance projects had been implemented by aid organizations like NGOs, without the intervention of banks. Therefore, donors also tended to easily accept loan defaults when they confirmed the reason. These trends had also lowered the sense of responsibility.

The successful cases, on the other hand, all shared the characteristic whereby the next beneficiaries who were to be financed by the revolving funds lived in the same village, or had already decided on the next project using revolving fund.

Namely, they tend to develop a sense of responsibility in cases in which they have a clear motivation to repay the loans, such as fear of depriving neighbors, who are expected to receive loans through this repayment, of this opportunity. This kind of situation is important to improve the rate of repayment and to develop sustainable models to expand beneficiaries.

5. 11 Conclusions

The pilot projects were implemented to examine the technical, socioeconomic and systemic potential of projects and to sound out the capacity of actors for local development, while meeting local needs. Conclusions are presented in this section in the form of answers to the following questions.

Did the pilot project meet community needs?

Pilot projects aimed to respond to community needs for a stable food supply, work hour reduction, education opportunities and income generation.

The Angolan economy achieved spectacular growth during the Study period. The benefit, however, has not reached rural areas yet. In this context, all of the pilot projects met community needs and contributed to improving their living standards from the beginning of the Study to its end.

For example, a pilot project showed community residents, who were not receiving adequate nutrition, that it is possible to increase maize production through simple technology without major cash outlays. During the pilot project, community residents noticed the effectiveness of the technology and started farmer-to-farmer dissemination. This is a good example of meeting community needs with basic crop increase.

The Irrigation Canal Rehabilitation project rehabilitated canals that had been dysfunctional after the civil war to allow 700 farm households to acquire new cropland. Areas in which farmers planted maize for subsistence and beans for cash increased dramatically. Beneficiaries will total 1,500 households in the future. This project responded to community

needs through agricultural infrastructure construction.

The Reservoir Rehabilitation and Well Construction projects enabled 790 households in five communities and 500 households, respectively, to reduce water-fetching labor by two hours on average. In the project introducing cooking stoves, cooking stoves reduced women's labor by two hours per day on average. The Study Team initiated the cooking stove introduction, but its advantages are spreading through word of mouth and more people are interested in cooking stoves. This project will meet the need to reduce labor hours.

The Rehabilitation/Construction of Schools project, which offered learning opportunities to 600 children for the first time, created educational opportunities. The literacy class project turned out 2,000 beneficiaries that can read and write. In the Microfinance project, the number of beneficiaries in the goat bank increased from 60 to 318, responding to community needs.

Did pilot projects have technical, socioeconomic and systemic potential?

11 out of 13 projects showed significant potential in terms of profitability and impact.

The project to increase maize yield with grasses verified that soil could be made fertile through low cost measures, and production increased. Usage of chemical fertilizers was reduced to minimize negative impact on the environment, and spontaneous expansion of the technology has already begun. This satisfies both profitability and impact.

In the Integrated Farming project, beneficiaries actually felt that tomato production with chicken manure compost has strong advantages in terms of profitability. But there were some problems with chicken production for collecting chicken manure, such as low availability of vaccines and veterinary services in the target area. Once these problems are resolved, integrated farming could really develop as a locally specialized farming approach.

Income-generating activities that financially support classes and a center were focused on the Literacy Education project and Daycare Center project. In the literacy class project, farming was a very risky way to generate income and it was difficult to sustain beneficiaries' sense of ownership with collective farming. The kiosk in the community was quite profitable and it is managed very well. The sustainability of literacy class was proven to be enhanced through cooperative work by literacy teachers and learners. The kiosk has the highest profitability and the best possibility for dissemination.

Infrastructure projects such as Irrigation Canal Rehabilitation, Reservoir Rehabilitation and Rehabilitation/Construction of Schools were implemented without economic incentives such as Food for Work. Rather, the projects tried to enhance the sense of ownership among people on the basis of voluntary participation with the goal that people could maintain rehabilitated facilities for themselves after the projects.

The degree of participation varied community by community in the Rehabilitation /Construction of Schools project, but the sense of ownership among participants in the other projects strengthened. Maintenance and management committees were organized and

maintenance and management rules were set up. The way in which this participatory approach could be applied in other areas was made clear. Thus these projects have systemic potential because they can be applied to other areas and disseminated. Of course, continuous efforts to foster a sense of ownership are necessary from the preparation stage through the implementation period.

The Well Construction project was not based on a participatory approach. However, the wells were constructed using locally-developed construction technology and they do not need maintenance such as replacing old parts with new ones. These wells are completely different from manual pumps, most of which had been introduced in emergency assistance after the civil war and were abandoned once they had broken down. This local well-boring technology is very useful in areas with good water quality. Sustainable contribution to community needs and the possibility of dissemination demonstrate the high potential of the project.

In the Microfinance projects, the goat bank is functioning better than expected. The number of beneficiaries increased five times over compared to the initial phase, which demonstrates its high profitability. To prevent grazed goats from eating crops in the fields, goats' owners should consider the possibility of a confined rearing system. The efficacy of a system in which goats are delivered to a group and this group delivers propagated goats to other group has been verified, and it is expected to be applied to other areas.

In the same Microfinance project, the bean production amounts were in line with expectations, but the rental fee for tractors was very high and profitability was not so high. The low profitability of hiring a tractor resulted in an idea to introduce cattle for traction to realize higher profitability.

In chicken production, as discussed in the integrated farming project, vaccination and periodical veterinary service have to be provided.

The micro credit for pumps for irrigation showed negative results in most aspects. Crops were damaged by the floods, which are a periodical threat for the area. In addition, beneficiary selection criteria were inappropriate, and the attitude of the contracted NGO was not positive. These indicate the necessity of sufficient research beforehand on the characteristics of the target area, potential and constraints of beneficiaries, and the ease with which inputs can be procured.

Did indicating future vision bring out a sense of ownership among community residents?

The potential of these projects was used to motivate community participation in the pilot project. The Study Team facilitated community participation not by using cash incentives, but only by pointing to the potential to improve present difficult situations through proposed projects. As a result, the sense of ownership in the community organizations were raised considerably in six out of nine projects that targeted community organizations.

As of October 2008, literacy classes, goat bank and beans production present high sustainability due to the high sense of ownership among beneficiaries. The project to increase maize yield with grasses and the integrated farming and cooking stove introduction projects, all of which targeted individual beneficiaries, succeeded in enhancing their sense of ownership. The maize yield project, in particular, has already been disseminated by a community organization.

In the Literacy Education and Day-care Center projects, incentives were given until community income generating activities took off. When it was technically difficult in irrigation rehabilitation, wages for labor were paid in a limited way. The Study Team worried that these incentives might hinder a sense of ownership at first, but community residents reinforced their sense of ownership and showed stronger commitment to continue the project even after the Study Team left. The Study Team learned that incentive is effective when it is used in the appropriate context and timing.

In contrast, the Rehabilitation/Construction of Schools project stopped when it was rehabilitated. When rehabilitation is completed, some parents collected money from other parents for maintenance. However, a parent committee was not established because of insufficient follow-up by the Study Team.

Revolving fund plans through repayment of credit for an irrigation pump did not lead to the expected results in this project, nor in similar projects by other donors. The low sense of ownership of beneficiaries did not improve despite many offers by various donors.

Lessons Learned

In order to generate direct results in a short period, the actors who are responsible for project have to make a lot of decisions to sustain results. Particularly in transitional periods after the emergency assistance phase right after the civil war to a phase of reconstruction and development assistance, they must make decisions very carefully.

Even after NGOs are selected and contracted out, it is still necessary to instruct them carefully in the field.

Many NGOs were formed after the civil war for emergency tasks such as food delivery. Their ways of thinking remained as distributing goods that had been common in the emergency phase. Aid agencies rush to the limited number of NGOs that have the ability to handle development projects, but many NGOs should develop to support community development in many areas. Thus, in selecting NGOs, their approach to enhancing community independence and the background of their thinking should be verified. After concluding a contract with an NGO, careful instruction and support on technical aspects, community participation and logistics are needed.

Incentives should be given in appropriate context and timing.

When projects are implemented without incentives such as goods and money with the aim of cultivating a sense of ownership among community residents, the projects frequently

stalemate. The initial approach should not be abandoned easily. But unless incentives are given, projects might not proceed at all in some cases. The Study Team should not attribute the reason for problems to low motivation on the part of community residents, but should analyze the reasons for their low motivation. When incentives do not disturb efforts to foster a sense of ownership, incentives such as goods and money should be given in an appropriate context and timing.

Different projects should be implemented in the same area.

If different projects are implemented in the same area, the level of the sense of ownership among community residents can be observed in many directions. For example, in the Irrigation Canal Rehabilitation project, farmers did not take part in the rehabilitation work at first despite their expression of willingness to participate in the project. The Study Team and the NGO assumed that the motivation to participate in the community was low. However, when a literacy class project was implemented in the same community, they demonstrated a strong sense of ownership, which grew through the course of the project. Consideration should also be given to the types of projects that could offer opportunities to enhance community capacity for development.