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The Republic of Mali

The Study on the Capacity Building Programs for the Community-based Prevention of Desertification in the South Region of Segou in the Republic of Mali

Main Report

February 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

JAPAN GREEN RESOURCES AGENCY

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PREFACE

In response to a request from the Government of the Republic of Mali, the Government of Japan decided to conduct the "Study on the capacity-building programs for the community-based prevention of desertification in the south region of Segou in the Republic of Mali" and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA dispatched a study team headed by Mr. Naoya SHIMIZU of the Japan Green Resources Agency (J-Green) to the Republic of Mali between August 2004 and November 2007.

The study teams held discussions with the officials concerned of the Government of the Republic of Mali, and conducted field surveys at the study area. Upon their return to Japan, the teams conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government and the people of Mali for their close cooperation extended to the study.

February 2008

Ariyuki MATSUMOTO
Vice President
Japan International Cooperation Agency

Letter of Transmittal

Mrs. Sadako Ogata
President
Japan International Cooperation Agency

We are pleased to submit herewith the completed Final Report of the Study on the Capacity Building Programs for the Community-based Prevention of Desertification in the South Region of Segou in the Republic of Mali.

This study was implemented by the Japan Green Resources Agency (J-Green) for a period of 43 (forty-three) months from August 2004 to February 2008 under contract with the Japan International Cooperation Agency (JICA). In implementing this study, it was intended to formulate an "Action Plan for Realistic Projects" which can be executed immediately after completion of this study, having learned the lessons from the development study, the Study of Prevention of Desertification in the South region of Segou in the republic of Mali, carried out in the previous stage in the period of 2000 to 2003 and screened the items to be verified in this study.

The study area was one of the main agricultural zones in Mali, in which desertification is substantially advancing along with the decline of land productivity and the decrease of forests, causing the living standards of residents to decline seriously. Therefore, urgent measures are called for in this area.

In formulating the Action Plan, we adopted the method of implementing some of the projects constituting the Action Plan as a Pilot Project ahead of other projects and feeding back the appropriateness of the project method and the evaluation results to the final Action Plan. We are confident that all the items to be verified were verified within the framework of this study.

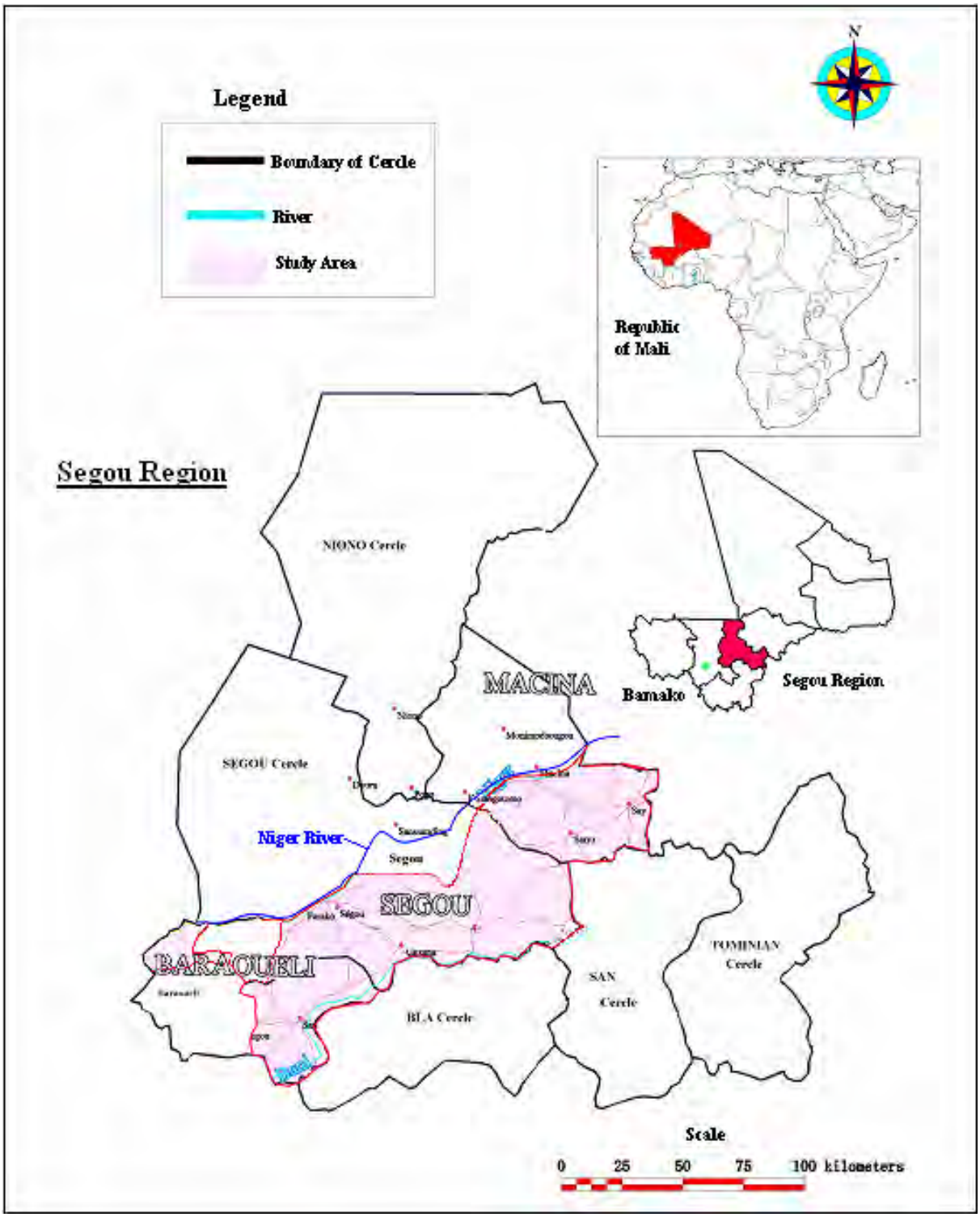
The Government of Mali has already officially decided to budget about one-fourth (1/4) of the entire scale of the projects of the Action Plan in the final year of this study and to start implementation of those projects next year (2008). We hope that this plan will be implemented smoothly in Mali and extended not only within Mali, but also to the broader Sahel region as a model case for prevention of desertification.

Lastly, we would like to express our sincere appreciation of the full understanding and close cooperation that the Japan International Cooperation Agency and the related officials of the Ministry of Agriculture, Forestry and Fisheries have rendered us and the invaluable advice and cooperation that the Government of Mali and the related donor organizations have given us during the period of this study.

February 2008

Naoya Shimizu, Team Leader
Study Team for the Capacity Building Programs for the Community-based Prevention of Desertification in the South Region of Segou in the Republic of Mali
Japan Green Resources Agency

Location Map of the Study Area



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List of Abbreviations

Abbreviation	French/English/German
A/P	Action Plan
AACAER	Antenne de l'Appui Conseil et Aménagement et Equipement Rural
ACN	Antenne Conservation Nature
AfDB	African Development Bank
BHN	Basic Human Needs
BNDA	Banque National de Développement Agricole
CAP	Conseiller Agricole Polyvalent
CAR	Centre d'Animation rurale
CAS	Conseiller Agricole Spécialisé
CCD	Convention des Nations Unies sur la lutte contre la Désertification
CDF	Code Domanial et Foncier
CMDT	Compagnie Malienne de Développement des Textiles
CSC	Centre de Santé Cercle
CSCOM	Centre de Santé Communautaire
DED	Deutscher Entwicklungsdienst
DNAER	Direction Nationale de l'Aménagement et de l'Equipement Rural
DNAMR	Direction Régionale de l'Appui au Monde Rural
DRAER	Direction Régionale de l'Aménagement et de l'Equipement Rural
DRAMR	Direction Régionale de l'Appui au Monde Rural
DRCN	Direction Régionale de la Conservation de la Nature
DRS	Direction Régionale de Santé
FIDA/IFAD	Fonds International de Développement Agricole
FODESA	Programme Fonds de Développement en Zone Sahélienne du Mali
GEF	Global Environment Fund
GPS	Global Positioning System
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit
ICRAF	International Center for Research in Agroforestry
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
IDA	International Development Association
IER	Institut d'Economie Rurale
JGRC	Japan Green Resources Corporation
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt Für Wiederaufbau
ON	Office du Niger
OPAM	Office des Produits Agricoles
ORS	Office Riz Ségou
PAE	Projet Agro-Ecologie
PAL	Programmes d'Actions Locaux
PAR	Programmes d'Actions Régionaux
PASAOP	Programme d'Appui aux Services Agricoles et Organisations Paysannes
PDR	Programme de Diversification des Revenus en Zone non-cotonnière

PEDVS	Projet Fonds de Développement Villageois de Ségou
PIRT	Projet Inventaire des Ressources Terrestres
PLA	Participatory Learning and Action
PMB	Programme de mise en valeur des plaines du Moyen-Bani
PNAE/PANCID	Plan National d'Action Environnemental et Programmes d'Actions Nationaux de la Convention Contre la Désertification
PNLCD	Plan National de Lutte contre la Désertification
PNVA	Programme National de Vulgarisation Agricole
PRA	Participatory Rural Appraisal
SAA	Sasakawa Africa Association
SCN	Service Conservation de la Nature
SLACAER	Service Local de l'Appui Conseil et de l'Aménagement et Equipement Rural
SNVA	Système National de Vulgarisation Agricole
UBT	Unité du Bétail Tropical
UNDP	United Nations Development Program
UNICEF	United Nations International Children's Emergency Fund
UPA	Unité de Production Agricole
USAID	United States Agency for International Development
WID	Women in development

List of Weights, Measures and Currency Exchange Rate

Currency	(As of November 2007)
FCFA	Francs Communauté Financière Africaine (Franc used in African countries) (FCFA1 = ¥0.2002)
EUR	Euro (EUR1 = ¥131. 33)
¥	Japanese yen
$	US dollar ($1 = ¥121.20)
Length	
mm	Millimeter
cm	Centimeter
m	Meter
km	Kilometer
Weight	
g	Gram
kg	Kilogram
t	Ton
Area	
m^2	Square meter
km^2	Square kilometer
ha	Hectare
Volume	
m^3	Cubic meter
l	Liter
stere	Stere (A unit to measure charcoal and equivalent of 1 m^3)
cc	Cubic centimeter
Other	
l/s	Liter per a second
m^3/s	Cubic meter per a second
t/ha	Ton per a hectare
kcal	Kilocalorie
kcal/g	Kilocalorie per a gram
kg/ha	Kilogram per a hectare
m/s	Meter per a second
stere/ha	Stere per a hectare

SUMMARY

SUMMARY

I Introduction

<Objectives>

1 This is the final report of the Study implemented with a region covering 3 Cercles with 0.1 million hectares in the south of Ségou as the study area, in accordance with the Scope of Work concluded between the Government of the Republic of Mali and the Japan International Cooperation Agency (JICA) in February 2004 to specify the detailed rules for implementation of the Study which has the following objectives:

(1) To improve the personal and organizational capacity of the National Directorate of Agriculture (DNA – Direction Nationale de l'Agriculture), Ministry of Agriculture
(2) To improve/train the administrators, extension workers (CAPs) and resident leaders in the study areas through the Pilot Project (PP)
(3) To define the policies to horizontally expand village development on the initiative of residents and formulate the Action Plan (A/P) for the target areas under this Study

<Study Area>

2 The south of Ségou Region, target area of this Study is on the right (south) bank of the Niger River in Ségou Region that is located in the central part of Mali. The study area covers the 3 Cercles of Baraouéli, Ségou and Macina, of which Ségou and Macina are separated by the Niger River. The population in the study area is about 0.36 million and there are 520 villages with a population of 200 or more.

II Present state of the study area

<Progress of desertification>

3 The forest area of Mali has decreased 10% in the past 20 years and the unit yield of millet as the main cereal that demonstrates land productivity decreased from 800km/ha in the 1980s to 600kg/ha in the 2000s. The decline of land productivity, which means desertification, is proceeding in the entire national. The main causes for this advancing desertification are drop of soil fertility caused by the shortened fallow period of cultivated lands, decrease of forests due to tree cutting, and overgrazing of livestock under the background of declined precipitation and population increase (annual increase rate of 3% or less). The Government of Mali established a National Desertification Control Plan (NDCP: PNLCD; Plan National de Lutte Contre la Désertification) in 1985 and started to implement the measures for prevention of desertification. However, sufficient results could not be obtained due to lack of information transmission and residents' participation in implementing the measures. In 1998, based on the provisions of the United Nations Convention to Combat

Desertification, the Government of Mali established the National Environmental Action Plan and National Action Plans provided for the implementation of the United Nations Convention to Combat Desertification (NEAP/ANP-CCD: PNAE/CID; Plan National d'Action Environmental et Programmes d'Actions Nationaux de la Convention Contre la Désertification).

<Measures for prevention of desertification>

4 In response to the above mentioned NEAP/NAP-CCD (PNAE/CID) in Mali, an regional Action Plan "Program of Recovery and Renewal of Natural Resources" (PAR: Programs d'Action Régionaux) was established in Ségou Region to combat desertification. This Plan specified the implementation of activities by the residents' participation for the following four items, in order to achieve a rational management of natural resources:

(1) increase of the residents' ability on land management,
(2) promotion of the comprehensive management of natural resources and agriculture and stock raising,
(3) promotion of the rational management and use of forests, and
(4) efficient implementation of the monitoring and evaluation of Action Plan.

To this end, a budget of 3 billion Fcfa for five years was deemed necessary, but it was actually difficult to secure this amount. It is hard to say that sufficient activities and effects have been demonstrated by now.

<Trend of Aid>

5 There are many projects being implemented by administrative agencies and aid organizations such as NGOs in the study area. Many solution technologies and schemes to counter desertification have been introduced and some have been successful. In successful cases, however, the effects have stopped at village unit or agricultural production unit level, namely at individual “points”, and have not expanded to a wider level. The main causes of this limited spread are the low interest of residents in programs to counter desertification and the poor exchange of information between villages. In addition, the relationship among the administrative agencies, international aid organizations and NGOs which are implementing similar projects is not closely cemented and this is deemed to be another cause.

<Society and Economy>

6 The industrial structure of Mali in 2000 consisted of the primary industry (43.4%), the secondary industry (17.8%), and the tertiary industry (38.8%). With a GNI per head of 380US dollars (according to World Bank data in 2005), this country belongs to the poorest group in the world. According to UNESCO data, the literacy rate of people aged 15 or over was 27% for men and 12% for women (the presumed values by the Government from 2000 to 2004), but the educational gap between urban areas and rural areas is high. The human development index (HDI - published by UNDP in

2006) ranked 175th out of 177 countries in the world. The economic system followed the planned economy until 1985, but since then, it has been changing to the market economy.

<Nature>

7 The southern part of the Ségou region is located in a basin and forms a broad plain with little undulation. The main stream of the Niger River which extends 292 km and its branch stream, the Bani River, which extends 250km, flow through this basin. The Ségou region which the study area is located represents the main agricultural zone producing approximately one third of the general domestic production of millet, which is the principle food of the nation. This soil is low in organic contents, lack nitrogen and phosphoric acid, but the soil shows almost no problem for agriculture in terms of depth of soil stratum, drainage, and pH. With the average temperature in the study area being 29°C and the precipitation, 600 to 700 mm a year, there is a great potential for agricultural development of the study area. Therefore, this area has the sufficient potential to prevent desertification through the agricultural development by taking the conservation of natural resources in account.

<Water resources>

8 As the water source in the study area, surface water is observed throughout a year in Niger River and Bani River as well as in large lakes and marshes. In many “wadis” (seasonal rivers) and small marshes, surface water is found only in certain periods of the year from the rainy season until the beginning of the dry season. Groundwater is a precious water source for the areas located far from rivers or marshes and in the areas in which surface water is dried up during the dry season. Wells as the water source facilities can be divided into traditional wells, modern large-diameter wells, and boreholes. Modern wells providing good water quality and stable amount of water are being constructed by overseas support organizations, but they are not sufficient in number. Many villages are still using only traditional wells.

<Tribe and Custom>

9 Native animism culture originally developed in Mali, but Islamism began to spread from around the 10th century and European culture was introduced by colonization. The intermingling of these three cultures forms the current cultural and religious base of Mali, which dominates the entire scope of social and economic activities of the Malian people. There are 9 ethnic groups in the study area. By percentage , the Bambara, an agricultural tribe, is the largest accounting for 52%, the Bobo (mainly engaged in stock raising) 17%, the Minianka 10%, the Sarakole 10%, the Peul (mainly stock raising) 9%, the Bozo (mainly fishing) 2%, the Dogon 1%, the Mossi 1% and the Sonrai 0.1% The racial structure of Mali is versatile. However, mixture of races is not common recently, the language of Bambara tribe is used as a common language, and there is more equality in the rural society.

<Rural Society>

10 In the village, there is an association with a specific purpose (traditional organization) called "*Ton*". The number of *Ton* differs for each village, but usually there is an average of five to six *Ton* in a village. A *Ton* is a group with an objective, such as an agricultural organization, an organization of family chiefs, a young peoples' organization, a women's organization, or a hunters' organization. If a villager does not participate in the "*Tonbaara* (joint work)" of the village, he/she will be punished with a fine. If he/she does not pay the fine, the amount of the fine is raised. If the offending villager still does not pay, he or she is exiled from the village. If the suitor is excluded from the *Ton*, nobody will help him. The leading class of villages maintains the community while following the above mentioned customs. The fact that a village keeps this kind of customs significantly acts positive in organizing the residents.

<Village Structure>

11 A village is generally formed as a hierarchical structure: (from the lowest level) family members – family (couples and their children) – agricultural production unit (UPA) – hameau (hamlet) – village. This means that several families live together and form a UPA. The UPA is the basic unit of everyday life and economic activity of farming. In addition, there are various groups by age, gender and occupation across the hierarchical structure, and some families are appointed to be in charge of functions such as festivals, hospitality and clerical work. On average in the study area, a family consists of 4.8 persons and a UPA consists of less than 20 family members. An average villages' population is approximately 600.

<Land Use>

12 Under the Law in Mali, ownership of land is vested in the state. Customarily, traditional land users (farmers) are granted usufructuary rights to farmland under the responsibility of the village chief. In the actual land management in each village, a family that desires to settle on or use land is granted an area proportional to its labor by approval of the village chief and the senior council. Forests, rivers and swamps are the common property of the village. There is a system that a person who wants to use the land must register with the Commune. In such case, the right to land use for ninety-nine years is allowed. However, most land users have in fact not registered even though there is a land registration application system. Recently, some people have started to realize that some traditionally-recognized rights of land use, albeit only a very small number, can be sold and/or bought. It shows the rise of the consciousness for the individual land use and management.

<Agriculture >

13 The study area is a "rain-fed agricultural zone" that relies on rainfall in the rainy season (from June to September) for its water supply. Millet, sorghum and fonio are basically produced in the rain-fed farming zone which dominates the most of the Study Area. These are cultivated in a

single crop or in combination with beans such as niébé. The yield is greatly affected by the annual fluctuation of precipitation. Irrigated farm land, which occupies a little more than 10% of the study area, is mainly used for paddy rice culture during the period of high water level in the rivers. Recently, small-scale irrigated vegetable cultivation and fruit production have been increasing in Ségou and neighboring Baraouéli and Macina. The main horticultural products are vegetables such as watermelons, shallots, tomatoes, melons and green peppers, and fruit such as mangos and citrus fruits, papayas and bananas.

<Agricultural Extension>

14 The administrative agencies that are promoting agriculture, stock raising and sylviculture in the study area and its surrounding areas are the Regional Directorate of Agriculture (DRA), the Regional Directorate of Rural Civil Engineering (DRGR - Direction Régionale du Génie Rural) and the Regional Directorate of Natural Conservation (DRCN –Direction Régionale de la Conservation de la Nature). The relationship between the central and regional organizations of these agencies is shown in Table II-1 below. In recent years, the number of field extension workers of these governmental agencies has decreased.

Table II-1 Organizational Relationship of Extension Agencies

	Ministry of Agriculture					Ministry of Stock Raising and Fisheries			Ministry of Environment and Public Hygiene
			Incorporated organizations						
National level	DNA	DNGR	CMDT (Mali Textile Development Corporation)	ORS	APCAM	DNSV	DNPIA	DNP	DNCN
Regional level	DRA	DRGR	(Région CMDT)	ORS	CRA	DRSV	DRPIA	DRP	DRCN
Cercle level	Agriculture Sector	(Local representative)	(CMDT Sector)	(Zone ORS)	(Local delegation)	SSV	SLPIA	SLP	SCN
Level of multiple communes	Sub-sector, Extension Workers (CAPs)	-	(ZER), (ZAF), (ZAER)	(ACR)	-	Veterinary Post	PIA Unit	Fisheries Branch Office	ACN

<Stock Raising>

15 In Ségou Région, 1,017,000 cows, 1,053,000 sheep, 1,382,000 goats, 20,000 horses, 104,000 donkeys and 2,759,000 fowls are raised. This accounts for 17.4% of the tropical livestock unit (UBT: Unite de Betail Tropical) in Mali. Ségou Région is an important production base for the livestock-raising business in Mali. Cows are raised as savings and the raising period is long because they are not renewed when the timing is economically right, resulting in low production efficiency. The productivity of poultry raising, which is the valuable method for obtaining cash for farmers, is low due to insufficient hygienic measures and raising of poultry by outdoor grazing. Livestock raising in the study area takes the form of grazing using natural grassland, fallow fields and woodland. Livestock raising is carried out in close connection with agriculture in terms of effective use of farm product residues, feedback of livestock dung and urine to the fields, and use of livestock as draft

animals.

<Forests>

16 There remains little of the original vegetation. Grassland is combined with sparse woodland where the tree crowns are isolated from each other, and the vegetation consists of low herbaceous plants sparsely mixed with shrub. The average cumulative volume of forests is 12 to 16m^3/ha and the average yearly growth of forests is extremely slow. Forest protection and exploitation conditions are stipulated in the forestry management law, but the forests under common ownership by custom are used as firewood collection sites at present. In addition, the sale of forest resources is an important source of cash income for the residents, resulting in frequent occurrences of illegal cutting and trading in wood. No renewal work is carried out at the sites where the trees have been cut down. As a result, the entire forest resources are decreasing and bare land is appearing in places in a mosaic pattern.

<Rural infrastructure>

17 Road improvement is delayed. The national roads have improved at a specified level, except for the main and general local roads. Furthermore, there are problems of partial defect of pavement due to insufficient maintenance as well as the road surfaces having inflow of water due to unimproved drainage facilities. At some portions of roads, safe traffic is not secured. The improvement of the access roads to the market used by the residents on a daily basis has been delayed. Some of these access roads become impassable during the rainy season, which causes trouble for the distribution of agricultural products and receiving of public services such as medical service or education. Agricultural roads are not improved at all. The installation state of main public facilities in the villages of the study area is low of 8% for meeting halls, 36% for mills, and 8% for medical clinics. As for the already installed facilities, the maintenance by the residents is generally poor and many facilities are not used.

<Women’s burden of labor>

18 In the rural villages, farmwork is, in principle, considered as men’s work, while work in the UPA (agricultural production unit) is considered basically as women’s work. On the other hand, women are busy all the year round. They spend long hours polishing and grinding millet every day. Fetching water manually from wells with a depth of 10 to 40 m is not an easy job either. Collection of firewood is also a women’s job. Toward the end of the dry season, women spend three months collecting firewood and spend another month transporting it to the village. In the past, they collected firewood 1km from their home. However, recently they have to walk 3 km or more to reach places where firewood can be found. In addition to this hard work, some women bring lunch to the men working in the fields and find time to work in women’s communal fields. Women with many children work without a break. It is not unusual to encounter women who work 14 hours a day. On

the other hand, women rarely take part directly in decision-making in the village. Rural women under such circumstances suffer more from the impact of desertification than men as desertification has increased the time required for them to collect firewood and to fetch water. Therefore, women are considered to have a great interest in taking part in implementation of projects to counter desertification and, thus, are expected to contribute to the sustainability of the projects. Reducing women's labor and giving them opportunities for cash income are expected to lead to improvement of the living environment, improvement of the nutritional condition of children and more opportunities for education for children.

< Factors impeding the development >

19 The impeding factors of rural development in the study area are summarized in the Table below. For the settlement of sustainable agriculture, these impeding factors must be removed first.

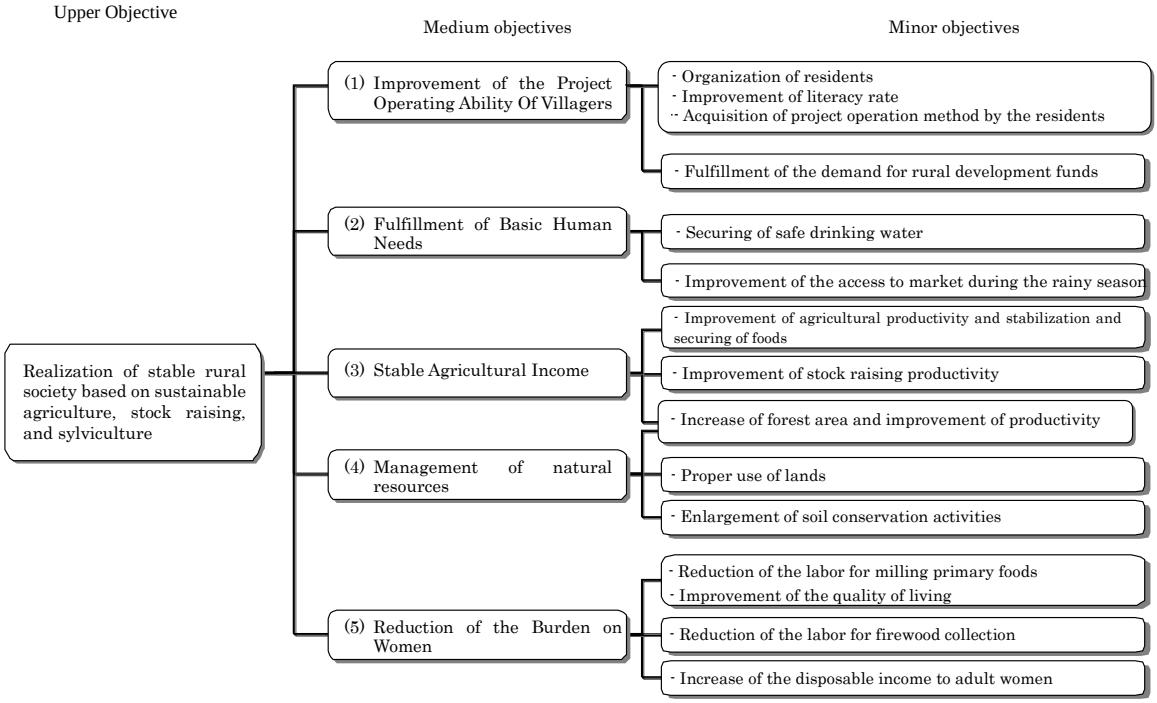
Sector	Factors impeding the development
Rural society	(1) There are few educational opportunities and the basic educational level such as the literacy rate is low. (2) Lack of opportunities for employment (means of earning income) in all fields (3) Burdens to women are excessive and the participation of women in rural development is insufficient.
Rural economy	(1) Lack of investment funds in all sectors (2) Lack of access measures to funds in farming villages (3) Lack of means of earning income
Support of farmers	(1) Unestablishment of resident participatory promotion method and system (2) Lack of extension tools (transportation measures or teaching materials for extension workers) (3) Low extension effect due to insufficient organization of residents
Land use	(1) Lands are not used under the ordered plan and regulation. (2) Traditionally residents rarely have the concept of land possession and are not motivated in improving the land use.
Water resources	(1) Lack of modern water source facilities and water use facilities
Agriculture	(1) Excessive cultivation accompanying the population growth, reduction of land productivity due to the enlargement of cultivated lands (2) Insufficient extension of technology to relieve the effects of vigorous weather change (3) Unestablishment of the supply system of materials such as improved variety or fertilizer (4) Increase of soil erosion caused by the factors outside the fields (upstream)
Stock raising	(1) As the nation's consciousness is low, stock raising infrastructure has been deteriorated. (2) Stock raising for the purpose of saving is the main stream, which induces overgrazing due to the increased number of animals. (3) Stock raising for the purpose of saving rather than for selling reduces the shipment rate, hindering thus the productivity. (4) Due to the lack of stored feed and nutritious supplement feed, the productivity of stock raising is low. (5) Due to lack of vaccination, wearing of livestock caused by diseases is severe.
Sylviculture	(1) As the residents are rarely conscious of forest conservation or possession of trees, tree planting does not proceed. (2) Damage of vegetation eaten by livestock or caused by burning is serious. (3) Disorderly tree cutting with the purpose to obtain cash through selling firewood increased.
Market distribution	(1) Market price of cereals fluctuates greatly being linked with the annual fluctuation of production. (2) Access roads to the market are not improved at village level. (3) Lack of cereal storage facilities

III Action Plan (A/P)

＜Development Objectives＞

20 In the Action Plan (A/P), the Master Plan that was the result of the PNAE and the Phase-1 Study in Mali is positioned as the main upper level plan intended for prevention of desertification though the elimination of impeding factors in rural development and establishment of sustainable agriculture in the study areas based on the development objectives as shown in Table III-1 below. The basic strategy of the A/P is to stabilize the livelihood of the rural inhabitants, and then to prevent the exploitation of resources and promote appropriate land use.

Figure III-1 A/P Project Objective System



<Formulation concept of Action Plan>

21 The basic concept in constructing the measures for achieving the development objectives consists of the following three points.

(1) To promote the residents' participation and the autonomous project operation by the residents at all stages of project activities to be planned

(2) To construct the support system of the residents' activities at both the administrative and the residents' levels and continue the autonomous project operation by the residents through the said system

(3) The technologies and method to be adopted in the planned project shall be the existing ones in West Africa or their adaptations.

＜Planned Period and Target Areas＞

22 The planned period and the A/P target areas are as follows:

(1) The planned period is scheduled for the period of 2004 to 2017 including the period of implementation of the Pilot Project (P/P) (2004.12～2008.1), in which the feasible projects will be implemented in stages in turn.

(2) The A/P target areas include 508 villages in the rain-fed agriculture zones in the three (3) cercles of Baraoueli, Ségou and Macina in Ségou Region which is a relatively poor region among the regions in the Master Plan.

<Method of promoting residents' participation>

23 In order for the local residents to recognize the necessity for desertification prevention activities and to tackle the activities under their own initiative, it is necessary to introduce an arrangement through which the villagers can participate on their own initiative in all processes, including analysis of the present situation at village level, selection of measures, and the formulation, implementation, and maintenance of plans. Through the process of this participation, the ownership and the empowerment of villagers will mature. For this reason, under the Project the method of promoting residents' participation employed will be "the maturing of villager ownership in desertification prevention measures → voluntary establishment by the villagers of an organization to implement measures → operation and management of the measures spearheaded by the villager organization".

<Total project arrangement>

24 In order to achieve the project objectives, the projects shown in the Table below shall be planned for each project objective. The rural development must be promoted comprehensively by solving the complicatedly intertwined problems such as degradation of resources (desertification), poverty, or gender. In order to remove a given impeding factor, a standpoint to solve uniformly the impeding factors in the causal relationship is required. For this reason, diversely related projects (mutually complementary projects) were comprehensively planned and arranged.

Table III-1 Programs Corresponding to the Project Objectives

Medium goals	**Minor goals**	Project Component
(1) Improvement of the project operating ability of residents	(1) Support for organizing residents (2) Improvement of literacy rate (3) Acquisition of project operating method by the residents (4) Fulfillment of the demands for funds for the rural development	・Literacy education (including classroom construction) ・Training for capacity building of residents ・Establishment of small-scale financial system
(2) Fulfillment of BHN	(1) Securing of the water source for safe drinking water (2) Improvement of the access to the market during the rainy season	・Improvement of modern wells ・Road improvement
(3) Stabilization of farmers' income (Improvement of production in agriculture, stock raising and	(1) Improvement of agricultural productivity (2) Stabilization and securing of foods (3) Improvement of stock raising	・Supply of fertilizers and seeds for rain-fed farming ・Small-scale vegetable cultivation ・Construction of cereal bank

sylviculture)		productivity	・ Construction of vaccination facility ・ Training for higher productivity of individual stock (guidance in stock raising and improved henhouse construction)
	(1)	Increase of forest area and improvement of productivity	・ Improvement of mini-nursery ・ Tree planting
(4) Conservation and management of natural resources	(1)	Enlargement of soil conservation activities	・ Soil conservation
	(2)	Proper use of lands	・ Land use regulations establishment
(5) Reduction of burdens to women	(1)	Reduction of the labor for milling primary foods	・ Construction of mill
	(2)	Reduction of the labor for firewood collection	・ Extension of the manufacturing of improved oven
	(3)	Increase of disposable income	・ Extension of the manufacturing of handicrafts
	(4)	Improvement of living	・ Training for living improvement

<Villager's burden>

25 The projects planned under this Plan are divided into those to be carried out at the village level with residents' participation, and those to be carried out at the administrative level, to support activities at village-level. As a general rule all the projects at village level require the villagers to shoulder a burden (in terms of the provision of materials, labor, money) as far as is acceptable: this will also help enhance their sense of Ownership. When the villagers' burden is to be monetary, funds will be reserved as a fund of the village terroir development committee (CGTV: Comité de Gestion du Teroir villageois), and the village terroir development committee will promote the use of this fund as maintenance costs for the project facilities and as micro-credit capital. The following table shows the principles of villager's burden.

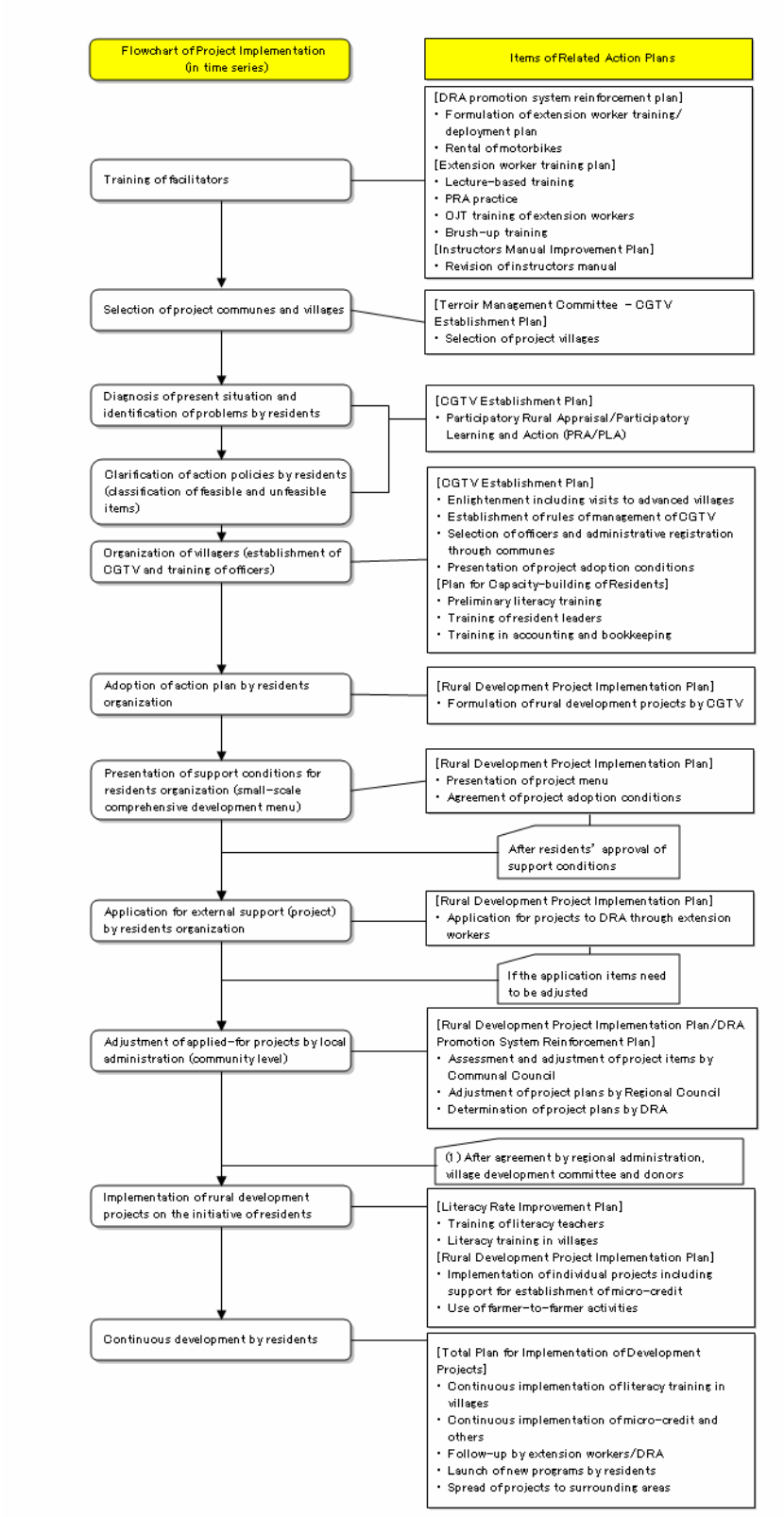
Table III-2 Principles of Villager's Burden

Project Item/Type	Amount/Share	Remarks
Training only	Only cost of stationery	
Literacy education	40,000 FCFA	Share of classroom construction
Microcredit system	60,000 FCFA 40,000 FCFA	Share of installation of microcredit system Share of installation of safe-deposit boxes
Boreholes/wells	200,000 FCFA 150,000 FCFA	Boreholes Large-diameter concrete wells
Road construction	100,000 FCFA	Per 5km
Fertilizers/seeds	80% of purchase costs	
Small-scale vegetable cultivation	60,000 FCFA	Share of field enclosure fences
Cereal bank construction	40,000 FCFA	Share of cost of construction materials
Vaccination stations	Large : 150,000 FCFA, Small : 100 000 FCFA	
Improved henhouse construction	5,000 FCFA	Share of cost of construction materials
Mini-nurseries/ reforestation	20,000 FCFA	Share of cost of equipment/materials
Mill plant construction	150,000 FCFA	Share of cost of milling machines

＜Advancement of the Projects＞

26 The procedure for advancing the planned projects is shown in Figure III-2 below.

Figure III-2 Procedure of A/P Project



＜Action Menu＞

27 The action menu for developing the A/P is shown in Table III-3.

Table III-3 A/P Action Menu

Action Plan	Minor Plan	Action Item	Initiative	Objective or Operation Method
Extension Worker Training Plan	Extension Worker Training Plan	Preparation of re-training curriculum	Administration (NGO)	Ability improvement/ maintenance for extension workers
		Lecture-based training		
		Brush-up training		
Development Project Implementation Plan	Residents' Organization Establishment and Reinforcement Plan	Selection of target villages	Administration	Organization of residents and establishment of management system
		Participatory rural appraisal and presentation of project adoption conditions	CAP (NGO)	
		Establishment of management rules, election of officers and administrative registration	Residents CAP (NGO)	
	Plan for Capacity-building of Villagers for project implementation	Training of resident leaders (incl. visits to advanced areas)	CAP Residents in advanced area (NGO)	Acquisition of project implementation methods by residents
		Training in accounting and bookkeeping	CAP (NGO)	
	Rural Development Project Implementation Plan	Formulation of draft rural development plan	Residents (CAP)	Formulation of plans and implementation of projects on residents' initiative
		Presentation of project menu	Administration	
		Application for projects and determination of project plans	Residents (CAP) Administration	
		Implementation of rural development projects	Residents	
	Literacy Rate Improvement Plan	Construction of meeting halls	Residents	Improvement of literacy rate
		Training of literacy teachers	NGO	
		Literacy training in villages	Residents	
	DRA Promotion System Reinforcement Plan	Formulation of promotional activity plans	Administration	Reinforcement of functions of communal and regional administrations
		Provision of promotion equipment and materials	Administration	
		Tie-up with local governments (communes)	Administration	
	Instructor Guidelines Improvement Plan	Improvement of instructor guidelines	Administration	Application to instructions for residents
Project/ Development Fund Plan	Development Fund Plan	Formulation of annual project plan	Administration	A/P projects
		Formulation of annual fund plan	Administration	
	Fundraising Plan	Securing of national budget	Administration	Fundraising
		Requests to donors	Administration	

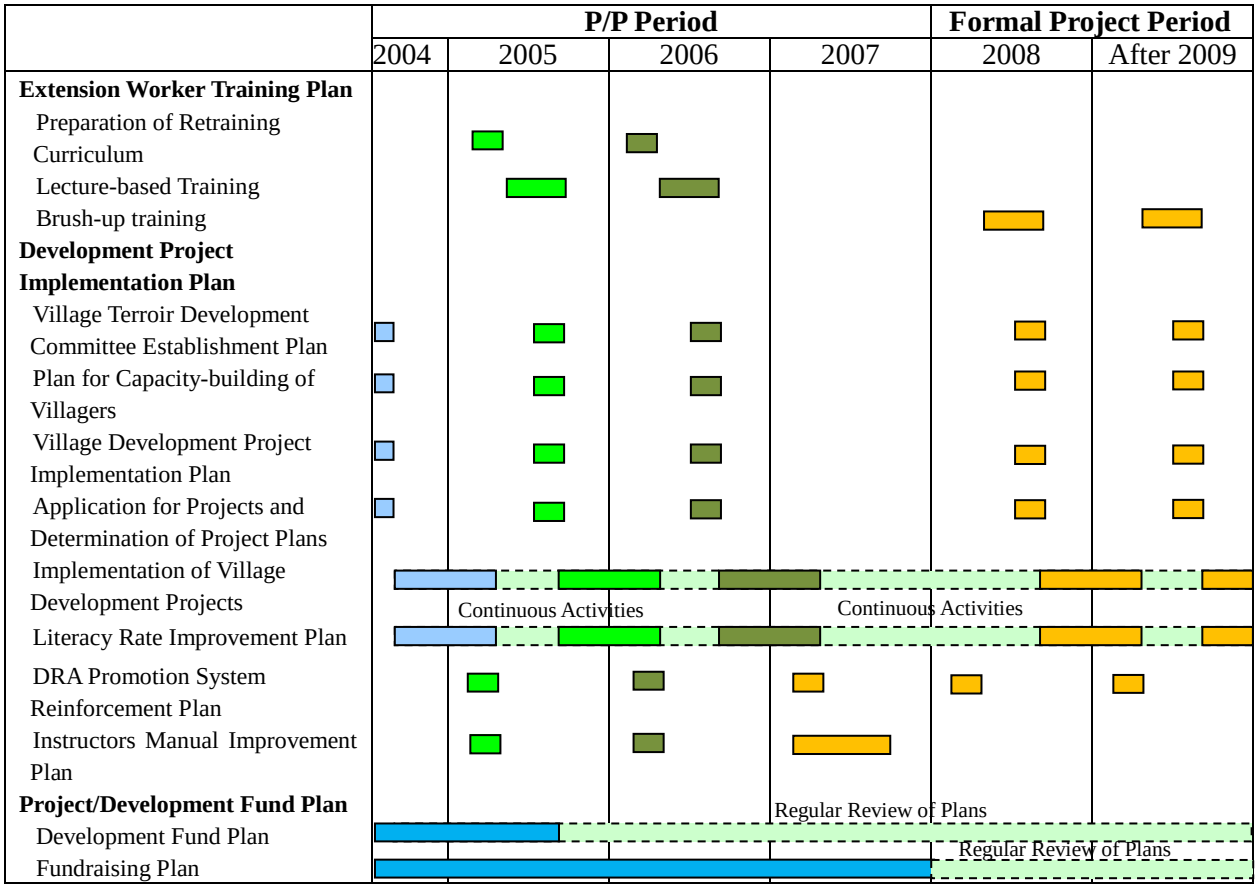
＜Distribution of Action Roles＞

28 The distribution of roles for each action menu item is described as follows:

Sharing of Roles	Functions and Duties
Administration	・ Councils at local administration, commune, cercle and regional level make adjustments between “commune development plans” and individual projects, and coordinate with other aid organizations and NGOs. ・ Administrative services include guidance and support for activities to improve the abilities of extension workers and promote extension activities. ・ DNA reinforces the application of national policies including PASAOP to local communities, promotes tie-ups with related agencies and comprehensive agricultural policies, and ensures efficient operation of the national budget. ・ Local governments adjust various projects through the regional or commune council and their experience is reflected in “local autonomy based on residents’ will.”
Residents	・ Residents organize village terroir development committees to formulate and implement rural development projects. ・ Residents convey information on their project experience to residents in the surrounding area and contribute to fostering consciousness of development of rural communities.
Extension workers	・ Extension workers support the improvement of residents’ abilities as facilitators. ・ They transfer and extend their experience and abilities acquired in projects to their colleagues.
NGOs	・ NGOs assist the activities of extension workers and support the improvement of residents’ abilities. ・ NGOs are entrusted by the administration to undertake the training of residents and development projects.

＜Project Implementation Schedule＞

29 Each Action Plan is shown divided into the P/P period (2004 to 2007) and the formal project period (2008 to 2017). The PP period was completed in November 2007.



＜Project Distribution by Year＞

30 The project distribution by year for the formal project period is shown below. The project is planned to be implemented in fewer than about 50 villages every year in consideration of the local administrative capacity, the construction capacity of local companies, and the balance of project distribution among the cercles.

Cercle	Formal Project									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ségou	27	21	27	21	27	21	27	21	26	22
Macina		25		25		25		25		25
Baraoueli	19		19		19		19		20	0
Total	46	46	46	46	46	46	46	46	46	47
Grand Total	93	139	185	231	277	323	369	415	461	508

＜Project Cost＞

31 The project cost to execute the A/P will amount to approximately 15 million dollars as shown in Table III-4.

Table III-4 Total project cost

Item	Unit Cost	Quantity	Total Amount (1,000FCFA)			Amount in (FCFA x 0.238: 1000yen)		
	(FCFA)			Share borne by Mali	Other Funds	yen	Share borne by Mali	Other Funds
1. Establishment of support system								
Maintenance cost of project office	16,120,000	1 site × 10 years	161,200	161,200	0	38,366	38,366	0
Vehicle maintenance cost	14,000,000	1 site × 10 years	140,000	140,000	0	33,320	33,320	0
CAPs' activity cost	600,000	24 persons × 10 years	144,000	144,000	0	34,272	34,272	0
Cost of holding meetings of the Council	1,100,000	1 year × 10 years	11,000	11,000	0	2,618	2,618	0
Capacity-building training (brush-up)	800,000	1 training × 10 years	8,000	8,000	0	1,904	1,904	0
Sub-total			464,200	464,200	0	110,480	110,480	0
2. Individual projects								
PRA	1,380,000	461 Villages	636,180		636,180	151,411	0	151,411
CGTV support	610,000	461 Villages	281,210		281,210	66,928	0	66,928
Leader training	410,000	461 Villages	189,010		189,010	44,984	0	44,984
Handicraft promotion	420,000	461 Villages	193,620		193,620	46,082	0	46,082
Oven training	380,000	461 Villages	175,180		175,180	41,693	0	41,693
Literacy classroom construction	2,620,000	212 Villages	555,440		555,440	132,195	0	132,195
Literacy training	280,000	461 Villages	129,080		129,080	30,721	0	30,721
Disinfection of fertilizers and seeds	780,000	461 Villages	359,580	359,580	0	85,580	85,580	0
Construction of vegetable fields	350,000	461 Villages	161,350		161,350	38,401	0	38,401
Microcredit	500,000	369 Villages	184,500		184,500	43,911	0	43,911
Improvement of individual livestock	350,000	461 Villages	161,350		161,350	38,401	0	38,401
Modern borehole/well construction	5,000,000	350 Villages	1,750,000		1,750,000	416,500	0	416,500
Road construction	760,000	67 Villages	50,920		50,920	12,119	0	12,119
Cereal bank	200,000	143 Villages	28,600		28,600	6,807	0	6,807
Vaccination station	5,000,000	180 Villages	900,000		900,000	214,200	0	214,200
Land use rules	360,000	277 Villages	99,720		99,720	23,733	0	23,733
Milling plant	2,150,000	277 Villages	595,550		595,550	141,741	0	141,741
Soil conservation/nurseries/reforestation	200,000	461 Villages	92,200	92,200	0	21,944	21,944	0
Living improvement	200,000	461 Villages	92,200		92,200	21,944	0	21,944
Sub-total			6,635,690	451,780	6,183,910	1,579,295	107,524	1,471,771
3.Total direct project cost			7,099,890	915,980	6,183,910	1,689,775	218,004	1,471,771
5.Reserve	5%		354,995	45,799	309,196	84,489	10,900	73,589
6.Total project cost			7,454,885	961,779	6,493,106	1,774,264	228,904	1,545,360
Per village			16,171	2,086	14,085	3,849	497	3,352

＜Action Monitoring/Evaluation＞

32 The Commune or Regional Council will monitor or evaluate each Action Plan late in each year of the formal project period on the basis of the indices shown in Table III-5. The results of the monitoring and evaluation will be reflected in the A/P to be executed in the next year.

Table III-5 Evaluation Indices for Action Plans

Action Plan	Minor Plan	Target Index
Extension Worker Training Plan		Frequency of brush-up trainings Number of newly-trained extension workers
Development Project Implementation Plan	Residents' Organization Establishment/ Reinforcement Plan	Number of organized CGTV committees Number of established sets of land use rules
	Plan for Capacity-building of Villagers	Number of trained villagers
	Village Development Project Implementation Plan	Number of formulated village development project plans
	Literacy Rate Improvement Plan	Number of village literacy teachers
	DRA Promotion System Reinforcement Plan	Number of meetings of Regional or Communal Councils
Project/Development Fund Plan	Development Fund Plan	State of implementation of annual fund plans
	Fundraising Plan	Budgeting conditions

＜Priority Order of A/P Projects＞

33 Qualitative evaluation of the project components in the A/P was carried out. "Evaluation by the residents" and "evaluation by the Study Team" were also carried out on the basis of the following 8 indices: (1) contribution to prevention of desertification; (2) contribution to village development ; (3) contribution to poverty reduction; (4) compatibility with administrative strategies; (5) needs of the residents; (6) ease of technology transfer to residents; (7) level of difficulty of project implementation; and (8) gender considerations.

The evaluation results were, in order of total marks: (1) improvement of the literacy rate and extension of improved seeds and fertilizers for rain-fed farming products; (2) installation of mini-nurseries and reforestation; (3) support for establishment of the microcredit system; (4) construction of modern boreholes/wells and small-scale vegetable cultivation; (5) living improvement and promotion of improved oven manufacture; and (6) support for organizing residents and training of leaders. These are deemed to be the priority projects which form the core of village development.

IV Pilot Project

＜Objectives of Pilot Project＞

34 To implement some of the project components in the draft Action Plan ahead of others and feed back the results of evaluation, including their appropriateness as projects, to the Action Plan, the

Pilot Project (PP) was implemented in 47 villages in 4 communes in 3 cercles in the Study. The following 5 items were aimed at verification of the PP :

(1) Appropriateness of the methods used in the village development project
(2) Possibility of training administrative extension workers as project facilitators
(3) Possibility of transfer of techniques and skills from farmer to farmer in each project
(4) Limit of reduction of project investment amount
(5) Analysis of the factors affecting the "independent development" of each project

＜Progress of Implementation＞

35 The PP was implemented in the 1st year Study through the 3rd year Study as shown in the PP progress in each year in Table IV-1. The entire PP was evaluated in the 4th year Study and the results were reflected in the formulation of the final Action Plan.

- In the first year of the study (Fiscal 2004), we trained 10 extension workers (CAPs) and implemented pilot (small-scale comprehensive development) projects in 12 villages using the trained CAPs as the facilitators.
- In the second year (Fiscal 2005), we trained 14 CAPs and implemented projects in 20 villages.
- In the third year (Fiscal 2006), we trained 14 CAPs and implemented projects in 15 villages.

Table IV-1 Activities and Period (by Year) of Pilot Project

Stage of project	Details of activities	Implementation period/Remarks
(1) Project site selection	・ Baseline survey ・ Consultation with relevant administrative bodies and selection	June each year
(2) Selection of CAPs to be trained	・ Consultation with administrative bodies and selection	June
(3) Implementation of "facilitation capacity-building training" for CAPs	・ Formulation of training plan ・ Commissioned to local consultant	June July – August
(4) Implementation of participatory rural appraisal (PRA)	・ Commissioned to local consultant (Participation of CAPs who had received previous training as moderators) ・ Clarification of policy on people's activities	September
(5) Support for formation of resident organizations/ formulation of practical project plans	・ Visit to advanced areas by candidates for executives of organizations ・ Establishment of rules of organizations, selection of executives and registration of establishment of organizations to administration ・ Preparation of practical project plan for each village ・ Presentation of external support criteria by study team (to resident organizations) ・ Application for external support (projects) by resident organizations ・ Implementation of capacity-building training for executives of organizations	October November – December November November - December

Stage of project	Details of activities	Implementation period/Remarks
(6) Adjustment of project details by local administration	・ Adjustment of details of applied projects among villages by commune implementation councils ・ Finalization of project plans for fiscal year ・ Conclusion of "Agreement on role-sharing in project implementation" among communes, resident organizations and external benefactors.	November December
(7) Project implementation/ monitoring and evaluation	・ Project implementation in each village by commissioning to specialists (partly to administrative bodies) ・ Voluntary expansion of projects by villagers ・ Voluntary inspection of projects by residents of nearby villages ・ Project monitoring and evaluation	January - March After launch of projects

＜Training of CAPs＞

36 The CAPs were trained in the basic knowledge required for facilitators in the lecture-type "capacity-building training" (30-day curriculum) first and then they participated in the PP by OJT-type training in which each CAP took charge of one or two villages to improve their capacity. In the capacity-building training, importance was attached to the viewpoint of "worrying with residents and fostering thinking residents" rather than that of teaching the "extension techniques". Initially, 42 CAPs participated in the training, but some were transferred to other jobs in personnel changes during OJT and in the end 38 CAPs completed the OJT.

＜Development of Residents' Organizations＞

37 Following the activity of "defining the problems in each village by the residents themselves" using the PRA method, projects for fostering the willingness to undertake activities for problem solving and for supporting the organizing of residents for activity promotion were implemented. Of the 47 target villages, 35 villages launched residents' organizations and the remaining 12 villages reformed their existing organizations as new organizations. Some reformed organizations were village youth organizations or past organizations set up with the support of donors. Although the new organizations were set up from the viewpoint of "are they appropriate organizations for village development on the initiative of the residents?", some doubt remained about whether discussions were conducted in full depth on the "conditions for a desirable organization". It was also observed that there were some villages which did not conduct full discussions and hastily organized their residents in the expectation that "if an organization is formed, assistance will come".

＜Adjustment of Projects by the Local Administration＞

38 The residents' organization in each village put their "activities to be conducted" into order and filed an application for external assistance for some feasible activities. Each commune as the local administrative agency in charge of the villages held a Commune Implementation Council to coordinate the application items from each of the villages and decide those to be adopted as PP components. The following points were considered in reviewing and coordinating the activities:

- Whether the application was for a project of low necessity (for instance, because there were usable or divertible existing facilities under past assistance)
- Whether the application was for a project which the village had the capability of coping with independently
- Whether equality was maintained between villages and between communes
- Whether the project was useless (for instance, because each village submitted an application for facilities that could be jointly used by a number of villages)
- Whether the applications were within the range of the total project budget
- Whether the project had integrity with any commune development project (formulated independently by the commune as a 3-year project) or with any assistance project by any other donor

The main points under discussion for coordination by the Commune Implementation Councils were the possibility of rehabilitation or conversion of existing facilities and selection of villages for construction of milling plants as facilities for joint use, for vaccination stations for joint use and for installation of microcredit systems.

＜Progress of Small-scale Comprehensive Projects by Residents＞

39 After the construction of the facilities necessary for the activities by the provision of labor by the residents and technical trainings were completed, such facilities were put into “project operation by residents’ autonomy” under the control of the residents’ organization. Since such “project operation by residents’ autonomy” started, 15 villages have expanded 21 activity projects on the residents’ own initiative (led by the village terroir development committees). Each of the villages has maintained the sustainability of development in general, though the development activities in some villages are sluggish.

＜Technology Transfer from Farmer to Farmer＞

40 Various trainings of residents used the farmer–to-farmer approach as much as possible. In the first year of the Study, preliminary literacy training was conducted before the training of resident leaders in 6 villages in which there were no literate persons. In this preliminary training, the literacy instructors who were trained in the Phase-1 verification project were used and this had an unexpectedly high effect (75% of trainees became literate). Therefore, similar literacy instructors were also used in “the literacy education to foster literacy instructors in the villages” and this had the successful effect that the rate of fostering literacy instructors was higher (slightly lower than 80%) than that in the Phase-1 project (slightly lower than 60%). As the instructors are residents, they could issue instructions to the residents based on an understanding of their mentality and behavior patterns. After the second year of the Study, excellent resident instructors from advanced villages were used for

almost all literacy trainings. This not only reduced the training costs (personnel costs) and increased the training effectiveness, but also according to the results of interviews with residents who had experience as instructors , most answered that their experience was useful and meaningful, saying: “it was instructive for us”, “we could obtain new information”, “our circle of friends widened”, and “we could come into contact with foreign culture”.

＜Decrease of Project Investment Amount＞

41 The project cost was reduced mainly by 2 methods. One method was to increase the construction contribution by the residents. In the 3rd year of the Study, only the materials and the technical training for construction and operation were supplied, and the hardware component, construction using the supplied materials, was provided independently by the residents. By this method, it is presumed that the residents gained a higher capacity in maintenance and repair. The other method was the use of instructors from advanced villages for technical training. In this case, the personnel costs could be reduced to one-fourth or one-fifth of the cost of an external expert instructor (consultant or official). As a result, the project cost per village during the study period was reduced by 15% on the local currency base, which means that the total project cost reduction was equal to 60% of the Phase-1 project cost.

＜Project Monitoring＞

42 The entire PP was monitored as shown in Table IV -2. The points to which special attention was paid in monitoring are: (1) sustainability and expansion of the project by the village terroir development committee (CGTV) (performance of small-scale comprehensive projects and the CGTV); (2) possibility of training administrative extension workers as facilitators (performance of village instructors), and (3) leadership and coordination capacity of the local administration (performance of the commune).

Table IV-2 PP Monitoring Method and Outline of Evaluation

Survey subject	Monitoring/Evaluation items	Monitoring/Evaluation points	Summary of the monitoring/evaluation
Operation of the Project Implementation Council	@Attendance at the regular meetings @Significance of the deliberation and relevance of the agreements reached at the regular meetings	@Who are the appropriate participants of the meetings? @What are the appropriate subjects as the agenda of the meetings? @What type of proceeding is appropriate?	@The representatives of almost all the relevant organizations attended the meetings. @The meetings deliberated coordination and resolutions related to PP activity promotion. @Leadership of the study team has been reduced and the local administration is taking the lead in setting the agenda and schedules.
Implementation of capacity-building training (training for CAPs)	@ Appropriateness of the training materials, curricula and methods @Extent of improvement of CAPs' understanding and knowledge of training contents	@Grasping areas with problems and areas with strong impact in the training	@The training produced virtually the expected impact in the plan. @ The impact of the training in areas related to accounting and strengthening of organization was relatively weak. @The CAPs were slow in understanding the subjects in which they had little working experience.
Development of extension tools	@Frequency and ease of use of the tools		@Not many suggestions for improvement or proposals from the users were collected.
Implementation of PRA survey	@Extent of application of the training contents in the field and their effectiveness @Time required for the PRA survey and the degree of fatigue of interviewers and interviewees	@Appropriateness of the scope of work in the support work of the CAPs and the NGOs	@The women's groups did not express their opinions or views sufficiently (as it takes time to make them feel at ease). @Although partial simplification of the PRA tools is possible, six days in total are required per village.
	@Appropriateness of the PRA technique	@Is the draft plan truly designed by the farmers on their own initiative?	@PRA cannot be implemented without the participation of NGOs. (It cannot be done only by CAPs.)
	@Effectiveness of the OJT training provided by NGOs to the trainees		
Support for CGTV establishment and participatory preparation of draft project plans	@Extent and effectiveness of the application of the training contents by the CAPs in the field @ Performance of organization formation by the farmers	@Appropriateness of the scope of work in the support work of the CAPs and the NGOs	@Organization formation was completed in a short time with few problems in every village. @However, organization formation seemed to be performed with the expectation of support and without genuine consideration for 'the need to establish organizations.'
	@ Appropriateness of the support for the draft project plan preparation by the farmers	@Is the draft plan truly designed by the farmers on their own initiative?	@The farmers' enthusiasm for draft plan preparation was high and they submitted a proposal for the communal use of facilities prepared by themselves.
	@Effectiveness of the OJT training by the NGOs to the trainees		@However, the identification of problems through PRA and linking of the problems to the project plan was insufficient. @The instructions of the NGOs were appropriate, while some CAPs were seen waiting for instructions.
Training of farmers' leaders	@Degree of farmers' understanding of the training @Extent of the realization of training impact @Appropriateness of the advice of the instructors for strengthening of organizations @Effectiveness of the farmer-to-farmer facilitation and technology transfer.	@For which parts of the training can the administration take responsibility? @ Which parts of the farmer-to-farmer facilitation and technology transfer are effective?	@Both the understanding and the will of the farmers were high. @Workers from the administration should take responsibility for 'technical training which cannot be taught by the farmers from advanced villages'. @Most of the tested farmer-to-farmer technology transfer had a great effect. (Farmers who have a better understanding of the local conditions may be better lecturers than outsiders.)
Presentation of project schedule and conditions to villages and project application by the villages	@ Extent of involvement of each administrative organization in the process of finalizing the project schedules and conditions @Maturity of the discussion within the villages until they decided on submitting a project application. @ Appropriateness of trainees' advice in the discussions in each village	@Does each organization participate and function sufficiently in the discussions of 'the Implementation Council?' @Are the independence and democracy of the farmers guaranteed in the process of decision-making regarding the application?	@Advice of the CAPs on installation sites for communal facilities, etc. was generally appropriate. @However, a few CAPs did nothing but notify the study team of the views of only a few farmers. @Residents' independence and democracy were secured to a certain extent.
Finalization of the project plans for PPs	@ Extent of involvement of the counterpart organization and communes	@Can they prepare efficient plans while ensuring equality at village and commune levels?	@Commune staff were involved in coordination for plan finalization (regarding the locations of vaccination stations and the villages in which mills are to be installed).

Survey subject	Monitoring/Evaluation items	Monitoring/Evaluation points	Summary of the monitoring/evaluation
Designing and ordering of project facilities	@ Extent of involvement of the counterpart organization @CAPs' understanding of the wishes of the farmers and degree of reflection in the design @Accuracy and efficiency of the ordering	@ Can the DRA staff and the CAPs play a central part and smoothly carry out the design, ordering, and supervision of construction works ?	@C/P and CAPs have improved their understanding of specifications. @However, the study team still takes the lead in designing.
Implementation of projects and continuation of activities by the farmers	@Appropriateness of the advice to the farmers during the project activities @ Independent development of initiatives for projects by the farmers alone @Degree of realization of the project effects @Effectiveness of the farmer-to-farmer facilitation and technology transfer	@Methods of procurement of funds and materials when the farmers expand projects and take initiatives by themselves @ How much has external material assistance been reduced? @ Which parts of the farmer-to-farmer facilitation and technology transfer are effective?	@The will of the farmers is extremely high and preparation of all the farmer's contribution is good. @Self-construction of literacy schools and grain banks has expanded. @As mentioned above, farmer-to-farmer technology transfer was very effective. @The farmer lecturers functioned satisfactorily. When they stay overnight in backward villages to give lectures, impromptu 'discussion on PP' is organized after supper.
Assessment of indirect effects of the project	@Indirect effects realized outside the PP project area.	@Grasping of the process of realization of indirect effects	@Positive effects have been seen in more than 30% of the surrounding villages surveyed.
Final evaluation of the study	Comprehensive analysis of the above-mentioned monitoring and evaluation	@Has the capacity of the administration (including the CAPs) improved? @Was the tested community development technique appropriate? @Did the tested farmer support system function properly?	@80% of the trained CAPs became facilitators. @In the majority of the villages in which PP was implemented, project activities are carried on by the CGTVs. @The administration performed its support activities, but some agencies monitored the village conditions inadequately.

＜Evaluation of Small-scale Comprehensive Development Projects by Village＞

43 For each of the project components composing the PP (small-scale comprehensive development projects) by village, the impact evaluation index as shown in Table IV-3 was determined to collect data periodically. As a result of evaluation of the collected data, the following points were common to the villages with good project performance:

(1) Villages with good leaders (high correlation with the evaluation)
In particular, villages with several high-capacity CGTV members (leaders)

(2) Villages to which good facilitators were assigned (relatively high correlation)

(3) Villages operating the microcredit project well (relatively high correlation)

(4) Villages with a high basic education level (relatively low correlation)

Table IV-3 Evaluation Indices for Small-scale Comprehensive Development Projects

Project component		Project contents	Evaluation indicators	Evaluation criteria					
					1	2	3	4	5
Residents' project-operating capacity building project	Literacy rate improvement project	Construction of literacy schools and training of literacy teachers	Rate of increase in literate people (in 1st and 2nd groups)	Rate of increase against the baseline	Less than 50%	50% or more	100% or more	250% or more	750% or more
			Attendance rate in literacy classes (in 3rd group)	Proportion of the population	Less than 5%	5% or more	10% or more	20% or more	30% or more
	Micro-credit system setup support project	Support for the establishment of rural banks and assistance in procuring safes	Total funds	FCFA	Less than 1 million	1 million or more	3 million or more	4 million or more	5 million or more
BHN fulfillment project	Micro-credit system setup support project	Assistance in constructing large-aperture concrete wells and boreholes	State of use and management (qualitative)		Very poor	Poor	Average	Good	Excellent
Farmer's income stabilization project	Project for extension of improved seeds/fertilizers for rainfed farming products	Assistance in initial investment for the introduction of fertilizer and improved seeds	Unit yield of millet	(kg/ha)	Less than 400	400 or more	800 or more	1200 or more	1500 or more
	Small-scale vegetable cultivation project	Assistance in constructing fences around the water sources and vegetable fields	Usage rate of the vegetable fields	Proportion of the developed area	Less than 30%	30% or more	50% or more	70% or more	90% or more
	Cereal bank construction project	Assistance in constructing cereal banks and initial stocking	Stock amount/UPA	(kg)	Less than 25	25 or more	50 or more	75 or more	100 or more
	Construction of improved hen houses	Assistance in constructing improved hen houses	Number of chickens kept/UPA	(Number of chickens)	Less than 10	10 or more	20 or more	50 or more	100 or more
	Livestock fattening	Assistance in producing supplementary feed for sheep fattening	Annual results of fattening/UPA	(Number of sheep)	Less than 2	2 or more	3 or more	4 or more	5 or more
	Vaccination station construction project	Assistance in constructing vaccination stations	Vaccination rate	(%)	Less than 20	20 or more	40 or more	60 or more	90 or more
Natural resource conservation and management project	Mini-nurseries installation project	Assistance in developing nurseries	Number of seedlings raised per year	(Number of seedlings)	Less than 50	50 or more	100 or more	400 or more	800 or more
	Reforestation project	(Training only)	Number of seedlings transplanted per year	(Number of seedlings)	Less than 50	50 or more	100 or more	400 or more	800 or more
	Soil conservation project	Assistance in materials for soil conservation activities	Conservation activities (qualitative)		None at all	Rarely	Average	Active	Extremely active
	Land use rules establishment project	Facilitation of discussion among farmers	Sum of the evaluation of the status of enforcement of the rules and evaluation of the number of participants in the discussion (a) + (b)	Rules - (a)	Unenforced	Enforced	–	–	–
				(Number of people) - (b)	A few (0.5)	Less than 20 (1.0)	20 or more (1.5)	30 or more (2.0)	40 or more (2.5)
Women's labor reduction project	Milling plant construction project	Assistance in constructing milling plants and introducing machinery	Number of users per year	(people)	Less than 500	500 or more	2000 or more	2500 or more	3000 or more
	Improved oven manufacture and extension project	Assistance in production materials	Penetration rate of iron ovens	(%)	Less than 10	10 or more	35 or more	70 or more	90 or more
			Penetration rate of earthen ovens	(%)	Less than 30	30 or more	50 or more	70 or more	90 or more
	Handicraft manufacture and extension project	Assistance in production materials	Attendance rate in the activity	(%)	Less than 10	10 or more	30 or more	50 or more	70 or more
	Living improvement (health and sanitation improvement) project	Training for livelihood improvement	Cleanliness in the village (qualitative)	Frequency of cleaning	Every day	Frequently	(Once a week)	Occasionally	Never

＜Evaluation of Residents' Organization by Village＞

44 An interview survey was conducted of the residents in all 59 villages including the Phase-1 villages in the fourth year of the Study and the performance of the village terroir development committee (CGTV) in each village was evaluated based on the evaluation criteria as shown in Table IV-4. The evaluation results more or less correlated with the "Evaluation of Small-scale Comprehensive Development Projects by Village". In particular, sound operation of the residents' organization and sustainable project development correlated well with each other in the Phase-1 villages nearly 5 years after completion of the assistance projects. 75% of the Phase-1 villages and 98% of the Phase-2 villages have continued sound implementation of their activities by the residents' organization.

Table IV-4 Criteria for evaluation of Community Development Committees

Evaluation subject	Three points	Two points	One point
Project expansion or project implementation on initiatives	The committee has expanded or implemented on its own initiative three or more projects.	The committee has expanded or implemented on its own initiative one or two projects.	The committee has done nothing in this regard.
Appropriate coordination and guidance when a problem arises among the farmers or those related to the project	Under the management of the Special Sub-Committee, the projects are implemented in a trouble-free fashion.	Although it is not clear where the responsibility of management lies, the project is being implemented.	Part of the project is on hold and the condition is not fully understood.
Vision of the direction of future development	The committee has a vision and is holding discussions on future plans.	The committee has a vision, but has not held discussions on future plans.	All the committee has done is to list the project items.
Proper fund management	The committee reports the funding condition to the farmers and records it in the ledger.	The committee reports the funding condition to the farmers.	The committee does not report the funding condition to the farmers.
Collection of the contribution money	Collected all the contribution money, except for the purchase of fertilizer and improved seeds, within a year.	Collected 80% or more of the contribution money mentioned in the column on the left within a year.	Less than 80% of the contribution money has been collected within a year.

＜Spin-off Effects to Surrounding Areas＞

45 A hearing survey was conducted on the impact of the PP in 94 villages in the surrounding areas of 47 Phase-2 villages. The answers were as follows: 29 villages (30%) were not aware of the existence of the PP, but 70% of the surrounding villages were aware of it. 36 villages (40%) were aware of the PP, but were not influenced by it. The remaining 29 villages (30%) were influenced by the Pilot Projects and launched activities. The influences were mostly "activities with technical assistance from a village" in 9 villages and "following the example of activities" in 8 villages. Other villages participated in the microcredit systems of the target villages under the Pilot Project or in

literacy education, or developed projects with the additional cooperation of other donors (FODESA or NGOs). Their activity projects were implemented in a wide range, but many projects involved improved ovens, soap manufacture, improved henhouses and vegetable cultivation. It is worth noting that over 30% of the surrounding villages received a positive natural influence without any approach from the Project side.

＜Evaluation of CAPs＞

46 The evaluation of CAPs during the OJT period was carried out by the Study Team and the administrative side (mainly counterparts) based on 4 viewpoints: (1) attitude to making contact with residents; (2) communication ability; (3) capacity for problem solution and coordination; and (4) technical extension capacity. To these 4 points, (5) project performance of each village to which a CAP was assigned was added to produce the final evaluation. 31 (over 80%) of all 38 CAPs were authorized as having qualified as "facilitators for comprehensive village development on the initiative of residents similar to the Pilot Project". The reasons some CAPs were not authorized were (1) lack of willingness (5 trainees); (2) no capability at the qualifying level (1 trainee); and (3) both the above (1 trainee). The authorization rate was very high at over 80%, but this is the qualifying level for facilitators only for the "village development project on the initiative of residents similar to the PP". There would be "no authorized CAPs" if they were evaluated at the level of "development facilitators" in the strict sense (the level at which the facilitator can foster the willingness of residents to work on village development even if project input is zero.) From this point of view, it will be necessary to provide further OJT training in the future.

＜Evaluation of the Coordination and Leadership Capacity of the Local Administration＞

47 The coordination and leadership capacity of the local administration was evaluated by monitoring the results of the Commune Implementation Council regularly held by each commune and the results of the questionnaire to each commune in the fourth year of the Study, and based on the evaluation criteria as shown in Table IV-5. The results of the evaluation correlated with the evaluation of the small-scale comprehensive development projects and the evaluation of the village terroir development committees in the villages belonging to each commune.

Table IV-5 Criteria for evaluating the communes

Evaluation subject	Three points	Two points	One point
1 Frequency of Council Meetings	The meetings are convened twice or more in a month on a regular basis.	The meetings are convened once a month on a regular basis.	The meetings are convened irregularly.
2 Frequency of visits to the villages by commune workers	They visit the villages once or more a month on a regular basis.	They visit the villages less than once a month.	They do not go to the villages.
3 Recognition of the role of the Implementation	The commune has constructive ideas for future	The commune recognizes the purpose of project	The commune holds meetings only for this study.

	Council	development.	monitoring.	
4	Independent source of revenue for holding Implementation Council meetings	The commune maintains an independent source of revenue.	The commune expects external support.	The commune has no independent source of revenue.
5	Cooperation and coordination of activities with other donors	The commune has good cooperation with donors and its activities are coordinated with those of the donors.	The commune cooperates with donors but does not coordinate its activities with those of the donors.	The commune does not cooperate with donors.

＜PP Verification Items＞

48 The “target items in the PP verification” can be summarized as follows:

Table IV-6 Verification Points of Pilot Project

Point of Verification	Results of Verification	Description/Remarks
Appropriateness of village development method	Over 80% of village groups sustained or expanded their projects 2 to 5 years after completion of the projects and the methods used were effective enough for the locality.	The Government of Mali highly evaluated the “small-scale comprehensive development projects” method and decided to start implementing the A/P in 2008 under its own budget.
Possibility of training CAPs as project facilitators	31 (over 80%) of 38 trainees were trained as facilitators for the P/P project. It was possible to train the administrative staff as facilitators depending upon the attempted methods.	31 trainees were authorized as having the capacity level of “facilitators for similar village development projects on the initiative of villagers”.
Possibility of transfer of technology and skills from farmer to farmer in village development projects	The transfer of technology and skills from farmer to farmer was amply possible. There were cases in which the effects of technology transfer may be higher than the effects by use of special instructors.	Resident instructors are effective on both the teaching and learning sides. In addition, they had the effect of reducing project investment funds (personnel costs).
Reduction of project investment funds	Construction by the villagers themselves reduced the investment funds to the limit amount of 16 million Fcfa per village.	The investment fund limit accounted for 85% of the funds for the 1st year Study and 40% of the funds for Phase 1.
Analysis of factors affecting independent development of projects	The necessary condition was the “basic capacity of residents” and the necessary and sufficient condition was the “capacity of leaders”.	The “existence of competent facilitators” was a positive factor (sufficient condition).

＜Successful Factors of PP＞

49 The successful factors or features of the Pilot Projects are summarized in the following 5 points:

- The basic capacity of the residents (literacy education, etc.) was emphasized and the thorough

PRA/PLA method was adopted.

- The small-scale comprehensive development projects were of the “participation type by all the residents to absorb the demands from all of them” and successfully combined “direct benefits” with “indirect benefits”.
- Of the residents’ share of the project, the monetary contributions were fed back into the residents’ organization and used as funds for the microcredit system to adopt the strategy of revitalizing the activity of the village economy, contributing to the reduction of poverty.
- After the reduction of poverty (one of the project components that was attractive to residents), conservation measures for natural resources were taken in the surrounding area of each village = “establishment of local land use agreements” for appropriate use of land.
- The facilitators (and local administrations of communes) provided sufficient support for a certain period after completion of the project.

＜Recommendations＞

50 It is recommended that the administration consider the following items in order to implement this Action Plan smoothly and demonstrate the effects of A/P implementation more effectively:

(1) To reinforce guidance and regulations in natural resource management and to examine the means of offering incentives to residents

In particular, the following are deemed important to promote social forestry: ① assistance for the procurement costs of fences for protection against cattle; ② assistance for the construction costs of wells as water source; ③ diffusion of value-added techniques of sylviculture, generating income for residents, and development of market distribution.

(2) To support livestock hygiene and improvement

(3) To plan and construct arterial roads in the region

(4) To continuously adopt and train additional CAPs

(5) To use and foster local NGOs

INTRODUCTION

CHAPTER 1 Introduction

1.1 Background of the Study

The economy of Mali largely depends on agricultural production. The agricultural sector accounts for almost 50% of the gross domestic product (GDP). Approximately 80% of the employed population is related to the agricultural sector.

The natural ecosystem of Mali was weak, but had the regeneration ability to enable the exploitative agriculture for a long time. However, the balance of this natural ecosystem could not be maintained further due to the rapid increase of population after 1970 and the repeated droughts which caused a rapid degradation of natural resources.

Ségou region including the target area of this study produces more than one third of the domestic production of millet, which is the primary food of Mali people. Under the background of recent population increase, desertification has been advancing, resulting in the decrease of the unit yield of cereal in the rainfed agricultural area, reduction of firewood resources, lack of pastures, and generation of dispute between farmers and herders accompanying the above mentioned.

From the experience of the repeated droughts that hit the entire Sahel area after the 70s', the Government of Mali has been undertaking a rational management of natural resources and promoting the activities to prevent desertification. The Government of Mali ratified the Convention to Combat Desertification in 1995 and established the National Environmental Action Plan and National Action Plans for the Combat of Desertification from 1995 to 1998 according to the items that specified by the said Convention for the ratified countries to handle. The Government of Mali tries to prevent desertification by asking for the cooperation of the advanced countries that ratified the said Convention.

Under the above mentioned situation, the Government of Mali requested the Japanese Government in October 1998 for a technical cooperation with the purpose to establish a comprehensive plan to prevent desertification by selecting the southern region of Ségou, which is the center of the agricultural production of Mali, as the base point and develop continuous agriculture, stock raising, and sylviculture and improve the environment of rural living while effectively using the resources such as land and water.

The Government of Japan dispatched the Preliminary Study Team through the Japan International Cooperation Agency (JICA) and executed the Scope of Work (S/W) with the Government of Mali. This Study was conducted in the period from March 2000 to July 2003 (hereinafter referred to as the "Phase-1 Study").
In the Phase-1 Study, village development projects on the initiative of residents were formulated from the viewpoint that, for the prevention of desertification, it was effective to realize a stable agricultural

society by establishing sustainable agriculture. In the verification project implemented in 12 villages, the impact on the independence and sustainability of the projects by residents was demonstrated and the appropriateness of the projects and the possibility of building the project-operating capacity of residents (and the "appropriateness of the village development method") were verified.

It was also made clear that the training of resident leaders and the role of the administration were important to expand the measures for prevention of desertification through promotion of residents' independence and village development. In particular, improvement of the capacity of administrative officials to play the role of facilitators (supporters/promoters of village development on the initiative of residents) was deemed to be an issue for the future.

To cope with this background, in August 2002, the Government of Mali officially requested the Government of Japan to conduct the study for the purpose of "formulating a plan for fostering facilitators and horizontally expanding sustainable village development on the initiative of residents". The S/W was agreed with the Government of Mali and the Preliminary Study Team was dispatched by JICA in February 2004. This Study was started in August 2004.

Figure. 1-1 shows the relation of this Study with the "Process to Promote Concrete Measures to Combat Desertification" in Mali. In this report, the "administrative extension workers (facilitators) who take part in supporting/promoting village development on the initiative of the residents" in the study areas are called "CAP".

1.2 Objectives of the Study

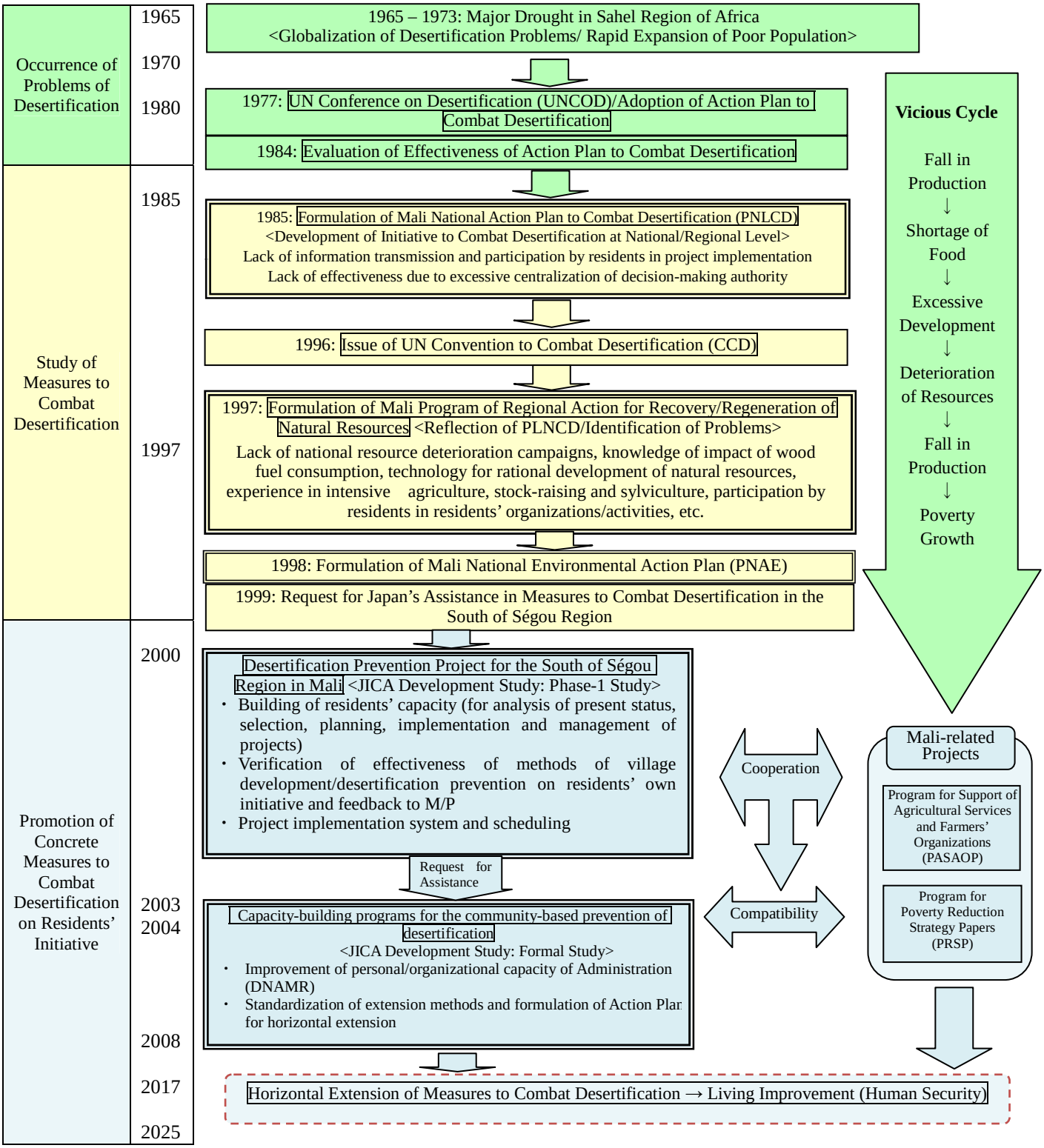
This Study was implemented with the following objectives:

(1) To improve the personal and organizational capability of the National Directorate of Agriculture, Ministry of Agriculture (DNA: Direction Nationale de l'Agriculture);
(2) To improve/foster the capabilities of administrators, CAPs and resident leaders in the study areas through implementation of the Pilot Project (PP); and
(3) To define the method of horizontally expanding village development on the initiative of residents and to formulate an Action Plan (A/P) for the study areas.

The results of the Study with the above objectives are summarized as follows:

(1) The personal and organizational capacity of DRA, a local agency of DNA, was reinforced and a total of 38 CAPs were trained through the PP with the cooperation of the counterpart (C/P) in Mali.
(2) The PP was implemented on the initiative of residents through facilitation by the above CAPs in 47 villages and the method of horizontally expanding village development in the study areas and other similar areas was established.
(3) The Action Plan was formulated based on the lessons learned through implementation of the PP and the Government of Mali decided to implement part of the Action Plan in 2008.

Figure 1-1 Relation of this Study with the "Process to Promote Concrete Measures to Combat Desertification" in Mali



1.3 Study Areas

This Study was made in the rainfed agricultural areas in the 3 cercles of Baraoueli, Ségou and Macina which are located on the right bank of the Niger River in the Ségou Region of Mali. The study areas

include 520 villages in 25 communes, the total area is approximately 106,000 ha and the population in the study areas is approximately 360,000.

1.4 Support System for the Study

The support system for the Study was formed for this development study, including committees and agencies in both Japan and Mali as described below.

(1) Steering Committee

In this Study, a Steering Committee was organized to promote the study works in a smooth manner. It consists of members of DNA of Mali and other governmental agencies of Mali and the delegates of the Study Team. As a rule, the Steering Committee was convened when various reports were submitted and from time to time as needed.

(2) Assistance by Academic and Experienced Experts in Japan

The members (academic and experienced experts) of the "Domestic Support Committee" established by JICA provided the necessary assistance and advice for preparation of the report from time to time.

(3) Assistance from Existing Projects by Japan Green Resources Agency

Japan Green Resources Agency (J-Green) has implemented the "Study of Prevention for Desertification" since 1995 in 3 West-African countries (Niger, Burkina Faso and Mali) under subsidy from Japan's Ministry of Agriculture, Forestry and Fisheries and it has been entrusted with a development study related to the prevention of desertification in Niger. In implementing this development study, J-Green has established a system to implement the study and provide assistance based on its experience in existing projects.

1.5 Structure of the final report

This report consists of a main report and an attachment (three volumes) as shown below.

(1) Main report

- Introduction: Describes the background and the purpose of the study and the support system.
- Present state: Describes the present states of nature, society, economy, and agriculture, stock raising, and sylviculture of Mali and the study area.
- Action Plan: Describes the basic concept of the Master Plan and the planned project contents.
- Pilot Project Part : Results of implementation and evaluation of the Pilot Project area described

(2) Supplements

- Appendices : Back data for formulation of the Action Plan, monitoring data on the Pilot Project, collection of texts used for various trainings, as well as "various guidelines" (extension tools) prepared as a product of this Study as activity guidelines for administrators and CAPs to execute and supervise the Action Plan.

PRESENT STATE

CHAPTER 2 Present status of study area

2.1 Outline

2.1.1 Location and Nature

The Republic of Mali is an inland country in West Africa, with a population of 13.9 million (UN data in 2005) in a total area of 1,240,000km^2 (3.3 times the area of Japan) and its GNI per capita is about 380 dollars (World Bank data in 2005). The country is divided into 8 regions, Kayes, Koulikoro, Sikasso, Ségou, Mopti, Tombouctou, Gao and Kidal, and Ségou Region which covers the study areas is located around the center of the 8 regions. Ségou Region has a population of 1,986 thousands (wikipedia in 2005) in a total area of 65,000 km^2 (5% in the country).

The geological stratum of Ségou Region consists of a river sedimentary layer in the Cenozoic Quaternary Stratum, which was weathered, causing a wide distribution of silt, sand and gravel. The soil consists mainly of alfisols in the USDA classification. The soil is poor in organic content and contains low quantities of nitrogen and phosphoric acid. The soil depth, drainage and pH value are not impeding factors for agriculture. The agricultural development potential is high, considering that the yearly average temperature in the study areas is 29°C and the yearly precipitation is about 600mm (concentrated in the rainy season from June to September). Therefore, it is possible to prevent desertification through the agricultural development considered for natural resource conservation in the study areas.

2.1.2 Water resources

As the water source in the study area, surface water is observed throughout a year in Niger River and Bani River as well as in large lakes and marshes. In many “wadis” (seasonal rivers) and small marshes, surface water is found only in certain periods of the year from the rainy season until the beginning of the dry season. Groundwater is a precious water source for the areas located far from rivers or marshes and in the areas in which surface water is dried up during the dry season. Wells as the water source facilities can be divided into traditional wells, modern large-diameter wells, and boreholes. Modern wells providing good water quality and stable amount of water are being constructed by overseas support organizations, but they are not sufficient in number. Many villages are still using only traditional wells.

2.1.3 Tribe and Custom

Native animism culture originally developed in Mali, but Islamism began to spread from around the 10th century and European culture was introduced by colonization. The intermingling of these three cultures forms the current cultural and religious base of Mali, which dominates the entire scope of

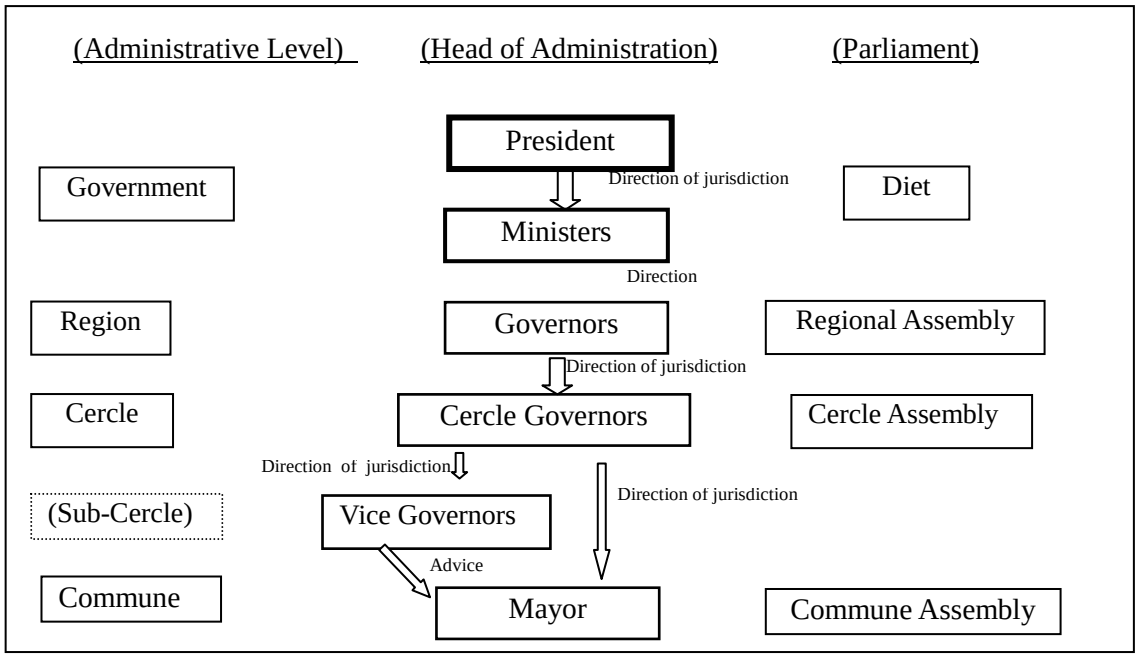
social and economic activities of the Malian people. The ethnic groups found in the study area are the Bambara, an agricultural tribe which is the largest, the Bobo (mainly engaged in stock-raising), the Sarakole (mainly in commerce), the Peul (mainly stock raising) and the Bozo (mainly fishing). The racial structure of Mali is versatile. However, mixture of races is not common recently, the language of Bambara tribe is used as a common language, and there is more equality in the rural society.

2.1.4 Local Public Administration and Taxation

(1) Administrative Organization

The Decentralization Law was passed in 1995 in Mali. The national administration is divided into administrative districts: Région－Cercle－(SubCercle)－Commune－village as shown in Figure 2-1. The entire country is divided into 8 Régions, 49 Cercles, 701 Communes and about 10,000 Villages. Régions and Cercles provide administrative services as subordinate organizations under the Interior Ministry. In addition, a number of branch agencies of Cercles and lower level are under the direct control of the individual Ministries of the Central Government.

Figure 2-1 Administrative Division in Mali



The administrative districts lower than Cercle were divided into arrondissements (counties) up to 1999, but they were reformed by enforcement of the Local Decentralization Law and local autonomy was expanded. Arrondissements were planned to be abolished after the reform into Communes, but arrondissements were reformed into new organizations and renamed “Sub-Cercle” under the 2001 Law. (Legally, Sub-Cercle is an agency having no jurisdiction over the Commune and it provides advice and support to the Commune. Cercle has jurisdiction over the Commune.) Commune is controlled by the Central Government for project distribution, but it has its own budget and started its activities in

2000. However, its activities are not always favorable because of shortages of budget and personnel.

(2) Local Taxes

The Decentralization Law stipulates the securing of local financial resources by Communes as the "resolution of financial resource taxes for Communes". Each Commune has a "budget" in 2000 for the first time. The local taxes include the following:

1) Commercial operation tax and export/import license tax (ad valorem taxes)
2) T.D.R.L. (local development tax: so-called poll tax, specific duty) (since 1998)
3) Tax on livestock and hunting guns (specific duty)
4) Income tax on officials of Communes and other government agencies
5) Motorcycle tax (specific duty)
6) Automobile tax (specific duty)
7) Alluvial gold mining license tax

Only the Central Government and Communes have their own budget in Mali. Mothers with 4 or more children do not need to pay poll taxes, but there is concern that this results in promoting population growth.

2.1.5 Local Development Policies

The objectives of the Basic Plan for the Rural Development Sector (established in 1992 and revised in 2002) are "food security by increased and diversified production, and increased agricultural, stock-raising and sylvicultural production" and "environmental and natural resource conservation for sustainable development". Based on this Basic Plan and the National Development Plan scheduled for the goal year of 2025, individual plans were set up at Cercle and Commune levels, but the budgets for these plans had a strong tendency toward "wishful prospects relying on the assistance of donors" and only about 20% of the planned Commune and Cercle development projects (2002 – 2004) were implemented as performance.

2.1.6 Trends in Existing Projects (by Donors)

In the study areas, there are many projects launched by various aid organizations including NGOs and IFAD, GTZ, ICRAF and PASAOP, among which some successful cases are observed. However, these successful cases are limited to "points" in the village unit, but not extended horizontally. Exchange of information was not actively performed among the villages, but as one of the reasons for such limitation, it is thought that the partnerships and tie-ups among the administrative agencies, international organizations and NGOs are not very close although they implement similar projects. The trends in the main related projects (donors) are described below.

(1) IFAD

IFAD is conducting a wide range of activities in the study areas. An ongoing project (scheduled for 2000 to 2009: "Programme Fonds de Développement en Zone Sahélienne" = called "FODESA") is being implemented under application by the residents for village development projects of a highly public nature. The applications for projects were made by residents organized as resident groups (of 10 residents or more), or by the village or Commune unit, and assessed by the IFAD office as to which projects would be adopted and implemented. The projects implemented in Ségou Region (for the past 5 years) amounted to approximately 200 to 300 million Fcfa, of which 18% was contributed by the Government and 7% was contributed by the residents. The project costs in Ségou Region have decreased in recent years.

(2) GTZ

GTZ has supported the National Environmental Action Plan and National Plan to Combat Desertification (PNAE/CID) since 1995 and has implemented activities such as promotion of decentralization, natural resources management and health and sanitation improvement in Ségou Region. It undertakes promotion of regulations for orderly land use in the decentralization promotion projects.

(3) ICRAF

ICRAF has its headquarters in Kenya and is originally an international experimental and research center for promotion of agroforestry extension. In Mali, it cooperates with the Ministry of Agriculture to conduct experimental and training activities and it also implemented the following activities (scheduled for 2002 to 2004) in cooperation with the Ministry of Agriculture and the international NGO, World Vision, in Ségou Region:

1) Promotion of hedge plantation (multi-use trees such as ziziphys)
2) Promotion of plantation of fodder trees
3) Promotion of baobab trees
4) Technical training of promoters (resident supporters) of the above activities

The budget for the above activity 1) amounted to about 120 million Fcfa, but the budgets for the other activities have not been disclosed.

(4) NGOs

Much labor and capacity are required for enlightenment of residents, provision of information and technical guidance to residents, and coordination of related parties, etc. for village development projects. However, a sufficient number of administrative staff to take on these roles is not available. Many NGOs are also conducting activities to provide those staff in Ségou region.

The activities of NGOs are coordinated by the Ségou Région Coordination Committee

(CR-ONG-Ségou). CR-ONG is a coordination organization (NGO) founded in 1995 to "enhance the cooperation between administration and NGOs", "improve the institutional conditions", "enhance the organizations", and "enhance the relationship with financing organizations". Currently, 45 or about 60% of NGOs in Ségou are members of this organization.

2.1.7 Action to Combat Desertification

The decrease in forest area and reduction in land productivity (desertification) are advancing in the entire country of Mali. The main causes of such advancing desertification include the decrease in precipitation and the decline in soil fertility due to the shortened fallow periods of agricultural fields against the background of population growth (at a yearly rate of just under 3%), the decrease in forests due to tree cutting and the excessive grazing of cattle. The Government of Mali formulated the National Plan to Combat Desertification (PNLCD: Plan National de Lutte Contre la Désertification) in 1985 and launched the program to combat desertification. In addition, Mali formulated the National Environmental Action Plan and the National Action Plan for the Convention to Combat Desertification (PNAE/CID: Plan National d'Action Environnementale et Programmes d'Actions Nationaux de la Convention Contre la Désertification) in 1998 in accordance with the UN Convention to Combat Desertification.

In response to the PNAE/CID, the Regional Action Plan (PAR: Programmes d'Action Régionaux) to Combat Desertification, "Program for Recovery/Regeneration of Natural Resources", was also formulated in 1997 in Ségou Region. This Action Plan stipulated that, for the rational management of natural resources by residents, it was necessary to conduct 4 activities with the participation of residents: (1) improvement in the land-managing capacity of residents; (2) promotion of integrated management of natural resources with agriculture and stock raising; (3) promotion of rational management and use of forests; and (4) efficient monitoring and evaluation of Action Plans. For these activities, it was determined that 3 billion Fcfa was required for 5 years, but such a huge budget could not in fact be acquired and no adequate activities and effects have been demonstrated so far. The evaluation of PAR has not been made at national and regional level and no successive project exists in Ségou Region.

2.1.8 Environment

(1) Animal and Plant Resource Conservation

In the study areas, large numbers of mammals, birds, amphibians, fish and insects inhabit the basins of the Niger River and Bani River, and a diversity of animal and plant resources exist in the forest protection districts. Inhabitation and hunting by people are prohibited in the forest protection districts, but in fact, illegal poaching, excessive grazing and fires arising from carelessness are caused by people doing just that, due to the pressure of population in the surrounding areas. Water pollution

in the Niger River due to dyes, cleansers, drainage from houses and cattle excrement has become a serious problem in the largest water resource.

(2) Forest Conservation

Services for the Conservation of Nature (SCN : Services de la Conservation de la Nature), the implementing agency for various activities for environmental conservation including activities for enlightening residents about forest conservation at Cercle level, is responsible for dealing with various problems such as control of tree-felling for firewood and charcoal (prevention of stealthy felling of trees), excessive grazing and fires. The SCN offices distributed at Cercle level undertake the following tasks:

- Protection and utilization of state-owned forest and wildlife resources and support for local governments
- Execution of studies on resources management
- Preparation and implementation of programs for enlightenment and education of citizens in tie-up with local governments and residents' organizations
- Enforcement of laws and rules on the protection and utilization of forest and wildlife resources

However, SCN also lacks various support means in respect of financial and human resources Therefore, it would be more realistic to promote forest conservation through improvement and extension of living techniques such as extension of improved ovens.

2.2 Condition of Agricultural Villages

2.2.1 Land Use

The use of land in Mali is regulated in accordance with the National Land Code (CDF : Code Domanial et Foncier). The CDF stipulates that the right of land ownership belongs to the state and that nobody is permitted to sell or purchase the right of ownership and usufruct. Apart from the legal land system under the CDF, practical land use in the villages is conventionally executed as follows:

(1) Farmland distribution system

The residents' right to use and right to control the land in the village are authorized on the responsibility of the village chief. The village chief may assign usufruct to any resident. For instance, a farmer who wants to settle on a piece of land has to submit an application to the village chief who is the owner of the land in the village, and the village chief consults with the senior council to make a decision on the farmer's settlement. The farmer is given a piece of land with an area equivalent to the farmer's labor, that is, the agricultural production unit (UPA: Unité de Production Agricole or "*du*"), with the approval of the village chief and the senior council.

(2) Limited use of farmland

A farmer (UPA) can lease his farmland to another farmer (UPA). In this case, however, any economic investment such as building a structure on the leased farmland is not permitted.

(3) Use of land other than farmland

Forests, rivers and ponds are the common possession of the village.

Farming land and pasture, forests, sandhills and bare land (including fallow fields), and land used for other purposes occupy approximately 40%, 20%, 20% and 20% respectively of the land in the study area. In each village, the residential area is generally located near the center and the farming land near the residential area is under permanent cultivation and repeatedly used without being allowed to lie fallow. The borders with neighboring villages are demarcated by roads, large trees such as baobabs, forests, etc.

The following are considered problems in current land use at village level.

(1) No organization or system has been developed for planned use and management of the land resources at village level.

(2) As the law does not allow individual citizens ownership of land, it is difficult to create the concept of considering long-term use of land as a personal asset and, thus, to promote improvement in land use.

2.2.2 Characteristics by cercle and by commune

(1) Characteristics by cercle

The three cercles, Ségou, Baraoueli and Macina, in the study area are located between the River Niger and the River Bani. Although a national highway connecting Mopti and Bamako through Ségou traverses the three cercles, access by road to many villages far from the national highway becomes difficult during the rainy season because of the underdeveloped road network. Table 2-1 shows the characteristics of each cercle. The study was conducted in 520 villages in 25 communes in the rain-fed agricultural zone in the three cercles.

Table 2-1 Characteristics of each cercle

Cercle name	Ségou	Baraoueli	Macina
Location ・Topography and soil ・Market condition ・Area/number of villages included in the study	・Almost flat ・Good in the area near the highway ・520,000 ha/280	・Almost flat with some slopes ・Good ・250,000 ha/106	・Flat ・Poor ・290,000 ha/134
Traffic access ・Road distance/time distance ・Road condition in the rainy	・65km/1 hour 30 minutes ・Passable with the exception of 1/3 of the	・135km/2 hours 30 minutes ・Mostly passable	・160km/4 hours ・Majority (2/3) of the roads are impassable

Cercle name	Ségou	Baraoueli	Macina
season ・Remarks	roads		・A pontoon is needed to cross the River Niger.
Donor assistance, etc. ・ Past assistance ・ State of infrastructure development	・ Much experience of assistance from IFAD and PASAOP ・ Relatively developed	・A little experience of assistance from IFAD and much experience of assistance from other organizations ・Underdeveloped	・ Experience of assistance from IFAD and a little experience of assistance from other organizations ・Underdeveloped
Characteristics of agricultural production	・ Various forms of agriculture are practiced, including cultivation of grain including rice and horticulture including vegetables and fruits. ・ The number of livestock kept in this cercle is the largest of the three.	・Vegetable cultivation using river-bed water and shallow wells is widely practiced. Diversification of crops including cassava and fruits is observed. CMDT promoted cotton cultivation in the area. However, the promotion activities have declined in recent years. Sheep-based stock raising is practiced.	・The cercle heavily depends on rice (though the rice-cultivating area is not in the study area). Relatively large number of species of horticulture crops including shallot and melon are grown. Unit yield of millet is the lowest in the region. Large portion of the land becomes submerged during the rainy season and the area has poor drainage. Farming land area per capita is small.
Miscellaneous	・There are verification villages from the Phase 1 Study in the cercle.	・Water is the most readily available of the three cercles.	・This cercle is considered as the most disadvantaged of the three.

Table 2-2 Area and number of villages in each cercle in the study area (1996)

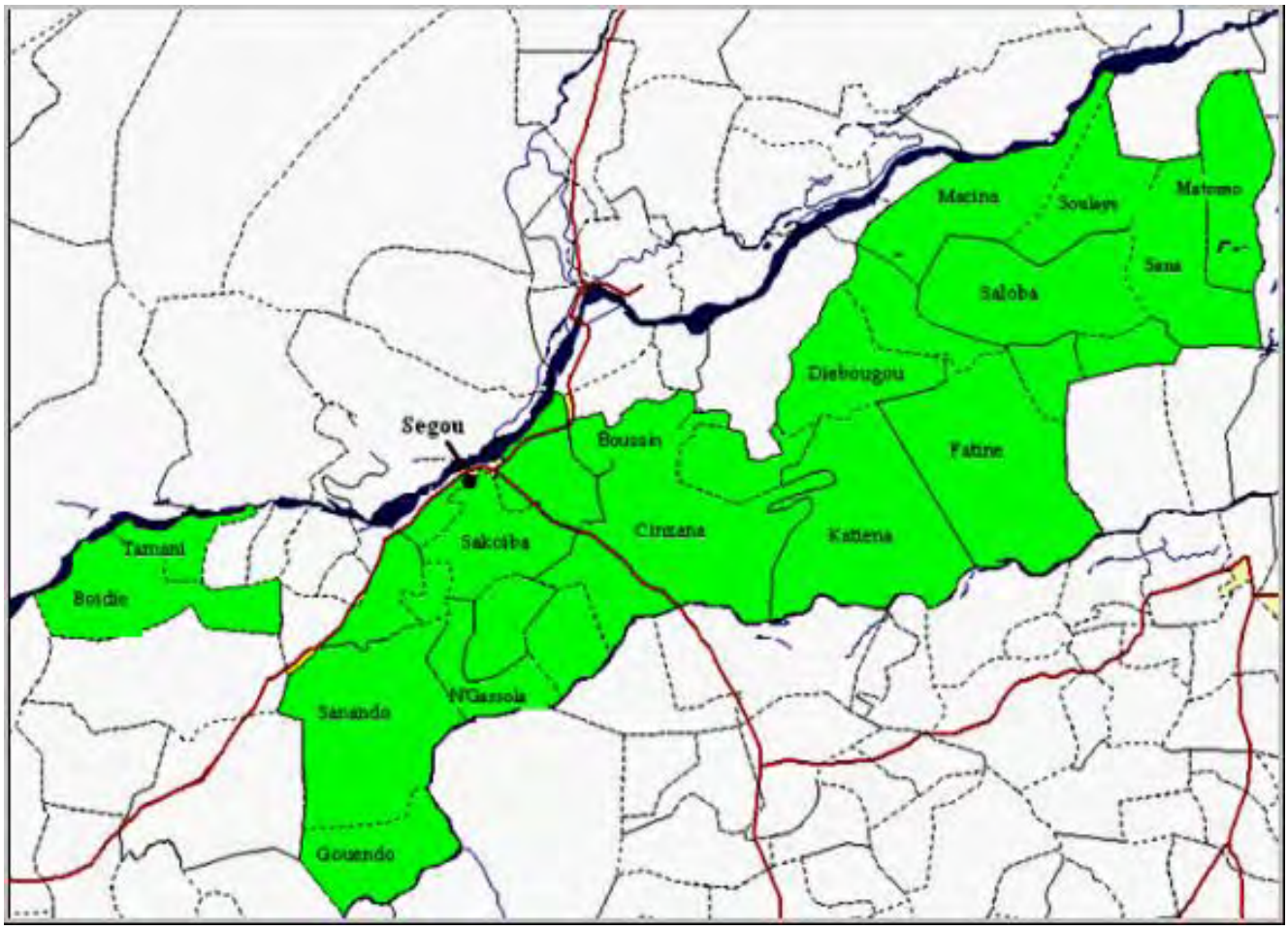
	Entire cercle			Area included in the study			
Cercle name	Number of communes	Area (km^2)	Number of villages	Number of communes	Area (km^2)	Number of villages	Average area per village (km^2)
BARAOUELI	11	4,653	232	6	2,456	106	23.2
MACINA	11	6,546	244	7	2,919	134	21.8
SÉGOU	30	16,078	546	12	5,245	280	18.7
Total	**52**	**27,277**	**1,026**	**25**	**10,620**	**520**	

Source: The areas of the entire cercles are derived from "*Projet Inventaire des Ressources Ligneuses et Occupation Agricole des Terres au Mali* (1989)."

(2) Main indicators of each commune

The population in the study area is 358,000. This figure does not include the population of Ségou Commune (urban area). The average size of the population of the villages in the study area is 690. Table 2-3 shows the major indicators of 520 villages in 25 communes in the study area derived from data compiled by UNICEF in 1996 and Figure 2-2 shows the locations of the communes in the study area.

Figure 2-2 Locations of the communes in the study area



2.2.3 Rural Society

In the village, there is an association with a specific purpose (traditional organization) called "*Ton*". The number of *Ton* differs for each village, but usually there is an average of four to five Ton in a village. A *Ton* is a group with an objective, such as an agricultural organization, an organization of family chiefs, a young peoples' organization, a women's organization, or a hunters' organization. If a villager does not participate in the "*Tonbaara* (joint work)" of the village, he/she will be punished with a fine. If he/she does not pay the fine, the amount of the fine is raised. If the offending villager still does not pay, he or she is exiled from the village. If the suitor is excluded from the *Ton*, nobody will help him. The leading class of villages maintains the community while following the above mentioned customs. The fact that a village keeps this kind of customs significantly acts positive in organizing the residents.

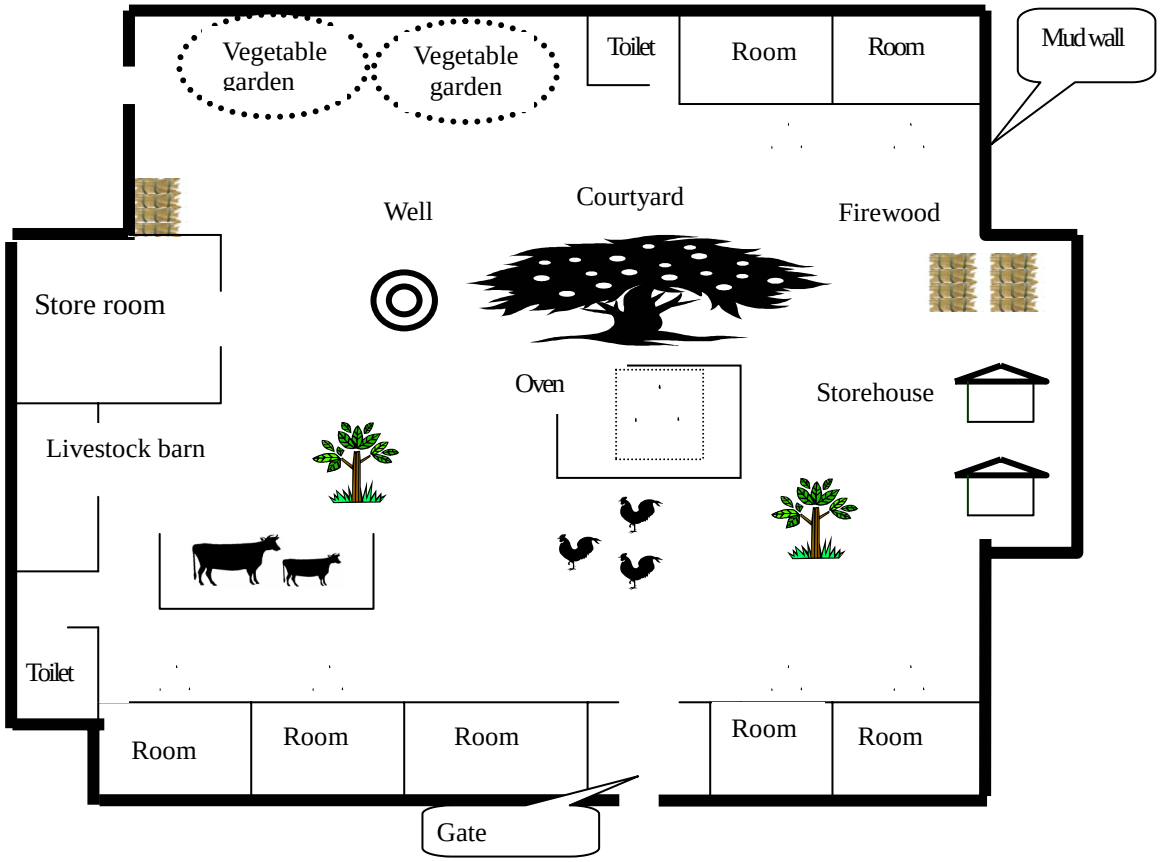
Table 2-3 Indicators of the current conditions of villages in each commune in the study area

Cercle	Commune	Number of villages	Population	Water tap	Traditional well	Modern well	Basic school 1	Basic School 2	Junior and senior high school	Islamic school	Literacy center	Public hospital	Private hospital	Free clinic	Maternity clinic	Self-managed clinic	Pharmacy	Perinatal clinic	Livestock chemist	Vaccination station	Livestock market	Abattoir	Village safe	Cereal bank	Weekly market	Filling station
Baraoueli	Boidie	25	17,605	1	37	16	5			6	12			3	3	1	2			5			27	5	4	
	Tamani	14	14,858		19	2	2			1	7			1	1		1			1			11	5	2	
	Sanando	38	24,033	1	63	15	2	1	0	1	19	0	0	4	2	2	2	0	0	8	0	1	29	13	6	0
	Gouendo	10	8,355	0	13	3	0	0	0	0	8	0	0	0	0	0	0	0	0	1	0	1	10	3	1	0
	Tesserla	11	5,388	1	17	4	2	1	0	2	3	0	0	2	3	2	1	1	0	1	0	0	12	2	3	0
	N'gassola	8	5,235	0	10	2	0	0	0	2	1	0	0	0	0	0	0	0	0	2	0	0	5	1	1	0
	Sub-total	106	75,474	2	103	24	4	2	0	5	31	0	0	6	5	4	3	1	0	12	0	2	56	19	11	0
Macina	Souleye	10	9,088	0	4	13	2	0	0	0	5	0	0	0	0	1	1	0	0	2	0	0	4	2	2	0
	Saloba	42	31,020	1	13	45	7	2	0	3	22	0	0	2	1	0	4	0	0	3	1	1	24	8	9	0
	Macina	13	13,119	0	2	16	3	0	0	3	6	0	0	0	1	0	1	0	0	2	0	0	12	3	1	0
	Sana	27	21,297	0	23	22	2	0	0	1	6	0	0	4	2	0	1	0	0	3	0	0	19	4	1	0
	Tongue	10	6,419	1	11	10	1	0	0	0	2	0	0	1	1	1	1	1	0	0	0	0	8	0	1	0
	Folomana	17	6,402	3	2	9	5	0	0	1	6	0	0	1	0	0	0	0	0	0	0	0	11	3	1	0
	Matomo	15	12,827	0	17	8	2	0	0	3	6	0	0	0	0	0	3	0	0	2	1	0	9	6	2	0
	Sub-total	134	100,172	5	72	123	22	2	0	11	53	0	0	8	5	2	11	1	0	12	2	1	87	26	17	0
Segou	Boussin	15	8,700	0	24	0	1	0	0	1	6	0	0	1	0	0	0	0	0	0	0	0	13	2	2	0
	Fatine	26	20,650	0	26	13	1	0	0	3	9	0	0	1	1	1	1	0	0	1	1	0	27	2	4	0
	Katiena	26	21,431	0	19	6	2	0	0	4	11	0	0	3	3	1	3	0	1	2	1	0	11	6	7	0
	Diouna	11	6,890	0	18	6	1	0	1	1	3	0	0	1	0	0	0	0	0	0	0	0	3	1	2	0
	Cinzana	72	28,743	7	31	34	4	1	1	7	35	0	0	2	1	0	0	0	0	4	0	1	50	16	5	0
	Pelengana	26	19,750	3	25	13	3	1	0	4	13	0	0	2	4	0	2	0	0	2	0	0	62	6	1	0
	Samine	6	9,103	0	6	1	2	0	0	1	3	0	0	2	0	0	2	0	0	0	0	0	5	1	2	0
	Sakoiba	29	13,226	0	26	8	1	0	0	4	18	0	0	1	0	0	0	0	0	1	0	0	11	6	0	0
	Sebougou	10	10,116	2	17	4	4	1	0	3	3	0	0	1	2	0	0	0	0	0	0	0	6	0	2	0
	Soignebougou	7	1,992	0	5	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
	Kamiandougou	32	23,433	0	46	19	2	0	0	5	14	0	0	2	1	0	1	0	0	1	0	0	14	5	2	0
	Diedougou	20	18,388	0	25	15	0	0	0	0	13	0	0	0	0	0	0	0	0	0	1	0	5	2	2	0
	Sub-total	280	182,422	12	268	120	21	3	2	34	129	0	0	16	12	2	9	0	1	13	3	1	207	47	29	0
Total in the study area		520	358,068	19	443	267	47	7	2	50	213	0	0	30	22	8	23	2	1	37	5	4	350	92	57	0

Source: from *Cartographie du Mali* (1996 sponsored by UNICEF)

A village is generally formed as a hierarchical structure: (from the lowest level) family members – family (couples and their children) – agricultural production unit (UPA) – hameau (hamlet) – village. This means that several families live together and form a UPA. The UPA is the basic unit of everyday life and economic activity of farming. In addition, there are various groups by age, gender and occupation across the hierarchical structure, and some families are appointed to be in charge of functions such as festivals, hospitality and clerical work. On average in the study area, a family consists of 5 persons and a UPA consists of less than 20 family members. An average villages' population is approximately 600. The layout of the building in the UPA is shown in Figure 2-3.

Figure 2-3 Example of UPA (sketch)



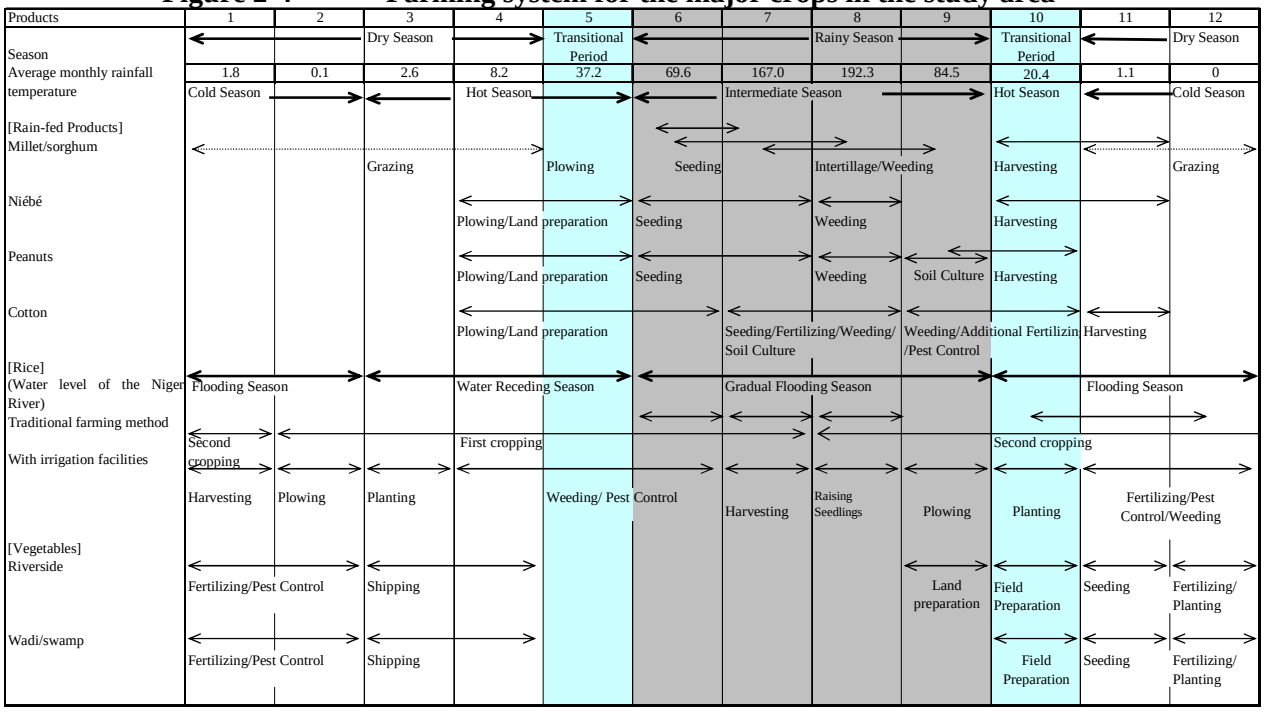
2.2.4 Agriculture, stock raising and sylviculture

(1) Agriculture

The major crops in the study area are millet, sorghum, niebe (a variety of cowpea, *Vigna unguiculata*), groundnuts, maize and fonio (a species of poacean cereal, *Digitaria exilis*). Ségou Region is the largest grain-growing region in Mali. The region produces approximately 40% of the total millet yield in the country. However, fluctuation in the annual yield is great and it is difficult to obtain a predictable and stable yield every year. The causes of this annual fluctuation are fluctuation in annual precipitation and uneven distribution of rainfall. Non-extension of drought-resistant varieties and disease/pest prevention measures, thick growth of hazardous weeds, shortening of the fallow

period and deterioration of the soil have given additional impact to this fluctuation. The main crops in rain-fed agriculture, millet and sorghum are basically produced by the same system and with the same technology. Seeding of both cereals is carried out in June and harvesting in October. These cereals are cultivated in a single crop or in combination with beans such as niébé. Most vegetables are cultivated in the dry season, from November, when the rainy season ends, to May or June.

Figure 2-4 Farming system for the major crops in the study area



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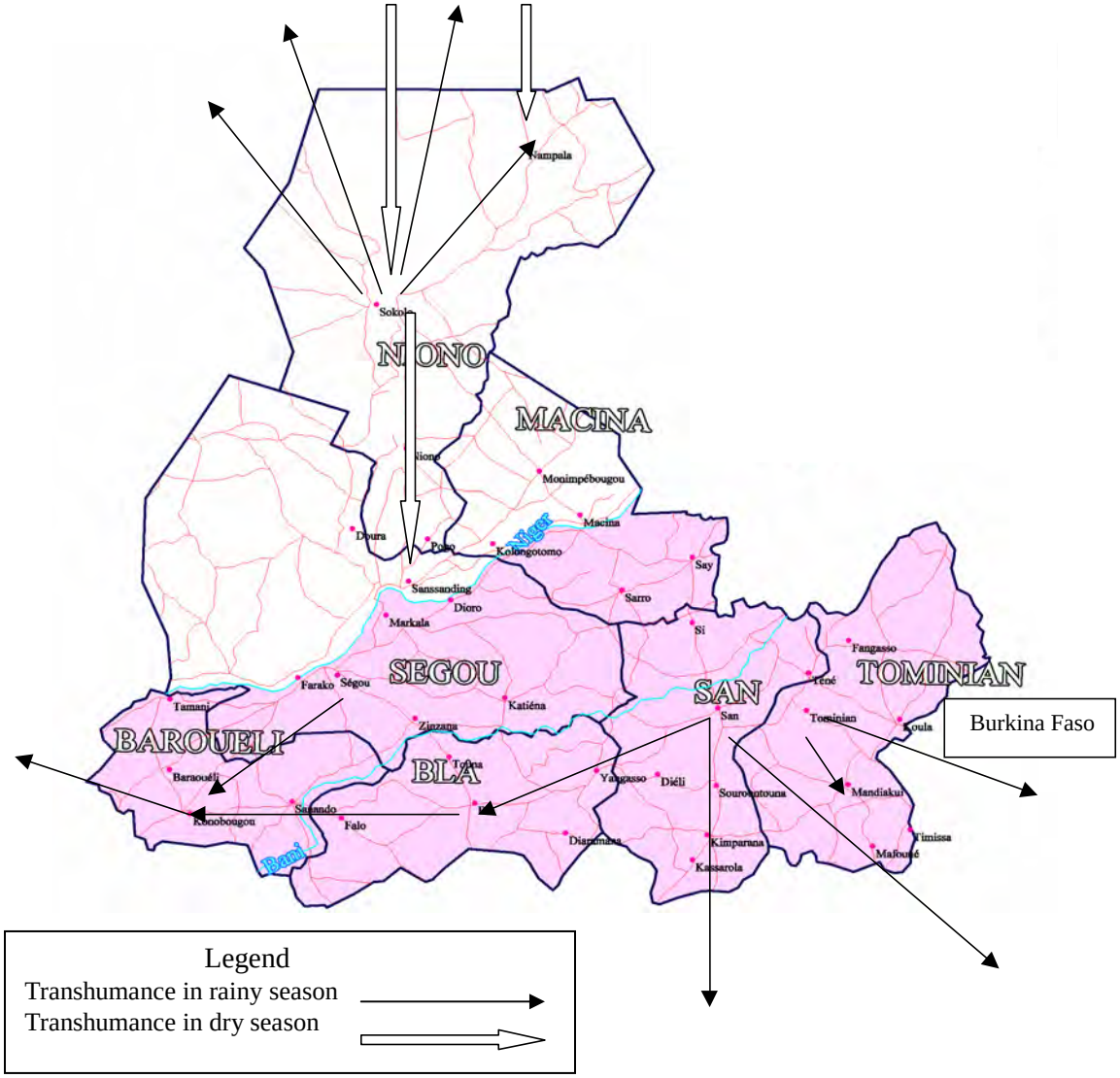
(2) Stock raising

Stock raising is the second most important industry in the study area after agriculture. Farmers regard livestock as living 'assets.' Many farmers invest their surplus cash in increasing their number of livestock. Extensive stock raising is practiced on natural grassland, on fallow fields and in forests in the study area. Stock raising is practiced in close connection with agriculture. For example, the residues of crops are used in stock raising, while manure from livestock is used in agriculture in return. Livestock are also used as draft animals (for plowing and weeding) and are essential to agricultural activities in the area of rain-fed agriculture.

Figure 2-5 shows the transhumance routes in the rainy and dry seasons. As more and more Peuls, who used to have a nomadic lifestyle, have settled down and engaged in farming in recent years, transhumance is practiced less frequently. With the exception of farmers who keep large numbers of livestock, more and more farmers keep their livestock in the communal pastures in the villages even during the rainy season.

Figure 2-5 Transhumance routes in the rainy and dry seasons in and around the study area



(3) Forests

The type of vegetation in the study area is undifferentiated woodland-Sudanian. The mean accumulation rate of the forests in the study area is 12 – 16 m^3/ha. It is rare to find a forest which consists mainly of tall trees. Most of the forests in the area are sparse woods composed mainly of shrubs. The annual growth rate is less than 1m^3/ha. Vegetation grows slowly under harsh natural conditions such as limited annual precipitation. Forest reserves are established for the protection of trees. (There are five reserves in Ségou Cercle with a total area of 25,840 ha.)

"The Law Setting Out the Conditions of Forest Resource Management (Forest Law, *Fixant Les Conditions de Gestion des Ressources*)" forms the basis of forest management in Mali. With the intention of defining and adhering to the conditions for conservation/protection and use/development of the forest resources in Mali, the 'Forest Law' comprehensively provides definitions of forests, sylvicultural products, the conditions for establishing conservation forests, land appropriate for

clearing, protected species, right of usage and ownership classification. The species of trees specifically protected by the 'Forest Law' for economical, socio-cultural and scientific reasons are as follows:

Protected tree species

Scientific name	Local name
Elaesi guineensis	Palmier a huile
Borassus aethiopium	Ronier
Pterocarpus erinaceus	Vene
Afzelia africana	Lenge
Acacia senegal	Gommiei
Parkia biglobosa	Nere
Butyrospermum parkii	Karite
Bombax costatum	Kapokiei
Kaya senegalensis	Caicedrat
Acacia albida	Balansan
Anogeisus leiocarpus	N'galama

Farmers use the communal forests as places to collect firewood in accordance with custom. Care such as regeneration work is not usually taken on the land from which firewood is collected and collection simply continues elsewhere. Therefore, the phenomena of reduced overall forest resources and the emergence of localized patches of bare land can be observed.

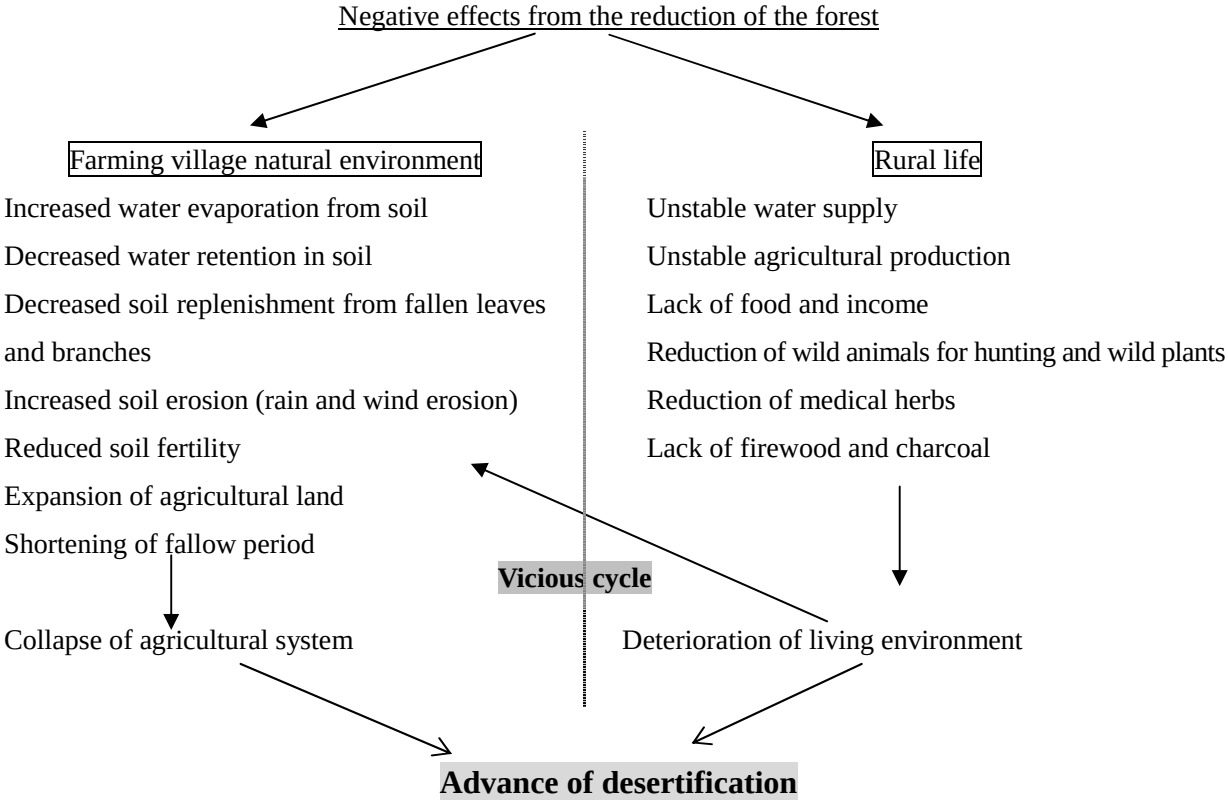
The main protected tree species seen on the farming land are *Butyrospermum parkii* (Karite), *Bombax costatum* (Kapokiei) and *Adansonia digitate* (Baobab).

The obtained wood is used as timber, sawn timber and a source of energy. Since no proper audit has been taken on the ground, the announced figures for the production amounts (204,418m^3 of timber, 16,261m^3 of sawn timber, 373,633m^3 of firewood and 23,889t of charcoal, in the five-year period from 1995 to 2000; source: DRCN statistics) do not reflect the reality (they are underestimates). In reality, it is believed that economic activities related to the wood trade generate total sales of more than 10 billion FCFA in the whole of Mali. These activities create a large number of employment opportunities and are an essential source of income for agricultural villages near the cities and their residents.

In the study area, the largest task in forest conservation is how to reduce wood consumption. Many attempts have been made to reduce the demand for and increase the supply of wood fuel. One successfully implemented attempt is the promotion of improved ovens. However, the expected outcome cannot be achieved through this attempt alone. Rapid population growth is causing ever-increasing wood fuel consumption. Therefore, large amounts of firewood and charcoal are transported from the neighboring area to Ségou City and distributed within Ségou City and to the capital, Bamako. Moreover, a change in consumers' preferences from firewood to charcoal has been observed in recent years due to the convenience of the latter. It is believed that forest tax is collected from 15 to 20% of actual transactions in the study area.

The decline of forests was one of the direct and significant causes of the progress of desertification. However, the residents did not understand that the decline of forests affected severely the rural living and they naturally have not started the proper activities independently to stop the said decline.

Figure 2-6 Process of Advance of Desertification Caused by the Reduction of Forest



2.2.5 Distribution of agricultural, livestock and sylvicultural products

(1) Distribution of agricultural products

Grain such as millet is, in principle, for self-consumption and the surplus is sold for cash income which is required for the purchase of the necessities of life. Grain is sold in one of two ways; either brokers from Bamako or Ségou come to the agricultural villages and purchase grain from the farmers, or the farmers take the grain to the market to sell it to brokers or directly to individual consumers. Distribution by the former is greater than the latter. Brokers purchase grain in bulk mainly during the harvest season, transport it in large trucks to places of high consumption such as Bamako and sell it throughout the year. Table 2-4 shows the changes in the prices of agricultural products at Ségou Market.

Table 2-4 Changes in the prices of agricultural products at Ségou Market (2003)

(In fcfa/kg)

Item	After the harvest (in the cool season) (January – March)	After the harvest (in the hot season) (April – June)	Busy agricultural season (in the rainy season) (July– September)	Harvest season (October – December)
Millet	160/165	165/175	165/175	65/75
Sorghum	165/170	170/175	160/165	70/80
Groundnuts	155/170	250/275	200/215	125/150
Niebe	210/225	250/275	275/300	150/165
Polished rice	120/215	195/235	190/215	225/235

Source: Figures show purchase price from farmers/market retail price (DRAMR Survey).

The cause of the price fluctuations revealed by the data in the table above is that brokers beat down the purchase price during the harvest season. Until very recently, it often happened that farmers who had had to sell grain at a low price during the harvest season for cash income had to buy it back at a higher price during the changeover period as their stock had run out. The occurrence of such cases has recently begun to decline because of government efforts to promote the construction of cereal banks at village level to stabilize the grain price.

The cause of the occurrence of such cases is the current conditions in which farmers find themselves, *i.e.* 1) shortage of storage space and lack of storage technology by the farmers, 2) lack of access to markets by the farmers, 3) lack of means of transport from the farms to the markets, and 4) farmers' weak organizational and investment capacities. The farmers are caught in a vicious cycle of disadvantageous environments that further their poverty. Construction of cereal banks, strengthening of farmers' organizations and improvement of basic infrastructures are considered as measures that will break and solve this vicious cycle.

(2) Distribution of livestock products

With the exception of products for self-consumption, the livestock products in the study area are shipped to Ségou City, Bamako and other large cities in the country and abroad. Several parties are involved in the distribution system of livestock products. As producers, there are fattening farms, settled livestock farmers, those who practice transhumance and nomads. They sell their products at home, at livestock markets or to brokers. Brokers are engaged in brokerage of livestock products at the request of producers and livestock dealers.

As neither producers, brokers, livestock traders nor retailers (butchers) have strong organizations, many activities and trades are conducted among individuals or small groups. Because of the large number of brokers, brokerage accounts for a large proportion of the actual distribution volume. The large amount of brokerage sometimes leads to a high intermediary margin and, consequently, soaring wholesale prices. Table 2-5 shows the actual livestock supply of each species (group) of livestock in the Ségou Region in 2003.

Table 2-5 Actual supply of livestock (2003): (head)

Species (group)	For domestic consumption	For export	Total	Remarks
Cattle	14,511	12,212	26,723	
Sheep	69,119	13,856	82,975	
Goats	34,587	5,047	39,634	
Poultry	85,686	-	85,686	

Source: DRAMR Survey

(3) Distribution of Sylvicultural Products

With regard to wood distribution, the Act Relating to the Use, Transportation and Marketing of Wood (Portant Organization de L'exploitation du Transportation et du Commerce du Bois) stipulates the method of determining the annual cutting quantity, wood certification system and penal regulations. Production of firewood and charcoal for the markets in urban areas, such as Bamako and Ségou, is flourishing in the study area. These goods are mainly sold at markets spontaneously established along the main highways.

The producers (many of whom are farmers who use sale of firewood as a means of cash income) spend a large amount of labor and time finding sources of firewood. The distance between the production sites and the main highways, where the markets are located, is increasing year by year. The prospering of firewood and charcoal production has led to the participation of non-villagers in the industry in recent years, which has resulted in conflict between villagers and non-villagers and illegal tree-felling. Table 2-6 shows the shifts in fuel prices in Ségou Region in recent years.

Table 2-6 Shifts in fuel prices in Ségou Region (in fcfa)

Item	2000		2001		2002		2003		2004	
	Jan. – Jun.	Jul.– Dec.	Jan. – Jun.	Jul.– Dec.	Jan. – Jun.	Jul.– Dec.	Jan. – Jun.	Jul.– Dec.	Jan. – Jun.	Jul.– Dec.
Firewood, three pieces	50	70	50	70	50	75	50	75	50	75
Firewood, cartful	2500	4500	2500	4500	3000	6000	3000	6000	3000	6000
Charcoal (1kg)	25	35	30	45	30	45	35	50	35	50
Gas (1kg)	1000	1000	1000	1000	500	750	500	500	500	500
Petroleum (1L)	230	230	275	275	342	345	369	375	405	405

Source: DRAMR Survey

2.2.6 Agricultural infrastructure

(1) Irrigation facilities

The areas along the River Niger and its tributary, the River Bani, are the only areas in the study area in which surface water is available all the year round. In the areas along the two rivers, vegetable cultivation is practiced using wells and reservoirs as water sources. While power-driven pumps are used in some vegetable fields, most of them are irrigated manually. The fields are small in either case and most of the fields are 1,000m^2 or less in area. Farmers install fences made of thorny branches around the fields to protect the crops from being eaten by livestock. The most commonly used irrigation method is for farmers to draw water from wells manually, pour it into containers

(calabashes, buckets made from used tires, etc.), take the containers to the fields and manually water plants directly from the containers. Table 2-7 shows the water sources currently in use for vegetable cultivation.

Table 2-7 Water sources for vegetable cultivation

Water source	Description	Period of irrigation
River	・Irrigation by river water is practiced in the fields along the River Niger and the River Bani. Either river water is directly taken to the fields or river-bed water is collected through channels dug in the riversides. No specialized water collection facilities are used. The fields may be inundated when the level of the river rises during heavy rains. This method allows farming in a larger area than the use of wells or reservoirs.	All year round
Well	・In many cases shallow wells are used as water sources. Shallow wells can be constructed by the farmers themselves. However, as drawing water from wells requires a large amount of labor, only wells with a depth of up to 20m can be used. ・Boreholes constructed with assistance from the FIDA Project and others are used for irrigating fields. Although they are equipped with manual or solar-powered pumps, many of them have become inoperative because of insufficient maintenance/management.	All year round
Reservoir	・Reservoirs formed in wadis and depressions in the ground are used as water sources. Water is collected and stored during the rainy season and used during the dry season. There are a very limited number of reservoirs which can be used all the year round. The water in the reservoirs is used for various purposes, domestic water, water for livestock, etc., as well as for vegetable cultivation. Some of the well-developed reservoirs are equipped with spillways, simple dikes, scaffolds for water collection, etc.	April to December (the period varies depending on the condition of each reservoir)

(2) Reservoirs

Reservoirs are as precious a water source as wells in the water-resource-poor study area. There are two types of reservoir: swamps (reservoirs which are formed in low places on the course of wadis, temporary rivers which only emerge during the rainy season) and excavated reservoirs (reservoirs which are formed naturally in depressions in the ground or are artificially created). The former is more widely used.

(3) Agricultural roads

Most of the roads in the study area, with the exception of a few trunk roads, are underdeveloped. The same is the case for agricultural roads. Spontaneously formed paths are used as roads with little maintenance, management or improvement. Therefore, these roads become impassable during the rainy season because of pools of rainwater on them.

2.2.7 Agricultural extension

(1) Extension policy

Agricultural extension in Mali is aimed primarily at improved agricultural production capacity under

the National Agricultural Extension System (SNVA [1]). The strategies of this system for all those involved in agriculture are: 1) strengthening the link between surveys on agriculture and extension, 2) nurturing cooperation between supporters and farmers, 3) facilitation of exchange between villages, and 4) capacity building of farmers' organizations. The Support Program for Agricultural Offices and Farmers Organizations (PASAOP) is being implemented as a practical measure to achieve these aims. The National Directorate of Agriculture (DNA) and its subordinate office, the Regional Directorate of Agriculture (DRA), are the main organizations responsible for its implementation.

(2) Extension organizations

In addition to DRA, DRGR, DRCN, ORS, CMDT, DRSV, DRPIA and DRP are involved in agricultural technology-related extension in the study area. With the exception of the Regional Directorate for Nature Conservation (DRCN[2]) whose area of activities does not overlap with those of the other organizations, each of them is engaged in extension activities in the designated divisions. In the study area, ORS is implementing extension activities in Baraoueli and Ségou Cercles and CMDT in Baraoueli Cercle.

Table 2-8 Organizations involved in extension[3]

	Ministry of Agriculture					Ministry of Stock Raising and Fisheries			Ministry of Environment and Public Hygiene
National level	DNA	DNGR	Incorporated organizations			DNSV	DNPIA	DNP	DNCN
			CMDT (Mali Textile Development Corporation)	ORS	APCAM				
Regional level	DRA	DRGR	(Région CMDT)	ORS	CRA	DRSV	DRPIA	DRP	DRCN
Cercle level	Agriculture Sector	(Local representative)	(CMDT Sector)	(Zone ORS)	(Local delegation)	SSV	SLPIA	SLP	SCN
Level of multiple communes*	Sub-sector, Extension Workers (CAPs)	-	(ZER), (ZAF), (ZAER)	(ACR)	-	Veterinary Post	PIA Unit	Fisheries Branch Office	ACN

Note) For the organizations in parentheses, the levels of their activities do not exactly correspond to the regional, cercle or multiple-commune level. ORS is an organization under the Ministry of Agriculture designated at the same level as DNA (it is not subordinate to DNA.)

* Sub-prefecture （Sous-préfecture）= A unit consisting of multiple communes in which extension-related subordinate organizations are often established

[1] Système National de Vulgarisation Agricole: Guidelines for and strategies of agricultural extension in Mali

[2] The forest resource conservation and environmental protection field fall under the jurisdiction of the branch agency of the Regional Directorate of Nature Conservation (DNCN: Direction Régionale de la Conservation de la Nature), Ministry of Environment and Public Health.

[3] DNGR & DRGR: National Directorate of Rural Engineering and Regional Directorate of Rural Engineering, Ministry of Agriculture, CMDT: Mali Textile Development Corporation, ORS: Ségou Rice Corporation, APCAM: Permanent Assembly of Chambers of Agriculture of Mali, CRA: Regional Chamber of Agriculture, DNSV, DRSV, DNPIA, DRPIA, DNP & DRP: National Directorate for Veterinary Services, Regional Directorate for Veterinary Services, National Directorate for Animal Production and Industries, Regional Directorate for Animal Production and Industries, National Directorate of Fisheries and Regional Directorate of Fisheries, Ministry of Stock Raising and Fisheries.

DRA, DRGR, etc. are responsible for rural extension activities in the duties of the Ministry of Agriculture.

DRA has subordinate organizations, Sectors and Sub-sectors, established at cercle and multiple commune level, respectively. Extension workers (CAPs) are assigned to Sub-sectors to perform extension activities at village level. The directors of Sub-sectors and CAPs are responsible for supporting the extension activities closest to residents.

DRGR works together with DRA at cercle level. DRGR receives support from DRA in the cercles to which DRGR has not assigned any personnel.

Table 2-9 shows the outlines of the organizations responsible for extension.

1) DRA

The basic purposes of the activities of DRA, which plays a central role in extension, are: 1) to promote the National Rural Support Policy and Strategy as a program at regional level, and 2) to promote production activities by supporting, supervising and coordinating policy and strategy implementation. To achieve the latter, DRA is expected to coordinate the approaches of different donors and make them consistent.

DRA gives advice and training to residents (producers), creates residents' organizations and collects statistical data as the necessary technical support for farmers. The organizational chart of the Ségou Regional Directorate of Agriculture is shown in Figure 2-7.

At cercle level, Sectors have been established. A director and technical advisors (chargés) in specific areas are assigned to a Sector and supervise and support the activities of the Sub-sectors and CAPs. A total of 22 personnel, seven directors and 15 technical advisors in specific areas, are assigned to Ségou region.

Table 2-9 Outline of the extension organizations

Abbreviated name	Name	Outline
DRA	Direction Régionale de l'Agriculture (Regional Directorate of Agriculture)	DRA consists of four technical and two administrative divisions. Ségou DRA has 18 technical and eight assistant (secretaries, accountants, etc.) personnel. In addition, there are 11 personnel in 10 Rural Guidance Centers (CARs) attached to the training division which are responsible for training young farmers.
Agriculture Sector		A Sector has been established in each of the seven cercles, Baraoueli, Bla, Macina, Niono, San, Segou and Tominian. A director and around three personnel in charge of specific areas are assigned to each Sector (personnel assignment differs among the cercles) and support Sub-sector directors and CAPs. (Formerly SLACAER)
Agriculture Sub-sector		There are 39 Sub-sectors in the entire Ségou Region. Thirty-seven directors are assigned to them (each director supervises more than one commune.) and they supervise CAPs. (Formerly AACAER)
Extension worker (CAP)	(Conseiller Agricole Polyvalent, Extension Worker)	Extension workers on the ground give advice to communes or farmers' groups.

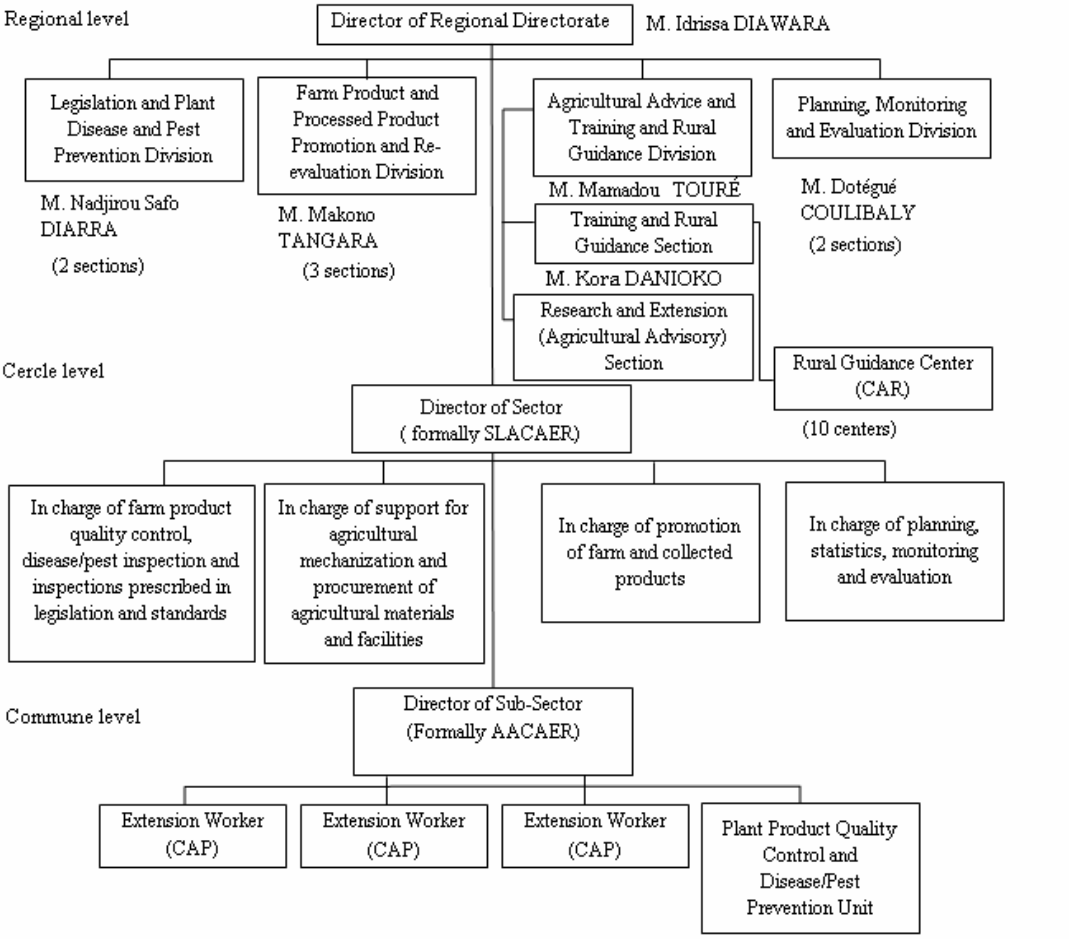
Abbreviated name	Name	Outline
Organizations subordinate to the Ministry of Agriculture, such as DRGR	Direction Régionale du Génie Rural (Regional Directorate of Rural Engineering)	DRGR consists of three technical and one administrative division. It is responsible for development and management of rural infrastructures (for irrigated and livestock farming). At the levels of cercle and commune, the above-mentioned Sectors and Sub-sectors, respectively, support and coordinate the activities of this organization.
Organizations subordinate to the Ministry of Stock Raising and Fisheries, such as DRPIA		As organizations subordinate to the Ministry of Stock Raising and Fisheries created by the division of the former Ministry of Agriculture, Stock Raising and Fisheries in mid-2005, the Regional Directorate for Animal Production and Industries (DRPIA), Regional Directorate for Veterinary Services (DRSV) and Regional Directorate of Fisheries (DRP) were separated from DRA at the end of 2005 and started their respective activities. DRPIA is responsible for extension of technology in stock raising such as animal feed, improved hen houses and vaccination stations.
DRCN	Direction Régionale de la Conservation de la Nature (Regional Directorate for Nature Conservation)	DRCN has two divisions, the Nature Improvement Division and the Regulation and Management Division. It manages forest resources and protects wildlife.
Other organizations providing technical support	Office du Niger (River Niger Corporation, ON) Office Riz Segou (Ségou Rice Corporation, ORS) Mali Textile Development Corporation (CMDT)	ON has projects in Niono and Macina Cercles (and implements no activities in the study area). ORS has extension workers in Ségou Cercle (at Konodimini and Massala) and Baraoueli Cercle (at Tamani and Boidie) working in four and two communes, respectively. CMDT is working in seven communes in Baraoueli, including Sanando Commune. However, the number of communes in which CMDT has projects is decreasing.

In the case of Ségou Cercle, the Sector is implementing extension activities in 413 villages in 27 of the 30 communes in the cercle. (Extension activities in approximately 150 villages in the remaining three communes are under the responsibility of ORS.) Personnel in the Sub-sectors subordinate to the Sector are responsible for activities in the field in the villages. Each of eight directors in the Sub-sectors takes charge of several communes and supports and supervises CAPs who are engaged in extension activities in the villages. DRA has a system (Village Extension Workers) in which CAPs train the youth in the villages and the trained youth take responsibility for extending the production technology. In order to train these young farmers in rural areas, Rural Guidance Centers (CARs) have been established.

Box: Rural Guidance Center (CAR)

Twenty-five CARs have been established in Ségou Region since 1966. Ten of them have personnel assigned to them (2006). These organizations are considered as organizations attached to the Training Division of DRA. The youth trained at CARs are expected to be engaged in volunteer technology extension activities in agriculture, stock raising and agroforestry after completing the training and returning to their villages. In the study area, there are four CARs and five CAR personnel (with 84 youth volunteers being trained in 2005). The training lasts for two years. The training system is implemented as part of military training. In the past, trained youth were provided with carts and farming tools and played a central role in training young farmers in the neighborhood after returning home. However, nothing is provided to the trained youth at present.

Figure 2-7 Extension system in Ségou Regional Directorate of Agriculture



2) Number of personnel responsible for extension

In 2001, 238 personnel were assigned to DRA (formerly DRAMR – Regional Directorate for Rural Development). However, the number had dropped to 223 by October 2004 and, after the reorganization of the local administrative organizations in the first half of 2006 (the separation of branch offices for stock-raising-related activities from the former DRAMR), the number was further reduced to 117. One of the reasons for this reduction is the change in policy. The decentralization policy is transferring the responsibility for service provision from the state to the private sector. Another reason for the reduction is the government's inability to bear the financial burden of hiring new personnel. As a result of the reorganization, the number of extension workers in the field was drastically reduced from 156 in 2001 to 30 as of the end of 2006. In fact, of 79 CAP (extension worker at commune level) positions in Ségou Region, 49 are vacant. Table 2-10 shows the personnel allocation in DRA.

Table 2-10 Number of personnel in Ségou DRA (2006)

Designation	In 2001*	Current number in Ségou DRA	Baraoueli	Macina	Segou	Other four Cercles
Director of DRA	1	1				
Division Head	7	4				
Section Head	9	9				
Personnel in Charge	5	5				
CAR Personnel	N/A	11	1	1	4	5
DRA Headquarters Total	22	27				
Director of Sector	7	7	1	1	1	4
Technical Advisor (CAS)	25	15	1	3	3	8
Sector Total	32	22	2	4	4	12
Director of Sub-sector**	28	37	3	5	8	21
"Extension Workers (Conseillers Polyvalents)	80	**30**	**1**	**2**	**16**	**11**
Personnel in charge of other types of extension	76	0				
Sub-sector Total	184	68				
DRA Total	238	117				

* Personnel at the time of the Phase 1 Study.
** The Directors of Sub-sectors also work as agricultural extension workers.
Source: Data obtained from DRA, 'Survey of the Current State of Extension.'

Among the personnel listed in the table above, the number of extension-related personnel allocated to the 25 communes in the study area is 21, nine Sub-sector Directors and 12 CAPs. In addition, 12 personnel, seven Technical Advisors in Specific Areas (CAS) assigned to the Sector and five CAR personnel, are engaged in extension-related activities. However, the activities of these 12 personnel are not specific to the study area. Table 2-11 shows the number of extension workers assigned to the study area at commune level or below.

Table 2-11 Number of personnel in the study area

Cercle	Agricultural service provider					
	Director of Sub-sector	Extension worker (CAP)	Technical advisor (CAS)	CAR	ORS	CMDT
Baraoueli	2	1	1	1	4	2
Macina	3	1	3	1	0	1
Ségou	4	10	3	3	0	0
TOTAL	9	12	7	5	4	3

3) Extension methods

The following three methods are used in extension activities to resident:

① Demonstration of technology
② Information dissemination through the media
③ Inspection of advanced areas with experience

① aims at technology transfer through extension of technology relating to production to individuals or groups of farmers by demonstrating the technology. Extension through the media ② aims to disseminate information as images on the TV screen or radio messages to as many people as possible. Inspection ③ can make a greater impression on farmers by providing them with an opportunity to see actual cases and to have discussions with farmers from other villages.

At present, the main extension method is demonstration. However, even this is not being implemented sufficiently because of various restrictive factors, such as the lack of tangible effects of the plan, lack of consistency in the approaches adopted by different donors and delay in budget allocation.

4) Role of the extension workers

CAPs have the closest contact with farmers. Their basic role is to provide technical support to residents in agricultural production, livestock and environmental protection. The following are what are expected of them.

- Understanding of the actual conditions of rural villages
- Confirmation of the existence and activities of spontaneously formed groups of the elderly, youth, men and women
- Confirmation of all the concerns and technical themes related to overall production
- Demonstration and extension of technical innovations in the demonstration zone
- Implementation and monitoring of technical innovations in the demonstration zone
- Implementation of continuous and regular training (mainly in new technologies) for farmers
- Collection of relevant information and appropriate dissemination of the information to residents and other relevant parties, etc.

To fulfill their role, CAPs are currently using monograph books, daily log books, visitation books, training/conference books and data books. CAPs are mainly assigned to communes and take charge of 6 – 8 villages on average.

5) Problems in extension

As far as the role played by CAPs at present is concerned, it is doubtful whether the current extension activities are aimed at farmer-driven rural development and whether the activities are exactly what farmers are seeking. In fact, the extension seems to be aimed only at improved productivity. There is also doubt concerning the way of training and developing the capacity of CAPs to achieve the aims. As efforts are focused on the extension of production technology, the importance of capacity building of the CAPs is not fully appreciated. This lack of appreciation is considered a problem. Sufficient means to sustain the activities of CAPs (*i.e.* means of transport) such as motorcycles and fuel are not provided to CAPs.

2.2.8 Basic needs in life

(1) Health and hygiene facilities

As shown in Table 2-12, the health and hygiene indicators of Mali are poor compared with other countries in Sub-Saharan Africa.

Table 2-12 Health indicators of Mali (2002)

	Average life expectancy at birth (year)(1)	Infant mortality rate (per 1,000 births)(2)	Under-five mortality rate (per 1,000 births)(3)	Maternal mortality rate (per 10,000 childbirths)(4)
Mali	49	122	222	1,200
Average in Sub-Saharan Africa	46	106	174	940
Average in the Least of the Less Developed Countries	49	99	158	890

Source: "The State of the World's Children 2004," UNICEF. (1)～(3): indicators in 2002, (4) indicators in 2000.

The most prevalent diseases in and around the study area include malaria, dysentery, respiratory diseases, trachoma, osteomeningitis, cholera and tuberculosis. Health Centers have been established as medical care facilities at cercle level and provide treatment and health services to the people. However, only 38 basic clinics, 24 maternity clinics and 23 basic pharmacies have been established for 520 villages and sufficient services are not provided because of the shortage of human resources and equipment.

(2) Education

On paper, there are 213 literacy centers, as well as 54 primary, two secondary and 50 Islamic schools in the study area. However, a significant number of the literacy centers do not offer classes because their buildings are dilapidated. No literacy education in the daily language, Bambara, is provided at school. There are not enough textbooks or teachers in the Bambara language.

French and Arabic, the languages taught at school, are the foreign languages used in the classroom and in mosques, respectively. Even in urban areas, the local language is mainly used in the daily life of ordinary citizens and there are very few who understand French. Literacy education in foreign languages which are not in daily use makes literacy education in rural areas difficult. Therefore, most illiterate residents have limited means of obtaining information (such as radio broadcasts). Under such circumstances, it is not easy to extend agricultural technology.

2.2.9 Women's burden of labor

In the rural villages, farmwork is, in principle, considered as men's work, while work in the UPA

(agricultural production unit) is considered basically as women's work. During the dry season, if they have decided not to work outside their villages, men have more spare time than during the rainy season, though they do some work in the UPA such as preparation of adobe bricks and construction/repair of small buildings. On the other hand, women are busy all the year round. They spend long hours polishing and grinding millet and sorghum in mortars every day. Fetching water manually from wells with a depth of 10 to 40 m is not an easy job either. For reasons which seem to be a remnant of the past when firewood could be found easily in the forests near their residences, collection of firewood is also a women's job. Toward the end of the dry season, women spend three months collecting firewood and spend another month transporting it to the village. In the past, they collected firewood 1km from their home. However, recently they have to walk 3km or more to reach places where firewood can be found. In addition to this hard work, some women bring lunch to the men working in the fields and find time to work in women's communal fields. Women with many children work without a break. It is not unusual to encounter women who work 14 hours a day. Men rarely engage in household chores in the UPA. On the other hand, women rarely take part directly in decision-making in the village.

Rural women under such circumstances suffer more from the impact of desertification than men as desertification has increased the time required for them to collect firewood and to fetch water. Therefore, women are considered to have a great interest in taking part in implementation of projects to counter desertification and, thus, are expected to contribute to the sustainability of the projects. Reducing women's labor and giving them opportunities for cash income are expected to lead to improvement of the living environment, improvement of the nutritional condition of children and more opportunities for education for children.

ACTION PLAN

CHAPTER 3 Basic concept of action plan

The Draft Action Plan prepared in November 2004 was revised based on the verification results of the Pilot Project implemented for the period of December 2004 to November 2007. The revised plan has been finalized as an Action Plan that will be useful for rural development in similar areas (hereinafter called "A/P").

3.1 Background of A/P Formulation

The United Nations adopted the Convention des Nations Unies sur la lutte contre la Désertification (CCD) in 1994 in response to growing international action against desertification. The CCD adopted a basic strategy based on a bottom-up approach which emphasized promotion of residents' participation, in recognition of the fact that large-scale projects implemented on a top-down basis and with huge amounts of funds had not been able to obtain the anticipated effects. The Republic of Mali formulated the National Plan of Environmental Action (PNAE - Plan National d'Action Environnementale) in 1998 as one of the CCD signatories.

The southern region of Ségou is an important agricultural area for Mali. This region is suffering a decrease in cereal productivity per unit area and in fire-wood and charcoal resources, a shortage of fodder plant resources, and the resulting advance of desertification. Considering that it has a yearly rainfall of 600 to 800mm, however, this area has the potential to prevent desertification through the conservation of regional natural resources as an agricultural production infrastructure, if it is achieved by a comprehensive policy centering on rural development.

Thus, the Japan International Cooperation Agency (JICA) drew up the "Study of Prevention for Desertification in the Southern Region of Ségou in the Republic of Mali (Master Plan)" in the Phase 1 Study, conducted in the period of March 2000 to July 2003, for the purpose of formulating a Comprehensive Rural Development Plan, aiming at the prevention of desertification through the sustainable development of agriculture, stock raising and sylviculture.

This plan is intended to provide concrete programs for implementing the Master Plan which was drawn up in July 2003. It is an action plan for expansion of the sustainable rural development project on the initiative of residents, based on the principle of "promotion of residents' participation".

3.2 Development Objectives for A/P Implementation

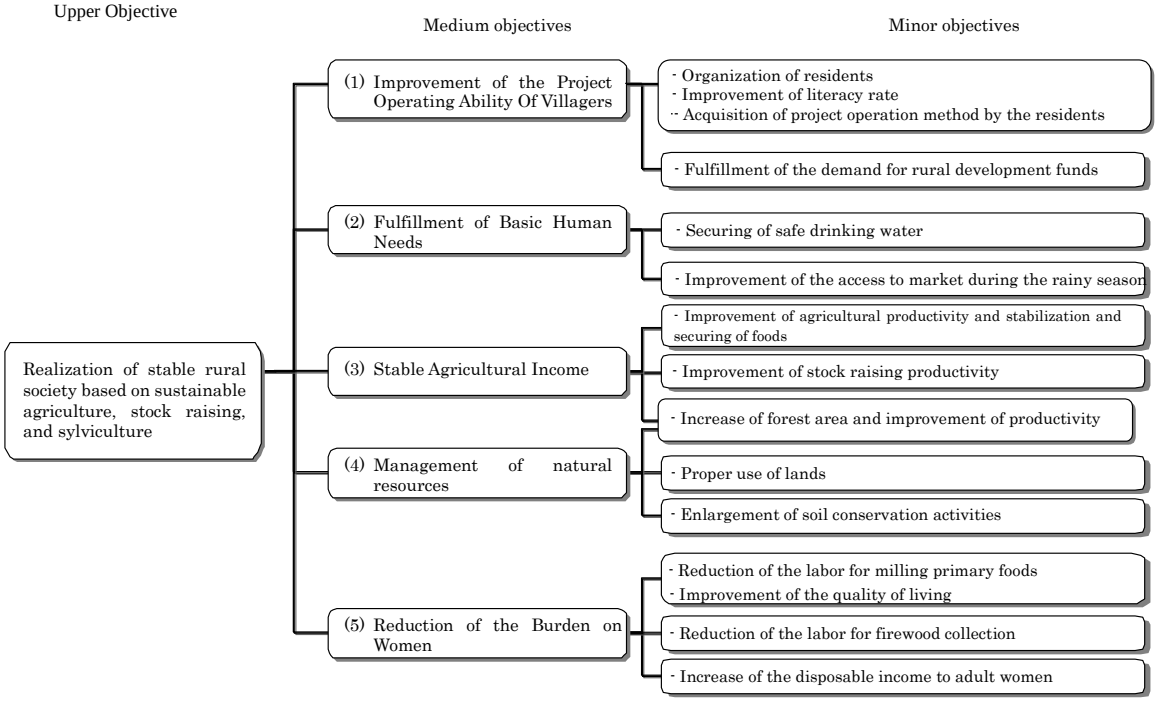
The A/P will be implemented to achieve the development objectives adopted in the Master Plan, which is described below.

3.2.1 Development Objectives

Desertification is mainly caused by exploitation of resources based on human-made factors. Population growth and poverty advance such exploitation without reproduction of resources, resulting in desertification. To prevent desertification, it is necessary to stabilize the livelihood of local residents (reduce poverty) first, and then to prevent the exploitation of resources.

Under this basic strategy, the major objective of development for A/P implementation is "realization of a stable rural society based on sustainable agriculture, stock raising and sylviculture", under which the following medium and minor objectives are determined:

Figure 3-1 Systematic Structure of Development Objectives



3.2.2 Basic Concept for Attaining Development Objectives

The basic concept to acquire the means of attaining the development objectives is summarized in the following 3 points:

(1) To maintain the participation of residents and project autonomy by residents in all stages of activities for the planned project.

(2) To build a support system for residents' activities at administration level and at resident level and to sustain project autonomy by residents using this support system.

(3) To apply existing or applied technology and schemes in West Africa to the planned project.

3.2.3 Year of Goal and Project Areas

(1) The goal is to be attained in the period 2004 to 2017 including the period (12.2004 to 01.2008) for implementation of the Pilot Project (P/P) and feasible programs will be implemented in turn.

(2) The area targeted for the A/P project is the rain-fed agricultural area including 508 villages in Baraoueli, Ségou and Machine Cercles in Ségou Region which are relatively poor in the target area for the Master Plan.

3.2.4 Resident Participation Promotion Scheme

In order for local residents to recognize the need for activities for prevention of desertification and to take the initiative in implementing such activities, it is necessary to introduce a system to enable local residents to independently participate in all the processes, including analysis of the present situation, selection of measures, formulation and implementation of plans, and maintenance and management at village level. Ownership and empowerment of residents are fostered in the course of their participation in these processes. This Action Plan adopts a residents' participation promotion scheme which will be realized by the following processes: "fostering of ownership by residents of the desertification prevention project → independent establishment of project promotion organizations by residents → maintenance and operation of the project by residents' organizations (Terroir Management Committee s).

3.2.5 Comprehensive Project Layout

The projects by project objective as shown in Table 3-1 are planned to attain the development objectives of this action plan. For the rural development objectives, it is necessary to implement the individual projects from a comprehensive point of view in order to solve various problems which are intricately involved in each other, such as deteriorating resources (desertification), poverty and gender problems. To eliminate any impeding factors, it is necessary to adopt the standpoint of resolving them in unity with other impeding factors with which they have a causal relation. Therefore, projects which are diversely associated with (or complementary to) each other are comprehensively set out.

Table 3-1 Project Components for Attainment of Objectives

Medium goals	Minor goals	Project Component
(1) Improvement of the project operating ability of residents	1) Organization of residents 2) Improvement of literacy rate 3) Acquisition of project implementation method by residents 4) Fulfillment of demand for rural development funds	・Literacy education (including classroom construction) ・Training for capacity building of residents ・Establishment of small-scale financial system
(2) Fulfillment of BHN	1) Securing safe drinking water 2) Improvement of access to markets in rainy season	・Improvement of modern wells ・Road improvement
(3) Stable agricultural income (Higher	1) Improvement of agricultural productivity	・Supply of fertilizers and seeds for rain-fed farming

productivity of agriculture, stock raising and sylviculture)	2) Stabilization and securing of food 3) Improvement of stock raising productivity	・Small-scale vegetable cultivation ・Construction of cereal bank ・Construction of vaccination facility ・Training for higher productivity of individual stock (guidance in stock raising and improved henhouse construction)
	1) Increase of forest area and improvement of productivity	
(4) Conservation and management of natural resources	1) Enlargement of soil conservation activities 2) Proper use of lands	・Improvement of mini-nursery ・Tree planting ・Soil conservation ・Land use regulations establishment
(5) Reduction of burdens to women	1) Reduction of the labor for milling primary foods 2) Reduction of the labor for firewood collection 3) Increase of disposable income 4) Improvement of the quality of living living	・Construction of mill ・Extension of the manufacturing of improved oven ・Extension of the manufacturing of handicrafts ・Training for living improvement

The details of each project component are described in Table 3-2 below.

Table 3-2 Details of Project Components

Project Component	Description
・Literacy education (including construction of classrooms)	・Training of village literacy teachers ・Instruction in construction by residents of literacy classrooms (meeting halls) and provision of fixtures including desks ・Village literacy training by trained teachers ・Establishment of rules
・Capacity-building training for residents	・Preliminary literacy training of leader candidates ・Training of resident leaders (Management/operation of organizations, manner of running meetings, examples of management rules, functions of leaders, etc.) ・Training in accounting and bookkeeping (Practice in bookkeeping and various recording methods)
・Establishment of micro-credit system	・Training in management/operation of micro-credit system (Lectures in methods of checking and analyzing fund sharing payment conditions, method of establishing and using micro-credit system, and loan system and its operation, as well as OTJ training in management and operation) ・Provision of safe-deposit boxes ・Holding of residents' share in fund ・Establishment of rules
・Construction of modern wells	・Construction of deep wells ・Training of well managers (one per village) and repair technicians (one per commune) ・Provision of tools and spare parts
	・Construction of large-aperture wells ・Training in use and maintenance of wells
・Construction of roads	・Road construction ・Training in road maintenance
・Supply of fertilizers and seeds for rain-fed farm products	・Training in use of agricultural materials and management of farm product cultivation (methods of using fertilizers, improved seeds and seed disinfectants) ・Provision of fertilizers, improved seeds and seed disinfectants
・Micro-cultivation of vegetables	・Training in vegetable cultivation management techniques (techniques of farm product cultivation and fertilizer management) ・Provision of wire nets for fences

Project Component	Description
・ Construction of cereal banks	・ Training in operation of cereal banks (Cereal bank system and operation method, and building operation and maintenance method) ・ Provision of weighing balances and construction materials ・ Instruction of residents in bank construction ・ Establishment of rules
・ Construction of vaccination stations	・ Construction of vaccination model stations ・ Provision of equipment and materials, and instruction of residents in construction ・ Training of resident masons and provision of plastering tools ・ Instruction of residents in yard maintenance and methods of use
・ Training to improve livestock productivity (Instruction in stock raising and improved henhouse construction)	・ Instruction in nutritional brick manufacturing technique and sheep and cattle raising method using nutritional bricks ・ Provision of henhouse construction materials and instruction in henhouse construction ・ Provision of disinfectant sprayers and instruction in maintenance and operation methods
・ Construction of mini-nurseries	・ Training in seedling production techniques ・ Establishment of residents' nurseries
・ Reforestation	・ Training in plantation techniques ・ Training in fruit tree grafting
・ Soil conservation	・ Introduction to soil conservation techniques ・ Practice in soil conservation techniques
・ Establishment of land use rules	・ Education of users regarding natural resources (especially forests, fodder and water resources) for conservation of natural resources ・ Establishment of land use rules between villages for conservation of natural resources and administrative procedures ・ Publicity of rules
・ Construction of milling plants	・ Construction of milling plant models ・ Provision of equipment and materials and instruction of residents in plant construction ・ Instruction in technology for installation, operation and repair of mills ・ Establishment of rules
・ Manufacture and extension of improved ovens	・ Practice in earthen oven manufacturing technique ・ Instruction of resident groups in installation of iron oven; manufacturing equipment and manufacture of iron ovens (Lectures on improved iron ovens and basic principle of manufacture, and practice in manufacture) ・ Provision of equipment and materials necessary for manufacture of iron ovens ・ Demonstration of comparison of conventional ovens and improved ovens in effectiveness of using both ovens
・ Manufacture and extension of handicrafts	・ Training in manufacture of soap ・ Training in textile dyeing ・ Training in macaroni manufacture ・ Training in confectionery ・ Provision of training equipment and materials
・ Training to improve standard of living	・ Education in activities of women groups, improvement of living standards and improvement of consciousness ・ Training in health and sanitation, food nutrition, etc. (Basic knowledge of nutrition, health and sanitation, utilization of useful trees and fruit trees, and importance of reforestation)

3.2.6 Residents' Share of Projects

The planned projects are classified into projects at village level to be implemented with residents' participation and projects at administration level to support the village-level activities. For the village-level projects, in general, the local residents are required to provide their share of the resources (materials, labor and money) so that they have a share in all the projects as a means of enhancing their ownership. If the residents' share is in money, their share will be held in the fund of the Terroir Management Committee (CGTV – Comité de Gestion des Terroirs Villageois), and the CGTV will appropriate this fund for the maintenance and operation costs of the project facilities and for the micro-credit fund for which there is a very high demand in this region. Table 3-3 shows the rules regarding the residents' share.

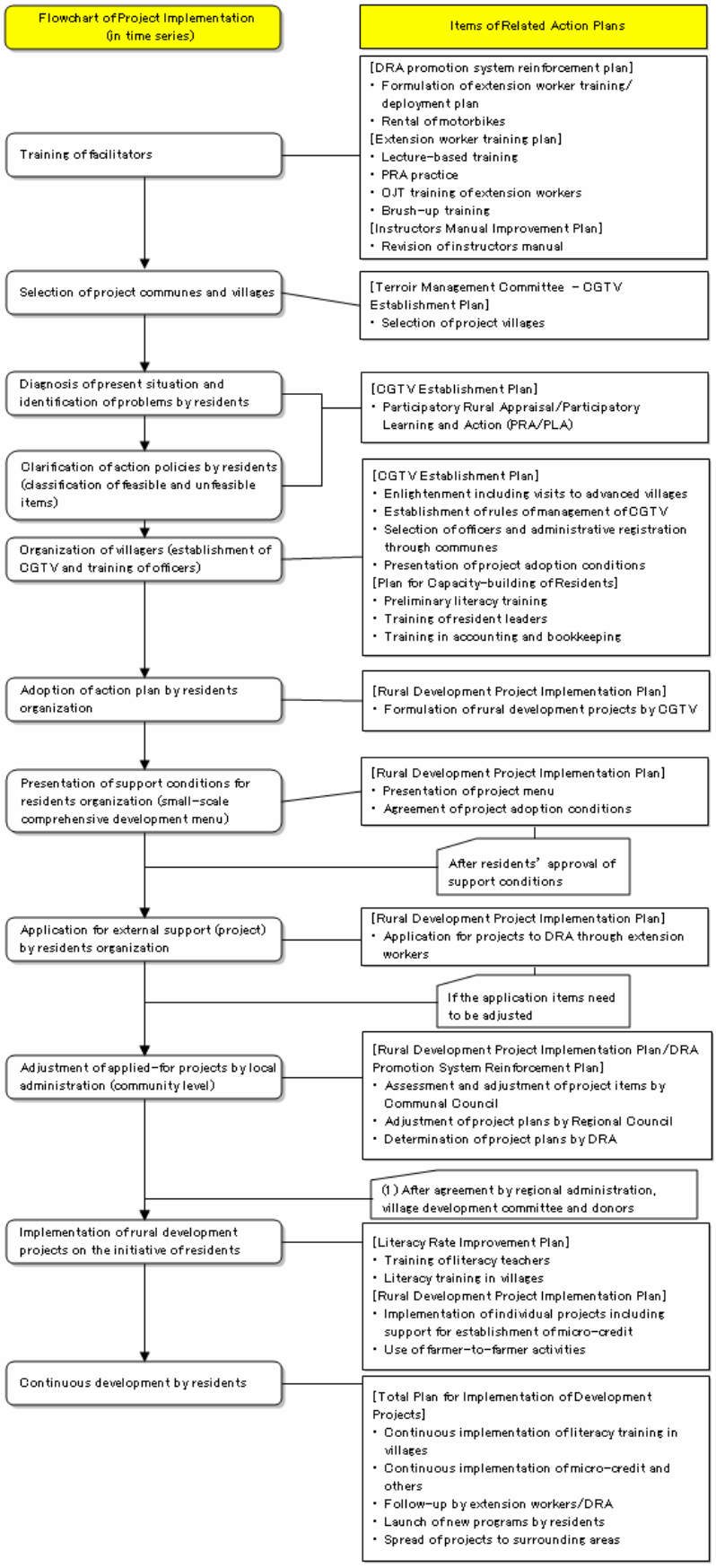
Table 3-3 Example of Residents' Share by Project Component

Project Component	Amount/Rate of Share	Remarks
Project by training only	Stationery expenses only	
Literacy education	40,000 FCFA	Classroom construction cost
Micro-credit system	60,000 FCFA 40,000 FCFA	Introduction of system Introduction of safe-deposit boxes
Borehole (deep well)	200,000 FCFA 150,000 FCFA	Boreholes (deep well) Large-aperture concrete wells
Road construction	100,000 FCFA	per 5km
Fertilizers and seeds	80% of purchase costs	
Micro-cultivation of vegetables	60,000 FCFA	Cost of fences around fields
Construction of cereal banks	40,000 FCFA	Cost of construction materials
Vaccination yards	Large: 150,000 FCFA, Small: 100 000 FCFA	
Improved henhouse construction	5,000 FCFA	Cost of construction materials
Mini-nurseries and reforestation	20,000 FCFA	Cost of equipment and materials
Construction of milling plants	150,000 FCFA	Cost of milling machines

3.2.7 Procedure for Implementing the Projects

The A/P will be implemented basically in accordance with the procedure shown in Figure 3-2 below. First, the facilitators will be trained and they will support the local residents in activities such as grasping the tasks, organizing the villagers, and formulating and implementing the planned projects. The procedure for implementing the projects in Figure 3-2 is shown in relation to the action plans described later.

Figure 3-2 Procedure for Implementing the Projects and Related Action Plans



3.3 Basic Policy of A/P

(1) The Action Plan is formed on the basic policy of fostering ownership and partnership by local residents based on “human security”.
(2) For A/P promotion, assistance shall be provided to ensure that residents’ organizations for rural development are operated by the residents themselves in a sustainable manner.
(3) More precisely, extension workers who play the role of facilitators shall be fostered to enhance their ability, and their support shall promote sustainable rural development on the initiative of residents.
(4) The project budget and possible fundraising methods for the above policy shall be recommended.

<Background>

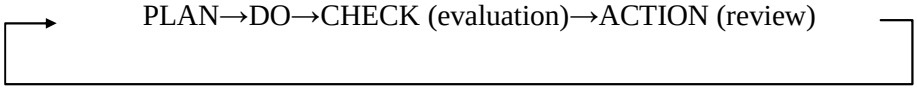
- It is necessary to consider a number of sectors when dealing with the prevention of desertification and reduction of poverty as the major objectives of the Action Plan, which should be based on human security.
- For this purpose, the project implementing parties, including residents, communities and the Government of Mali, should take the initiative in the A/P, and the implementing parties including the beneficiaries should cooperate with the assisting parties, including the governments of other countries, international organizations, NGOs and research institutions, aiming at reinforcement and expansion of their activities.
- The assisting parties should not provide the necessary assistance on the basis of the logic of the assisting side, but by understanding the status of the society, residents and local governments on the assisted side.

3.4 Action Menu

(1) System for Promotion of A/P (Residents Support System)

- Councils at communal and regional administration level will be organized to implement the activities determined in the A/P. Important matters will be decided by meetings of the regional level councils.
- The project implementation councils will introduce the PDCA-cycle concept to promote A/P activities, grasp the regular progress of the projects and review the projects.
- Regular meetings with related organizations (such as donors and NGOs) will be held to report the results of monitoring and evaluating A/P activities and exchange information on their activities in order to examine the direction of assistance and concrete plans.

PDCA Cycle



(2) Action Menu and Sharing of Roles

- The measures and activities necessary for the promotion of sustainable rural development projects on the initiative of residents in project areas will be arranged as the action menus described below.
- These action menus will be executed in partnership with the implementing parties such as the administration, residents, extension workers and NGOs by sharing roles.

(3) Action Menu for Rural Development on Residents' Initiative

Action Plan	Minor Plan	Action Item	Initiative	Objective or Operation Method
Extension Worker Training Plan	Extension Worker Training Plan	Preparation of re-training curriculum	Administration (NGO)	Ability improvement/ maintenance for extension workers
		Lecture-based training		
		Brush-up training		
Development Project Implementation Plan	Residents' Organization Establishment and Reinforcement Plan	Selection of target villages	Administration	Organization of residents and establishment of management system
		Participatory rural appraisal and presentation of project adoption conditions	CAP (NGO)	
		Establishment of management rules, election of officers and administrative registration	Residents CAP (NGO)	
	Plan for Capacity-building of Villagers for implementation of projects	Training of resident leaders (incl. visits to advanced areas)	CAP Residents in advanced area (NGO)	Acquisition of project implementation methods by residents
		Training in accounting and bookkeeping	CAP (NGO)	
	Rural Development Project Implementation Plan	Formulation of draft rural development plan	Residents (CAP)	Formulation of plans and implementation of projects on residents' initiative
		Presentation of project menu	Administration	
		Application for projects and determination of project plans	Residents (CAP) Administration	
		Implementation of rural development projects	Residents	
	Literacy Rate Improvement Plan	Construction of meeting halls	Residents	Improvement of literacy rate
		Training of literacy teachers	NGO	
		Literacy training in villages	Residents	
	DRA Promotion System Reinforcement Plan	Formulation of promotional activity plans	Administration	Reinforcement of functions of communal and regional administrations
		Provision of promotion equipment and materials	Administration	

Action Plan	Minor Plan	Action Item	Initiative	Objective or Operation Method
		Tie-up with local governments (communes)	Administration	
	Instructor Guidelines Improvement Plan	Improvement of instructor guidelines	Administration	Application to instructions for residents
Project/ Development Fund Plan	Development Fund Plan	Formulation of annual project plan	Administration	A/P projects
		Formulation of annual fund plan	Administration	
	Fundraising Plan	Securing of national budget	Administration	Fundraising
		Requests to donors	Administration	

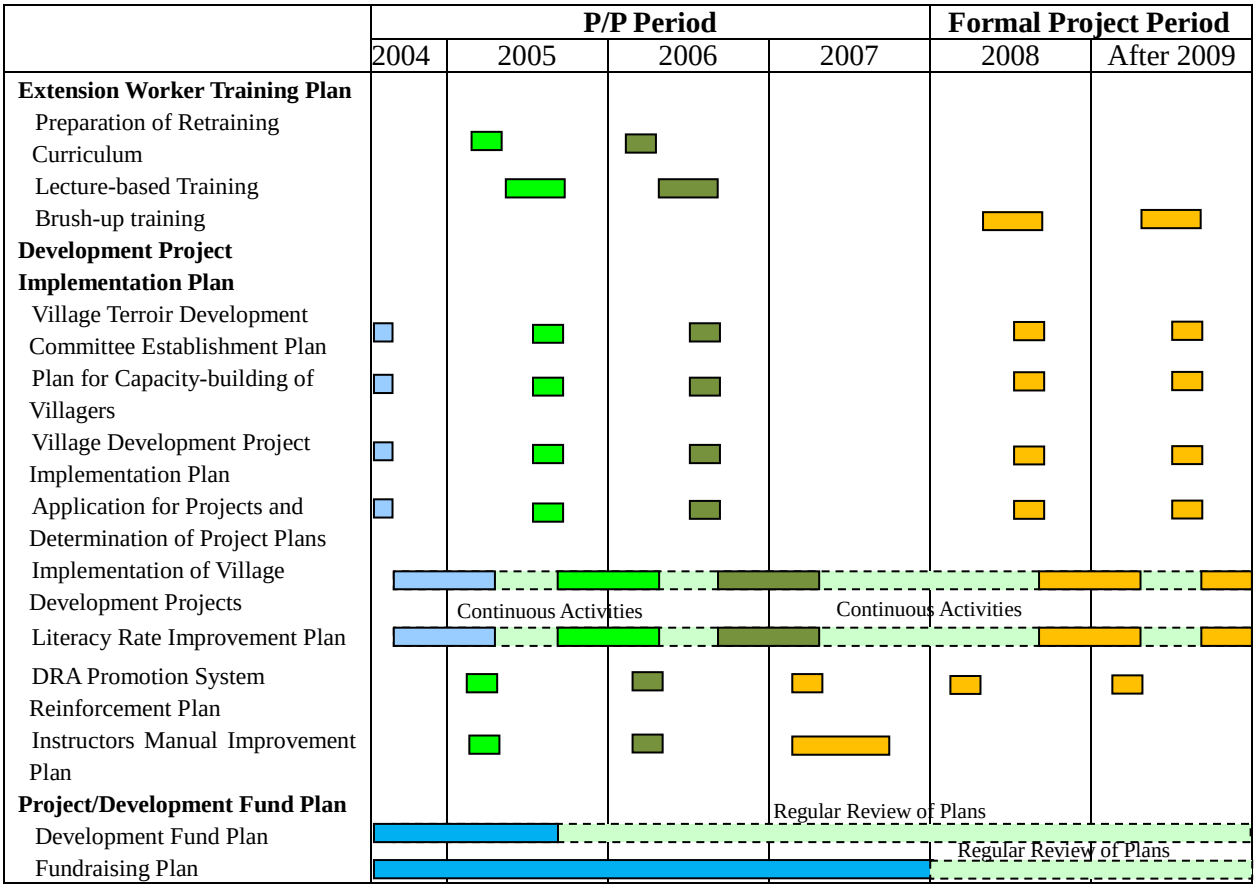
(4) Sharing of Roles in Action Menu

Sharing of Roles	Functions and Duties
Administration	・ Councils at local administration, commune, cercle and regional level make adjustments between "commune development plans" and individual projects, and coordinate with other aid organizations and NGOs. ・ Administrative services include guidance and support for activities to improve the abilities of and promote extension workers. ・ DNA reinforces the application of national policies including PASAOP to local communities, promotes tie-ups with related agencies and comprehensive agricultural policies, and ensures efficient operation of the national budget. ・ Local governments adjust various projects through the regional or commune council and their experience is reflected in "local autonomy based on residents' will."
Residents	・ Residents organize village terroir development committees to formulate and implement rural development projects. ・ Residents convey information on their project experience to residents in the surrounding area and contribute to fostering consciousness of development of rural communities.
Extension workers	・ Extension workers support the improvement of residents' abilities as facilitators. ・ They transfer and extend their experience and abilities acquired in projects to their colleagues.
NGOs	・ NGOs assist the activities of extension workers and support the improvement of residents' abilities. ・ NGOs are entrusted by the administration to undertake the training of residents and development projects.

3.5 Implementation Schedule

The implementation schedule of Action Plan activities is shown in Figure 3-3.

Figure 3-3 Implementation Schedule of Action Plan



CHAPTER 4 Action plan

The Action Plan is divided into the P/P period (2004 to 2007) and the formal project period (2008 to 2017). As described previously, the plans for the P/P period were implemented in accordance with the draft A/P prepared in November 2004 and completed in November 2007. The results of the projects and items reflected in the A/P are added to the items of each action plan.

4.1 Action Plan and Results for P/P Period

4.1.1 Extension Worker Training (Capacity-building Training) Plan

This plan is intended to foster the extension workers engaged in village development in 508 villages in the study area. The activities necessary for this purpose are described below and the number of extension workers trained in this period is shown in Table 4-1.

Table 4-1 Number of Trained Extension Workers

2004	2005	2006	Total
10	17	15	42
(7)	(12)	(12)	(31)

Note: The number in ( ) denotes the number of facilitators authorized in the P/P period. For this authorization, see Chapter 6.

[Action Items]

(1) The Study Team and DRA revised the ability improvement training curriculum and texts prepared for the P/P period based in turn on the monitored and evaluated results.

(2) The NGOs entrusted by the Study Team provided ability improvement training to the extension worker candidates selected by DRA, in accordance with the retraining curriculum.

(3) The trained extension workers subsequently participated as sub-moderators in the participatory rural appraisal (PRA) study conducted in the P/P-target villages and then in the practical execution of PRA to improve their facilitation ability. The extension workers who were evaluated as excellent facilitators in the first and second practical execution of PRA were engaged in subsequent trainings as instructors for the second and third lecture-based trainings and practical execution of PRA.

(4) After that, the extension workers will be assigned to individual P/P-target villages to acquire facilitation abilities in OJT under the guidance of the Study Team.

P/P Results and Items Reflected in A/P
1) 42 extension workers were trained, of whom 31 were authorized as facilitators. In future, they will be engaged in implementation of the formal project. 2) The capacity -building training curriculum and texts were revised as the final versions. In the formal project period, brush-up training will be provided with reference to this curriculum. 3) CAPs' vacant posts arise because of job transfer, change of position and age-limit retirement. It was therefore added that the DRA will seek to ensure a full number of facilitators and plan the nurturing of next generation CAPs. 4) Continuous training of CAPs through on-the-job training is required to change their way of

thinking (improve their facilitation ability). More, to acquire the PRA techniques, CAPs shall gain a lot of practical experience as PRA moderators during their OJT training, up to the stage in which they can truly understand the reasons of PRA study implementation. The necessity of their follow-up by predecessors was therefore clearly mentioned.

5) The CAPs are not familiar with all the projects, and assistance from NGOs is required too. The projects requiring the use of NGOs were therefore specified in the development project implementation plan.

4.1.2 Development Project Implementation Plan

During the P/P period, the action plans listed below were implemented in accordance with the draft A/P, the projects in the target villages made progress and the extension workers were trained through OJT.

(1) Residents' organization establishment/reinforcement plan
(2) Plan for capacity-building of villagers
(3) Formulation/implementation of village development project plan
(4) Literacy rate improvement plan
(5) DRA promotion system reinforcement plan
(6) Instructor guidelines improvement plan

P/P Results and Items Reflected in A/P

1) During the P/P period, a Village Terroir Development Committee (CGTV) was set up in 28 villages in Ségou Commune, in 10 villages in Baraoueli Cercle and in 9 villages in Macina Cercle, and the P/P was implemented in a total of 47 villages.
2) The guidelines for operation of the villager support system and the guidelines for support of CAPs' activities (see Appendix I-3) were revised as the final versions. These final versions will be used in the formal project. In addition, both guidelines gave a concrete description of expected resident leader capabilities and the need of complementary training, in the light of PP evaluation results, and planners and supporting staff of administration were given the role of "compass" to get better results in the support to residents.
3) Some resident leader candidates were illiterate; preliminary literacy training was therefore added to the A/P to prevent any subsequent difficulty in trainings and management of CGTVs.
4) The judgment and knowledge of the head of the commune often proved useful in the assessment of village projects; it was therefore added to the A/P that a Commune Implementation Council will be held at the time of the project assessment.
5) As it was evident that the use of resident instructors was very effective, it was added to the relevant item in the Formulation/Implementation of Village Development Project Plan.
6) As the fostering of good resident leaders is essential, items requiring attention for the fostering of resident leaders and during their training were added.

4.1.3 Project/Development Fund Plan

(1) Preparation of Annual Project Plan and Annual Fund Plan

During the P/P period, areas which were typical of the planned areas and were expected to demonstrate an effect were selected as the criteria for selecting target villages, and annual project plans in which emphasis was placed on the training of extension workers were formulated. The formal project implementation period will be about 10 years, for which annual project plans will be prepared. Annual fund plans will be also drawn up under the annual project plans so prepared.

[Action Items]

1) DRA consulted with the Study Team and formulated an annual project plan draft (selection of communes and number of villages) taking into consideration the progress of the extension worker training plan and the cercle and commune development plan (2005 to 2007).
2) The annual project plan draft was reviewed every year with regard to the state of securing the budget and developing the villages.
3) The Study Team, jointly with DRA, formulated an annual fund plan draft under the annual project plan draft. The fund plan draft consisted of roughly defining the development level based on the present status of development in each commune. For this purpose, DRA and the Study Team collected and arranged information on assistance performance and assistance plans by other donors in Ségou Region.
4) These works were implemented and completed within fiscal year 2005.

(2) Amendments to A/P

The work of reviewing the draft A/P was done in 2005 under this Action Plan and the draft A/P was finally reviewed in 2007. The major points of review were as follows:

1) The Ministry of Agriculture had no objection in principle to the issue of “expending (budgeting) 1 billion FCFA from the counterpart fund for KRII” as recommended in the draft A/P, but it indicated its view that it is difficult to intensively invest such huge funds amounting to 1 billion FCFA in one part of the Ségou Region every year. Therefore, DRA and the Study Team altered the formal project period from 5 years to 10 years and formulated the annual project plan so as to reduce the funds to be raised every year.

2) The draft A/P had initially planned to develop three cercles simultaneously in the formal project period, but it was planned to undertake the development of Baraoueli and Macina Cercles every other year for the reasons that i) it is difficult to manage two cercles, Baraoueli and Macina, simultaneously from the office in Ségou, and ii) the extension workers will have enough time to grasp the conditions of the villages that they are in charge of if the villages are developed every other year.

3) For 476 of the 508 target villages, except 32 villages in which village development had been implemented by 2005, the budget for development of the existing (or planned) facilities including

wells and literacy centers was estimated based on the UNICEF study data, FODESA project achievements, and the well construction project under the Japanese grand aid fund.

In addition, it was planned that the construction of wells and roads will be implemented in 10% and 30% of the villages respectively in the IFAD project (FODESA) and that land use rules will be established in 40% of the villages in the GTZ project (PACT). The commune development plans were prepared based on these existing projects and the financial sources available from the communes that planned village development were not included in the estimation of the development rates, because the amounts were very low.

4) In the country of Mali, the Community Based Rural Development Project (PACR - Projet d'Appui aux Communautés Rurales) was started by the World Bank in 2006. This project is intended to improve the managing and operating abilities of the fragile Commune Assembly/Secretariat and provide funds for promotion of the commune development plan in order to implement small-scale projects in the environmental and socioeconomic field. If this project improves the managing and operating abilities of the Commune Assembly/Secretariat, it will contribute to the efficient promotion of this Project, but such development is not included in the estimation of development rates because the target communes are only two communes, Boidie and Tamani in Baraoueli Cercle.

The Annual Project Plans and Annual Fund Plans prepared for the formal project period are shown in Table 4-2 and Table 4-3. The table of total project cost estimation, list of unit prices and list of development rates are included in Appendix I-4.

Table 4-2 Annual Project Plans

Unit: Number of villages

Cercle	Formal Project									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ségou	27	21	27	21	27	21	27	21	26	22
Macina		25		25		25		25		25
Baraoueli	19		19		19		19		20	0
Total	46	46	46	46	46	46	46	46	46	47
Grand Total	93	139	185	231	277	323	369	415	461	508

Table 4-3 Annual Fund Plans

Unit: Million FCFA

Item	Total	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Support System Development	464	46	46	46	46	46	46	46	46	46	46
Individual Projects	6,655	664	664	664	664	664	664	664	664	664	678
Reserve	356	36	36	36	36	36	36	36	36	36	36
Total Project Cost	7,475	746	746	746	746	746	746	746	746	746	761

Note: The total cost for each fiscal year does not correspond to the total amount because each amount is rounded up.

4.1.4 Fundraising Plan

In implementing the A/P, it is necessary to strengthen the partnership between the beneficiaries and the donor or between donors, and to maintain human security, it is desired to build a support system in which the menu project necessary for the villagers can be introduced as a set including software. For this purpose, the action plans described below will be implemented in the project stages.

[Action Items]

(1) DRA will request the relevant donors to participate in the region-level council and P/P interim evaluation meetings to provide and monitor/evaluate the P/P progress information, in order to share such information and thereby adjust the project plans. In particular, the application for projects by CGTV will be supported by CAP in order to make effective use of the FODESA project by IFAD.

(2) DNA will hold donor round-table meetings to disclose information on A/P items, required funding, implementing schedules, etc. and request the donors for fund contributions.

(3) DNA and DRA will make effective use of the PASAOP budget to ensure that the promotion project in this Project makes smooth progress.

Items Reflected in A/P (Results of above actions)
1) In August 2006, DNA decided that Mali would expend the upper limit of 210 million Fcfa per year for implementation of this Action Plan and requested Japan for grant aid funds. The matter was examined by Japan, but the request was not adopted because it was difficult to apply this case to the framework of grant aid assistance which is mainly centered on hardware projects.
2) In fiscal 2007, DNA submitted an application to Japan for the village development project (2 years) for 100 villages which would use the counterpart fund as non-project grant aid, and this was approved by the Japanese Government. This project will be started in 2008.

4.2 Action Plans for Formal Project Period

4.2.1 Extension Worker Training Plan

[Action Items]

(1) Trained extension workers will be engaged in the implementation of the development project implementation plan in accordance with the Annual Project Plans after completion of the P/P, but some of them will receive brush-up training every year, aiming at maintenance and improvement of the ability of each instructor. This brush-up training will be focused especially on supporting organizational reinforcement and the improvement of accounting ability.

(2) Extension workers assigned to any new village through a change of deployment should receive this brush-up training.

(3) To avoid any vacant position of extension workers, DRA will appoint two new CAPs annually from 2009 and after. New CAPs will be fostered through brush-up and on-the-job trainings under

the supervision of CAPs previously trained.

(4) At least 3 years are believed to be necessary for CAPs to learn how to support and monitor residents' activities. This is why CAPs trained during the 2nd and 3rd years of the PP implementation will be followed by the 1st-year CAPs.

(5) The assistance of NGOs is particularly needed in activities distinct from the CAPs' fields of expertise, namely, in construction projects (wide-aperture wells, borehole wells, vaccination stations, improvement of roads, ponds, etc.), PRA studies, trainings of leaders and MC managers. DRA will plan the use of NGOs for their implementation.

4.2.2 Residents' Organization Establishment/Reinforcement Plan

The activities as described below will be carried out to support organizing of villagers and promote their activities for the village development/desertification prevention projects.

[Action Items]

(1) The target villages will be selected every year.

◇ Criteria for selection (preference) of target villages

- The direction of decentralization is to be taken into consideration and attention is to be paid to coherence at commune level from the viewpoint of facilitation of the participation in the projects and capacity building of administration at the lowest level. Target villages will be 50 in total, and most of them (if possible, all of them) are located in the relevant communes.
- Village with good relationship with the neighboring villages (coherence at village level as well as commune level) → it facilitates organization of residents and extension of the project results in the neighborhood.
- Groups of farming villages which have actual inter-terroir relations in their lives and activities, in addition to coherence at commune level, are selected. → Desertification prevention measures are ultimately the "implementation of appropriate land use at community level." From this viewpoint, emphasis is to be placed on grouping among the target villages, and area selection. Scattering of villages will be avoided.
- Villages with appropriate human resources (positive attitude, literacy education,..) and with the potential to become a base for resident-centered community development (transmission of information).
- A well-balanced number of villages is to be selected from the three cercles, taking into consideration the number of CAPs currently assigned to them and the number of villages in the project area. The balance among the 3 cercles is preferentially based on the number of AACAER (sub-sector) extension workers assigned to the villages.

(2) DRA will select the target villages to which the authorized facilitators (extension workers) will be assigned.

(3) PRA will be carried out to support the formulation of a village development plan by the villagers (in which the extension workers will work as moderators). A workshop shall be organized prior to the study for the moderators. The busiest farming season and the period where young men work away from villages will be avoided when implementing the PRA study. Following PRA, the timely organizing of villagers, training of residents' leaders and clarification of activity plans are advisable.

(4) Educational activities for villagers such as visits to advanced villages will be implemented to support the establishment by residents of village terroir development committees, the selection of

officers and administrative registration through the commune.

4.2.3 Plan for Capacity-building of Villagers

When a Village Terroir Development Committee is set up, the projects described below will be implemented to enhance the project managing and operating abilities of officers and resident leaders.

[Action Items]

(1) Preliminary literacy training will be provided to illiterate leader candidates.
(2) Training of resident leaders will be provided by using visits to advanced villages.
(3) Accounting and bookkeeping training will be provided to the villagers in charge of accounting, secretarial work and micro credit to enable them to acquire the ability to perform basic accounting work.

The following points shall be taken into consideration in the training of residents' leaders and their fostering.

- Since the trainings will be carried out collectively, accessible training location and an appropriate number of participants (limited to 30 people) will be chosen.
- Trainings will be advisably implemented in September-October when farmers still have time available before the harvest works. As regards women's participation, arrangements shall be made for short travel distances and a minimum number of training days.
- Recruiting residents of advanced areas as instructors of preliminary literacy training is effective, since not only literacy capacity are provided, but information can be also propagated from residents of developed villages to those of less-developed villages.
- Training will not be limited to general consideration, but introduce many practical items which can be implemented at once, such as formulation of plans through simulated meetings.
- Subsequent to the leaders training, CAPs will monitor and evaluate the activities of CGTV members and complementary training or re-training will be considered if necessary.
- The commune personnel also attends the leader training; a follow-up system for capacity building is set up with the commune staff, informed of the role of CGTVs officials, and CAPs.
- Support for the reinforcement of CGTVs (capacity building of leaders) is regularly implemented by CAPs even after they have been established.

4.2.4 Formulation/Implementation of Village Development Project Plan

The Project Plan for the rural development/desertification prevention program will be drawn up to meet the actual conditions of each village and implemented on the initiative of the villagers.

[Action Items]

(1) The Village Terroir Development Committee (CGTV) will formulate a village development plan draft based on the results of the participatory rural appraisal study. The extension workers will

support the work of formulating the draft plan.

(2) After the village development plan draft is prepared and the activities at village level are defined to some extent, the extension worker will present the project menu to the CGTV. This will consist of the project components of the comprehensive small-scale project program as shown in Table 3-2 above. The project menu will be presented during the later half of the period of the formulation of concrete action plan to create sufficient awareness of ownership among the residents.

(3) The CGTV will examine the project menu and submit an application for the necessary projects through the extension worker to DRA. DRA will assess the projects applied for by the CGTV of each village and decide the project plan. In assessing the projects, DRA will hold a Commune Implementation Council to examine the appropriateness and integrity of the project plan together with the head of the commune and the commune executives.

(4) Those projects that require contracts will be packaged per project type and package contracts for several villages will be issued by DRA. Projects for which promotional activity by DRA officials is required will be implemented by the extension workers in partnership with PASAOP. In implementing the projects, DRA will pay attention to the participation of all residents for the production of effects, and implement the comprehensive small-scale projects together and almost at the same time to yield a synergetic effect of all project components. The resident instructors in advanced villages will be used as much as possible to reduce the project costs and promote communication between residents and their independence. In particular, only construction materials and training in construction and management techniques will be provided in the hardware projects and the construction work implemented by the farmers themselves will be maximized. DRA and facilitators in charge will continue to follow the capacity building of accounting techniques to improve the operating capacities of MC, mill plants and cereal banks.

4.2.5 Literacy Rate Improvement Plan

Literacy improvement for villagers will be supported to ensure the smooth activity and operation of the Village Terroir Development Committee of each village.

[Action Items]

(1) Meeting halls will be constructed in the villages that have no facilities for literacy classrooms.

(2) NGOs commissioned by DRA (Project Management Office) will provide the training of literacy classroom teachers.

(3) The Village Terroir Development Committee of each village will provide village literacy training by trained teachers from time to time.

4.2.6 DRA Promotion System Reinforcement Plan

The projects described below will be implemented to ensure smooth operation of this Project.

[Action Items]

(1) DRA will set up the Project Management Office in the premises of the DRA office, and one coordinator, one secretary and one driver will be assigned to the office under the control of the DRA director as the office manager. The Project Management Office will be responsible for implementation of the Project and act as the coordinating agency with other governments and NGOs to implement the projects.

(2) DRA will formulate the extension worker training/deployment plan taking into consideration coordination with the PASAOP Project and other projects in order to ensure the smooth facilitation and promotional activities of extension workers.

(3) DRA will tie up with local governments (especially communes) through meetings of the Regional and Communal Implementation Councils.

4.3 Monitoring and Evaluation of Formal Project

The evaluation indices for each Action Plan are shown in Table 4-4. The Regional or Communal Council will monitor and evaluate each Action Plan based on these evaluation indices in the second half-year period and reflect the evaluation results in the next annual plans. Also, DRA together with the Project Office will hold an evaluation meeting once every two years and organize a visit of targeted villages by participants.

Table 4-4 Evaluation Indices for Action Plans

Action Plan	Minor Plan	Target Index
Extension Worker Training Plan		Frequency of brush-up trainings Number of newly-trained extension workers
Development Project Implementation Plan	Residents' Organization Establishment/ Reinforcement Plan	Number of organized CGTV committees Number of established sets of land use rules
	Plan for Capacity-building of Villagers	Number of trained villagers
	Village Development Project Implementation Plan	Number of formulated village development project plans
	Literacy Rate Improvement Plan	Number of village literacy teachers
	DRA Promotion System Reinforcement Plan	Number of meetings of Regional or Communal Implementation Councils
Project/Development Fund Plan	Development Fund Plan	State of implementation of annual fund plans
	Fundraising Plan	Budgeting conditions

4.4 Summary of Formal Project

The action plans included in the A/P have been explained above and their outlines are summarized in the project implementation framework of Figure 4-1. Lessons learnt from the pilot projects in Figure 4-5 and points reflected in the A/P have been arranged in one reference chart in synoptic Table 4-5.

Figure 4-1 Project Implementation Framework

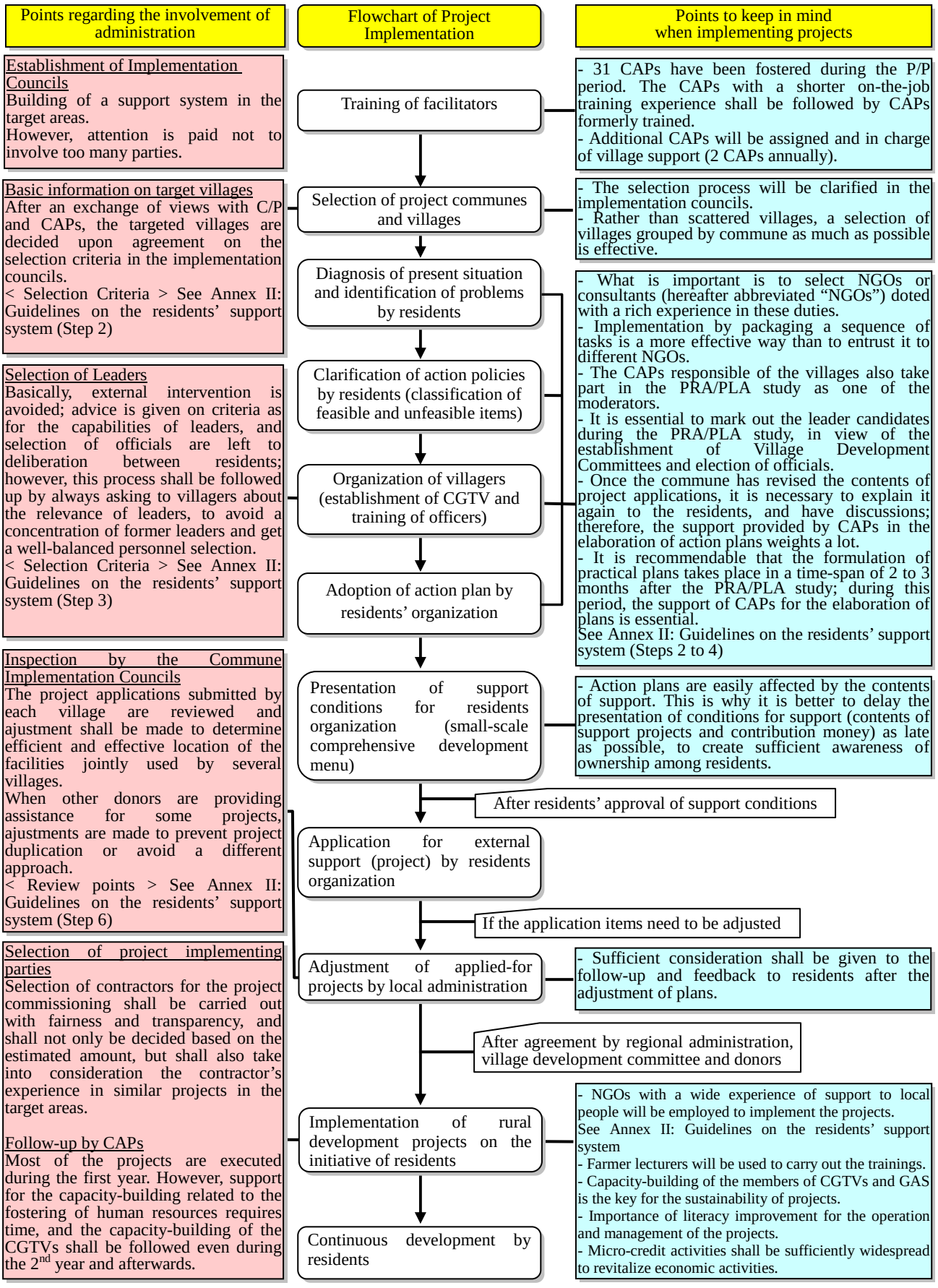


Table 4-5 Lessons learnt from pilot projects and Items reflected in the Action Plan

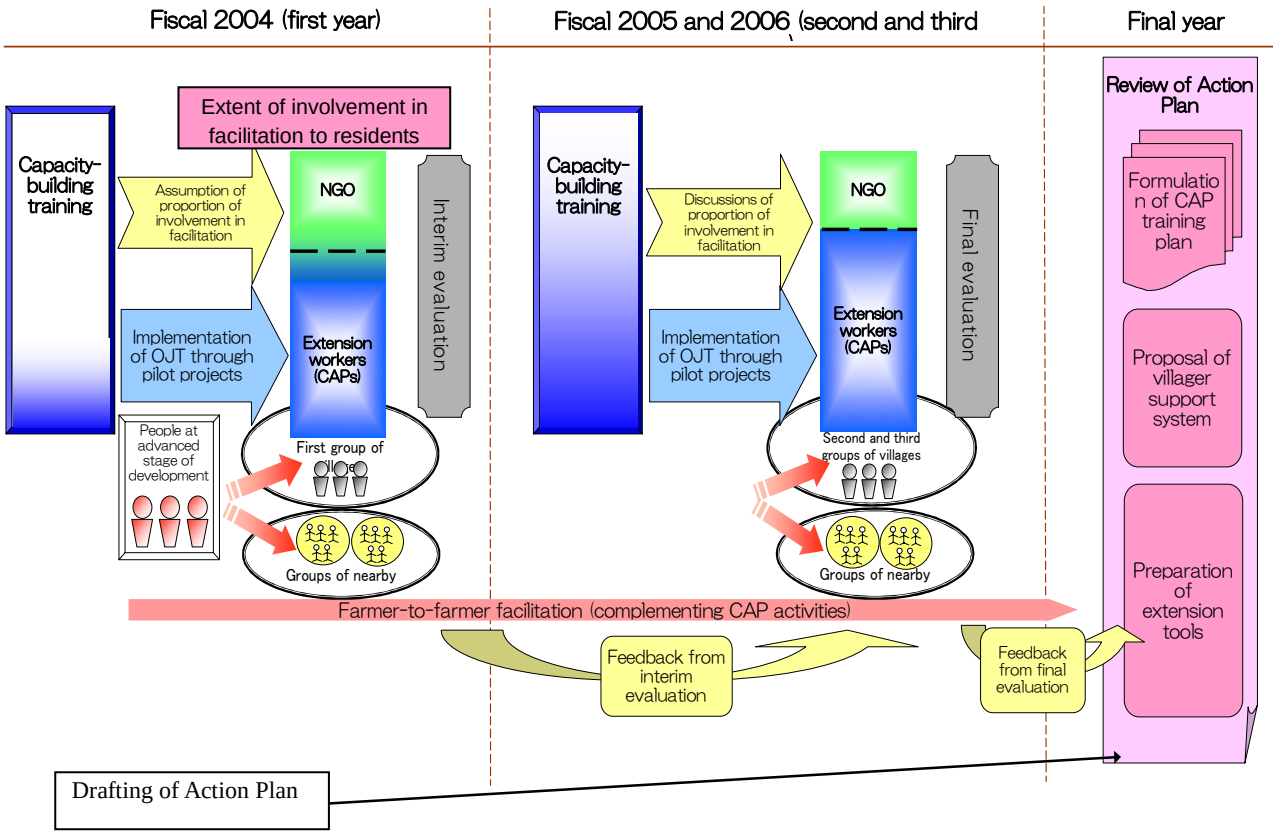
Items	Lessons learnt from pilot projects	Items reflected in the Action Plan
I. Ability Improvement of extension workers (CAPs)	The performance of projects are high in villages where facilitators have been assigned; in order to foster high-quality facilitators: (1) Some CAPs' posts get vacant because of job transfer or retirement ; project implementation shall not go wrong due to such vacancies; (2) CAPs training shall be continued throughout the OJT to raise their awareness (improve their ability in facilitation). Moreover, CAPs shall gain a lot of experience as PRA moderators through on-the-job training, until they really understand the reasons why a PRA study is implemented. Debate sessions with senior CAPs and visits of villages are effective. (3) CAPs are not well-versed in every project, and the support of NGOs is important too.	(1) DRA will plan the training of 2 new CAPs annually to prevent any post vacancy. They will be fostered through a brush-up training and on-the-job under the guidance of the extension workers formerly trained. (2) Three years are believed to be necessary for CAPs to learn how to support and monitor the residents' activities. For this, CAPs of the 2nd and 3rd – years PP execution period will be followed by CAPs of the 1st-year of the Study. (3) Support of NGOs is required for activities related to areas of expertise other than CAPs', namely, projects that deal mainly with constructions (wide-aperture wells, borehole wells, vaccination stations, road and pond improvement, etc.), PRA study, training of leaders and MC managers. DRA will implement these with the help of NGOs.
II. Capacity-building of Villagers ① PRA/PLA study	The motivation of residents to solve problems is stimulated during the PRA. To get valid PRA results, the following is necessary : (1) Moderators shall share the same understanding, prior to the PRA implementation (2) Consideration shall be given to the participation of all residents in the PRA.	(1) A workshop for moderators shall be held prior to the study implementation. (2) The busiest farming season and the period where young men work away from villages will be avoided for the PRA study. Following the PRA study, the timely organizing of villagers, training of residents' leaders and clarification of activity plans are advisable.
② Support for the establishment of CGTVs	With the course of time, projects are steadily carried on and even extended in villages with good CGTVs. To reinforce the residents' organization: (1) prior to the formation of residents' organizations, it is effective to analyze existing organizations in each village, pick up those considered as reorganizable and discuss with residents based on this analysis; (2) Residents shall be well enlightened about the fact that this organization was not formed for dealing with the Project or the support only, but to address village development. (3) As the draft plan is thoroughly forwarded during the PRA, the residents' sense of ownership shall be enhanced. (4) During the formulation of the project plan, attention shall be paid to the frequent changes in residents' opinion. (5) Support for strengthening of organizations after their creation is important.	(1) The procedure for establishment of residents' organization based on the PRA results, which is the previous approach of residents, was added. (2) Residents shall be well enlightened about the fact that this organization was not formed to deal with the Project or the support only, but to address village development. (3) The awareness of ownership is furtherly enhanced through the reconsideration and clarification of the development plan proposed in the A/P with the created CGTVs. (4) When the project plan is formulated, substantial discussions shall take place with residents, since they frequently change their mind. In addition, emphasis shall be put on the formation and capacity reinforcement of residents' organization even if time is required, for its effective functioning. (5) CAPs etc. will provide a regular support for the reinforcement of CGTVs (capacity building of leaders) after their establishment
③ Training of residents' leaders	Project performance is high in villages with good leaders ; the following shall be given consideration for the fostering of good leaders. It is also difficult, however, to foster good leaders through training only. It is necessary to detect candidates during the PRA study and commit to the election of CGTV officials with no external constraint exerted. (1) The place, number of participants and period of the training shall be taken into consideration. In particular, the attendance of women shall be facilitated. (2) Participants attending the leaders training should have abilities in literacy. (3) The training will not be limited to introductory consideration, and deal with practical matters through concrete activities too. (4) CGTVs activities will be followed and supplementary training will be considered, if necessary. (5) A follow-up system shall be devised once the CAPs facilitation will end in villages under their charge.	(1) Collective training will be implemented in a place easily accessible by attendants, and with a suitable attendance (maximum 30 people). Preferable training period will be september- october, when farmers still have time to spare before harvest. For women's attendance, short travel distances and a minimal number of days will be arranged for training. (2) Preliminary literacy education will be held if required. The use of farmers from advanced villages as lecturers is effective. Not only the literacy level is improved, but information can be transmitted from residents of advanced villages to those of villages developed lately. (3) The training content is not limited to introductory explanations and shall include many practical topics such as the formulation of plans through simulated meetings, which can be implemented at once. (4) CAPs follow and evaluate the activities of CGTV officials after their training and a supplementary or a brush-up training will be considered, if necessary. (5) Commune personnel also attends the training of resident leaders, and a follow-up system for the capacity-building is made up with the commune staff, informed of the role of CGTV officials, together with the CAPs.
III. Project implementation method	It was confirmed that residents-centered development projects were smoothly progressing in compliance with the project procedure shown in the Draft A/P. The points of note are as follows: (1) When the conditions for support to residents are presented at an early stage, the action plan tends to adjust to the project menu. (2) The project performance is high in villages of areas where commune has a good grasp of the activities of each CGTV and where a suitable guidance and support is provided through the commune implementation council.	(1) To create sufficient awareness of ownership among the farmers, the conditions for support is presented in the latter half of the concrete formulation of practical action plan. (2) DRA will hold a commune implementation council for the review of the contents of project applications and examine the relevance and consistency of the plans together with the head and the executive personnel of the commune.
IV. Implementation of comprehensive small-scale projects	Activities of each project were executed smoothly and adopted methods for the small-scale comprehensive development projects were relevant. The points to note in particular are as follows: (1) The small-scale comprehensive development projects are of the « participation type by all the residents to absorb the demand from all of them », and the positive effects result from the successful combination of direct benefits and indirect benefits for the residents. (2) Project performance is enhanced by the use of resident farmers in terms of costs as well as activities. (3) Costs are reduced and maintenance and repairing capacities of residents are improved by increasing the portion of construction by the villagers themselves in infrastructure projects. (4) The performance of the microcredit project is linked with that of other projects on the whole. Besides, though important collapse has not been observed yet, we found some villages with deficient capacities in the operating of MC, milling plant and cereal banks, which require accounting and management techniques.	(1) In demonstrating the effects of the projects, DRA will give consideration to the participation of all residents and implement almost all the component projects simultaneously on an integrated base so they yield a synergetic effect of all the component projects. (2) The use of resident lecturers in the implementation of projects reduces project costs and at the same time promotes communication between villagers and encourages their autonomy. (3) Hardware projects consist only in provision of materials and technical trainings in construction and management, and promote construction by villagers themselves. (4) DRA and facilitators in charge continue a follow-up of accounting and management techniques for the capacity reinforcement.

PILOT PROJECTS

CHAPTER 5 Results of the implementation of pilot projects

Figure 5-1 shows the flow chart of the entire study (including the flow of work in each fiscal year). Pilot projects (PPs) were implemented as test cases for part of the Action Plan to evaluate its validity in the project. The PPs included capacity-building training to train extension workers and were implemented in 47 villages, corresponding to nearly 10% of the total of 520 villages, in the study area in the first three years. In the fourth year, all the PPs were evaluated and the results of the evaluation were used in preparation of the final Action Plan.

Figure 5-1 Flow of study by fiscal year



5.1 Items to be verified in the project

Desertification is mainly caused by exploitation of resources by people. Population growth and poverty force people to exploit resources beyond their regenerative capacities, which leads to desertification. People themselves create the causes of desertification, and the progress of desertification has an additional negative effect on their lives. Prevention of desertification will not be sustainable unless people themselves have a keen awareness of the above-mentioned facts and the will to take part in desertification prevention projects through village development. The above-mentioned observation led us to choose the “possibility of development of self-reliant villages” as the focal verification item of the PPs. In practice, the following are the items that we intended to

verify and elucidate.

(1) Validity of small-scale comprehensive development methodology
(2) Possibility of training extension workers (CAPs : conseillers agricoles polyvalents) as the facilitators of the projects
(3) Possibility of people-to-people technology and methodology transfers in small-scale comprehensive development projects
(4) Limit of reduction in the amount of project investment
(5) Analysis of the factors affecting the "self-reliant development prospects" of the projects

Of the above-mentioned, (1) "validity of small-scale comprehensive development methodology" was, to a certain extent, verified in the Phase-1 Study. Therefore, in the PPs in this study, we placed emphasis on verification of items (2) to (5), in addition to an attempt to revise and improve the small-scale comprehensive development methodology tested in the Phase-1 Study.

5.2 Progress of implementation

5.2.1 Summary of progress

The PPs are part of the Action Plan implemented on a trial basis. The implementation process is shown in Figure 3-2 in Chapter 3.

- In the first year of the study (Fiscal 2004), we trained 10 extension workers (CAPs) and implemented pilot (small-scale comprehensive development) projects in 12 villages using the trained CAPs as the facilitators.
- In the second year (Fiscal 2005), we trained 17 CAPs and implemented projects in 20 villages.
- In the third year (Fiscal 2006), we trained 15 CAPs and implemented projects in 15 villages.

Table 5-1 shows a summary of the details of the activities and the implementation period by project stage in each of the first three years of the study. In the fourth year (final year, Fiscal 2007), we made a final evaluation of the projects implemented in a total of 59 villages, including the 12 villages in which the verification projects had been implemented in the Phase 1 Study, and used the results of the evaluation to finalize the Action Plan.

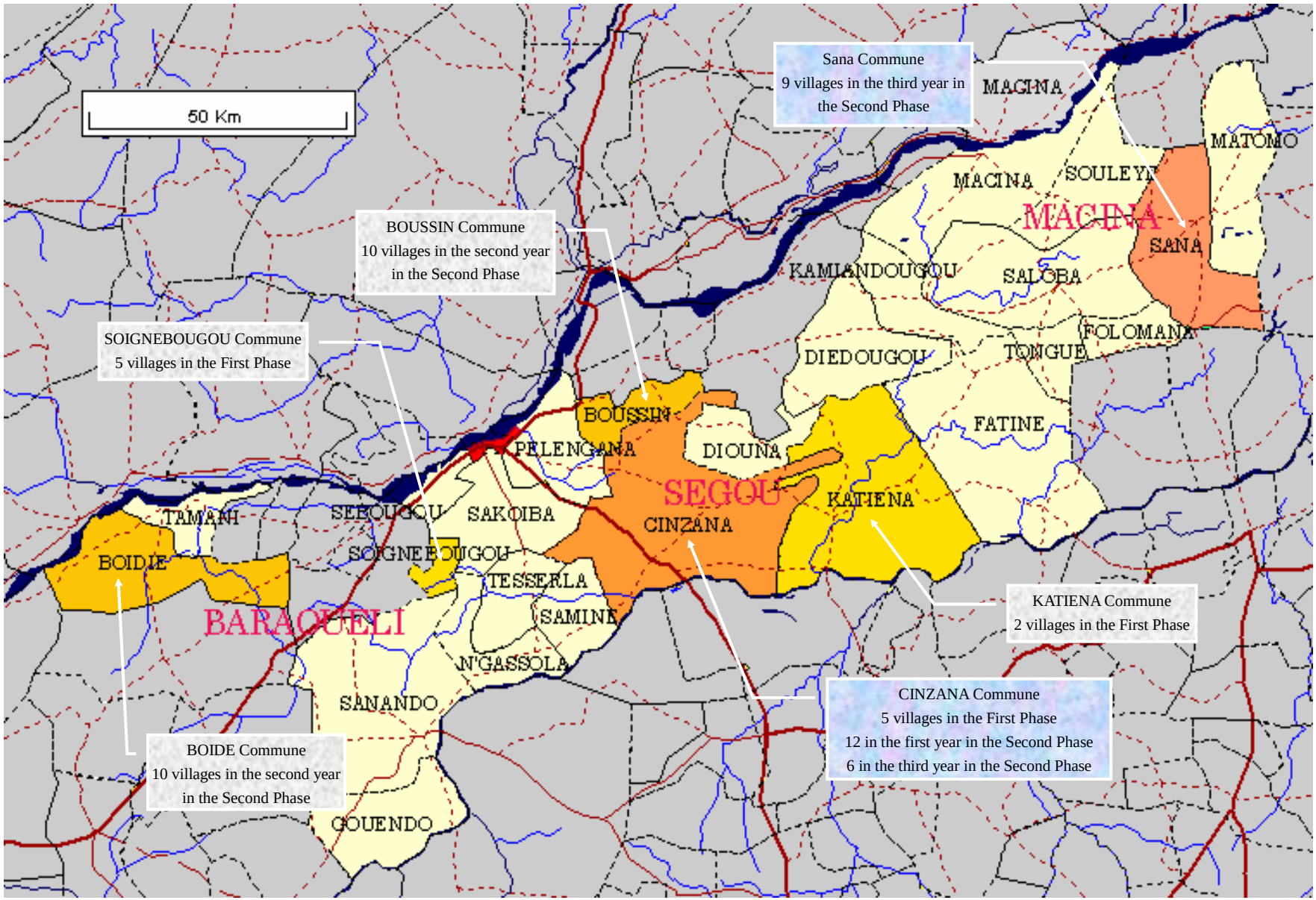
Table 5-1 Details of activities and implementation period by stage of pilot projects (for each year)

Stage of project	Details of activities	Implementation period/Remarks
(1) Project site selection	・ Baseline survey ・ Consultation with relevant administrative bodies and selection	June each year
(2) Selection of CAPs to be trained	・ Consultation with administrative bodies and selection	June
(3) Implementation of "facilitation capacity-building training" for CAPs	・ Formulation of training plan ・ Commissioned to local consultant	June July – August
(4) Implementation of participatory rural appraisal (PRA)	・ Commissioned to local consultant ・ (Participation of CAPs who had received previous training as moderators) ・ Clarification of policy on people's activities	September
(5) Support for formation of resident organizations/ formulation of practical project plans	・ Visit to advanced areas by candidates for executives of organizations ・ Establishment of rules of organizations, selection of executives and registration of establishment of organizations to administration ・ Preparation of practical project plan for each village ・ Presentation of external support criteria by study team (to resident organizations) ・ Application for external support (projects) by resident organizations ・ Implementation of capacity-building training for executives of organizations	October November – December November November - December
(6) Adjustment of project details by local administration	・ Adjustment of details of applied projects among villages by commune ・ Finalization of project plans for fiscal year ・ Conclusion of "Agreement on role-sharing in project implementation" among communes, resident organizations and external benefactors.	November December
(7) Project implementation/ monitoring and evaluation	・ Project implementation in each village by commissioning to specialists (partly to administrative bodies) ・ Voluntary expansion of projects by villagers ・ Voluntary inspection of projects by residents of nearby villages ・ Project monitoring and evaluation	January - March After launch of projects

5.2.2 Selection of project sites

The study area consists of three cercles, 25 communes and 520 villages. The population of the agricultural villages in the area, excluding the communes, is approximately 360,000. We selected sites that "well represent the study area" for implementation of the pilot projects. The following selection criteria were established in consultation with the counterpart organization. Figure 5-2, Table 5-2 and Attachment I-5 show the location of each commune, the characteristics of the selected communes and the results of the baseline survey of each village, respectively.

Figure 5-2 Locations of the villages in which PPs were implemented



<Area/village selection criteria >

(1) The direction of decentralization is to be taken into consideration and attention is to be paid to coherence at commune level from the viewpoint of facilitation of participation in the projects and capacity building of the administration at the lowest level.

(2) Groups of agricultural villages which have actual inter-terroir relations in their lives and activities, in addition to coherence at commune level, were selected. → Desertification prevention measures are ultimately the "implementation of appropriate land use at community level." From this viewpoint, emphasis is to be placed on grouping among the target villages.

(3) When grouping target villages, attention must be paid to variations in the size of the population, ease of access to markets and social services, and the tribal composition of the villages in order to maintain the variety that the pilot projects are required to have.

(4) Target communes/villages are to be selected from the three areas, the western, central and eastern areas, in a well-balanced manner.

(5) Villages located at sites that are not extremely difficult to access from the administrative base (in Ségou City) are to be selected. Their locations are to be reasonably arranged from the viewpoint of the efficiency of the study.

(6) A well-balanced number of villages is to be selected from the three cercles, taking into consideration the number of CAPs currently assigned to them and the number of villages in the study area.

(7) Meanwhile, in one of the three cercles in this study, Ségou Cercle, there are villages in which verification projects were implemented in the First Phase Study. As this study includes implementation of pilot projects by the "village-to-village method (least-developed villages learning from developed villages)," villages around appropriately developed villages are to be included in the study.

Table 5-2 Characteristics of the selected communes

Cercle/ Number of villages	Commune name	Number of selected villages	Target population	Distance from Ségou	Area classification and characteristics
Baraoueli/ 106	Boidie	10	6,200	100km	In west, adjacent to River Niger (rich in water resources)
Macina/ 134	Sana	9	9,300	150km	In east, a remote area, disadvantageous place
Ségou/280	Cinzana	18	10,000	50km	In central area, in suburbs, a lot of experience in receiving assistance
	Boussin	10	4,100	50km	In central area, in intermediate zone, little experience in receiving aid.
Total/ 520	4	47	29,600		

5.2.3 Selection of Community Workers (CAPs)

We selected the CAPs to be trained in this study in consultation with DRA, the administrative body with the main responsibility for CAPs. At the beginning, it was considered ideal to use agricultural

instructors (Conseillers Polyvalents) currently assigned to the communes (as they are closest to the residents of the agricultural villages). However, as it turned out that their total number in the entire Ségou region had been halved to little more than 30 in the last five years, CAPs were also selected from among the specialized agricultural advisors (CAS, Conseillers Agricoles Spécialisés) assigned at cercle level and the staff members of the ten extension service centers (CAR, Centres d'Animation Rurale) in the Ségou region. Table 5-3 shows the number of selected CAPs by study year and cercle. All 42 selected CAPs have completed the "facilitation capacity-building training" and, after completion, each has completed "participation in pilot project(s) through OJT (on-the-job) training" in one or two villages under his/her charge. However, as four of them were relieved of duty in the pilot projects because of transfer or resignation by the end of the study, the total number of CAPs trained in this study was 38 in the end. Detailed baseline information on the CAPs before joining the projects is given in Attachment I-7.

Table 5-3 Summary of CAP selection

Cercle/ Number of CAPs	Commune / Number of CAPs	First fiscal year	Second fiscal year	Third fiscal year	Number of CAPs at end of study: (reason for reduction in number)
Baraoueli/9	Boidie/9		9		7 (reduction by two: transfer)
Macina/9	Sana/9			9	8 (reduction by one: transfer)
Ségou/24	Cinzana/16	10		6	16
	Boussin/8		8		7 (reduction by one: resignation)
Total/42		10	17	15	38

5.2.4 Facilitation Capacity-building Training

(1) Training implementation method

When implementing the facilitation capacity-building training for the selected CAPs, the "problems in extension work in rural development" encountered so far and "problems at administration level," in particular, were identified in the workshop at the beginning of the training on the basis of the outcome of the Phase 1 Study. Facilitators play an extremely significant role in people-driven community development as they encourage awareness of developmental activities among people who do not necessarily have a high standard of basic education and they support their activities indirectly. However, the working CAPs do not have sufficient facilitation capacity.

Moreover, under local conditions in which government officials and experts have a discriminatory attitude toward rural people [4], how to build the facilitation capacity of the CAPs is a problem. These two emerged as the main problems in this process. Table 5-4 shows the problems that were identified in the workshop.

[4] The discriminatory attitude of local government officials and experts toward people in rural areas was recognized during the process of the Phase 1 Study. Although many of them were born and raised in rural villages, they have the strong impression that "uneducated people should follow the instructions given by experts." This impression often hindered the progress of the Phase 1 Study which listed "facilitation of people's self-reliance" as the basic policy. For example, one facilitator assigned to a village was accused by the villagers, who said "the local liaison officer uses commands. He/She reminds us of the officials in the French colonial era, whenever we see him/her." The progress of the verification project in this area was slower than in the other areas. In addition, when we invited the relevant officials and the residents to a workshop to prepare regulations on land use, we saw many occasions in which a unilateral declaration presented by the officials, such as "When forest user fees are collected, part must be paid to the government" and "This article in the regulations should be such and such," undermined the will of the people to prepare regulations.

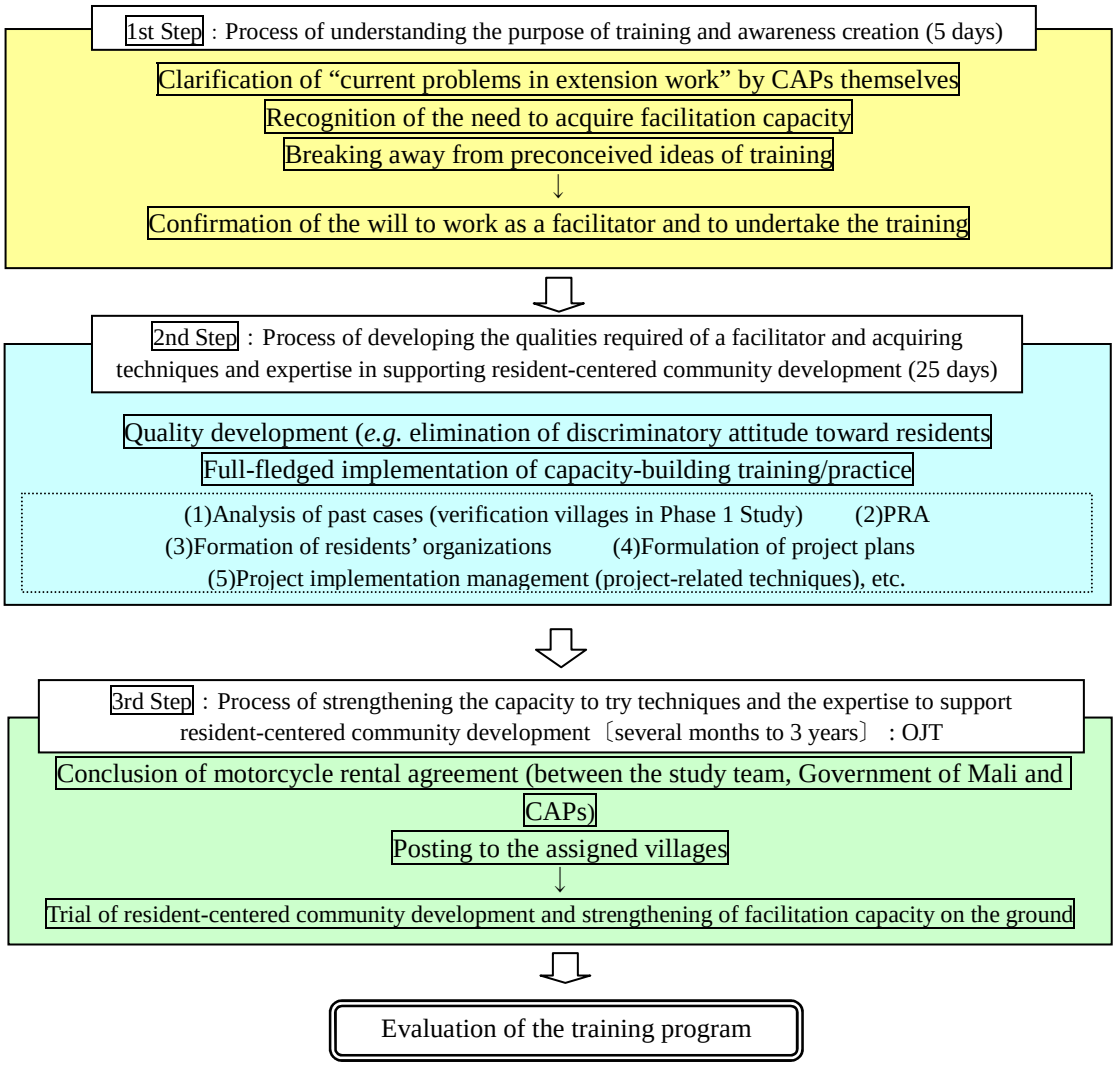
Table 5-4 Problems in CAP facilitation capacity development

Problem	Summary
(1) Training given in a top-down fashion to trainees with insufficient awareness of the necessity of acquiring facilitation capacity	Facilitation capacity is a technology acquired through accumulation of practical experience in contact with local residents, unlike technologies which can be presented in clearly written manuals such as grafting of seedlings. It is a method for communication and negotiation with people. The nature of the methodology makes it difficult to describe all the case scenarios in a manual. As facilitators have a lot of experience in instructing and contact with people, people often pretend to understand the facilitators' instructions and obediently follow them. Thus, facilitators tend to have the impression that they "have sufficient capacity to instruct people." No impact is expected from capacity building activities if the training is given in a top-down fashion to the facilitators with no consciousness of the problem of "what capacity do I lack and what do I need to acquire?" and with insufficient recognition of the importance of facilitation.
(2) Experience in past projects obstructs understanding of 'the significance and necessity of facilitation'	The influence of projects implemented by donors in the past is a major factor in preventing facilitators from recognizing the necessity of facilitation. Even in the past, projects were implemented on the principle of community participation. However, in reality, project plans and actual activities were predetermined by those who brought projects to people within budgetary and time limitations, and people took part in projects within the predetermined project framework. In order to realize 'people-driven rural development,' it is necessary to nurture 'activities initiated by people themselves' as far as possible, instead of imposing 'activities brought from outside." Therefore, the awareness ("what is people-driven development?") of the facilitators, who are accustomed to the conventional community support approach which "assumes external implementation/restriction of projects," must be changed.
(3) Insufficient motivation to take part in training	The general tendency is to consider an opportunity for capacity building such as a training course as a "reward for achievement at work." In many training courses organized by aid agencies, a certain training allowance (including travel, accommodation and daily allowances) is provided to trainees. There is a strong tendency for participants to be more interested in the allowance than mastering the contents of the training course. Moreover, as facilitation capacity is a new concept for the trainees and a very abstract concept, such as "making contact with people with such and such an attitude and encouraging consciousness and the will for such and such," trainees have difficulty imagining how they can use it after the training and what outcome they can expect as a result. Therefore, it is difficult to enhance their motivation. In addition, there is an absolute shortage of transportation means (motorcycles, fuel, etc.) for the facilitators to visit the villages under their charge. This situation has led to a lack of motivation as it is difficult for them to imagine implementing facilitation activities in addition to the current technical extension activities.
(4) 'Tradition' of officials and experts obstructs establishment of facilitation capacity	Traditionally, government officials and experts in Mali often have a "discriminatory attitude toward people in rural areas." If a facilitator has the same discriminatory attitude, "facilitation capacity building" faces an obstacle at the very beginning. Facilitating requires a relationship of trust between facilitators and people as a precondition. People in rural areas are cautious and do not open their minds to outsiders easily. In this situation, the existence of a discriminatory attitude becomes a major impediment.
(5) Shortage of capable	There have been a few cases of successful facilitation implemented by international aid agencies and NGOs here and there in Mali. However, the

lecturers	absolute number of such cases is small. As the number of people with sufficient experience in facilitation is small, there is an acute shortage of capable lecturers who can transfer the facilitation capacity to others.

To overcome the problems summarized in the table above, a training program was designed. As shown in Figure 5-3, the training program consists of three capacity-building steps. The concept behind setting the steps and the basic concept of training program implementation at each step are shown in Table 5-5.

Figure 5-3 Established steps of the training program



The actual curriculum in the first and second stages (a total of 30 days) of the training program is shown in Table 5-6. Table 5-7 shows the points requiring special consideration in lectures on major subjects.

Table 5-5 Basic concept of training program implementation

<Basic concept of the program>

Capacity building in three steps, breaking away from preconceived ideas and emphasis on OJT

First Step: Aimed at recognition of the need for facilitation and breaking away from preconceived ideas of training

Second Step: Human quality development as a facilitator and implementation of full-fledged training and practice in technical guidance in facilitation and in the implementation of small-scale comprehensive projects required for community development.

Third Step: Aimed at strengthening the capacities learned and acquired thus far by involvement in actual pilot projects as CAPs in charge of assigned villages

<Special consideration during program implementation>

To respect the initiative and pride of the trainees

1) **First Step of the Training**

①The conditions for participation, content of the training and overall schedule are explained to the trainees (CAPs) in the presence of the representatives of DRA and DRGR, which jointly supervise AACAER extension workers. After the explanation, all the trainees are requested to fill in a questionnaire (on their will to participate in the training, their view of dialog with the residents, their will to work as a facilitator, etc.). Their responses to the questionnaire are used in evaluation and discussion of improvement of the training techniques after completion of the training as the baseline data of the trainees.

②The trainees are made to realize residents' needs, the role of community development and the impact of facilitation through inspection of residents' activities in the verification villages in the Phase 1 Study and discussion with the residents. They are also made to summarize the tasks of facilitators through PCM-type discussion with the facilitators of the Phase 1 Study. For these activities, lectures, site visits and PCM are combined appropriately in the training.

③The first step of the training is primarily aimed at enabling the CAPs to break away from preconceived concepts of training. At this stage, attention must be paid to not injuring their pride. The people of the Ségou region are proud people, derived from their history in which the oldest kingdom in Africa was situated in this region. In addition, as the society in the region is composed of people who have known each other for a relatively long time, they abhor "being humiliated." In such a society, instead of pointing out existing problems regarding "insufficient motivation for training," we propose adoption of the following method as a new training system in this study.

* To make sure that the CAPs understand that they themselves have the ultimate right to decide whether to undertake the training or not (The intention is to let them have a clear sense of purpose and responsibility by taking the training by their own choice.)
* To let them know that they will be at no disadvantage at all if they decide not to take the training
* To let them know that taking the training will give them obligations and rights

Obligations: After completing the training, they have to endeavor to strengthen their facilitation capacity through OJT by being involved in implementation of pilot projects as CAPs of assigned villages, to submit reports at the end of each segment of the training and to have their capacity as facilitators evaluated by the study team and supervisory administrative organizations on a regular basis.

Rights: The trainees are entitled to a training allowance of 2000Fcfa per day. They are also entitled to a travel allowance of the same amount when they visit villages for facilitation purposes. If no motorcycle is available for transport, the study team will lend motorcycles to the CAPs with an allowance.

2) **Second Step of the Training**

①If the CAPs are considered to have a discriminatory attitude toward rural residents, elimination of such an attitude is attempted at the beginning of the second step (full-fledged training). In the verification projects in the Phase 1 Study, establishment of a relationship of trust between the CAPs and residents progressed with few problems and the subsequent facilitation was successful at some sites, while neither the establishment of a relationship of trust nor facilitation went so well at other

sites. Trainees are made to recognize "the necessity of eliminating their discriminatory attitude" by comparing these two groups of sites through site visits and discussion with the residents at these sites.

②The outcome of facilitation depends heavily on the qualities of the facilitators and impacts resident-centered community development. Development of the character qualities required by facilitators is promoted while maintaining dialog and communication between lecturers, residents and CAPs at every stage in the second step of the training.

③As many people as possible who experienced success in the Phase 1 Study are used as lecturers in the training. In practice, they are former facilitators who took charge of villages which implemented projects successfully, counterparts engaged in the Phase 1 Study and practitioners from local NGOs and consultants to whom PRA and support for formation of residents' organizations were commissioned. As they have a clear image of successful project implementation, their lectures are expected to carry more weight and be more realistic to the trainees.

④Each class is composed of around ten trainees. The use of training methods based on problem detection and solution (all-participatory-workshop-type) centered on discussion among the training participants is effective in the second step which is aimed at facilitation capacity building. The ideal number of participants for this type of workshop is around ten. With more participants in a class, the emergence of "bystanders to the discussion" becomes inevitable. The emergence of bystanders might compromise the effectiveness of the training.

⑤At the completion of the second step, evaluation of the CAPs (trainees) is conducted as described below.

Summary of trainee evaluation

Evaluator	Person(s) in charge at DRAMR, counterpart(s), study team members and training advisors
Evaluation items	<Capacity> Knowledge, techniques, skills, information gathering, application capacity, designing and planning capacity
	<Will> Sense of responsibility, attitude toward coordination and cooperation, initiative
Evaluation materials	Oral presentation and attitude toward assignments during the workshops, results of inquiry into understanding of lectures, trainees' reports.

3) **Third Step of the Training (Capacity building through OJT)**

At this step, the trainees are deeply involved in pilot projects and try to improve the capacities they have acquired up to the second step through the process of being involved in a series of resident-support activities (PRA implementation → formation of residents' organizations → preparation of practical project plans → implementation, operation and management of projects → expansion and promotion of project activities).

Table 5-6 Curriculum of capacity-building training

	Day	Day of week	Lecture		Practice at site	Lecturer
			Subject of lecture	Details of lecture		
First Week	1	Mon	Briefing on entire training			S,C
	2	Tue	Analysis of advanced sites		○	S,C
	3	Wed	Analysis of advanced sites		○	S,C
	4	Thu	Summarization of current problems in extension work			S,C
	5	Fri	Examination of measures to deal with extension problems			S,C
	6	Mon	Basic attitude toward extension activities and presentation of conditions for training <Implementation of following full-fledged training for those willing to take part>			S、C
Second Week	7	Tue	Support for organization formation	Establishment of CGTV, preparation of action plans and leadership training		S,C
	8	Wed	Support for organization formation	Methods of using resident-approach and videos, inspecting advanced areas and promoting projects		S,C
	9	Thu	Lectures on PRA (3 days)	Overview, matrix classification, analysis of seasonal labor conditions and preparation of resource maps		C
	10	Fri	〃	Review of resource deterioration, preparation of social and traverse maps and analysis of production cycles		C
Third Week	11	Mon	〃	Preparation of organizational relationship diagrams and external flow diagrams and analysis of daily labor and priority of countermeasures		C
	12	Tue	Practical training on PRA (6 days)	Practical training while staying in model village	○	S,C
	13	Wed	〃		○	S,C
	14	Thu	〃		○	S,C
	15	Fri	〃		○	S,C
	16	Sat	〃		○	S,C
	17	Sun	〃		○	S,C
ForthWeek	18	Wed	Microcredit 1	Collection of contribution money		C
	19	Thu	Microcredit 2	Accounting		C
	20	Fri	Microcredit 3	Management		C
Fifth Week	21	Mon	Study at advanced areas 1	Overall project	○	S,C
	22	Tue	Study at advanced areas 2	Discussion with residents	○	S,C
	23	Wed	Discussion with former facilitators	Issues requiring special consideration when implementing support for organization formation, PRA surveys and microcredit activities		S,C
	24	Thu	Technical training	Soil conservation, extension of improved ovens, vegetable cultivation, handicrafts and livelihood improvement		C
	25	Fri	Technical training	Rules of land use, nurseries and reforestation		C
Sixth Week	26	Mon	Technical training	Cereal banks, grinding mills and improved hen houses		C
	27	Tue	Technical training	Livestock fattening, vaccination stations and infrastructure maintenance and repair technology		C
	28	Wed	Study at advanced areas 3	On technology	○	S,C
	29	Thu	Study at advanced areas 4	On technology	○	S,C
	30	Fri	Overall review and free discussion			C

(note)

1. Training venue : Lectures – at a venue in Ségou Commune, Practice – at the sites
2. Lecture hours : Whole day (two 80-minute lectures per subject), Practice – whole day
3. Training period : Training period – 40 days, lectures conducted for 30 days (34 days in the classroom and 11 days at the sites)
4. 'Lecturer' column: 'S' indicates a lecture given by the study team members, local staff or counterparts (mainly to explain the achievements andexperience of the Phase 1 Study).
   'C' indicates a lecture commissioned to a consultant (explanation of relatively sophisticated technical areas).

Table 5-7 Issues requiring special consideration when implementing lectures on major subjects

Subject	Issues requiring consideration
Overall	✓ Lecturers should not only use textbooks and explain what is written in them, but also endeavor to establish dialog and discussion with trainees by introducing their experiences in past cases of success and failure and problem solution. ✓ Depending on the venue and conditions of training implementation, initiatives such as use of AV equipment in addition to writing on the blackboard are required. New ideas such as flow charts and explanatory diagrams are also incorporated in the textbooks. ✓ Trainees will gain a better understanding of what they are taught in the classroom through inspection of sites that are advanced in different fields (verification villages in Phase 1 and village groups in the first and second years) and discussion with residents at the advanced sites. ✓ The training is to incorporate, at any appropriate time, discussion with local coordinators involved in the Phase 1 verification study and explanation by those involved in the projects on their experience of activities, problems encountered in the work and measures for solving these problems.
Attitude of the facilitator	✓ Emphasis is to be placed on making the trainees recognize by themselves the difference between the 'ideal' facilitator and the current status of CAPs ('reality').
PRA training	Lecture: The ultimate goal of PRA is to create "thinking residents" and to encourage these residents to tackle problems. Without adhering strictly to the formality of PRA, the training is to focus on conveying its essence to the trainees by simplifying the activities in each particular PRA (*i.e.* preparation of resource and social maps) as much as possible. Practice: The procedure of animation communication is to be taught in combination with practice of PRA/PLA techniques while practicing PRA in a model case in an actual village.
Technique of organization formation support	✓ Emphasis is to be placed on the point that a facilitator has to understand the background and characteristics of each village and respect the initiatives of the residents (in such a way as to make use of the characteristics) in organization formation. ✓ The problems of existing organizations revealed by PRA are to be analyzed and the results of the analysis are to be used as basic information for the establishment of new organizations or reorganization of existing ones.
Technique of microcredit operation support	✓ When teaching the actual mechanism of microcredit (operation by contributions collected from residents as seed money), emphasis is to be placed on the points to be monitored to ensure its sound operation. ✓ Sustainable operation of microcredit determines the sustainability of developmental activities. However, considering the fact that the trainees' normal duties have little to do with microcredit, a simple and clear explanation starting with the basics of financing is to be given to the trainees.
Technical training in general	✓ Emphasis is to be placed on the fact that it is important not only to transfer and teach technology, but also to make the residents recognize the importance of projects and the technology required for them. ✓ Emphasis is on the issues required for CAPs in supporting implementation of PPs and the follow-up after implementation. ✓ While taking gender-related aspects into consideration, the importance of women-centered projects and the technical support required for such projects is to be stressed. ✓ The residents have great interest in food security and income-generating activities. The importance of cereal banks is to be stressed and their operation and management (rules, accounting, etc.) is to be taught. ✓ The importance of compost-making is to be stressed in the agricultural technology training. Visits to exemplary farmers are to be included in the training to promote use of compost through farmer-to-farmer technology transfer.

The participatory training method (which consists of dialog between lecturers and trainees and among trainees) is the primary method used in the training. As mentioned above, after having grasped "what training is" in the first week, candidate trainees decided whether or not they wished to continue taking the second step of the training on the first day of the second week. As a result, all 42 candidate CAPs opted to continue the training from the first step to the second and later steps in the three-year period.

(2) Lessons learned

The lessons learned from the results of implementation of the training by the above-mentioned method are as follows:

1) Difficulty in changing trainees' concept of conventional 'training'

We spent a significant amount of time and energy making the trainees understand that this training was not simply for technology extension, but was intended to develop facilitation capacity (to facilitate the process of enhancing farmers' will and making them act as 'thinking farmers'). In the beginning, the trainees (in fact, not only the trainees, but also the staff of DRA and the local consultants to whom this training was commissioned) had the strong impression that "extension of new agricultural technology to residents is the most important thing" from their experience of taking part in training and being engaged in work, and they had the strong preconception that "this training is probably for the same purpose." We endeavored to change the trainees' concept by repeatedly explaining that "this training does not emphasize the importance of extension of agricultural technology, but the acquisition of techniques to facilitate a change in residents' awareness." We observed that what contributed most to change in the trainees' concept was the introduction of successful cases (road to success) by visiting the verification villages in the Phase 1 Study. Change in concept requires continuous training through OJT.

2) Difficulties in PRA training

Implementation of PRA which provides the first contact with residents in resident-centered community development is an important activity for later facilitation activities. In this training, in addition to the conventional concept of PRA, we aimed to emphasize the concept of PLA (participatory learning and action). We wanted trainees to master not only the techniques to make residents analyze existing conditions and clearly identify problems, but also to foment the will to solve the problems, design countermeasures and clearly identify "what the residents can and cannot do by themselves in the implementation of countermeasures" in the curriculum. However, partly because of the lack of capacity of the local consultant lecturers who were commissioned by Local Recommission, the actual lectures tended to be on conventional PRA methodology (analysis of current conditions) and, thus, they did not adequately achieve the outcome that the study team had intended. However, as the years went by, the lecturers improved their understanding of the aims of the study team and started giving lectures accordingly. However, they tended to focus on filling in each of the various PRA tools (*i.e.* charts and tables) at the sites where the trainees practiced PRA and, thus, remained at this level.

They require more practice as PRA moderators through OJT to reach the level of truly understanding "what PRA implementation is for" in order to master PRA techniques to the extent originally intended by the study team.

3) Effectiveness of discussion with former CAPs

"Discussion with former facilitators" was organized in the second and third years of the study. Former CAPs (one or two representatives from different CAP groups) presented their experiences and held discussions with the trainees based on their experiences. As this discussion involved transfer of experience from those in the same environment (in terms of workplace and career), the trainees seemed to take the stories of the former CAPs more seriously than the lectures given by the lecturers and discussion became more lively and without reserve. We observed that the discussion enhanced the trainees' motivation for learning.

BOX: Example of a topic in the discussions with former CAPs

- The CGTV (a newly established residents' organization) in Fakola Village, Boussin Commune, democratically selected a site to establish a vegetable field and, in accordance with custom, went to the village chief for permission to use the land.
- However, the village chief rejected the request of the CGTV saying, "As this land was once cultivated by me, I will not give permission to use it as a communal vegetable field."
- The CGTV repeatedly appealed to the chief for permission, telling him that the communal vegetable field would contribute to the development of the village and benefit women and the society. The chief firmly rejected the request and pushed ahead with farming the land concerned himself.
- Then, all the residents held a meeting and resolved that "the village chief should be replaced" on the basis of his attitude, lack of contribution to the village and other behavior. Subsequently, they replaced him with a well-trusted person. The new chief belonged to a clan closely related to that of the former chief.
- The CGTV consulted with the commune over this resolution. The commune acknowledged the development and considered the action taken by the CGTV acceptable judging from the past conduct of the former chief. The commune declared its support for the resolution of the residents of Fakola Village in this case.
- At present, no conflict has been observed in the village caused by the replacement of the chief and the new chief has governed the village without problem since his inauguration four months ago.
- None of those associated with the study team including the CAPs was involved in the decision-making by the residents. It was purely a resolution autonomously made by the residents.
- Until this event, it was unthinkable for the residents to propose and succeed in replacing the chief as, in this Bambara society, the post was considered almost as a life-time honorary post occupied by a descendant of a founding member of the village. This case can be seen as evidence not only of the organizational development of the CGTV, but also that a more democratic decision-making mechanism is taking root in the village with the development of the CGTV.
- From this episode, the trainees seemed to feel that 'our village society is in the process of gradual reform with the establishment of new organizations' and were surprised.

4) Tendencies of the trainees when learning

We observed the following tendencies among the trainees throughout the training.

- Trainees did not do preparatory or revisionary study of the distributed textbooks and other teaching materials.

  We distributed a large number of textbooks to the trainees before the lectures and recommended

them to read them (as preparatory and revisionary study). However, almost none of them actually did so. It is unrealistic to expect them to study (or read) the textbooks which contain many words by themselves outside the lecture room. In other words, everything to be taught must be taught by the lecturers during the lectures.

- Active participation in discussion and dialog

  Training through discussion and dialog was more effective than lectures unilaterally given by lecturers. Trainees often became engrossed in such discussion and dialog and continued voluntarily after the scheduled study time had expired.

- Effectiveness of inspection of villages

  Training through inspection of advanced villages and discussion with the residents in the villages was effective as such training drew the trainees' interest. Comparison between a village in which a project had been implemented successfully and another in which it had not and, more specifically, realization of the difference in perception and thinking of the residents between the two villages through dialog with them were effective in realizing the importance of facilitation.

(3) Evaluation of trainees

We monitored and evaluated the trainees mainly on their attitude toward learning. The behavior of the trainees was evaluated according to five items, "active participation," "appropriateness of questions," "enthusiasm and attitude," "originality of opinions" and "capacity for coordination and cooperation with others." A five-grade system was used in the evaluation. In addition, the degree of the trainees' understanding of the training was evaluated by a written examination on the last day. The trainees themselves evaluated the lecture programs and the content of the lectures (and lecturers). The results of the evaluation are described in "6.3 Evaluation of CAPs" in Chapter 6 together with the evaluation by OJT.

BOX: Results of the questionnaire on the training program to CAPs

The results of the questionnaire to the trainees in the second year revealed that they had a high opinion of eight of the 21 curricula. "PRA Theory and Practice" received especially high marks with almost all the trainees appreciating it. This was followed by microcredit, formation of residents' organizations, mini-nurseries, analysis of advanced sites, analysis of problems in extension and reforestation. On the other hand, the curricula which were given low marks were livestock nutrition blocks, handicrafts (both of which were commended by only three participants), literacy education, improved hen houses, vaccination stations, grinding mills (all four of which were commended by only two participants), development of wells, vegetable fields, cereal banks and improved ovens (all of which were commended by only one participant).

<Discussion of the results of the questionnaire to the CAPs>

The evaluation of the curricula depends on the quality of the lecturers, the areas of knowledge of the trainees, the problems that trainees face in their work and personal interest. The trainees seem to have given good marks to certain curricula because the lecturer had good teaching skills or they considered the acquisition of the information given to them in the lectures, which were outside of the scope of their work in the past or their knowledge, useful for promotion and evaluation of their work. On the other hand, they gave low marks to the curricula in subjects which they considered 'matters of common knowledge' (livestock-related curricula and vegetable fields, in particular), stating that "the purpose of the curricula and the explanation of the lecturers were incomprehensible" (literacy education, cereal banks, etc.) and that "the contents of the curricula have no relevance to their own work (handicrafts, well development, etc)."

5.2.5 Implementation of PRA

Resident-centered community development requires awakening and fomentation of residents' 'will' and 'creation of awareness' of development-impeding factors. To meet these requirements, we adopted the PRA/PLA (MARP in French) method as the first approach to residents.

(1) Details of implementation

PRA/PLA is an indispensable process in resident-centered community development. In this process, the use of natural resources in the village, the current conditions of the socio-economy and farming techniques, problems found in the current conditions and the measures to deal with the problems are analyzed and elucidated in accordance with the system of recognition by the residents. It can be described as a process of awareness creation in which the residents are made to accurately recognize the situation they are in, and the impact of the deterioration of natural resources on agriculture, their means of livelihood, and their life, in particular, and to enhance their will for improvement by making them collect and systematize such information by themselves. The main purposes of PRA in the current PPs are as follows:

1) To make the residents themselves aware of the problems (awareness creation)
2) Analysis of existing organizations
3) Analysis of the problems
   - To summarize each of the problems and sort them into large groups →To clarify the causal relationship
   - Preparation of problem dendrograms
4) Prioritization of the residents' activities in relation to the problems

Table 5-8 shows the tools and details of PRA.

(2) Results of implementation and points of note

Several groups of trainees spent several weeks (each team spent one week in one village) practicing PRA in the villages targeted for PPs in August and September each year. The CAPs who had completed the previous 'facilitation capacity-building training' took part in the PRA as assistant moderators under the supervision of the main moderators (local consultants employed under External Recommission) to put into practice the theories they had learned in the classroom in an attempt to acquire facilitation technology and PRA techniques through OJT.

1) Performance of the residents

As the first and second days of PRA implementation overlapped with the time for weeding crops, poor attendance by the residents was often observed. This problem was solved by holding the meetings at night or by selecting a time convenient for the residents through consultation in advance. As information about the approach and details of the activities of JICA had been well disseminated to almost all the villages through the activities of the Phase 1 Study, we were keenly aware of the great expectations of the residents and their sincere attitude toward this project everywhere we visited.

Table 5-8 Details of Participatory Rural Appraisal (PRA)

PRA tool	Details
Matrix classification chart	The importance of each species of tree and livestock by usage is quantified. The quantified importance values are entered in the chart. The order of residents' preference for each species is revealed by totaling the importance values.
Seasonal labor calendar	Seasonal changes in the amount of labor by type are diagrammed.
Resource map	Agricultural, livestock and forestry resources, ecological resources such as rivers and swamps, physical resources such as roads, reservoirs and irrigation facilities in a village are mapped.
Social map	Social infrastructures such as clinics, schools, mosques, shops, markets, wells and grain warehouses in a village are mapped.
Traverse map	The features seen from a road traversing the main agro-eco-system in a village are sketched on a map. Items to be included are above-the-ground sketches, soil, crops, livestock, other features and problems.
Production cycle chart	The production cycle processes of major crops and livestock are depicted on flowcharts. Input required for each process (cost of hiring laborers and cost of equipment and materials) and estimated output are also described on the charts.
Organizational relationship diagram (Venn diagram)	The organizations in a village are represented by circles on a diagram. The size of the circle represents the size of the organization. Closeness between organizations is expressed by the degree of overlap of the circles.
External flow diagram	In/out movement of goods and people as viewed from inside the village concerned is diagrammed.
Daily labor calendar	The amount of daily labor on a typical day either in the dry or rainy season is diagrammed by type of labor.
Children's life diagram	The living conditions of children, mainly their circumstances and also including their caretakers, are diagrammed by aspect of life (education, health, nutrition, etc). Problems are also described on the diagram.
Priority/feasibility diagram	The priority and feasibility of each countermeasure activity is diagrammed.

Discussion was active almost everywhere. Everyone, regardless of gender or age, expressed his/her opinion and heated discussion was held. In some villages, we encountered the situation in which only a few residents spoke at the beginning. However, as the project went on, more and more residents started expressing their views. This observation suggests that the implementation of PRA has changed residents' awareness of participation.

While fomentation of residents' will to take measures to deal with problems is considered to have been achieved through the implementation of PRA, the original intention of the study team, "clarification of what the residents can do and cannot do by themselves in taking measures to deal with problems," has not been fully achieved. The lack of capacity of the moderators was partly to be blamed for this failure. Some of the residents who took part in this study had already known what JICA's pilot projects could provide from the information on the Phase 1 Study before the PRA implementation. Thus, they already had certain expectations of being "able to manage such and such extent of support for problem-solving." The impact of such expectations is also assumed to have had a negative impact on the fulfillment of our original intention.

2) Performance of the CAPs

In the actual PRA implementation, a CAP presided over the proceedings at first and, later, the main moderator, a consultant, and assistant moderators pointed out and complemented the issues the CAP had not properly addressed, failed to grasp or deviated from. As they had never practiced PRA, the CAPs looked confused at the beginning. However, no significant problem was observed in the end. We observed that the CAPs became increasing lively during the discussion with the residents. All the CAPs rarely imposed their own views on the residents or behaved manipulatively and they were able to bring out the opinions and ideas of the residents with ease. On the other hand, some of the CAPs had a slight problem arising from miscommunication. More specifically,

- Lack of mutual understanding of language and culture because of tribal differences
- Insufficient capacity to express views
- Lack of will to talk kindly with respect for others' viewpoints, etc.

It is thought that improvement in these issues will take time as it may require "accumulation of experience" among other things.

What can be said in general about the moderators (CAPs as well as the consultants) involved in the PRA activities is the lack of the viewpoint of 'nurturing thinking farmers." A great majority of the moderators considered PRA as 'analysis of a village for plan formulation conducted prior to project implementation.' Therefore, they focused on grasping the current conditions and showed little of the viewpoint of learning with the residents and contributing to their capacity building. Although the study team urged them to change this perception at every appropriate time, it cannot be said that they have changed sufficiently. It is easier for moderators to diagram and list each PRA tool in accordance with the manuals than to 'contribute to the capacity building of the residents' by moderating various arguments in accordance with the circumstances. As mentioned above, we think that the only option to acquire this viewpoint is accumulation of experience as moderators.

3) Development-impeding factors

Table 5-9 shows the factors impeding community development in the area of the Phase 1 Study summarized in the study.

With the exception of 'child-related problems,' all the development-impeding factors identified in the PRA in this study correspond to the factors listed in the table. However, the 'gravity' of the impeding factors differs among the communes and villages presumably in accordance with their environmental conditions.

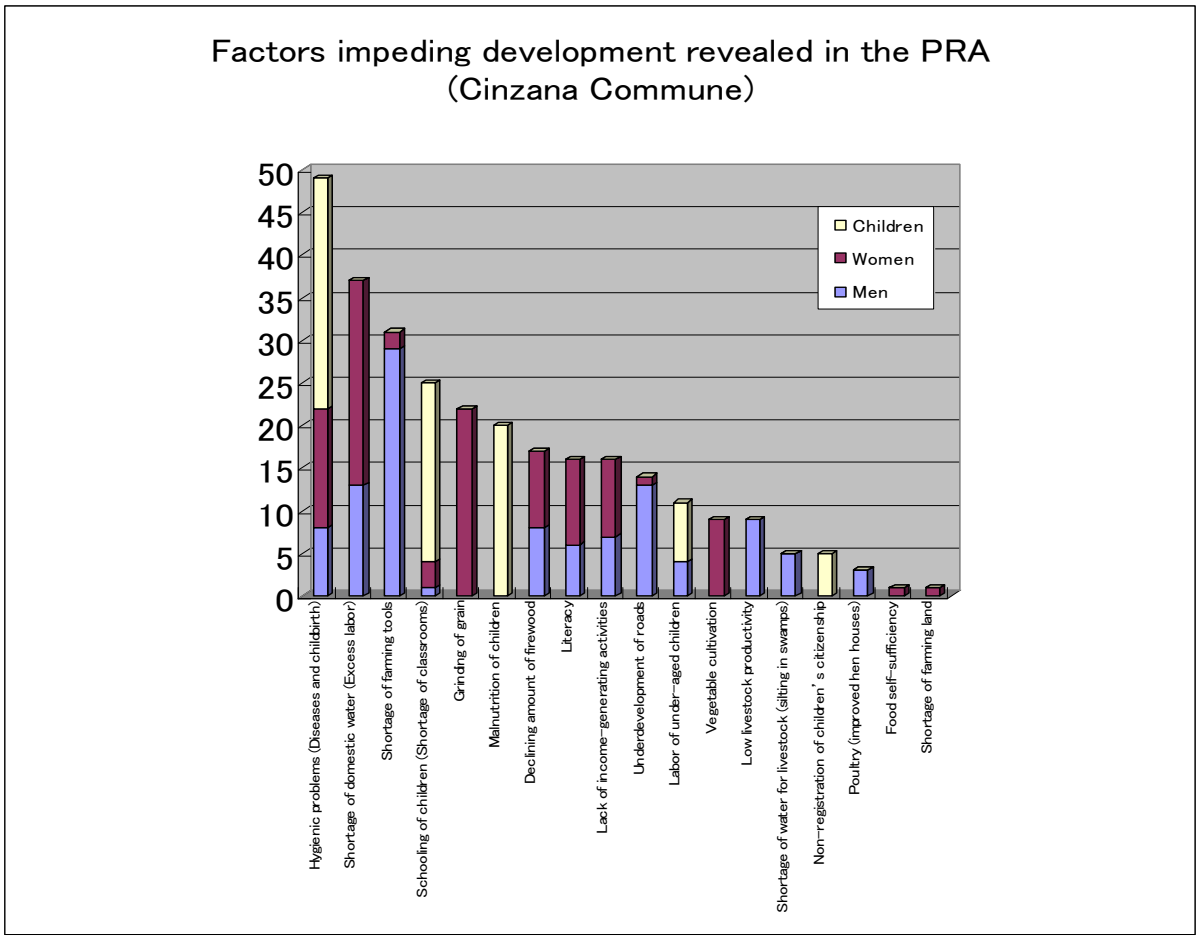
In the PRA, the residents ranked the impeding factors according to their gravity. Each factor was given points according to its rank (*i.e.* five, four, three, two and one point for first, second, third, fourth and fifth and lower places, respectively). The total of points given to each factor in all the villages in the same commune was calculated. Figure 5-4 shows the results of this analysis for the two

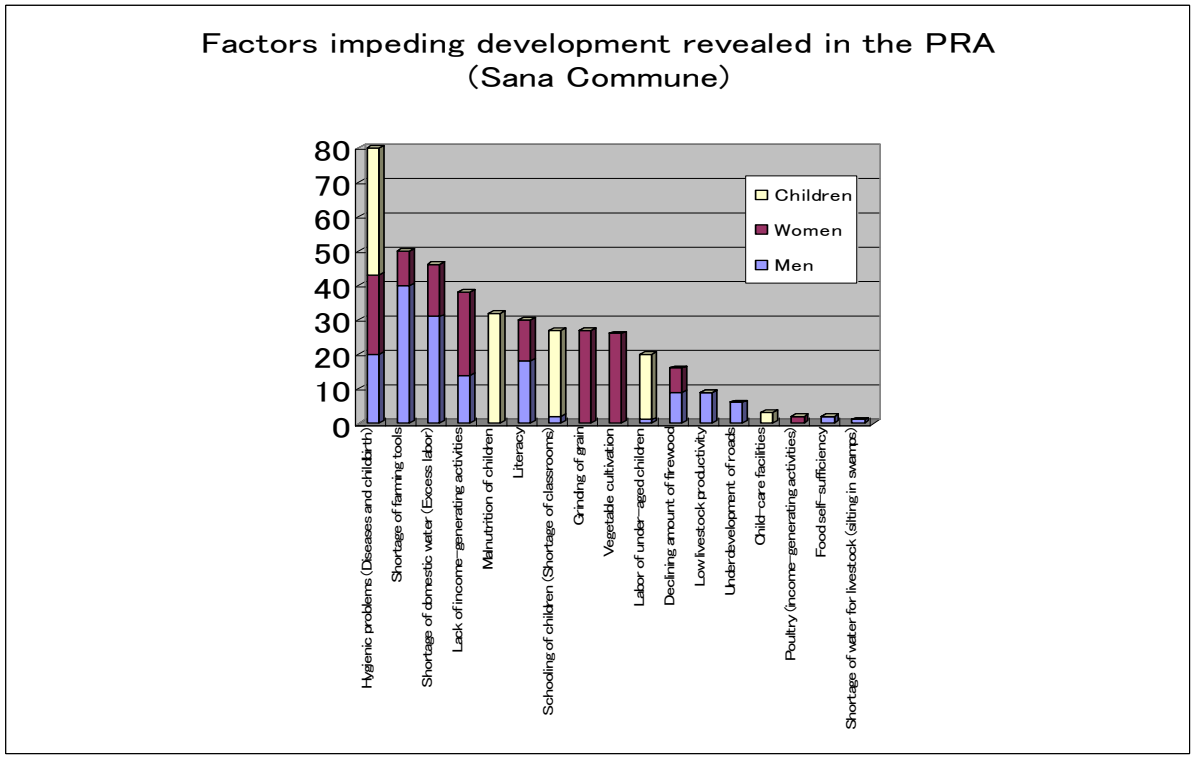
communes in the third year of the study. Although differences in the gravity of the impeding factors are observed between the two communes, 'hygienic problems,' 'shortage of farming tools (investment funds),' 'shortage of water resources,' etc. are considered grave problems, on the whole.

Table 5-9 Factors impeding community development

Area	Impeding Factors
Rural society	① Few educational opportunities and low level of basic education, including literacy rate ② Shortage of employment opportunities (means to acquire income) in all the areas ③ Excessive burden on women and insufficient participation of women in rural development
Rural economy	① Shortage of investment funds in all the areas ② Shortage of means to access funds in rural area ③ Shortage of means to acquire income
Resident support	① Non-establishment of techniques and system to promote participation ② Lack of extension tools (means of transport for extension workers and teaching materials) ③ Because of insufficient formation of residents' organizations, reduced impact of extension
Land use	① No orderly plans or regulations governing land use ② Low motivation for improvement of land use because of customary lack of awareness of land ownership
Water resources	① Shortage of modern water source and distribution facilities
Agriculture	① Declining land productivity because of over-cultivation caused by population growth ② Insufficient extension of technology to alleviate the impact of drastic climatic change ③ Underdeveloped system to supply materials such as good seeds and fertilizer ④ Expanding soil erosion because of factors outside the farmland (upstream)
Livestock	① Deteriorating feed basis because of the lack of residents' awareness of pasture land improvement. ② The focus on asset-oriented livestock raising has resulted in an increase in the number of livestock, leading to overgrazing. ③ The orientation toward saving rather than sales has not only led to lower shipment ratios, but also impeded improvement of productivity. ④ Low livestock productivity because of the shortage of feed storage and dietary supplements ⑤ Insufficient hygiene control and vaccination have resulted in severe loss of livestock from disease.
Forestry	① Due to the residents' low awareness of forest conservation and tree ownership, reforestation efforts have not advanced. ② Serious damage to vegetation by overgrazing and bush-burning practices ③ Expansion of unregulated tree-felling for cash income from the sale of firewood
Market distribution/ infrastructure	① Violent fluctuation of grain market prices linked with annual fluctuation in production ② Underdeveloped access roads to market at village level ③ Shortage of grain storage facilities

Figure 5-4 Examples of the factors impeding development revealed in PRA





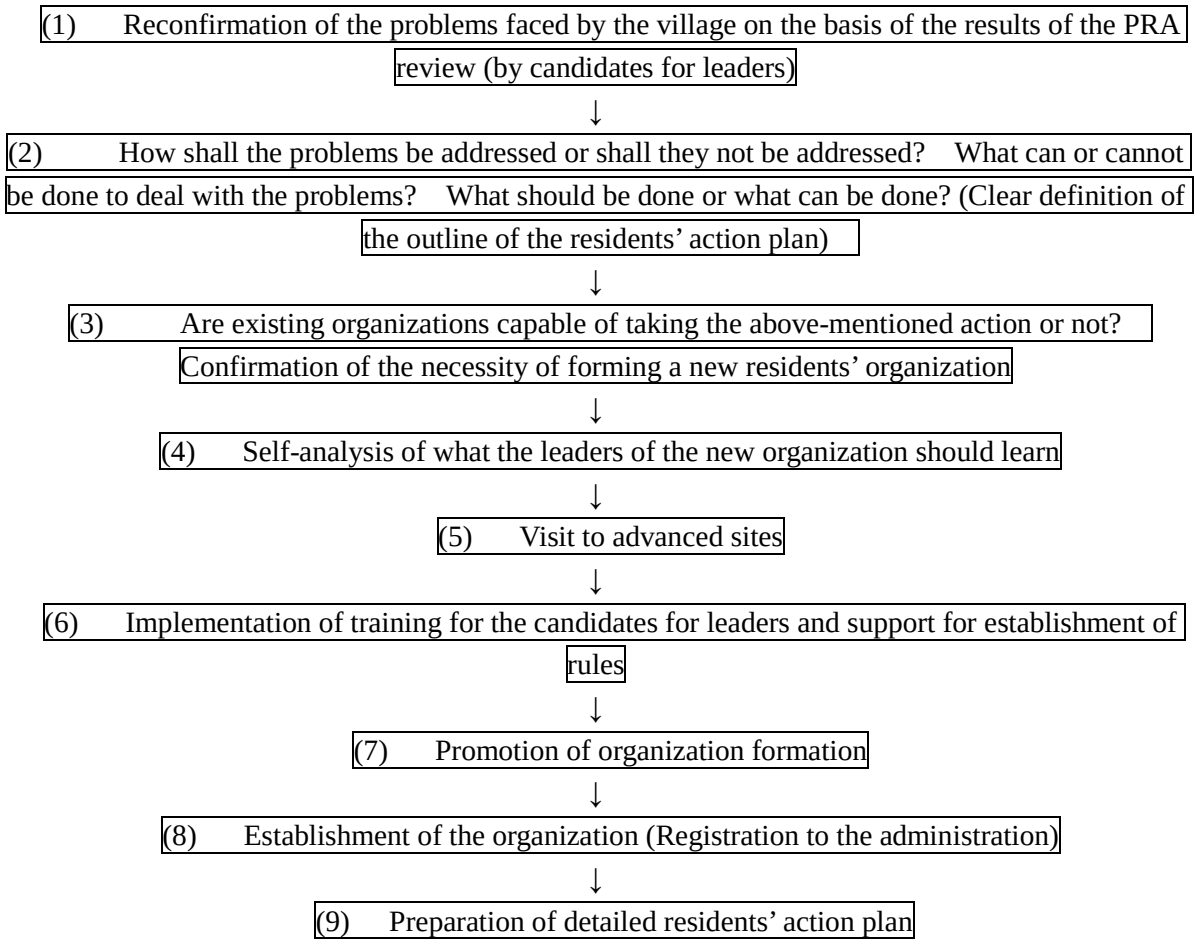
The gravity of the impeding factors and residents' ideas of the priority of 'countermeasures to be taken' do not necessarily coincide. For example, in Sana Commune, the priority given to activities to deal with the gravest problem, 'hygienic problems,' was below tenth place, while the highest priority was given to activities to deal with the sixth gravest problem, 'literacy education.' In the case of Sana Commune, the residents seemed to have analyzed 'what is important for development' fairly reasonably. (See Figure 5-7 below for comparison.)

5.2.6 Formation of residents' organizations

(1) Procedure for support for organization formation

After completing the PRA, we supported the formation of residents' organizations as the main bodies to promote resident-centered community development. The procedure for facilitation to support the establishment of organizations is shown in Figure 5-5 below.

Figure 5-5 Procedure for support for organization formation



Note: Preparation of the 'residents' action plan' described in detail in the following section is implemented simultaneously with the formation of the organization.

Special consideration was given to the following in the above-mentioned support.

- In the procedure in the figure above, the role of the facilitators was considered especially important in processes (1) to (4). If 'confirmation,' 'clear definition' and 'self-analysis' are conducted sufficiently, the new organization is expected to be of genuine 'necessity' to the residents and to have sustainability. Therefore, the facilitators should not take the stand that "the organization was there in the beginning." Instead, they should always ask themselves, 'what is the organization for?" and not forget to make an effort to bring out residents' initiatives.

- We supported preparation of the draft residents' action plan simultaneously with formation of the residents' organization. As mentioned in the preceding section, the residents have not fully completed the analysis of the current conditions, "what can we do and what support is required for what we cannot do?", at the PRA stage. We provide support in processes (2) and (9) in the figure above for preparation of a plan for 'what they can do by themselves (*e.g.* method of procuring funds, materials and labor for the activities)' under 'the required measures and activities' clearly defined in the PRA on the initiative of the residents' organization.

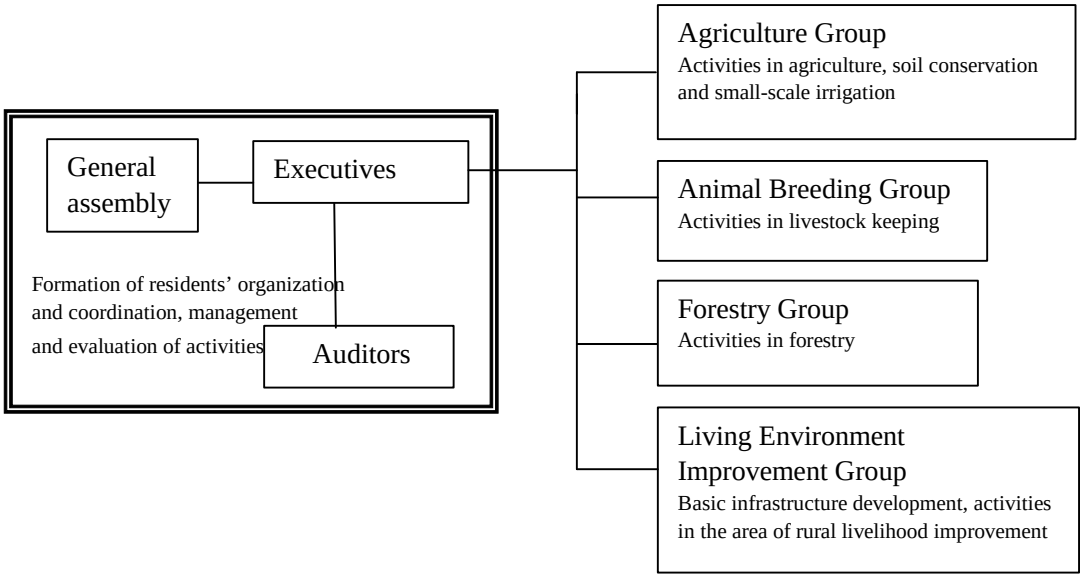
- In the visits to advanced sites (process (5) in the figure above), we take residents to villages in which residents' organizations were established during the Phase 1 Study. The residents have an opportunity to talk directly with the residents at the advanced sites about the process of discussion and decision-making which led to the formation of the residents' organizations, the operation, management and current activities of the CGTV and methods of problem-solving. In addition, they observe the outcome of the activities of the residents' organizations.

- In process (6) in the figure above, support for establishment of rules, we tried not to present a ready 'model' of the rules. We have seen a tendency for residents, once they are presented with an example of the rules of the Terroir Management Committee , to start thinking, "If we follow the instructions of the donor, we will get assistance quickly" and to complete organization formation just in form by copying the model rules almost in their entirety, without full consideration for the background and conditions of their village. As an inevitable consequence, organizations thus hastily formed tend to have more problems in their management and to have difficulty taking measures to deal with such problems when they occur. The facilitators are instructed not to show model rules too readily in the early stages of support for organization formation, but to provide advice on organization formation, taking into consideration the direction of the residents' discussion on the "ideal form of the organization," when the discussion has reached a certain level, and to present the model rules

at an appropriate time.

- External intervention in the selection of officials has been minimized in the facilitation of organization formation. A traditional organization called Ton functions in Bambara villages in the Ségou region. Therefore, in many cases when a new organization is established in a village, the leaders of the Ton become the leaders of the new organization or they play a major role in selecting the leaders of the new organization, replacing the purposes and essence of the new organization with those of the Ton. This example shows the existence of certain rules regarding 'personnel matters' in the villages, based on a traditional organization. In order not to impede the creation of ownership of residents' organizations, we refrained from readily intervening externally in personnel matters in the villages. Instead, we decided to give general advice on the desired qualities of the leaders of the new organizations and to leave the selection of the officials, in principle, to the villagers. Figure 5-6 shows a model of the general organizational composition of a residents' organization with the desired qualities of the officials in the box below the figure.

Figure 5-6 Example of a residents' organization



<Desired qualities of the officials of the organization>

(1) Commitment to community development
(2) Volunteer spirit
(3) Leadership (trust of the villagers and capacity to mediate among them)
(4) Physical fitness (good mobility): Project activities tend to be concentrated in the latter half of the agricultural off-season. To handle the concentrated activities, a certain level of physical fitness is required.
(5) Communication skill in French: Required for negotiation with external benefactors
(6) Basic scholastic and literacy abilities at completion of primary school level: Required for preparation and review of the minutes of the committee meetings
(7) Accounting skill: Required for the management of committee funds

(2) Results of support for organization formation and points of note

1) Discussion on organization formation among the residents

Among the 47 villages included in the study, 35 established new residents' organizations and the remaining 12 reformed existing organizations into new ones. Attachment I-8 shows a list of the organizations existing in the villages. The reformed organizations were youth organizations in the villages and those established with donor aid in the past. The problems that emerged from analysis of the existing organizations included non-existence of internal rules, lack of understanding by officials of their duties, absence of auditors and secretaries, non-existence of special committees, seniority system of official appointments and small number of literate members. To overcome these problems, the new organizations were established from the viewpoint of "Can they become organizations suitable for resident-centered community development?" However, doubt remains as to whether or not the discussion on 'ideal organizations' was exhaustive enough. Some villages seemed to have formed organizations in haste without exhaustive discussion based on the expectation that "once we form an organization, aid will follow." In general, organization formation was completed without problem in a relatively short period of time. However, during the process of organization formation, the following cases were observed.

- The residents in villages which had received assistance many times were relatively less eager about organization formation. They had the feeling (of betrayal) that the formation of organizations under the guidance of donors had not brought the expected results from the project.
- The residents in villages which had persons with a decisive influence on decision-making had little interest in establishing organizations democratically.
- In villages with extremely little experience in receiving aid, it took time for the residents to understand the roles of the officials.
- People who think that "being an official of an organization brings extra benefit" sometimes compete for the posts of officials. Such competition was observed when there had been a case in which a contact person in an assistance project in the past had personally benefited from it. In such a case, the facilitators first explained the requirements for being an official and then explained in detail that "the officials are not to benefit personally from the project." This fact was also confirmed in discussions during visits to advanced sites and at residents' assemblies. Once they were convinced that there was no personal benefit, they stopped insisting on a post.

BOX: The case of a village in which all the officials of an existing organization wished to take the posts of the officials of the new organization
Soun Bamanan Village in Sana Commune established a new organization by reorganizing the existing one. All the officials of the existing organization wished to be transferred to the new organization in their same capacities. However, their request was rejected at the residents' assembly and the residents held a two-day discussion by themselves after the rejection. In the end, new officials were selected in a council system. As the two-day discussion was held behind closed doors, we have no details of what were discussed. However, we heard that a point of contention had been whether the same person could serve both as president and as accountant in the new organization in the same way as in the existing one. They decided against a single person holding the two posts in the end. Only half of the officials of the old organization were selected as the officials of the new one.

2) Training of candidates for leaders

During the process of organization formation, the candidates for leaders received training and learned the mental attitude of being a leader and basic knowledge of organization management and accounting practices. A certain level of literacy ability is required for this training. However, in some villages, a sufficient number of literate persons could not be found. For these villages, it was considered necessary to provide the candidates with "preliminary literacy education" before the "leadership training."

Human resources developed in the verification villages in Phase 1 and the literacy education lecturers trained in the advanced villages were utilized as lecturers in this preliminary literacy education. In this way, farmer-to-farmer technology transfer was tested. The improvement ratio of the level of literacy achieved in the preliminary literacy education was higher than the ratio achieved in similar activities conducted by professional literacy lecturers in Phase 1. This fact proved the effectiveness of farmer-to-farmer technology transfer in literacy education.

5.2.7 Preparation of practical residents' action plan

(1) Procedure for preparation of a practical plan

After the organization had been established, a practical residents' action plan was prepared. The established residents' organization (hereinafter referred to as the "Terroir Management Committee ") took the lead in organizing discussion on 'preparation of an action plan for future community development' in each village for around three days. The following are the procedures for preparation of an action plan in each village.

① Preliminary preparation (Summarization of the PRA results)

Summarization of the problems and problem-solving measures identified in the PRA and summarization of the core tasks

② Confirmation of the tasks identified in the PRA with the residents

- Better understanding of genuine tasks and awareness creation among the residents
- Investigation of the relationship between the core tasks and other tasks
- Classification of tasks (apportioning of tasks to the relevant special groups)

③ Preparation of practical plan

- Each special group takes the lead in preparing an action plan (implementation period, labor, funding and distribution of materials) for the tasks relevant to the group.
- Approval of the results of the deliberation of the special groups at the general assembly of the organization

④ Disclosure of the plan to the residents

- Presentation of the plan to the residents and its revision if necessary

(2) Results and points of note

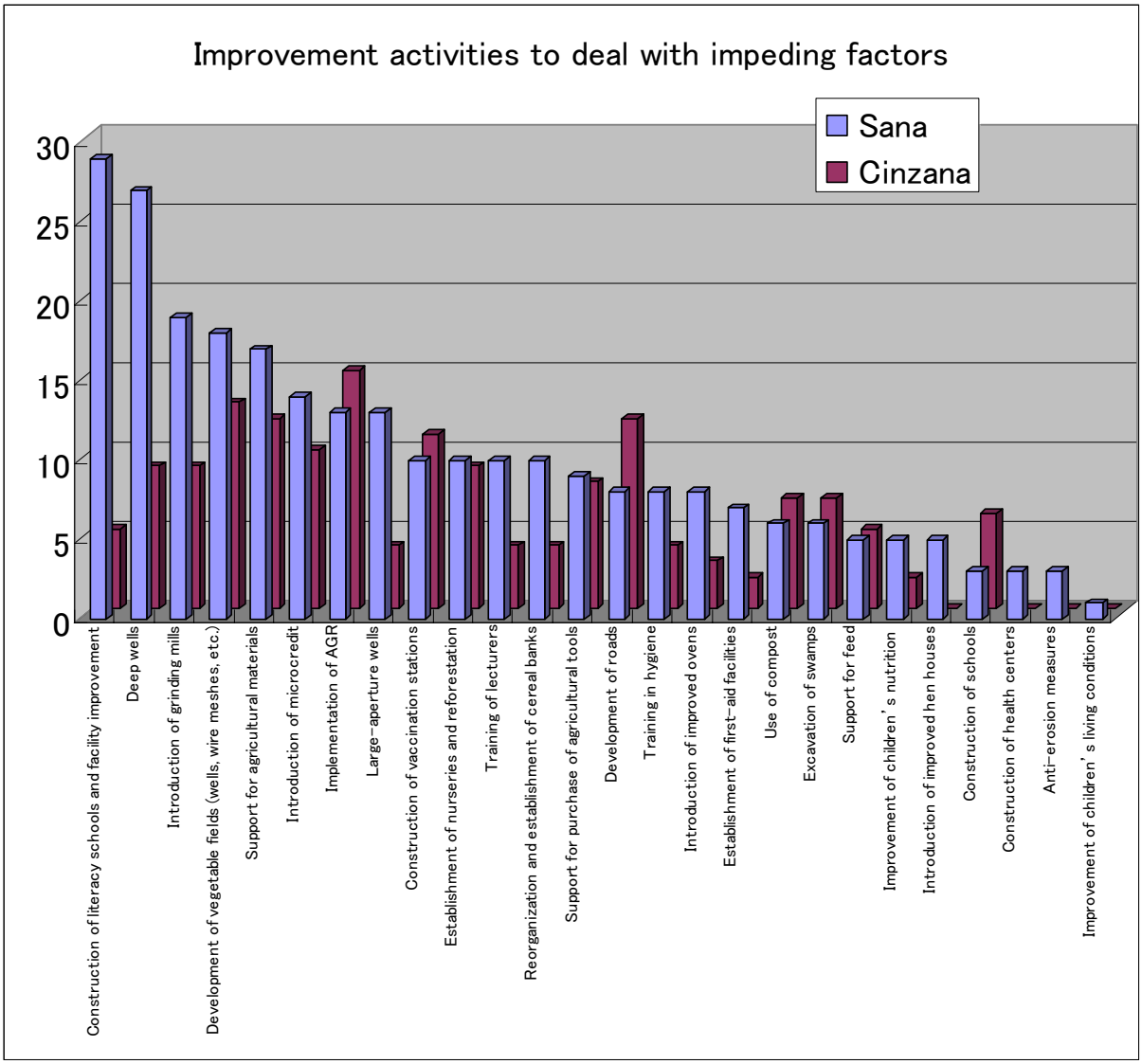
Immediately after the implementation of the PRA and at the early stage of residents' organization formation, the residents seemed to have no clear image of the actual activities and to think, "We will be able to do everything," without much consideration. During the process of organization formation and the subsequent preparation of the practical action plan, the residents generally came to a realization that the plan prepared at the time of PRA was not sufficient to meet the actual volume of developmental work (supply and distribution of labor, supply of materials and required knowledge for the required labor) through investigation of "what concrete action should be taken." By going through the above-mentioned procedure, the participants in plan preparation seemed to have recognized the 'reality' of the developmental activities and modified their original (optimistic) concept on the basis of such recognition.

The activities included in the action plan prepared in accordance with the above-mentioned procedure in each village were prioritized. Then each activity was given points from one to five according to its priority ranking (*i.e.* five, four, three, two and one point were given to the activities in first, second, third, fourth and fifth and lower place, respectively, in the priority ranking). The points given to each activity were added up for all the villages in each commune. Figure 5-7 shows the action plans of the villages in Sana and Cinzana Communes thus summarized. The priority ranking of microcredit (improvement in access to funds), water source development, literacy education and vegetable field development is high in general. However, significant differences were observed depending on the conditions of the village.

5.2.8 Presentation of the conditions for support to farmers and application for support from farmers

The conditions for support were presented to the farmers at a relatively early stage of organization formation in the first year of the study. The timing of the presentation was pushed back gradually in the second and third years and, in the end, the conditions were presented in the latter half of the preparation of the practical action plan. The reason for delaying the presentation was to 'enable the preparation of the action plan to contain as many of the farmers' initiatives as possible.

Figure 5-7 Improvement activities to deal with impeding factors



Note: AGR = Training to expand opportunities for income-generation, such as handicrafts; First-aid facility = Small-scale health facility for midwifery, etc.

'The farmers' awareness of ownership of the project changes significantly as they go through the processes of PRA, the formation of farmers' organizations and preparation of the action plan. What were considered 'factors impeding development' at the PRA stage have been reviewed and transformed into more concrete objects by the preparation stage of the action plan. Therefore, presentation of concrete conditions for support (schedule of support projects and farmers' contributions) at an early stage hinders this awareness creation and in many cases resulted in preparation of action plans adjusted to the project schedule. For this reason, we concluded that presentation of the conditions as late as possible would create sufficient awareness of ownership among the farmers. The conditions for support to the farmers shown below are the same as those in the First Phase Study with the exception of part of the project schedule and the amount of money contributed by the farmers.

① Schedule of support projects: As shown in Table 3-2 in Chapter 3

② Farmers' contributions

- ＊ Financial contributions (as shown in Table 3-3 in Chapter 3)
- ＊ Provision of all simple labor
- ＊ Provision of materials and equipment required for the projects which are procurable in the villages
- ＊ Establishment of a well-defined management and operation system and rules for the projects beforehand

After the above-mentioned presentation, the Community Development Committee of each village held discussions to select the project activities for application on the basis of the action plans prepared earlier and applied for support to the study team through their CAP. Table 5-10 is the list of project activities applied for through the above-mentioned processes by the villages in the two communes in the third year of the study.

Table 5-10 List of the projects applied for by each village in the study area in the third year of the study

Project component / Name of commune / Name of village	Capacity building of the farmers			Stabilization of farmers' incomes (improvement in productivity of agriculture, livestock and forestry)						Natural resource management			Reduction in women's burden			
	Improvement of literacy ability	Microcredit system	Wells	Provision of fertilizer and seeds	Small-scale vegetable cultivation	Grain banks	Improved chicken houses	Fattening/ Nutrition blocks	Vaccination stations	Mini-nurseries	Afforestation (training)	Soil erosion prevention (training)	Grinding mills	Improved (steel) ovens	Improved (earthen) ovens	Handicrafts
Cinzana Commune																
Ouendja		③	②	①	○					○	○	△		○	○	○
N'Dinzana		①	○		○		③		○	○	○	△	○	○	○	②
Falema	①	③	②		○		○	○	○	○	○	△	○			
Diakoro				○	③	○	○	②	○	○	○	△	○			①
Fobougou				③	○				②	○	○	△	①			○
Sonsorobougou	○	○	②	①						③	③	△				
Sana Commune																
Kienkourou	③		①	○					○	○	○	△	②	○	○	○
Koungodiani	②	○	①	○	③		△			○		△	○	○	○	○
Kokambougou	②	○	①	○	③							△	○			○
Kerta	○	○	①		②	△	○		○	○	○	△	③			○
Kalala Bamanan	②	△	①	○	○	③	△	○	△	○	○	△	△	○	○	○
Soun Bamanan	○	○	○	○	○	○	△	③	②	△	△	△	①	△	△	△
Soun Marka		②	○	①	○				○	○	○	△				
Kien	①	○	②	③	△	○	△		△	○	○	△	○	○	○	○
Zambana	①	②	○	○	○	○				○	○	△	○	△	△	③

Legend: Numbers in circles: order of priority expressed by the villages, ○: 4th to 9th places in the priority order, △: 10th to 16th places in the priority order, ×: use of existing facilities, and blank: no request

5.2.9 Review and revision of the contents of the project applications and decision on approval/rejection of the projects by the local administration

(1) Methods of revision and decision-making

The project applications submitted by each village were officially approved as pilot projects after the details had been reviewed and revised mainly by the local administration ('Project Implementation Council' at commune level). The items considered during the review and revision were as follows:

- Has the application been submitted though there is little need for the proposed project (for example, existence of a usable/convertible facility provided by aid in the past)?
- Has the application been submitted though the village has the capacity and environment to implement the project by itself?
- Is equality among the villages and among the communes maintained?
- Is the project plan wasteful (e.g. individual applications by multiple villages for the construction of a facility which can be used by all of them)?
- Is it within the limits of the total project budget?
- Is it consistent with the Commune Development Plan (a three-year plan prepared independently by each commune) and assistance plans of other donors?

Participants in the Project Implementation Council at commune level include persons in charge of the commune, as well as the facilitators and staff of DRA involved in the project and the members of the study team. Table 5-11 shows examples of 'projects approved' after revision in the two communes in the third year of the study.

The main points in the argument for the revision were: whether or not to approve a project if the same effect could be expected from repair or conversion of an existing facility; selection of villages for the construction of grinding mills, a communal facility; selection of villages for the construction of vaccination stations, a facility of the same nature as grinding mills, and their construction sites; and selection of villages for establishment of a microcredit system.

(2) Points to note

Project revision at the Commune Council went well in general. None of the villages which had requested establishment of communal facilities 'was self-assertive,' but accepted objectively mediated proposals and consented to communal establishment in the end. However, we saw a few cases in which some villages were adamant that 'we need such and such facility in our village at all cost' even after they had consented to the installation of communal facilities in another village. In particular, the need to establish a microcredit system in the villages seemed to have grown stronger and stronger as the project progressed. In the end, one village, Fakola, established its own independent microcredit system separately from the communal system.

Table 5-11 Examples of (finalized) PP project plans of each village in the third year of the study

Project component / Name of Commune / Name of village	Capacity building of the farmers				Stabilization of farmers' incomes (Improvement in productivity of agriculture, livestock and forestry)						Natural resource management			Reduction in women's burden			
	Improvement in literacy ability*1		Microcredit system *2	(Large-aperture modem) Wells *3	Provision of fertilizer and seeds	Small-scale vegetable cultivation	Grain banks*4	Improved chicken houses	Fattening/Nutrition blocks	Vaccination stations*5	Mini-nurseries	Afforestation (training)	Soil erosion prevention (training)	Grinding mills (Installation and training)*6	Improved (steel) ovens*7	Improved (earthen) ovens	Handicrafts
	Training of lecturers	Construction works, etc.															
Cinzana Commune																	
Ouendja	○	★E	●	Fo	○	○	○	○	○		○	○	○		○	○	○
N'Dinzana	○	×E	○	Fo	○	○	×E	○	○		○	○	○	×E	○	○	○
Falema	○	★E	●	Fo	○	○	×E	○	○	Ⓕ	○	○	○	○	○	○	○
Diakoro	○	×E	○	-	○	○	○	○	○		○	○	○		○	○	○
Fobougou	○	×E	○	Fo	○	○	×E	○	○		○	○	○	○	Ⓕ	○	○
Sonsorobougou	○	Ⓕ	○	Fo	○	○	○	○	○		○	○	○		○	○	○
Sana Commune																	
Kienkourou	○	×E	●	Fo	○	○	×	○	○	○	○	○	○	Ⓕ	○	○	○
Koungodiani	○	×E	○	Fo	○	○	×	○	○		○	○	○	○	○	○	○
Kokambougou	○		○	GD	○	○	×	○	○		○	○	○	○	○	○	○
Kerta	○	★E	●	GD	○	○	×	○	○	Ⓕ	○	○	○	○	○	○	○
Kalala Bamanan	○	★E	○	Fo	○	○	Ⓕ	○	○		○	○	○		○	○	○
Soun Bamanan	○	★E	●	―	○	○	○	○	○	○	○	○	○	○	○	○	○
Soun Marka	○	×E	○	GD	○	○	×	○	○		○	○	○		Ⓕ	○	○
Kien	○	Ⓕ	○	Fo	○	○	○	○	○		○	○	○		○	○	○
Zambana	○	★E	○	Fo	○	○	○	○	○		○	○	○		○	○	○

*1 : 'Improvement in literacy ability' consisted of training and construction of literacy schools. 'Training of literacy lecturers' was intended for all the villages. After the training in construction technology (for village bricklayers) for all the villages had been conducted (by a construction firm) at the villages marked with Ⓕ, schools were constructed under the execution management of a local construction firm with labor provided by the farmers at the villages marked with ★. The villages marked with × have existing school facilities and those marked with E were provided with repair materials, fittings and furniture (roofs, windows, doors, desks and chairs for lecturers and students, blackboards and lamps).

*2 : Training in the microcredit system for all the villages (marked with ○) was implemented . New microcredit systems were established in the villages marked with ●.

*3 : Fo and GD indicate construction of modern wells (forage) and large-aperture wells, respectively. Note: Diakoro and Soun Bamanan were provided with water supply facilities.

*4 : Training in how to use grain banks and provision of lever scales were implemented in all the villages. Training in use (collective classroom training) and in construction (OJT for local bricklayers) were implemented in the villages marked with Ⓕ (Bricklayers from other villages commuted to Ⓕ villages to take part in the training). The farmers constructed grain banks by themselves in the villages marked with ○. Existing facilities are used as grain banks in the villages marked with ×. E indicates villages provided with repair materials.

*5 : Training in construction of (small) vaccination stations (OJT for local bricklayers) was implemented in the villages marked with Ⓕ. The stations were constructed in the villages marked with ○.

*6 : N'Dinzana Village is marked with × as an existing shed could be used as a grinding mill and with E as it was provided with a grinding machine and training in operation and management.
*7 : Training in steel oven production was implemented in the villages marked with Ⓕ as collective training for blacksmiths (Participants from other villages commuted to the Ⓕ villages to take part in the training). The participants in this training were recommended by the CGTVs of the respective villages in the study area.

The study team considered it 'appropriate to make the microcredit system a communal facility for several villages' due to concern that "sufficient seed money might not be secured" within individual villages because of the small size of the population and of the project. (This concern was derived from adoption of a system in which the contribution money for the project from the farmers was used as seed money in the microcredit system). In addition, successful operation of a microcredit system requires management by someone who has achieved a certain level of literacy and accounting capacity. From this characteristic of the microcredit system, we considered it necessary to select appropriate villages prudently. However, villages other than Fakola have also a potentially strong demand for their own microcredit system, and if the amount of funds increases steadily, more and more villages will predictably establish a separate microcredit system like Fakola.

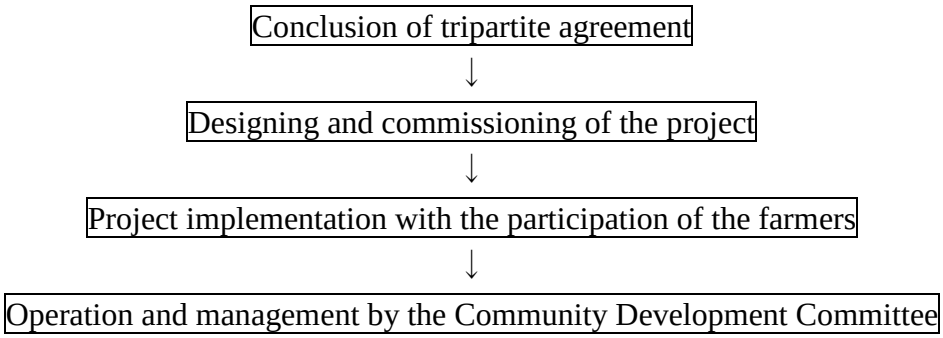
5.2.10 Implementation of the small-scale comprehensive development project

(1) Implementation procedure and method

The pilot projects (small-scale comprehensive development projects) finalized through the processes mentioned above were implemented with the participation of the farmers according to the procedure shown below.

Attachment I-9 shows the list of pilot projects implemented in the respective villages.

Figure 5-8 Implementation procedure of small-scale comprehensive community development projects



1) Conclusion of tripartite agreement

After a project plan had been finalized, the farmers in each village, the study team and the head of the commune concerned concluded a tripartite agreement on project implementation (matters agreed upon concerning the project activities). The purpose of concluding the agreement was to make the village and commune reconfirm their responsibilities and obligations regarding the project activities and to ensure the legal force to make them fulfill their responsibilities and obligations in case moves to

ignore 'the matters agreed upon' emerged in the villages (as such moves often emerge in this area). The contents of the tripartite agreement, or 'the matters agreed upon', shown in Table 5-12, include a declaration that the 'CGTV is responsible for the implementation of construction work' in order to fully ensure that 'the farmers construct the facilities they need by themselves on their own initiative'.

Table 5-12 Excerpt from the 'Tripartite Agreement'

Clause	Contents
Contribution of the village	・ The amount of money and details of provision of materials or labor contributed by the village in the project activities ・ The contribution money shall be collected at the office of the study team, kept there for a certain period and returned to the farmers' organization. The farmers' organization must use the returned money for the development of the village as seed money under the microcredit system. ・ The farmers' organization has the ultimate responsibility for the implementation of construction work.
Details of external assistance	・ Details of external assistance (including the method of assistance provision, etc.)
Obligations of the Commune	・ Administrative support for project activities and follow-up service after completion of the project
Maintenance and management of the facilities	・ The farmers' organization assumes the responsibility to maintain the facilities constructed or improved in the project in good working order.

2) Designing of the details of the project and commissioning of the project in each village

The project designed on the basis of the design drawings and other materials adopted in the Phase 1 projects in the past and incorporating the views of the farmers collected by the Community Development Committee was commissioned to a third party (external commissioning). Table 5-13 shows the scope of the work of the different parties involved in the project implementation after the project was commissioned. We restricted the commissioning to those items which absolutely required external commissioning. After the project was commissioned, the CAPs and the contractors gave a simple explanation of the construction and training procedures to the CGTV. The actual record of the commissioning in the case of Sana Commune in the third year of the study is shown in Table 5-14. Examples of the agreement and specifications are shown in Attachment II, 'Farmer support system guidelines.'

We paid special attention to the following points when commissioning the projects:

- To maximize the part of the construction work implemented by the farmers themselves in the hardware component of the projects for cost reduction.
- To make use of farmers from advanced villages as training lecturers in the software component of the projects for cost reduction and greater training effect.

Table 5-13 Scope of work of the parties involved in the project implementation

Party	Functions and obligations
Administrative organizations	・ Coordination between the 'Commune Development Plan' and individual projects and coordination with other aid organizations ・ Dispatch of lecturers to the training for farmers in areas in which the administration has expertise in technology extension, such as training in afforestation and soil conservation ・ Supervision of and guidance to CAPs
Farmers	・ Participation in the project (contribution of labor, materials and money and reconciliation of conflicting interests in land and facilities) and management and supervision of the project through the Community Development Committee ・ To contribute to the creation of awareness of development in the local community by disseminating the information obtained through participation in the project to the farmers in nearby villages
CAPs	・ To support improvement of the project implementation capacities of the farmers as facilitators ・ To disseminate and popularize the experience and capacities acquired through project implementation to colleagues
Contractor	・ To assist the activities of CAPs and support the capacity building of the farmers by promotion of technology in areas in which the administration lacks expertise or manpower ・ To take responsibility for the facility construction and development project of the farmers under commission from the study team

3) Project implementation with the participation of the farmers

In accordance with the provisions of the tripartite agreement, the farmers provided labor, materials and contribution money under the initiative of the Community Development Committees and the facilitation and coordination of CAPs. The projects were implemented with few problems on the whole.

4) Operation and management of the projects by the Community Development Committees (CGTVs)

After the completion of the projects, the actual management of individual projects is undertaken by Special Sub-Committees of the Community Development Committees, which were established for this purpose, under the supervision and guidance of the Committee. The facilitation activities of CAPs continued as OJT for the adaptation and further expansion and development of the projects.

BOX: Effectiveness of using NGOs

The Project office is unable to directly implement all the projects. In Mali, NGOs and consultants (hereafter designed as "NGOs") have a rich experience and know-how in rural development, residents' organization and enlightenment activities, and their use has proven valuable. They can complement related governmental agencies and CAPs in projects in which they lack expertise. The advantages of NGOs are as follows: (1) Local personnel in charge of NGOs resides on site and have every day contact with local people; (2) they have a good background in implementation of projects focusing on residents' participation, through discussions and by knowledge of local views; and (3) personnel needed and doted with mobility is easily secured.

Besides, promoting a further use of local NGOs is important since it also contributes to fostering them through the project implementation and to local dynamism as well.

On the other hand, some NGOs are facing financial problems and it is therefore necessary to grasp their capacity and fully evaluate their financial situation prior to their assignment.

Table 5-14 Details of commissioning in projects in Sana Commune in the third year

Project name	Contractor	Subject	Extent of use of farmer-to-farmer approach in the training	Details of self-help efforts of the farmers
Literacy education	BEAGGES (Consultant) EMAFO (Construction Firm)	Training for teachers - Training in construction techno-logy; Support for construction of school facilities and provision of furniture	The training was implemented with farmers from villages which took part in the Phase 1 Study as farmer lecturers. —	After the training, a literacy school was opened in each village with a trained farmer lecturer - In the villages with existing facilities, the farmers repaired the facilities by themselves Literacy schools were constructed under the leadership of the farmers who had received the training in construction technology
Establishment of microcredit system	BEAGGES	Installation of safes Training in usage	Basic training was implemented with farmers from villages which took part in the Phase 1 Study as farmer lecturers and, later, training in facility use was implemented in the villages in which the system was established.	Deposit of microcredit funds in addition to the appropriation of contribution money
Development of modern wells	AQUA SAHEL (Construction Firm) Foramat Mali SARL (Construction Firm)	Construction of large-aperture wells Training in maintenance and management Drilling of boreholes	— —	Provision of labor and deposit of management fees
Provision of fertilizer and seeds for rain-fed crops	COSADEV (NGO)	Training in use of fertilizers and improved seeds and training in compost-making	The usage training was implemented with farmers from villages which took part in the Phase 1 Study as primary farmer lecturers.	The farmers paid 80% of the cost of the first purchase and the remaining 20% was subsidized. Subsequent purchases were made solely by the self-help efforts of the farmers.
Small-scale vegetable cultivation	COSADEV	Technical training	The usage training was implemented with farmers from villages which took part in the Phase 1 Study as primary farmer lecturers.	With the exception of fences, the farmers provided all the required materials and labor for the work including land preparation of the fields.
Construction of grain banks	BEAGGES	Training in use Material support for facility construction	The usage training was implemented with farmers from villages which took part in the Phase 1 Study as primary farmer lecturers.	The facilities were constructed with materials and labor provided by the farmers, with the exception of assistance for roofing materials and cement
Construction of vaccination stations	EMAFO	Training in construc-tion technology, and in facility use Facility construction	—	Provision of labor
Training in improvement in productivity of livestock (fattening)	COSADEV	Technical training	Farmers from villages in the study who were familiar with fattening worked as assistant lecturers during the training.	
Guidance in construction of improved chicken houses	COSADEV	Training in facility use Facility construction	Farmers from villages in the study area who were familiar with construction with planks and use of sprayers worked as assistant lecturers during the training	The farmers provided labor for the construction of the first chicken house. (The farmers provided part of the construction materials for the construction.) With the exception of support for the construction of the first chicken house, all subsequent construction work was executed by the farmers' self-help efforts.
Establishment of land use rules	BEAGGES	Establishment of land use rules and announcement of the rules	The experience of the farmers from villages which took part in the Phase 1 Study was utilized	Organizations for action were established in the villages.

Project name	Contractor	Subject	Extent of use of farmer-to-farmer approach in the training	Details of self-help efforts of the farmers
Development of nurseries (Guidance in seedling production technology)	Joint implementation with the counterpart organization	Technical training Facility construction	The technical training was implemented with farmers from villages which took part in the Phase 1 Study as farmer lecturers.	The farmers provided all the labor related to land preparation.
Afforestation	Ditto	Technical training	Ditto	After receiving training, the farmers started voluntary activities.
Soil conservation	Ditto	Technical training	Ditto	Ditto
Construction of grinding mills	EMAFO	Training in facility use Facility construction	—	The farmers provided the materials and constructed all the facilities with the exception of foundation work
Promotion of the earthen oven production	COSADEV	Technical training Facility construction	The technical training was implemented with farmers from villages which took part in the Phase 1 Study as farmer lecturers.	The farmers prepared all the clay required for oven production. The trained farmers produced the ovens by themselves
Promotion of steel oven production	COSADEV	Technical training Facility construction	The technical training was implemented with farmers from villages which took part in the Phase 1 Study as farmer lecturers.	
Promotion of handicrafts production	COSADEV	Technical training	—	The farmers provided the raw materials required for the training.

(2) Results of the implementation and points of note

1) Problems that emerged during the project implementation

Typical problems that emerged during the project implementation at village level are described in Table 5-15. These problems were solved by mediation by the Community Development Committees and CAPs under the guidance of the study team. The majority of the CAPs maintained high motivation even during the OJT period after the launch of PPs. With the exception of a few CAPs, they performed the facilitation without any major problems. Detailed evaluation of the facilitation activities of the CAPs is described in '6.3 Evaluation of CAPs' in Chapter 6 below.

2) Contributions from the farmers

Of the contributions from the farmers, more than 100% of the planned amount of materials (mainly adobe bricks for facility construction) was provided by the farmers prior to the onset of the construction work in every village. Close to 100% of the planned amount of labor was also provided. However, there were cases in which certain villages failed to provide sufficient labor for the construction of communal facilities in other villages. This was not so much because they did not want to take part in communal construction work, but mainly because they found it difficult to commute to sites in other villages.

Payment of 'contribution money' was the slowest to reach the agreed amount. In some villages, payment of the contribution money had not reached 100% of the agreed amount two years after the completion of the project. The project contribution money in this pilot project was returned to the coffers of the Community Development Committees and used for operation of the microcredit systems.

Table 5-15 Examples of the problems encountered during the project implementation

Village (and time) of the occurrence of the problem	Details of the problem	Causes	Measures taken by the study team and their outcome
Kondogola and Kondia, Cinzana Commune (February 2005)	Some of the farmers complained to the contractor that they would not provide labor unless he paid them wages.	The contractor paid wages to some of the farmers who had prepared the cement in response to their demand, without confirming the definition of 'simple labor,' and those who had not been paid felt discriminated against.	By making the parties involved well aware of the definition that 'simple labor' means 'all the work which can be performed by the farmers,' the situation settled down within two days of the occurrence of the problem.
Kondogola, Cinzana Commune (February 2005)	The number of participants in the training in handicrafts production was extremely low.	The CAP had erroneously informed the Community Development Committee in advance that there were 'only two' available places on the training. (The specifications say 'preferably up to 12.')	The study team made the CAP correct the information and the number of participants increased in the following sessions.
Sam S and Sam W, Boussin Commune (January 2006)	The attendance from Sam S and Sam W villages at trainings held in other villages was poor.	As Sam S and Sam W villages are relatively isolated from the other villages, the farmers considered commuting difficult and did not take part in the training.	The team decided to consider a plan to conduct separate trainings near some of the isolated villages as a future task.
Seguela, Boidie Commune (February 2006)	Dispute arose when an influential person in the village tried to decide the construction site of the vaccination station himself.	A bossy person in the area behaved tyrannically, ignoring the due processes of the Community Development Committee.	The team consulted the commune. In the end, it was decided that the station would be built at a democratically chosen site through mediation by the commune.
Kerta and Kienkourouro, Sana Commune (January 2007)	Despite being large villages with large populations, the number of participants in the training for literacy lecturers from the two villages in the beginning was only 2 and 0, respectively.	The villages claimed that "there are few candidates despite the large population and they are busy with other training or their own business." However, the situation was more or less the same in the other villages. The main reason for the poor attendance was that they felt no need to train literacy lecturers as they already had a few lecturers in the villages.	As participation in training was voluntary, the team did not enforce participation. Later, the number of participants increased and two farmers from the villages concerned were trained as literacy lecturers.
Everywhere in Cinzana Commune (3G) (January 2007)	We saw several cases in which lecturers and/or participants came very late or did not come at all to trainings conducted by farmer lecturers.	Sometimes more than one training course was conducted in more than one village simultaneously. Moreover, training requiring similar farmer lecturers was launched in Macina Commune. For these reasons, coordination of the activities on the ground became confused and sometimes information on changes in the schedules did not reach lecturers or participants.	By enforcing closer communication among the training contractors and between the contractors and CAPs, the problem disappeared gradually.

In this sense, the collected money is not 'contribution money' in the strict sense of the term. However, the farmers considered the 'contribution money' as 'money collected from them which would never be returned to them." As the study progressed, the farmers started acquiring better information and a better understanding of the contribution money in this pilot project and the speed of contribution money collection increased. In addition, as the collection rate of contribution money was often a subject of discussion in the Commune Council Meetings as an ideal index for measuring eagerness for participation and fulfillment of promises, the CAPs in charge of villages started competing for higher rates. This competition is considered one of the reasons for the year-on-year increase in the rate of contribution money collection.

Table 5-16 Collection of project contribution money in each commune by year

Name of Commune	Total amount of contribution including for the purchase of fertilizer (FCFA)	Collected amount (FCFA)	Collection rate
Cinzana Commune First year of the study	(80% of the cost of fertilizer purchase) x 12 villages and 5,925,200	2,573,000	43%
Boidie Commune Second year of the study	(80% of the cost of fertilizer purchase) x 10 villages and 3,550,000	1,882,000	53%
Boussin Commune Second year of the study	(80% of the cost of fertilizer purchase) x 10 villages and 4,430,000	2,523,500	57%
Cinzana Commune Third year of the study	(80% of the cost of fertilizer purchase) x 6 villages and 2,640,000	1,945,000	74%
Sana Commune Third year of the study	(80% of the cost of fertilizer purchase) x 9 villages and 4,025,000	4,179,350	103%

Note: As (80% of the cost of fertilizer purchase) 'is to be collected after the harvest in the following farming season,' in principle, it is excluded from the calculation of the collection rate in the table. The collection rate in Sana Commune is more than 100% because some of the contributions for fertilizer purchase had already been collected.

3) Reduction in the project costs

Two methods were mainly used in an attempt to reduce the project costs. One method was to increase the proportion of construction work conducted by the farmers. By the third year of the study, the farmers had acquired the capacity to implement construction as the hardware component by themselves with only provision of materials and technical training in construction and management. This fact suggests that the farmers had improved their capacity in maintenance and repair. The other method was to use farmers from advanced villages as lecturers in the trainings. The use of such farmers cost a fraction of the cost of outside professional lecturers (staff of consultants). As a result, during the study period, the project costs per village were reduced by 15%, which translated into a 60% reduction compared with the per-village costs in Phase 1. The study team considers that project costs have been reduced to the lower limit for small-scale comprehensive projects.

4) Impact of the use of farmer lecturers (farmer-to-farmer approach)

The farmer-to-farmer approach was used whenever the circumstances permitted in various kinds of training implemented for the farmers. We used literacy lecturers trained in the verification project in Phase 1 in preliminary literacy education conducted in the six villages in which an adequate number of literate farmers had not been found in the first year of the study. The use of farmer lecturers produced the unexpected result that three-quarters of the participants became literate. Therefore, farmer teachers were used in the subsequent "literacy education to train literacy lecturers in the villages" in a similar fashion. In this case again, the proportion of the participants who became qualified as literacy lecturers in this training (slightly less than 80%) was larger than the corresponding value in Phase 1 (slightly less than 60%). In this example, an observer commented, "The lecturer decided to take breaks at ideal moments." The farmer lecturer read the signs shown by the participants well. When he noticed that the motivation of the participants had dropped, he declared a break immediately to allow the participants to be refreshed. He adopted a flexible teaching method without being bound by the predesigned schedule.

Being a farmer himself, he was able to give lessons with a good understanding of the farmers' mental attitude and behavioral patterns. This is a good example in which one of the advantages of using the farmer-to-farmer approach was proven. As shown in the column, 'Extent of use of farmer-to-farmer approach in the training' in Table 5-14, 'Details of commissioning in projects in Sana Commune in the third year,' capable farmers from advanced villages were used as lecturers in almost all the trainings in the second year and later in the study. Cost reduction (reduction in personnel expenses) and improved training effects were not the only benefits of using farmer lecturers. In the interview surveys, the majority of the farmers who had worked as lecturers replied that working as lecturers was beneficial to them because they 'were able to improve their capacities,' 'were able to obtain new information,' 'expanded their friendships' and 'were able to have first-hand experience of other cultures.'

5) Performance of the farmers and Community Development Committees

After completion of the construction and technical training, 'autonomous project management by farmers' under the supervision of the Community Development Committees begins. Since autonomous project management began, the project activities have been expanding and developing on the initiatives of farmers (led by the Community Development Committees) as shown in Table 5-17. Although the activities are on hold in a few villages, sustainable development in large part is considered to have been maintained in the remaining villages. Chapter 6 describes evaluation of the performance of the projects and Community Development Committees in detail.

Table 5-17 Expansion and development of activities by farmers on their own initiative

Commune/ Village	Expansion and development of the activities	Current status	Remarks: Cooperation with other donors
Cinzana/ Entire commune	・The Commune Office took the lead in communal afforestation activities on 7 ha of wasteland near N'gakoro village.	・The survival rate of the seedlings transplanted on 3ha of the land in 2006 is low at 30%. Seedlings were transplanted on the remaining 4ha of land in August 2007.	The seeds for the seedlings were kindly provided by ICRAF.
Kondia	・In 2006, a building for the microcredit system was constructed.	・In use	
N'gakoro	・In 2007, construction of a well in a vegetable field started.	・Construction in progress	
Findla	・In 2005, accommodation for CAPs was constructed. ・In 2007, construction started of a building for the microcredit system.	・Rarely used ・Construction suspended and not completed	 Structure damaged by heavy rain.
N'dinzana	・In 2004, a vaccination station was built with adobe bricks following the example of a Phase 1 project.	・In use	Implemented before the pilot project
Sonsorobougou	・In 2007, soon after its establishment, the Community Development Committee took the lead in developing an agricultural road.	・In use	Tree-planting along the road is in progress.
Boussin/ Fakola	・In 2006, a well was built in a vegetable field. ・An independent microcredit system	・In use ・Operation is not satisfactory.	 Because of the funds shortage and lack of

	was established separately from that in the neighboring village.		accounting skills
Niamandiana	・In 2007, a well was constructed in a vegetable field.	・In use	
Biya	・In 2006, a well was constructed in a vegetable field.	・In use	
Yassalam	・In 2007, construction of a primary school started. ・In 2007, construction of a well in a vegetable field started.	・Construction in progress ・Well construction was suspended during the rainy season (because of heavy rain in the rainy season).	School construction is being partially supported by an influential person born in this village.
Sounsounkoro	・In 2007, an existing building was converted into a literacy school by repair and improvement works.	・In use	The original plan was to use the existing building as it was.
Boidie/ Seguela	・In 2007, two wells with concrete casing were constructed in a vegetable field.	・In use	Women using the vegetable field provided the money to buy the cement.
Malle	・A well was constructed in a vegetable field in 2006 and in 2007. ・Construction of a building for the microcredit scheme is planned.	・The well constructed in 2007 became unusable because of the collapse of the inner wall. The other is in use. ・Construction started	Because of heavy rain
Kabalan	・In 2006, a well was constructed in a vegetable field. ・Construction of a building for the microcredit scheme is planned.	・Unusable because of the collapse of the inner wall ・Construction started	Because of heavy rain
Diarabougou Siakabougou	・Construction of a building for the microcredit system is planned.	・Construction started	
Sana/ Kalala bamanan	・In 2007, UPA contribution money was collected independently to strengthen the monetary basis of the microcredit system.	・Collected as planned	
Zambana	・Planned swamp development and started aquaculture.	・In use	

5.2.11 Cooperation with international organizations

Cooperation with the following two organizations was promoted in the pilot project.

(1) Cooperation with GTZ

The ultimate goal of this study is 'prevention of desertification,' or 'conservation of land resources,' through farmer-centered sustainable community development. To achieve this goal, this pilot project has adopted the strategy of making farmers think about 'land use for resource conservation,' which includes components on which restrictions to farmers would have been imposed in the past, in the latter half of implementation of a series of small-scale comprehensive projects in which their livelihood has been stabilized through the implementation of the livelihood-improvement program.

Among the villages in Cinzana Commune in which projects were implemented in the first year of the study, two had not established a land use agreement (all the other ten villages had established land use agreements during the Phase 1 Study). Facilitation for the establishment of an agreement was

planned for the second year of the study. When we made contact with GTZ, which has cooperated with us since we implemented the Phase 1 Study, regarding the promotion of a land use agreement, we learned that GTZ was planning to implement activities for promotion of the establishment of a land use agreement (what GTZ was planning to do was practical awareness creation among the farmers through workshops) in the entire Cinzana Commune as part of PACT (promotion of decentralization) which was being implemented by GTZ. GTZ and we had several consultation meetings and decided to cooperate in promotion of the establishment of a land use agreement in the entire Cinzana Commune by synchronizing the implementation schedules.

As a result, an agreement was established with the participation of 70 villages, almost all of the 72 villages in Cinzana Commune, and the process of enforcement at administration level has been completed. Up to now, restrictions on tree-felling, reduction in charcoal making and activities in social forestry have been reported as the outcomes of this agreement.

(2) Cooperation with ICRAF

As one of the cooperation activities with international organizations (donors) with an activity base in Ségou Region, we promoted cooperation with ICRAF (World Agroforestry Centre) from the second year on. ICRAF has conducted a study on tree species which can be used effectively by the farmers in the area (use of multi-purpose trees such as *Acacia senegal* and *Ziziphys* and leaf buds of young baobab trees) and has achieved some success in field tests. However, it has acknowledged insufficient extension of the technology to ordinary farmers partly because of its weak extension system.

In the second year of the study, ICRAF dispatched lecturers in technology to the farmers in the villages included in this study free of charge and attempted to extend the technology. We also asked ICRAF to conduct training in how to grow *Acacia Senegal*, a priority species recommended for planting by ICRAF and DRCN, and other species.

In the third year of the study, ICRAF provided *Acacia senegal* and Bagani (*Jatropha curcas*) seeds to the nurseries in the pilot project villages in Cinzana Commune free of charge. With the additional cooperation of the Cinzana Commune Office, a program for transplanting *Acacia senegal* seedlings was implemented on deteriorated land (bare land in N'gokoro village) in the commune with the participation of farmers. Good growth of the seedlings was observed in almost all the nurseries in the villages and transplanting of the seedlings began in August 2006. This tree-planting activity was part of the 'social forestry activities' after the conclusion of the land use agreement in the entire Cinzana Commune which was realized with the cooperation of GTZ last year.

Overview of the afforestation site

Head of the commune (center) planting a tree

Transplantation of seedlings was carried out on a little over 3ha of land. However, though watering was conducted to a certain degree, because of insufficient protection against foraging by livestock and infrequent watering (the nearest water source is a swamp 1 km from the site, which dries up completely in January), the survival rate of the transplanted seedlings in February 2007 dropped to 30% by visual inspection. It fell further to approximately 25% in September. The height of the seedlings is on average around 15 cm and it is doubtful whether they can survive till the next rainy season. Thus, this project became an example of the difficulty of social forestry.

Condition of seedlings approximately 6 months after transplanting. The surviving trees are small and lack vigor.

Under such circumstances, the farmers continued the social forestry activities in 2007 by transplanting Bagani seedlings on approximately 4ha of adjacent land (current status: wasteland with mixed vegetation).

Newly transplanted Bagani (*Jatropha*) seedlings

5.3 Project monitoring

Monitoring of the entire pilot project was carried out as shown in Table 5-18. The focus of the monitoring was: 1) expansion/development and sustainability of the project by the Community Development Committees (performance of the small-scale comprehensive project and Community Development Committees), 2) possibility of the CAPs becoming facilitators through training (performance of CAPs), and 3) coordination and leadership capacities of the local administration (performance of the communes).

Table 5-18 Monitoring and evaluation methods by survey subject

Survey subject	Monitoring/Evaluation items	Monitoring/Evaluation points	Summary of the monitoring/evaluation
Operation of the Project Implementation Council	@ Attendance at the regular meetings @ Significance of the deliberation and relevance of the agreements reached at the regular meetings	@ Who are the appropriate participants of the meetings? @ What are the appropriate subjects as the agenda of the meetings? @ What type of proceeding is appropriate?	@ The representatives of almost all the relevant organizations attended the meetings. @ The meetings deliberated coordination and resolutions related to PP activity promotion. @ Leadership of the study team has been reduced and the local administration is taking the lead in setting the agenda and schedules.
Implementation of capacity-building training (training for CAPs)	@ Appropriateness of the training materials, curricula and methods @ Extent of improvement of CAPs' understanding and knowledge of training contents	@ Grasping areas with problems and areas with strong impact in the training	@ The training produced virtually the expected impact in the plan. @ The impact of the training in areas related to accounting and strengthening of organization was relatively weak. @ The CAPs were slow in understanding the subjects in which they had little working experience.
Development of extension tools	@ Frequency and ease of use of the tools		@ Not many suggestions for improvement or proposals from the users were collected.
Implementation of PRA survey	@ Extent of application of the training contents in the field and their effectiveness @ Time required for the PRA survey and the degree of fatigue of interviewers and interviewees	@ Appropriateness of the scope of work in the support work of the CAPs and the NGOs	@ The women's groups did not express their opinions or views sufficiently (as it takes time to make them feel at ease). @ Although partial simplification of the PRA tools is possible, six days in total are required per village.
	@ Appropriateness of the PRA technique	@ Is the draft plan truly designed by the farmers on their own initiative?	@ PRA cannot be implemented without the participation of NGOs. (It cannot be done only by CAPs.)
	@ Effectiveness of the OJT training provided by NGOs to the trainees		
Support for CGTV establishment and participatory preparation of draft project plans	@ Extent and effectiveness of the application of the training contents by the CAPs in the field @ Performance of organization formation by the farmers	@ Appropriateness of the scope of work in the support work of the CAPs and the NGOs	@ Organization formation was completed in a short time with few problems in every village. @ However, organization formation seemed to be performed with the expectation of support and without genuine consideration for 'the need to establish organizations.' @ The farmers' enthusiasm for draft plan preparation was high and they submitted a proposal for the communal use of facilities prepared by themselves. @ However, the identification of problems through PRA and linking of the problems to the project plan was insufficient. @ The instructions of the NGOs were appropriate, while some CAPs were seen waiting for instructions.
	@ Appropriateness of the support for the draft project plan preparation by the farmers	@ Is the draft plan truly designed by the farmers on their own initiative?	
	@ Effectiveness of the OJT training by the NGOs to the trainees		
Training of farmers' leaders	@ Degree of farmers' understanding of the training @ Extent of the realization of training impact @ Appropriateness of the advice of the instructors for strengthening of organizations	@ For which parts of the training can the administration take responsibility? @ Which parts of the farmer-to-farmer facilitation and technology transfer are effective?	@ Both the understanding and the will of the farmers were high. @ Workers from the administration should take responsibility for 'technical training which cannot be taught by the farmers from advanced villages'. @ Most of the tested farmer-to-farmer technology transfer had a great effect. (Farmers who have a

Survey subject	Monitoring/Evaluation items	Monitoring/Evaluation points	Summary of the monitoring/evaluation
	@ Effectiveness of the farmer-to-farmer facilitation and technology transfer.		better understanding of the local conditions may be better lecturers than outsiders.)
Presentation of project schedule and conditions to villages and project application by the villages	@ Extent of involvement of each administrative organization in the process of finalizing the project schedules and conditions @ Maturity of the discussion within the villages until they decided on submitting a project application. @ Appropriateness of trainees' advice in the discussions in each village	@ Does each organization participate and function sufficiently in the discussions of 'the Implementation Council?' @ Are the independence and democracy of the farmers guaranteed in the process of decision-making regarding the application?	@ Advice of the CAPs on installation sites for communal facilities, etc. was generally appropriate. @ However, a few CAPs did nothing but notify the study team of the views of only a few farmers.
Finalization of the project plans for PPs	@ Extent of involvement of the counterpart organization and communes	@ Can they prepare efficient plans while ensuring equality at village and commune levels?	@ Commune staff were involved in coordination for plan finalization (regarding the locations of vaccination stations and the villages in which mills are to be installed).
Designing and ordering of project facilities	@ Extent of involvement of the counterpart organization @ CAPs' understanding of the wishes of the farmers and degree of reflection in the design @ Accuracy and efficiency of the ordering	@ Can the DRA staff and the CAPs play a central part and smoothly carry out the design, ordering, and supervision of construction works ?	@ C/P and CAPs have improved their understanding of specifications. @ However, the study team still takes the lead in designing.
Implementation of projects and continuation of activities by the farmers	@ Appropriateness of the advice to the farmers during the project activities @ Independent development of initiatives for projects by the farmers alone @ Degree of realization of the project effects @ Effectiveness of the farmer-to-farmer facilitation and technology transfer	@ Methods of procurement of funds and materials when the farmers expand projects and take initiatives by themselves @ How much has external material assistance been reduced? @ Which parts of the farmer-to-farmer facilitation and technology transfer are effective?	@ The will of the farmers is extremely high and preparation of all the farmer's contribution is good. @ Self-construction of literacy schools and grain banks has expanded. @ As mentioned above, farmer-to-farmer technology transfer was very effective. @ The farmer lecturers functioned satisfactorily. When they stay overnight in backward villages to give lectures, impromptu 'discussion on PP' is organized after supper.
Assessment of indirect effects of the project	@ Indirect effects realized outside the PP project area.	@ Grasping of the process of realization of indirect effects	@ Positive effects have been seen in more than 30% of the villages surveyed.
Final evaluation of the study	Comprehensive analysis of the above-mentioned monitoring and evaluation	@ Has the capacity of the administration (including the CAPs) improved? @ Was the tested community development technique appropriate? @ Did the tested farmer support system function properly?	@ 80% of the trained CAPs became facilitators. @ In the majority of the villages in which PP was implemented, project activities are carried on by the CGTVs. @ The administration performed its support activities, but some agencies monitored the village conditions inadequately.

5.3.1 Monitoring of the small-scale comprehensive development project

(1) Monitoring of the project by each component

We established evaluation indicators for each component of the small-scale comprehensive development project as shown in Table 5-19. Data for the evaluation were collected regularly (every six months after the project came under the management of the Community Development Committees at the completion of the study.) The results of the evaluation based on the collected data are presented in the following chapter. A summary of the monitoring of each project is shown in Attachment I-10.

Table 5-19 Evaluation indicators for each project component

Project component		Project contents	Evaluation indicators	Evaluation criteria					
					1	2	3	4	5
Residents' project-operating capacity building project	Literacy rate improvement project	Construction of literacy schools and training of literacy teachers	Rate of increase in literate people (in 1st and 2nd groups)	Rate of increase against the baseline	Less than 50%	50% or more	100% or more	250% or more	750% or more
			Attendance rate in literacy classes (in 3rd group)	Proportion of the population	Less than 5%	5% or more	10% or more	20% or more	30% or more
	Micro-credit system setup support project	Support for the establishment of rural banks and assistance in procuring safes	Total funds	FCFA	Less than 1 million	1 million or more	3 million or more	4 million or more	5 million or more
EHN fulfillment project	Micro-credit system setup support project	Assistance in constructing large-aperture concrete wells and boreholes	State of use and management (qualitative)		Very poor	Poor	Average	Good	Excellent
Farmer's income stabilization project	Project for extension of improved seeds/fertilizers for rainfed farming products	Assistance in initial investment for the introduction of fertilizer and improved seeds	Unit yield of millet	(kg/ha)	Less than 400	400 or more	800 or more	1200 or more	1500 or more
	Small-scale vegetable cultivation project	Assistance in constructing fences around the water sources and vegetable fields	Usage rate of the vegetable fields	Proportion of the developed area	Less than 30%	30% or more	50% or more	70% or more	90% or more
	Cereal bank construction project	Assistance in constructing cereal banks and initial stocking	Stock amount/UPA	(kg)	Less than 25	25 or more	50 or more	75 or more	100 or more
	Construction of improved hen houses	Assistance in constructing improved hen houses	Number of chickens kept/UPA	(Number of chickens)	Less than 10	10 or more	20 or more	50 or more	100 or more
	Livestock fattening	Assistance in producing supplementary feed for sheep fattening	Annual results of fattening/UPA	(Number of sheep)	Less than 2	2 or more	3 or more	4 or more	5 or more
	Vaccination station construction project	Assistance in constructing vaccination stations	Vaccination rate	(%)	Less than 20	20 or more	40 or more	60 or more	90 or more
Natural resource conservation and management project	Mini-nurseries installation project	Assistance in developing nurseries	Number of seedlings raised per year	(Number of seedlings)	Less than 50	50 or more	100 or more	400 or more	800 or more
	Reforestation project	(Training only)	Number of seedlings transplanted per year	(Number of seedlings)	Less than 50	50 or more	100 or more	400 or more	800 or more
	Soil conservation project	Assistance in materials for soil conservation activities	Conservation activities (qualitative)		None at all	Rarely	Average	Active	Extremely active
	Land use rules establishment project	Facilitation of discussion among farmers	Sum of the evaluation of the status of enforcement of the rules and evaluation of the number of participants in the discussion (a) + (b)	Rules - (a)	Unenforced	Enforced	–	–	–
				(Number of people) - (b)	A few (0.5)	Less than 20 (1.0)	20 or more (1.5)	30 or more (2.0)	40 or more (2.5)
Women's labor reduction project	Milling plant construction project	Assistance in constructing milling plants and introducing machinery	Number of users per year	(people)	Less than 500	500 or more	2000 or more	2500 or more	3000 or more
	Improved oven manufacture and extension project	Assistance in production materials	Penetration rate of iron ovens	(%)	Less than 10	10 or more	35 or more	70 or more	90 or more
			Penetration rate of earthen ovens	(%)	Less than 30	30 or more	50 or more	70 or more	90 or more
	Handicraft manufacture and extension project	Assistance in production materials	Attendance rate in the activity	(%)	Less than 10	10 or more	30 or more	50 or more	70 or more
	Living improvement (health and sanitation improvement) project	Training for livelihood improvement	Cleanliness in the village (qualitative)	Frequency of cleaning	Every day	Frequently	(Once a week)	Occasionally	Never

(2) Monitoring of Community Development Committees

The study team conducted an interview survey of the farmers in all the villages involved in the Phase 1 and Phase 2 Studies, the contents of which are shown below (the details of the interview items and an example of the survey are described in Attachment I-11), and evaluated the performance of the Community Development Committees on the basis of the evaluation criteria shown in Table 5-20. The results of the evaluation are presented in the following chapter.

<Main points of the interview>

- Status of the activities of the Community Development Committee (fund management, etc.)

- Changes observed in the villages (in agriculture, life, natural resources, income, customs, decision-making process, women's status, etc.)
- Status of the pilot project (continuing and discontinued projects, expansion of the projects with self-help, initiatives taken in the project, etc.)
- The progress of countermeasures taken to deal with problems which emerged after the implementation of the pilot program
- The development vision of the Community Development Committees
- Activities and evaluation of the CAP in charge of the interviewee's village

Table 5-20 Criteria for evaluation of Community Development Committees

Evaluation subject	Three points	Two points	One point
Project expansion or project implementation on initiatives	The committee has expanded or implemented on its own initiative three or more projects.	The committee has expanded or implemented on its own initiative one or two projects.	The committee has done nothing in this regard.
Appropriate coordination and guidance when a problem arises among the farmers or those related to the project	Under the management of the Special Sub-Committee, the projects are implemented in a trouble-free fashion.	Although it is not clear where the responsibility of management lies, the project is being implemented.	Part of the project is on hold and the condition is not fully understood.
Vision of the direction of future development	The committee has a vision and is holding discussions on future plans.	The committee has a vision, but has not held discussions on future plans.	All the committee has done is to list the project items.
Proper fund management	The committee reports the funding condition to the farmers and records it in the ledger.	The committee reports the funding condition to the farmers.	The committee does not report the funding condition to the farmers.
Collection of the contribution money	Collected all the contribution money, except for the purchase of fertilizer and improved seeds, within a year.	Collected 80% or more of the contribution money mentioned in the column on the left within a year.	Less than 80% of the contribution money has been collected within a year.

(3) Survey on the extent of the improvement of literacy ability among the farmers

Recognizing that the literacy ability of the farmers was 'a necessary condition for trouble-free project management' because of its particularly strong connection with the performance of the project as a whole, the study team conducted an independent survey on 'the extent of the development of literacy ability' in addition to the regular evaluation indicator collection survey. We asked as many volunteer farmers as possible in each village to take a 'Literacy Ability Test' provided by the Ministry of Basic Education of Mali in June to August in the final year, 2007, and measured the extent of capacity development from the baseline. The analysis of the measurement results is described in the following chapter.

(4) Monitoring of the indirect impact of the project on the neighboring villages

The study team conducted an interview survey in the 94 villages near the 47 villages in the study area on the impact of the pilot project in these villages. The results of the evaluation based on this survey are presented in the following chapter.

5.3.2 Monitoring of CAPs

The methods of monitoring and evaluating the CAPs during the capacity-building training have already been mentioned in 5.2.4. Their performance in the OJT period was evaluated by the study team and the administration (mainly represented by C/P) on four points; ① attitude when making contact with farmers, ② communication skills, ③ problem-solving and coordination capacities, and ④ capacity in technology extension. They were evaluated on a scale of five, with five being the best. The performance of the project in the village under the charge of the CAP was taken into account in the final evaluation together with the above-mentioned four points. Meanwhile, "self-evaluation by the CAPs" was conducted six months after they started OJT using the questionnaire shown in Attachment I-12. The evaluation of the CAPs, taking into consideration the above-mentioned results, is given in the following chapter.

5.3.3 Monitoring of the local administration

By monitoring the proceedings of the Commune Council Meetings held regularly in each commune and conducting a questionnaire inquiry of the communes in the final (fourth) year of the study, the coordination and leadership capacities of the local administration were evaluated using the criteria shown in Table 5-21. The results of the evaluation are described in the following chapter.

Table 5-21 Criteria for evaluating the communes

Evaluation subject	Three points	Two points	One point
1 Frequency of Council Meetings	The meetings are convened twice or more in a month on a regular basis.	The meetings are convened once a month on a regular basis.	The meetings are convened irregularly.
2 Frequency of visits to the villages by commune workers	They visit the villages once or more a month on a regular basis.	They visit the villages less than once a month.	They do not go to the villages.
3 Recognition of the role of the Implementation Council	The commune has constructive ideas for future development.	The commune recognizes the purpose of project monitoring.	The commune holds meetings only for this study.
4 Independent source of revenue for holding Implementation Council meetings	The commune maintains an independent source of revenue.	The commune expects external support.	The commune has no independent source of revenue.
5 Cooperation and coordination of activities with other donors	The commune has good cooperation with donors and its activities are coordinated with those of the donors.	The commune cooperates with donors but does not coordinate its activities with those of the donors.	The commune does not cooperate with donors.

CHAPTER 6 Project evaluation

6.1 Baseline Evaluation

Through the Phase 1 Study, three factors that had a very important influence on project performance were addressed: “basic educational level of residents”, “ability of resident leaders” and “ability of facilitators”. Regarding the two factors, “basic educational level of residents” and “ability of resident leaders”, there were considerable differences between the villages under the baseline conditions before the start of this Project. It was predicted that this would affect the performance of the pilot project in this Study. The baseline conditions of each village are shown in Table 6-1 for analysis of the relation between the “project evaluation items” as described in and after Section 6.2 and these two factors which were “predicted to have an influence”. In this Study, evaluation of facilitators is conducted to define the “potential of administrative officials to foster facilitators”. Therefore, the factor, “existence of someone with power who acts tyrannically”, which was predicted to have an influence on the evaluation of facilitators, was included in the same table (from the past experience of the Study Team in which, if such a powerful person existed in a village, facilitating activities faced various direct and indirect problems, which handicapped the facilitators). The correlativity with PP performance evaluation (plus and minus, strong and weak) is shown in the column at the bottom of the table. This correlativity will be described in detail in the next and following sections.

Table 6-1 Evaluation of Village Baseline Conditions

Year/ Commune	Name of Village	Natural Conditions		Socioeconomic Conditions					Project Input	Other	PP Project Evaluation
		Groundwater Level	Surface Runoff (Distance km)	Population	Literacy	Basic Education	Existence of Competent Leaders	Access to Large Market	Competent Facilitators	Existence of Tyranny Leaders	
2004 / Cinzana Commune	Diambougou	30m	Far-away	261	×	×	○	△			○
	Kondia	30m	Far-away	1150	△	○	○	×	○		○
	Kondiabougou	30m	Far-away	170	×	△		×			△
	Bougoukourala	30m	Far-away	406	△	×		×			△
	N'gakoro	25m	Far-away	1827	×	○		×			△
	Sirango	30m	Far-away	339	×	×		×			×
	Tianwere	30m	Far-away	286	×	×		×			×
	N'golobougou	30m	Far-away	347	○	△		×		▲	△
	Batarawere	30m	Far-away	199	×	×		×			△
	Findla	30m	Far-away	288	×	×	○	×			○
	Kondogola	25m	Far-away	1788	△	○	○	○			○
	Cinzana village	25m	Far-away	824	×	○	○	○			△
	Average	**30m or so**	**Far-away**	**657**	**△**	**△**	**○**	**△**			**○**
2005 / Boidie Commune	Boidie were	10m	Far-away	124	△	△	○	×			○
	Diarrabougou	8m	1.5km	522	×	×		×	○		△
	Djidabougou	8m	1km	680	△	×	○	×			○
	Kabalan	10m	Far-away	550	△	△		×			○
	Kamba	10m	Far-away	1712	×	○	○	×			×
	Malle	12m	Far-away	842	×	○	○	×	○		○
	Siakabougou	12m	Far-away	311	△	△		×			△
	Wintinguibougou	10m	Far-away	216	×	×	○	×	○		○
	Seguela	6m	200m	1117	○	○		○		●	×
	Dlengo	6m	200m	626	×	○		○			△
	Average	**9m**	**Near**	**670**	**△**	**○**	**○**	**△**			**○**
2005 / Boussin Commune	Samabougou S	28	Far-away	709	△	×		×			×
	Samabougou-W	29	Far-away	486	×	×		×			×
	Timini	27	Far-away	310	○	×		×			×
	Biya	30	Far-away	923	×	×		×			×
	Dadembougou	30	Far-away	434	×	×	○	×			△
	Niamadiana	27	Far-away	278	×	×		×			△
	Ouladiambougou	29	Far-away	423	△	×		×			×
	Yassalam	29	Far-away	551	×	×		×			×
	Fakola	27	Far-away	463	△	×		△		▲	×
	Sounsounkoro	27	Far-away	359	△	×		×			×
	Average	**28m**	**Far-away**	**494**	**△**	**×**	**×**	**×**			**×**
2006 / Cinzana Commune	Ouendja	35m	Far-away	376	○	△		△			×
	N'Dinzana	30m	Far-away	828	△	×		×			△
	Falema	35m	Far-away	341	△	×		△			×
	Diakoro	30m	Far-away	341	△	×		×			×
	Fobougou	30m	Far-away	493	△	×	○	×			△
	Sonsorobougou	35m	Far-away	757	×	×	○	△			△
	Average	**Over 30m**	**Far-away**	**523**	**○**	**×**		**△**			**△**
2006 / Sana Commune	Kienkourou	20m	Far-away	910	△	△		×			△
	Koungodiani	20m	Far-away	668	△	△		×			×
	Kokambougou	19m	Far-away	623	△	△		×			△
	Kerta	20m	Far-away	1611	△	○		×			×
	Kalala Bamanan	19m	Far-away	375	△	△		×			○
	Soun Bamanan	18m	Far-away	2268	△	○	○	×			△
	Soun Marka	18m	Far-away	1845	△	○		×			×
	Kien	22m	Far-away	198	△	×		×			△
	Zambana	24m or so	Far-away	598	×	△	○	×			△
	Average	**20m or so**	**Far-away**	**1,011**	**○**	**○**		**×**			**△**
Correlation with PP Evaluation	Positive＋ Negative－	Weak＋	None	None	Weak＋	＋	Strong＋	None	Strong＋	－	

6.2 Evaluation of Small-scale Comprehensive Development Project

6.2.1 Project Performance

The results of evaluation of the indices collected on the project components that make up the small-scale comprehensive development project are shown in Table 6-2. Evaluation is based on impact evaluation indices, and the process (qualitative evaluation) which yielded these results is not reflected in figures. However, for the project components which indicate the factor, "independent expansion/development activity by residents' ideas", as shown in Table 5-17 in item 5) in Sub-section 5.2.11, 0.5 point was added to the index-based evaluation value.

As a result of the project evaluation, the villages in Boidie Commune received relatively high points and those in Boussin Commune received low points. Cinzana (1G) received medium points and was positioned between the two communes. (Cinzana 1G was supported by CAPs (village counselors) for a longer period than the other communes, and the points of the villages should be underestimated a little.) In the two communes of Sana and Cinzana (3G), the construction of facilities by villagers was completed in March 2007 and the Terroir Management Committees were just launched. These communes had a short CAP support period and a simple comparison with other communes is not possible.

One of the reasons for the low evaluation of Boussin Commune was perhaps that the places of residence of the village instructors were far away from the villages that they were assigned to. In addition, other reasons for the literacy rate being so low were that the ability of the villagers had not improved since the start of the project and the guidance and coordination by the commune were insufficient. However, as a whole, it was determined that most of the projects in all 47 villages were continued without any problem and the method adopted in the PP was effective enough.

The general features of the villages that were highly evaluated in project performance are as follows:

(1) Villages which have good leaders (strong correlation with evaluation)
Villages which have multi-talented officials (leaders) in the Terroir Management Committee are highly evaluated. (Example: Kondogola, Kondia, Malle and Sonsorobougou) There are no exceptions.

(2) Villages to which good facilitators are assigned (relatively strong correlation)
(Example: Kondia, Diambougou, Wintinguibougou) An exception is Sonsorobougou.

(3) The performance of the microcredit project is linked with that of other projects on the whole (relatively strong correlation).
The operation of a microcredit project requires important factors common to many projects, such as not only "literacy" and "accounting capacity" but also "observance of rules" and "transparent disclosure", and the existence of such a project generates a brush-up effect for these factors.

Table 6-2 Evaluation of Project Performance by Village

Project Component		Resident's capacity building		BHN	Stabilization of farmers' incomes (Agro-Stock-Sylvi-productivity Improvement)						Natural Resources Management				Alleviation of Women's Labor					Total Marks by Village *1
Year/ Commune	Name of Village	Improvement of Literacy	Micro-credit System	Modern Well Construction	Supply of Fertilizers/Seeds	Small-scale Vegetable Cultivation	Cereal Bank	Improved Henhouse	Stock Raising - Sheep	Vaccination Station	Mini-nurseries	Reforestation	Soil Conservation	Establishment of Land Use Rules	Milling Plant	Improved Oven Iron-made	Improved Oven Earth-made	Handicraft	Training for Living Improvement	
2004 / Cinzana Commune	Diambougou	3		4	3	4	4	3	3	5	5	2	3	3.5		3	4	4	4	72
	Kondia	2	5	3	3	4	5	3	2	5	1	5	3	2.5	5	3	5	3	4	71
	Kondiabougou	4		3	4	4	5	3	1	5	1	4	2	2.5		4	5	4	3	68
	Bougoukourala	1		4	2	4	1	2	3	5	5	3	2	3		3	5	2	3	60
	N'gakoro	1	3	3	3	4.5	5	3	4	5	5	3	2	4	3	2	5	2	3	67
	Sirango	3	2		3	4	1	3	1	5	4	2	3	3		3	5	3	2	59
	Tianwere	3		3	2	4	2	2	1	5	3	3	2	2.5		3	4	2	4	57
	N'golobougou	1		4	2	3	5	2	5	4	3	1	3	3		5	5	4	3	66
	Batarawere	3		4	3	4	3	1	1	5	3	1	2	3		3	5	4	3	60
	Findla	3	4.5	4	3	4	5	2	3	5	4	3	2	3		3	3	4	4	70
	Kondogola	1		4	3	4		3	3	5	2	4	4	4.5		5	5	2	4	71
	Cinzana village	3		3	3			3	4	5	1	4	2	4	5	3	5	2	4	68
	Average	**2.33**	**3.63**	**3.55**	**2.83**	**3.95**	**3.60**	**2.50**	**2.58**	**4.92**	**3.08**	**2.92**	**2.50**	**3.21**	**4.33**	**3.33**	**4.67**	**3.00**	**3.42**	**66**
2005 / Boidie Commune	Boidie were	3		4	3	4	5	2	4	5	3	3	2	3		5	5	4	3	73
	Diarrabougou	3	4.5	4	2	1	4	3	2	5	3	3	3	3		3	5	4	3	65
	Djidabougou	5		4	2	4	4	3	1	5	4	3	3	3		2	5	4	4	70
	Kabalan	1	4.5	4	4	3.5	5	4	5	5	2	3	2	3		3	5	3	3	71
	Kamba	3		4	3	4	1	2	1	5	3	4	3	3.5	5	3	3	2	4	63
	Malle	3	5	4	2	4.5	4	2	3	5	4	3	3	3		2	5	4	4	71
	Siakabougou	3	3.5	4	2	4	5	4	4	5	3	3	2	3.5		2	5	3	3	69
	Wintinguibougou	5		4	2	4	5	4	1	5	5	4	2	3		3	5	4	4	75
	Seguela	1			3	3.5	2	2	2	5	2	4	3	3		2	3	2	3	54
	Dlengo	3			3	4	4	3	1	5	4	3	2	3	3	3	5	4	3	66
	Average	**3.00**	**4.38**	**4.00**	**2.60**	**3.65**	**3.90**	**2.90**	**2.40**	**5.00**	**3.30**	**3.30**	**2.50**	**3.10**	**4.00**	**2.80**	**4.60**	**3.40**	**3.40**	**68**
2005 / Boussin Commune	Samabougou Sokala	1	2	4	2	1	1	2	1	4	4	1	3	2.5	2	1	3	2	3	44
	Samabougou-were	3		3	3	1	2	2	1	5	4	1	2	3		2	5	3	2	53
	Timini	1		4	2	4	3	4	1	5	4	1	2	1.5		2	5	3	3	57
	Biya	2	2	3	3	4.5	1	3	1	5	4	3	2	1.5	2	2	5	4	3	57
	Dadembougou	5		4	2	3	5	3	2	5	3	2	2	2.5		2	5	4	4	67
	Niamadiana	3		4	2	4.5	5	2	1	3	3	1	3	2.5		2	5	4	3	60
	Ouladiambougou	2	2	3	2	4	2	2	2	5	1	1	3	3		5	5	2	2	54
	Yassalam	3	4	4	2	1.5	4	3	1	5	3	1	3	3		2	5	2	4	59
	Fakola	3		4	3	4	5	3	1	5	3	1	2	2	2	2	5	2	3	59
	Sounsounkoro	1.5			3	4	5	3	1	5	1	1	2	2.5		3	5	2	4	57
	Average	**2.45**	**2.50**	**3.67**	**2.40**	**3.15**	**3.30**	**2.70**	**1.20**	**4.70**	**3.00**	**1.30**	**2.40**	**2.40**	**2.00**	**2.30**	**4.80**	**2.80**	**3.10**	**57**
2006 / Cinzana Commune	Ouendja	2	2	3	3	-	3	2	4	1	4	3	3	4		2	2	2	3	54
	N'Dinzana	1		3	2	-	5	3	5	5	3	3	2	3	2	3	3	2	4	61
	Falema	3	1	3	3	-	2	2	2	5	5	3	2	3	2	3	2	4	2	55
	Diakoro	1			3	-	4	2	4	5	4	1	2	2.5		2	3	4	3	58
	Fobougou	2		3	3	-	5	3	5	5	5	1	2	3	2	1	5	4	4	66
	Sonsorobougou	2		3	4	-	2	3	3	5	3	3	3	3		3	5	2	4	64
	Average	**1.83**	**1.50**	**3.00**	**3.00**	**-**	**3.50**	**2.50**	**3.83**	**4.33**	**4.00**	**2.33**	**2.33**	**3.08**	**2.00**	**2.33**	**3.33**	**3.00**	**3.33**	**60**
2006 / Sana Commune	Kienkourou	1	2	3	1	-	2	4	5	5	5	3	3	-	2	3	5	2	3	61
	Koungodiani	3		3	2	-	2	2	3	5	3	2	4	-	2	2	2	3	3	55
	Kokambougou	2		4	2	-	2	3	5	5	3	5	2	-	2	2	5	4	3	65
	Kerta	1	1	3	2	-	2	3	5	5	5	3	2	-	1	2	5	2	3	56
	Kalala Bamanan	3		3	2	-	5	3	5	5	4	4	2	-		2	5	3	3	70
	Soun Bamanan	1	3		2	-	2	3	2	5	3	5	3	-	2	2	5	3	4	60
	Soun Marka	1		4	2	-	2	3	5	5	3	5	2	-		1	2	2	4	59
	Kien	3		3	2	-	3	2	5	5	4	1	3	-		2	5	4	3	64
	Zambana	2		3	2	-	2	3	3	5	4	3	2	-		2	5	2	4	60
	Average	**1.89**	**2.00**	**3.25**	**1.89**	**-**	**2.44**	**2.89**	**4.22**	**5.00**	**3.78**	**3.44**	**2.56**	**-**	**1.80**	**2.00**	**4.33**	**2.78**	**3.33**	**61**

*1 The total marks by village are evaluated relative to 100 marks by multiplying the average marks by 20.

If the microcredit project can be operated well, other projects can also be operated well. The microcredit project is very important for the sustainability of all other projects. The profits from microcredit can be appropriated for costs such as instructors' fees for literacy classes. Thus, it is easy to maintain the sustainability of the entire PP project by appropriating the operating profit from the microcredit project for the running costs of other public projects from which it is difficult to obtain a direct income.

BOX: Success factors of microcredit projects in Ségou
Microcredit projects as PP are operated well. One success factor that cannot be overlooked is the social background of this region. In Ségou Region, there is a custom similar to "ostracism" in Japan. (Anybody who fails to observe the village customs and rules or acts to harm the credibility of others is strictly excluded from the village.) The social background of the Bambara who live mainly by settled farming is such that the microcredit system based on credibility among villagers is easily acceptable. It cannot be overlooked that this background was a success factor.
The following major differences between these microcredit projects and the former ones are observed : ① the financial share of residents are restituted so that residents use their own financial resources as MC funds; ② a thoroughful training and follow-up are being done and a management system built for an accurate transparency of expenses; ③ microcredit is co-managed by several villages, and supervised by the CGTVs; ④ access to microcredit is made easy through cheap membership, users are increasing, credit is secured and follow-up is appropriately executed.
However, considering this social background, it is unthinkable that the MC system will be operated well in the entire West African region.

(4) Villages with a high basic educational level (relatively weak correlation)

There are some exceptions, such as Seguela Village where the project evaluation was not very good (though there is a primary school, and the basic educational level and literacy in French are high). Basic ability is important, but a key factor for evaluation is thought to be the "existence of good leaders".

It was determined that the reason why the project activities were favorable as a whole was that the adopted method was reasonable. The advantages of the small-scale comprehensive development method to lead projects to success are as follows:

(1) Timely efforts for short-term, direct profit-making projects

The projects that are the most popular programs and are tackled enthusiastically by the villagers are "soap manufacture" and "vegetable cultivation in the dry season". This is clearly proved in the "independent expansion/development activity by residents' ideas" as shown in Table 5-17 and in the "independent activity by the residents in the surrounding areas" in the table shown later. These projects ("directly-profitable projects") had the following common features: ① personal income is steadily obtained in the short term; ② products which are not sold externally can be consumed by the villagers themselves; ③ self-consumption is advantageous in improving nutrition and sanitation; and ④ women's development is promoted. The method of starting the activities for such popular projects early and leading to activities for environmental conservation projects such as reforestation

and soil conservation which have a highly public nature (namely, "indirect profit-making projects" which are less popular but bring profits to residents indirectly or in the long term) was successful.

(2) Comprehensive project menu layout

Most small-scale comprehensive projects were implemented in the form of measures related to "activities for residents to tackle (to desire to tackle)" that were defined in the PRA study. They are so-called "all-villager-participation–type projects". In such projects, every villager can have an interest in any project component and be willing to participate in it. In addition, it is effective in that a diversity of project components yields a synergy effect. For instance, the construction of milling plants brings spare hours to women, who can use the spare time for handicraft manufacture, sheep-raising or training in living standards improvement, and also for improved oven manufacture. As a result, firewood collecting hours can be shortened to make more spare time. The extension of these activities by residents in all the villages was confirmed in the "interviews with residents" as described in the next subsection.

BOX : Comparison of the Study with similar projects

The FODESA is a comprehensive development program implemented in this area, but it cannot be strictly defined as such. The following table shows the main differences by the FODESA and our Study.

Items	Present Study	FODESA
Residents' approach and facilitation	During a period of facilitation of several months, the following activities are carried out : PRA/PLA→ support to villager organization (training in advanced areas) → Leaders' training → Support for the preparation of activity plan	Villages are selected annually in the Communes as the target zone. The DRA staff explains the projects to the residents, etc. but there is no PRA/PLA study or support implemented to organize residents, and this is left to their initiative.
Content of projects	A project menu including many soft components (trainings) (22 components, including projects targeting increase in farmers' revenue)	More than 30 components focused on the management of public installations and equipments (improvement of ponds and livestock market are not included in the PP)
Financial contribution	The residents are required to provide the labor force for simple work, as well as materials procurable in villages. The residents' contribution money is restituted afterwards to CGTV as the funds for microcredit.	According to this system, the residents' share amounts to 7 to 10% of the project cost, and if they provide a great amount of labor, then the contribution money is reduced. The share is not fed back to residents.

Since 2006, the world Bank in implementing a PACR program to support rural communities in the cercles of the Ségou region. Since the PACR contributes to the capability-building in management of the still weak municipal councils and offices, and awards funds in order to promote commune development programs, micro-projects are implemented in the fields of environment and socio-economics.

The support is intended for villages with an existing organization or having organized one. The residents send an application for micro-projects to the commune, then their requests are examined and approved. Facilitation is also carried out in the FODESA programme, but the fields of residents' capacity-building are insufficient.

6.2.2 Performance of Village Terroir Development Committees

Interviews with villagers for performance evaluation of the Terroir Management Committee s (CGTVs) were also conducted in the villages in the Phase 1 Study. These interviews were intended to grasp the village situation about 5 years after completion of the Phase 1 Pilot Project and to use the baseline for evaluation of the Terroir Management Committee s of the target villages in the Phase 2 Study.

(1) Phase 1 villages

In 75% (9 villages) of the 12 Phase-1 villages, the Terroir Management Committees were steadily continuing their activities. In one of the remaining 3 villages (Dougoutigibouguou), CGTV activities failed completely. The officials existed conventionally, but systematic activities were at a standstill and most of the project activities that had been continued so far were suspended except some personal activities, so all the project effects that had been gained "came to nothing". The causes of this failure were deduced from the interviews as follows, though the villagers did not state the true reasons.

1) There were serious conflicts within the CGTV and no mutual trust existed between the chairman and the other officials. (Interview survey could not be continued and stopped because the opposing group spoke against the chairman and jumped to "criticism of the chairman".)
2) The residents in Dougoutigibouguou remarked that only microcredit (MC) was continued, but the manager in charge of MC had left the village several months ago and only came to the village for MC activities from time to time. There was no other person who knew the actual MC conditions. The conflicts within the committees seem to have arisen from differences of opinion on the policy of MC management and operation among the officials.
3) According to the counterpart who was present at the interviews in one village, the former village leader who had been competent had died 2 years earlier, and the conflict among the villagers had begun when he was replaced by a new village leader. It is presumed that it was difficult for the new village leader to reconcile and resolve the differences of opinion among the villagers.

One of the remaining 2 villages that were not conducting good organizational activities (Siradoba) had not implemented any activities since the first half year of 2005 and only MC activity had been continued. However, the actual MC status was not clear and there were more MC users from the surrounding area than within the village. One of the officials of the CGTV could not reply clearly to the interview. The breakdown of project activities in Siradoba village presumably resulted from insufficient capability building for the residents unlike Dougoutigibougou village. (Among all 12 villages under the Phase-1 project, Siradoba village ranked at the lowest place in the basic abilities of residents such as literacy rate.) In this village, the project activities were continued by the residents' organization for a time without the support of facilitators (which ceased in January 2003), but

thereafter, it is presumed that the activities came to a halt because of insufficient capability in operation and management.

Another village (Fabougou) in which organizational activities were not good had been at a standstill since late 2005, but many project activities (such as the milling plant, MC, literacy education, supply of fertilizers, stock-raising and women's activities) had been continued as group activities. The conventional officials of the organization replied that "group activities alone were enough" and that the CGTV had not conducted activities because they did not feel it necessary for the CGTV to manage all the activities. In this situation, no discussion had been held among the villagers on "future activities for village development" or "coordination among activity groups".

The causes of suspension of CGTV activities can be summarized as follows:

1) "Residents' capacity building" was insufficient in the villages that originally had a low basic capability level such as literacy.
2) The facilitators assigned to such villages were low quality.
3) There were and are no "good leaders, not only in the CGTV, but also in the villages".

In the Phase 1 villages, a "75% success rate" was generally achieved 4 or 5 years after the assistance project was completed. In 9 villages other than the 3 villages mentioned above, the CGTVs continued to conduct activities. Some of those villages were conducting expansion activities on their own initiative, such as the CGTV managing joint field operation (4 villages), conducting joint activities for soil improvement (1 village), adjusting the loans to all the villagers under MC loan reservations for the supply of fertilizers and stock-raising (1 village), and constructing a cereal bank (1 village), a vaccination station (3 villages) and an MC building (4 villages).

(2) Phase 2 villages

The results of evaluation of the CGTVs based on interviews in the Phase 2 villages are shown in Table 6-3, with the results of evaluation based on a questionnaire to each Commune Office indicated for reference in the right-hand column. The CGVT of each village is evaluated in 5 levels based on 5 items: "independence", "coordination capacity", "positive attitude", "leadership" and "operating ability". The evaluation results of the CGTVs were linked with the evaluation results of "project performance". In detailed consideration of each village, however, all the "good CGTVs" in the Phase 2 villages do not correlate with "good project performance".

On the other hand, the results of interviews with villagers in the Phase 1 villages made clear the fact that the villages with "good CGTVs" have continued and eventually expanded their projects steadily in the course of time. In the Phase 1 villages the evaluation results of the CGTVs fully corresponded with the evaluation results of project performance in the 4 years since the construction projects were completed and taken over from the external aid organizations. As seen from this fact, the villages

with good evaluation results for the residents' organizations had a high potential for sustainable development, even if the project performance had a low evaluation. On the contrary, the villages with a low evaluation of their residents' organization raised concern about project sustainability, even if the project performance was highly evaluated. Such villages will improve their project sustainability if they exert efforts to improve their residents' organizations in future.

Table 6-3 Evaluation of Village Terroir Development Committees

Year/ Commune	Evaluation Item / Village	Evaluation by Interview Survey						Evaluation by Commune					
		Expansion Project	Leader-ship	Future Concept	Fund Control	Share of Money	**Total**	Indepen- dence	Coordi-nation Capacity	Positive-ness	Leader-ship	Operat-ing Capacity	**Total**
2004 / Cinzana Commune	Diambougou	3	2	2	3	3	**13**	4	4	3	4	4	**19**
	Kondia	3	2	3	2	3	**13**	4	3	4	4	4	**19**
	Kondiabougou	2	2	2	2	2	**10**	3	3	4	2	3	**15**
	Bougoukourala	3	1	1	3	3	**11**	2	2	2	2	2	**10**
	N'gakoro	2	1	1	2	3	**9**	4	4	4	3	2	**17**
	Sirango	2	1	1	1	1	**6**	3	3	4	3	3	**16**
	Tianwere	2	2	3	2	3	**12**	2	3	4	3	3	**15**
	N'golobougou	2	2	1	1	3	**9**	3	2	3	2	2	**12**
	Batarawere	2	3	3	2	1	**11**	4	3	4	4	3	**18**
	Findla	3	3	2	2	3	**13**	2	2	3	4	4	**15**
	Kondogola	3	3	3	3	1	**13**	5	4	4	4	4	**21**
	Cinzana village	3	3	3	3	1	**13**	4	3	4	3	3	**17**
	Average						**11.08**						
2005 / Boidie Commune	Boidie were	2	1	2	2	3	**10**	2.5	2	3	2	3	**12.5**
	Diarrabougou	3	2	2	1	3	**11**	4	4	4	4	4.5	**20.5**
	Djidabougou	3	2	3	2	3	**13**	4	4	4	4	4	**20**
	Kabalan	3	1	1	1	3	**9**	3	2.5	3	2	3	**13.5**
	Kamba	3	3	2	2	3	**13**	4	3.5	3	4	4	**18.5**
	Malle	3	3	2	3	3	**14**	4.5	4	4	4	4	**20.5**
	Siakabougou	3	1	2	2	3	**11**	3.5	4	4	4	4	**19.5**
	Wintinguibougou	2	2	2	3	3	**12**	4.5	4	4	4	4	**20.5**
	Seguela	2	2	2	1	3	**10**	2.5	2.5	2.5	3	2.5	**13**
	Dlengo	3	1	1	3	3	**11**	3	3	3.5	3	3	**15.5**
	Average						**11.40**						
2005 / Boussin Commune	Samabougou	3	1	2	2	1	**9**	3	3	3	2	3	**14**
	Samabougou-were	2	1	2	1	1	**7**	4	4	3	3	4	**18**
	Timini	3	2	2	3	1	**11**	4	4	3	4	3	**18**
	Biya	2	1	2	3	1	**9**	3	3	3	2	2	**13**
	Dadembougou	3	3	2	3	3	**14**	2	2	3	2	3	**12**
	Niamadiana	2	1	2	3	3	**11**	4	4	4	3	4	**19**
	Ouladiambougou	2	2	2	1	1	**8**	2	2	3	2	3	**12**
	Yassalam	3	2	2	2	3	**12**	4	4	4	4	4	**20**
	Fakola	2	2	2	1	3	**10**	4	3	4	3	2	**16**
	Sounsounkoro	3	3	2	1	3	**12**	2	2	3	2	3	**12**
	Average						**10.30**						
2006 / Cinzana Commune	Ouendja	2	2	1	3	3	**11**	4	3	4	3	3	**17**
	N'Dinzana	2	2	2	3	3	**12**	3	3	3	4	4	**17**
	Falema	1	2	1	3	1	**8**	2	2	3	2	2	**11**
	Diakoro	1	2	1	3	3	**10**	2	3	2	3	4	**14**
	Fobougou	2	3	2	3	3	**13**	4	3	3	4	3	**17**
	Sonsorobougou	3	3	2	2	3	**13**	2	2	3	2	3	**12**
	Average						**11.17**						
2006 / Sana Commune	Kienkourou	3	1	2	1	3	**10**	2	3	3	2	3	**13**
	Koungodiani	2	1	1	3	3	**10**	4	3	4	4	4	**19**
	Kokambougou	2	2	2	2	3	**11**	3	3	4	3	4	**17**
	Kerta	2	1	2	2	3	**10**	4	3	3	4	5	**19**
	Kalala Bamanan	2	2	1	3	3	**11**	4	3	4	4	4	**19**
	Soun Bamanan	3	3	2	3	3	**14**	3	3	4	4	4	**18**
	Soun Marka	3	2	2	2	3	**12**	3	3	3	5	4	**18**
	Kien	1	2	1	2	3	**9**	3	3	4	3	3	**16**
	Zambana	2	2	3	3	3	**13**	3	3	4	4	4	**18**
	Average						**11.11**						

Note: The marks of evaluation by Commune are only reference values for comparison of the Phase-2 villages, but the comparison of Communes are irrelevant. The evaluation by Boussin Commune is substantially different from the evaluation by the Study Team. It cannot help determining that the Commune Office could not fully grasp the conditions of each village.

Of the 47 Phase 2 villages in which support by facilitators continued soon after completion of the construction projects, only one village (Sirango) lacked the organizational activities of the CGTV. In this village, the chairman of the committee controlled the activities of each project group himself, with the exception of some projects such as MC. It could not be said that the organizational activities were promoted from an objective point of view, but each project component was operated by the chairman and each project group. The organizations were formed by external support (required by facilitators) and there were perfunctory officials, but the essential significance of the "Village Terroir Development Committee" was not originally recognized. This village is an extraordinary case among the 47 villages. The basic cause of this failure was essentially the lack of recognition by facilitators. Although no organizational activities were conducted, the CAP in charge of this village had not grasped the situation and the problem was not recognized until this fact became clear in the village interviews in the final year of the study period. The problem, of course, was not discussed in the Commune Council. This failure resulted from the fact that the project activities were only observed superficially and no attention was paid to the residents who should undertake such activities.

The high evaluation of the CGTV in Boidie Commune is linked with the evaluation of the small-scale comprehensive project. The highly evaluated villages are generally characteristic of guidance by the commune in addition to 4 points: existence of good leaders, assignment of good facilitators, high evaluation of microcredit project and high basic capacity of residents, similar to the evaluation of the small-scale comprehensive projects. In Boidie Commune, the Commune Office had a good grasp of the activities of the CGTV of each village and provided appropriate guidance and support to each village through the Commune Council. This had a favorable influence on the performance of each CGTV.

It is the "leader's capacity" that is most highly correlated with the performance of the CGTV. The "capacity" of the leader in this sense includes clerical capabilities such as literacy and accounting as one important element, of course, but the more important elements are rather "volunteer spirit", "well trusted by the villagers", "earnest and willing to promote development" and "energetic behavior". The CGTV of villages in which there are several leaders with such high capabilities conduct the best organizational activities. Kondia and Malle villages are typical examples of such CGTVs. If there is only one competent leader in a village, there is no problem while such a leader exists, but if he dies or leaves the village to work in another area, the organizational activities may become inactive (because the villagers may become discouraged). In addition, if there is only one competent leader, he might not be supervised or controlled if he leads recklessly.

98% of the Phase 2 villages have maintained their CGTVs. However, through the series of village interviews, those villages presented a weaker impression of "recognition by residents of their role" than the Phase 1 villages. This difference is considered to be attributable to the difference in the level

of contact with the facilitators. In the Phase 1 Study, each of the facilitators was settled in the village or in a neighboring village, so the villagers could consult him anytime as needed. In the Phase 2 Study, the facilitators visited the villages once every several days from the base commune or a place distant from the villages. Thus, there were cases in which the villagers could not contact their facilitator as they desired if the timing of the visit was not convenient.

The residents of the villages could not fully acquire project operating ability through a single training. The residents do not learn methods of solving problems or request the facilitator for support in "learning the methods" often until they actually face the problems. Therefore, they improve their capacity gradually in learning "what to do". From this point of view, it is feared that the organizational sustainability of the Phase 2 villages will be lower than the Phase 1 villages that have maintained an organizational sustainability of 75% during the course of nearly 5 years.

Through the village interviews, it became clear that the capability of residents was not adequately improved. The projects listed below faced large obstacles that caused them to fail in some villages, but there were other villages in which the capacity of the residents and the committee that guided them was fully adequate for the following projects:

1) Operation of microcredit system
2) Operation of milling plant
3) Operation of cereal bank

All these projects require accounting management technology. The DRA and the facilitators in charge are required to continuously follow up the capacity building in accounting management technology.

6.2.3 Literacy Improvement Level of Residents

As described above, the "basic capacity of residents" is one of the elements that affect project performance. The basic capacity of residents is largely based on literacy ability. According to UNESCO data, the literacy rate at age 15 or higher in Mali is 27% for men and 12% for women (estimated by the government for the period 2000 to 2004). The percentage of people who complete basic education is estimated to be approximately 30% (2002 to 2003). However, the literacy rate in the villages in the study area was a single figure or less and several % in good villages and less than 1% in bad villages.

Therefore, the program to "foster literacy instructors in the villages" is implemented as one of the PP (small-scale comprehensive projects), so that such literacy instructors can provide literacy training in the villages to improve the literacy rate. The results of the "Study of the Literacy Improvement Level

of Residents" that was carried out to analyze how literacy ability was associated with project performance and CGTV performance are shown in Table 6-4.

Table 6-4 Results of Study of Literacy Improvement Level of Residents

Communes	Villages	Popula-tion	BL	Number of Participants	Literacy Test Participants			New Literates			Increase Rate	Remarks
					H	F	T	H	F	T		
Cinzana	Diambougou	261	5	78	15	3	18	8	2	10	200.0%	
	Kondia	1,159	38	83	23	7	30	23	7	30	78.9%	
	Kondiabougou	170	2	106	5	23	28	4	9	13	650.0%	
	Bougoukourala	406	18	81	8	0	8	6	0	6	33.3%	
	N'Gakoro	1,827	44	140	18	1	19	16	1	17	38.6%	
	Sirango	339	7	97	9	1	10	7	1	8	114.3%	
	Tian - Wèrè	286	3	92	7	0	7	4	0	4	133.3%	
	N'Golobougou	347	34	86	5	4	9	5	1	6	17.6%	
	Batara - Wèrè	199	0	121	14	10	24	14	10	24	—	24 increased
	Findla	288	6	148	16	1	17	7	0	7	116.7%	
	Kondogola	1,788	74	90	18	5	23	17	5	22	29.7%	
	Cinzana village	824	15	31	13	7	20	13	6	19	126.7%	
	Total	7,894	246	1,153	151	62	213	124	42	166	67.5%	
Boidié	Boidié - Wèrè	124	3	64	6	3	9	4	1	5	166.7%	
	Diarrabougou	522	6	116	12	0	12	8	0	8	133.3%	
	Djibabougou	680	2	120	12	3	15	12	3	15	750.0%	
	Kabalan	550	3	73	3	7	10	1	0	1	33.3%	
	Kamba	1,712	5	85	9	2	11	9	2	11	220.0%	
	Mallé	842	6	75	13	4	17	9	3	12	200.0%	
	Siakabougou	311	10	78	25	2	27	16	2	18	180.0%	
	Wintiguibougou	216	1	76	11	0	11	9	0	9	900.0%	
	Séguéla	1,117	9	20	7	4	11	3	0	3	33.3%	
	Dlengo	626	7	112	10	0	10	9	0	9	128.6%	
	Total	6,700	52	819	108	25	133	80	11	91	175.0%	
Boussin	Samabougou Sokala	709	45	37	11	2	13	9	2	11	24.4%	
	Samabougou – Wèrè	486	1	40	7	2	9	2	0	2	200.0%	
	Timini	310	30	97	15	4	19	10	3	13	43.3%	
	Biyan	923	10	48	11	0	11	7	0	7	70.0%	
	Dadembougou	434	0	97	16	5	21	5	4	9	—	9 increased
	Niamadiana	278	5	43	15	0	15	7	0	7	140.0%	
	Oulandiambougou	423	12	132	6	6	12	6	5	11	91.7%	
	Yassalam	551	7	85	11	0	11	9	0	9	128.6%	
	Fakola	463	5	136	7	0	7	7	0	7	140.0%	
	Sounsounkoro	359	10	58	12	1	13	3	1	4	40.0%	
	Total	4,936	125	773	111	20	131	65	15	80	64.0%	

The results were generally as expected. The increase rate of literate residents in Boidie Commune which has high project performance was 175%, much higher than the 60% in Cinzana and Boussin Communes. Since the literacy rate in Boidie Commune was low in the baseline conditions (though literacy in French was high), the increase rate was extremely high, but the absolute increase in the number of literate residents was higher than Boussin Commune.

In the comparison between Cinzana and Boussin, the project performance in Cinzana which has a higher literacy rate was high. From these results, it is clearly seen that literacy ability is closely correlated with project performance and CGTV performance. However, this is not absolutely the same case in all the villages in observing individual villages in detail. For instance, Kondiabougou

village in Cinzana Commune which had a high increase rate (650%) and an absolute increase in the number of literate residents (13) showed low project performance. In this village, the leadership of the resident leaders was poor and the facilitators also lacked enthusiasm. Villages in which the literacy rate is high, but the leadership of the resident leaders is not strong are not "good villages" in many cases.

Therefore, literacy ability is one of the necessary conditions, but it is not sufficient for better performance of small-scale comprehensive projects and Terroir Management Committee s (CGTVs), which are more affected by the "leader's capacity".

6.2.4 Influence on Surrounding Villages

(1) Direct beneficial effects

A total of 33 boreholes (deep wells) were constructed in the Pilot Project. For the maintenance works, one borehole (deep well) repairman candidate was nominated from each of the villages in 4 communes (Cinzana, Boussin, Boidie and Sana) and all the repairman candidates were trained in borehole repair know-how. One excellent trainee per commune was authorized and special training in repair methods was provided to the authorized trainees. In addition, a "borehole repair kit" was rented to each of the authorized trainees. (The kits were administered by the CGTV of the village to which the authorized trainee belonged.)

The borehole repairmen so chosen and deployed have repaired a number of boreholes so far. The results of borehole repairs are shown in Table 6-5. The borehole repairmen have repaired a total of 50 boreholes in one year or so in the 4 communes of Cinzana, Boussin, Boidie and Sana. In particular, the borehole repairmen trained in Boussin and Boidie Communes have repaired the boreholes in 16 villages which were not included in the PP. The "expansion of borehole repairs" was a direct beneficial effect of the Pilot Project on the surrounding villages.

Table 6-5 Total number of borehole repairs by trained repairmen

Commune	Boreholes constructed by JICA PP	Other existing boreholes (boreholes provided under Japanese grant aid)	Total
Cinzana	**21**	**5 (2)**	**26**
Boussin	**7**	**7 (0)**	**14**
Boidie	**0**	**9 (1)**	**9**
Sana	**0**	**1**	**1**
Total	**28**	**22 (3)**	**50**

Note: The figures for Sana Commune are taken from survey data as of September 2007. The figures for other communes are taken from survey data as of February 2007.

(2) Natural spin-off effects

The results of interviews regarding the extension effects to 94 villages in the surrounding areas of the villages in the Phase 2 Pilot Project are shown in Table 6-6. 29 villages (30%) of the 94 villages in the survey did not know of the existence of the Pilot Project, while the other 65 villages knew of it. However, the survey was not conducted of all the villagers, but only of the important persons in the senior council of each village. It is presumed that the percentage of villagers who "know of the existence of PP" was in fact higher. According to the responses, 36 villages (40%) knew of the existence of the Pilot Project, but were unaffected by it, and the remaining 29 villages (30%) executed actions under the influence of the Pilot Project. The influence of the Pilot Project was mostly evident in the case of 9 villages that conducted "activities with technical assistance from other villages" and the case of 8 villages that conducted "activities following the example" of other villages. Other effects included subscribing to the microcredit system in the villages in the Pilot Project, participating in literacy education, and developing projects with additional assistance from other donors (such as FODESA and NGOs). A wide range of activity projects were implemented, but many projects included improved ovens (6 villages), soap manufacture (5 villages), improved henhouses (4 villages) and vegetable cultivation (3 villages).

It is worth appreciating that the target villages in the Pilot Project had a positive natural effect on 30% or more of the neighboring and surrounding villages which were not approached in the project.

Table 6-6 Effects of Pilot Project on Surrounding Villages

Commune	Verified Villages	Influenced Villages	Spin-off Effects	Independently Implemented Projects
Boussin	Yassalam	Ninotola Banankoro	Saw the activities and received technical assistance Received technical assistance	Organizing residents and improved ovens Soap manufacture
	Samabougou were Samabougou sokala	Kobala were, Dirimagna Farakon	Aware of the activities Aware of the activities	
	Dadembougou	Souraka were Kama sokala	Aware of the activities Aware of the activities	Vegetable fields (with support from NGOs)
	Fakola	Tesserebougou Nablabougou	Saw the activities and received technical assistance (with charge) Received technical assistance	Improved ovens Reforestation
	Ouladjambougou	N'Tlomabougou, N'Djidougou	Aware of the activities	
	Ouladjambougou	Bachimbougou Babaka were	Aware of the activities Aware of the activities	MC system, soap manufacture and dyeing (with support from FODESA) Participated in the MC system and literacy training
	Timini	Bertela Sagabougou	Aware of the activities Followed the example of the activities	Nurseries an improved hen house
	Biya	Boussin	Only visited to see	
	Niamadiana	Pindia were Dialabougou	Aware of the activities and received technical assistance Followed the example of the activities	Soap manufacture (with external fund assistance) Cereal bank: under women's support from Cinzana Commune and PRECAD
Boidie	Malle	Bassidialandougou, Soungola, Bokon	Aware of the activities	
	Diarrabougou	Kakoro	Followed the example of the activities	Nurseries
	Dlengo、Seguela	Kakoro were	Aware of the activities	
	Djidabougou	N'Djidabougou were	Followed the example of the activities	Soap manufacture (with external technical assistance)
	Kamba	Koronido	Aware of the activities	
	Wintiguibougou	Kemena	Participated in the training	Soap manufacture
	Boidie were	Boidie	Being monitored	Mango plantation
	Siakabougou	Siemana, Siankoro	Aware of the activities	
Cinzana	N'Dinzana	Noumoubougou, Banagourou	Aware of the activities	
	Diakoro	Benzana, Bafobougou	Aware of the activities	Literacy training, improved ovens (with FIDA assistance)
	Falema	Tiguini, Seribougou, Alphabougou Sorobawere	Aware of the activities Aware of the activities	Literacy training (with support from NESIGISO=NGO)
	Ouendia	Maki were	Aware of the activities	
	Sonsoro	Faira	Aware of the activiies	
	Kondia	Sanogola, Cinzana gare	Followed the example of the activities	Participated in Kondia's MC system with the support of the assigned CAPs (vegetable cultivation, manure)
	Batrawere	Boudala	Followed the example of the activities	Reforestation
	N'Golobougou	Balabougou	Followed the example of the activities	Improved henhouses - 2 villagers
	N'Gakoro	Sorobougou Tonga	Saw the activities and received technical assistance Aware of the activities	Improved henhouses - 3 villagers
	Tian were	Salawere, Zangonibougou	Aware of the activities	
	Findla	Fossombougou	Aware of the activities	MC (with NESIGISO assistance)
	Zambougou	Fola Nossibougou	Aware of the activities	
	Sirango	N'Golobekoro I et II	Aware of the activities	
	Kondiabougou	Tiemana	Saw the activities and received technical assistance	Improved henhouses, nutrition blocks and vegetable cultivation
	Kondogola	Garo N'Djekabougou	Aware of the activities Followed the example of the activities	Mill (with external assistance) Improved iron ovens and plant cultivation
Sana	Kalala Bamanan	Kalala Peulh	Aware of the activities	
	Zambana	Diarragou	Aware of the activities	
	Kerta	Diado	Aware of the activities	
	Kokambougou	Moutike, Djemertoko	Aware of the activities	
	Soun Marka	Hao , Kankira	Aware of the activities	
	Soun Bamanan	N'Djekoye	Aware of the activities	Participated in MC system
	Koungodiani	Saye、Sewere	Aware of the activities	
	Kien	Matama	Saw the activities and received technical assistance	Learned how to make improved earthen ovens from women in Kien
	Kienkourou	Bouba Moribougou	Saw the activities and received technical assistance	Learned how to make improved earthen ovens from women

6.3 Evaluation of CAPs

The results of evaluation of 38 CAPs are shown in Table 6-7. (Note: 4 of the 42 trainees in the capacity-building training left their assigned villages due to personnel changes during the OJT period.) 31 trainees (over 80%) were authorized as "facilitators for comprehensive village development on the initiative of villagers, similar to the Pilot Project". The authorization borderline was set at 65 points, but an additional evaluation, by exchange of views between the evaluators, was conducted for CAPs whose global evaluation score was close to this authorization line. The global evaluation scores were finally adjusted and decision regarding their authorization was taken. The reasons for the rejection of the other trainees are as follows:

(1) They showed no willingness.
(2) Their capacity did not reach the level necessary for authorization.
(3) Both the above reasons

Trainees with code nos. 2, 8, 17, 23 and 30 fall under category (1) above, trainee no. 38 under category (2), and trainee no. 10 under (3).

The trainees in category (1) include various types such as villagers who show no willingness from the start of OJT and those who lose their willingness during OJT. The latter type of trainees seemed to lose their willingness to facilitate because they were tired and reluctant to negotiate with the eccentric leaders in their village. In the case of female facilitators, it seemed that they lost their willingness to facilitate because they were too busy taking care of their homes and children and reduced their visits to other villages.

The trainees in category (2) have the potential to reach authorization level through future efforts. Trainee no. 38 had language difficulties because he belonged to the Bambara, and he was handicapped by a lack of good communications with the villagers, thereby leading to low evaluation.

The authorized trainees accounted for a high rate of over 80%, but this means that they were authorized as facilitators to undertake "similar village development projects on the initiative of the villagers". This level was not the level of "development facilitators" in the strict sense (in which they can foster the villagers' willingness to undertake development projects even if the project input is zero), and they would not be authorized originally as facilitators and are at the "zero authorization" stage. From this point of view, they should exert more efforts in future OJT.

From the results of monitoring and evaluation of CAPs, the following points can be considered:

(1) Linkage between lecture-type training evaluation and OJT period evaluation

Table 6-7 Evaluation of Facilitator Performance

→ During Training Period ← | → During OJT period ← (Full marks: 100)

Commune /Group	Trainee Code	Evaluation in Training Period	Test Results in Training	Trainee's Self Evaluation (ABCD grades)	Final Evaluation in OJT Period	Authorized/ Unauthorized as Facilitator
CINZANA/ Group 1	1	82	60	A	87	○
	2	70	43	C	58	×
	3	93	53	A	73	○
	4	88	70	A	82	○
	5	73	49	C	68	○
	6	76	48	A	83	○
	7	76	52	B	79	○
	8	77	45	D	57	×
	9	75	41	B	78	○
	10	68	55	D	47	×
BOUSSIN/ Group 2	11	95	76	B	80	○
	12	85	60	A	82	○
	13	66	56	B	73	○
	14	95	80	B	80	○
	15	95	80	A	67	○
	16	73	48	B	76	○
	17	66	64	B	61	×
BOIDIE/ Group 2	18	93	72	A	90	○
	19	86	72	A	89	○
	20	89	78	B	82	○
	21	83	76	B	75	○
	22	79	62	B	81	○
	23	93	71	C	64	×
	24	93	74	A	86	○
CINZANA /Group 3	25	78	68	A	72	○
	26	89	78	B	79	○
	27	87	62	B	80	○
	28	91	74	A	78	○
	29	87	70	A	84	○
	30	74	46	A	64	×
SANA/ Group 3	31	78	62	A	72	○
	32	87	68	B	75	○
	33	92	70	A	84	○
	34	78	52	D	73	○
	35	82	50	A	73	○
	36	76	56	B	77	○
	37	92	78	A	82	○
	38	82	64	A	64	×

Note: The figures in square boxes in the final evaluation column denote very high marks (over 85 points), and the shaded figures denote low marks (less than 65 points). The trainee's self-evaluation was by grade: A: Able to conduct activities as a facilitator by himself/herself; B: Able to conduct facilitator activities with a little support; C: Considerable support needed; D: Difficult to conduct activities by himself/herself.

The evaluation of lecture-type (capacity-building) training correlated with the evaluation during the

OJT period to some extent. However, there were some exceptions in which there were some trainees who were excellent during the lecture-type training period, but whose motivation decreased during OJT or who could not demonstrate their ability to the full in actual facilitation situations. There were also opposite cases. For instance, trainee no. 9 belonged to the lowest evaluation group of all the trainees during the lecture-type training, but he focused his efforts on self-training for a long period of 2 years or more until finally he won higher evaluation marks than the average mark (75 points) of all the trainees. Such trainees who made an effort to accept the criticism and guidance of other persons frankly during the long OJT period and to maintain their motivation were evaluated highly. All the trainees who enhanced their evaluation in OJT were those who "listened to external criticism" and were judged to have remarkably improved "their ability to communicate with villagers".

(2) Low evaluation of CAPs in Boussin Commune

The evaluation of CAPs in Boussin was relatively low, because it was affected by the low frequency of facilitation. The number of visits to villages by the CAP in this commune decreased with time and the facilitation was accordingly lower in quality. Most of the CAPs in this commune live in other communes such as Ségou City which are far away from their assigned villages. This was the main reason for the decrease in visits to the villages. Further, sharing of information among CAPs was low because their residences were dispersed. For this reason, the shortcoming of the facilitation activities that have been conducted so far was that "sharing of information among CAPs was so low that the advantages of the facilitation activities in one village were not effectively reflected in another village" as discussed by CAPs the year before last. They decided the improvement measure that several CAPs would cooperate to make a tour of the villages (not limited to their individual assigned villages) and identify the problems and solve them jointly. However, this tour activity was soon not continued steadily due to a decrease in participants.

(3) High evaluation of CAPs in Boidie Commune

The reason for the high evaluation of the CAPs in Boidie Commune was their uniform capacity and unification in this area. There was little difference in the personal abilities of the CAPs between Boussin Commune and Boidie Commune. The CAPs were united under the leadership of the leader CAP (trainee no. 18) and the support of the Commune Office to cope with facilitation based on a common awareness. One trainee was not authorized in this commune, but it seemed that this trainee was tired of coordinating the different opinions of the villagers in his assigned village which had a large population. As a result, he lost his enthusiasm for facilitation by "thinking and worrying with the villagers" and developed a too close relationship with the villagers till they were like friends chatting. Finally, it was evaluated that "his behavior did not lead to essential development activity."

(4) CAPs' self-evaluation

The self-evaluation by the CAPs themselves correlated with the final objective evaluation to some

extent. The CAPs in Group 1 and Group 2 conducted the self-analysis in a considerably level-headed manner. Of the authorized trainees, most of the trainees who gave themselves grade A (capable of performing facilitation activities completely by themselves) got a final evaluation of 80 marks or more, except trainee no. 3 (who got 73 marks). On the other hand, most of the unauthorized trainees evaluated themselves as C (considerable support needed) or D (difficult by oneself), except trainee no. 17 (self-evaluation grade B: possible to conduct activities with a little support).
However, the self-evaluation by Group 3 was not objective and correlated little with the final evaluation. Two unauthorized trainees in Group 3 evaluated themselves as A (capable of performing facilitation activities completely by themselves), but both trainees visited their assigned villages fewer times than the other trainees and they were not enthusiastic about facilitation. It was unclear why the self-analysis by the CAPs in Group 3 lacked level-headedness. One possible reason was that the members of the Japanese Study Team decreased in the third year of the Study, resulting in fewer opportunities to come into contact with CAPs and reducing the latter's chance of hearing external criticism directly (from the Japanese Study Team).

In the self-evaluation questionnaire, the CAPs answered that they recognized their own role as (1) communication with villagers (24%); (2) enlightenment of villagers (47%); and (3) reinforcement of the residents' organization (29%). The OJT final evaluation of the CAPs who answered (1) was equally low.

(5) Evaluation by age

No correlation was recognized between the evaluation results and age. There were some older persons among the trainees. The Study Team was concerned that the older trainees would not be able to free themselves from accepted ideas, such as, for example, that "unknowledgeable farmers should follow their guidance", but such anxiety was unfounded. They had ample experience and understood the disposition of the local residents well, so facilitation was promoted smoothly in some cases. In addition, the older trainees were generally more patient in pursuing serious efforts. Trainee no. 9 described above was one of the older trainees (55 years old). Trainee no. 22 was also in the older group (53 years old) and he obtained high marks in the evaluation during OJT. However, there were trainees in the younger group as well as the older group whose evaluation during OJT was low. The evaluation results had no correlation with age, but rather correlated with personal character and the influence of the CAPs and communes.

6.4 Evaluation of Coordination Capacity of Local Administration

At the end of February every year after the construction of the facilities in the PP project was completed, individual project activities using each of the facilities were started under the management and operation of the Village Terroir Development Committees (CGTVs). At almost the same time,

Commune Councils were held at the individual Commune Offices about once a month to discuss the theme of "Sustaining the PP Project and its Further Development". The participants in the Council were commune staff, CAPs and the staff of the Ségou branches of the related administrative agencies. The date and theme of each meeting of the Council were decided by the host commune in consultation with the Study Team in the early stages, but the meetings were independently planned and held by the communes several months later. The main theme was "Problems and Solution Policies". In observing these meetings of Commune Councils, the results of qualitative evaluation by the Study Team on the "planning and coordination capacity" of each Commune Office are shown in the (right-hand) column next to "Total Marks in Questionnaire" in Table 6-8.

Table 6-8 Evaluation of Coordination Capacity of Communes

Evaluation Item / Commune	Frequency of Council Meetings	Visits to Villages	Recogni - tion of Role of Council	Council's Own Funds	Tie-up with Donors	Total Marks in Question-naire (Out of 15)	Evaluation of Council (Out of 15)
Cinzana	2	3	2	2	2	11	11
Boidie	2	2	3	3	2	12	13
Boussin	2	3	2	1	1	9	9
Sana	1	2	2	3	2	10	10

The differences in evaluation marks resulted mainly from the degree of "awareness of positively coordinating problems for village development". It was determined that there were not large differences in the coordinating capacity of the individual commune officials, but it was evaluated that the officials in Boidie Commune had a stronger awareness of energetically undertaking a coordinating role than the officials in other communes.

Coordination with donors was reliably performed by each commune, but it was at the level of "planning to hold meetings with donors" and not at the level of initiative coordination by commune. Rather, coordination was entrusted to donors. If several donors support the same village, problems occur if their approaches are different. In many cases so far, the village has formed an organization (contact window) for dealing with each donor at the donor's request. In future, however, it will be more rational to form one village development organization per village to coordinate the approach method of each donor and to promote comprehensive village development effectively. For this purpose, it is necessary for each commune to positively participate in the present residents' organization and support the organizational capacity building of the villagers.

The results of evaluation of the commune's coordination capacity as described above were linked with the evaluation of small-scale comprehensive projects and the evaluation of the Terroir Management Committees of the villages within each commune.

6.5 Overall Evaluation

From the overall view of the results of implementation and evaluation of the Pilot Project as described above, "the verification points of the Pilot Project" can be summarized as follows:

Table 6-9 Verification Points of Pilot Project

Point of Verification	Results of Verification	Description/Remarks
Appropriateness of village development method	Over 80% of village groups sustained or expanded their projects 2 to 5 years after completion of the projects and the methods used were effective enough for the locality.	The Government of Mali highly evaluated the "small-scale comprehensive development projects" method and decided to start implementing the A/P in 2008 under its own budget.
Possibility of training CAPs as project facilitators	31 (over 80%) of 38 trainees were trained as facilitators for the P/P project. It was possible to train the administrative staff as facilitators depending upon the attempted methods.	31 trainees were authorized as having the capacity level of "facilitators for similar village development projects on the initiative of villagers".
Possibility of transfer of technology and skills from farmer to farmer in village development projects	The transfer of technology and skills from farmer to farmer was amply possible. There were cases in which the effects of technology transfer may be higher than the effects by use of special instructors.	Resident instructors are effective on both the teaching and learning sides. → In addition, they had the effect of reducing project investment funds (personnel costs).
Reduction of project investment funds	Construction by the villagers themselves reduced the investment funds to the limit amount of 16 million Fcfa per village.	The investment fund limit accounted for 85% of the funds for the 1st year Study and 40% of the funds for Phase 1.
Analysis of factors affecting independent development of projects	The necessary condition was the "basic capacity of residents" and the necessary and sufficient condition was the "capacity of leaders".	The "existence of competent facilitators" was a positive factor (sufficient condition).

The success factors, that is, the 5 features of the Pilot Project, can be summarized as follows:

- **The basic capacity of the residents (literacy education, etc.) was emphasized and the thorough PRA/PLA method was adopted.**

  With the PRA/PLA methods, the residents become aware of their own situation, in particular of the impact of natural resource degradation on agriculture, as their susbsidence activity, and on their own life. This important process is called conscientization; such a capability (awareness) shall be fostered. Then, an organization for the development of villages shall be established and reinforced.

- **The small-scale comprehensive development projects were of the "participation type by all the residents to absorb the demands from all of them" and successfully combined "direct benefits" with "indirect benefits".**

More than 20 small-scale activities have been conducted. Except for the basic infrastructures, most of them consist in trainings by external instructors and provision of materials required for these. On the other hand, residents have various ideas and needs and their own will progressively vary too. Introducing many components makes it possible to respond to the needs and wishes of residents as well as the participation of all of them. Besides, villagers are still passively attending the trainings, and the training content shall be put into practice. The introduction of microcredit makes it possible.

- **Of the residents' share of the project, the monetary contributions were fed back into the residents' organization and used as funds for the microcredit system to adopt the strategy of revitalizing the activity of the village economy → contributing to the reduction of poverty.**

  Collecting the contribution money boosts the awareness of ownership of the residents. Also, the undertaking of activities generating revenue by residents is promoted by using these contributions as funds for microcredit. Such a synergetic effect is revitalizing the economical activities of villagers.

- **After the reduction of poverty (one of the project components that was attractive to residents) → conservation measures for natural resources were taken in the surrounding area of each village = "establishment of local land use agreements" for appropriate use of land.**

  Given the numerous concerns of residents, conservation of natural resources only is not a matter of high priority. It is essential that measures against desertification be engaged in parallel with measures to reduce poverty, such as measures for food security and revenue improvement.

- **The facilitators (and local administrations - communes) provided sufficient support for a certain period after completion of the project.**

  Facilitation was conducted by the local staff of the study during the Phase-1, and by the CAPs during the present Study in view to strengthen their capabilities through a "two-way learning".

BOX : Contribution to the prevention of desertification

Support is provided to the establishment of land use agreements, as shifting from single villages to an inter-village approach (inter terroir). In the Commune of Cinzana, the study team collaborated with the GTZ to set up a land use agreement for the whole commune. This activity is summarized in the Annexe I-14. Following this agreement, the residents answered during the interview survey that charcoal production for sale purposes has disappeared and self-defense groups were now patrolling; that the awareness was increasing and residents were observing the rules as well as preserving nature. In spite of this, some villagers also noticed that all residents still did not respect the rules because of a lack of enlightenment. The observance of the rules is entrusted to each protagonist of the land use agreement and to communes; monitoring is carried out and advice given via the Implementation Councils.
In addition, the use of improved ovens reduced the consumption of firewood by half; many residents used to sell wood to get cash income, but the pressure on resources has been released due to easier access to microcredit.
In this way, the diversity of project components yields a synergy effect, which contributes to the prevention of desertification.

6.6 Evaluation of Action Plans

(1) National Policies and Appropriateness in Integrity

The Action Plan coincides with basic national policies, and the objectives of agricultural promotion and development are taken up in the following plans:

1) "National Environmental Action Plan and National Action Plan for the Convention to Combat Desertification"

   Important Items related to Agriculture

   - Quantitative and qualitative acquisition of foods and other products through sustainable management of natural resources
   - Living standards improvement and prevention of environmental pollution and public hazards by the joint efforts of residents
   - Promotion of cooperative activities at regional level and at international level in the environmental conservation field

2) "Basic Plan for the Rural Development Sector"

   Important Items related to Agriculture

   - Food security by increase and diversification of food production and increase of agricultural, stock-raising and sylvicultural production
   - Environmental conservation and natural resource conservation and acquisition for sustainable development

(2) Evaluation of Social Nature of Project Components and Priority of Implementation

From the viewpoint of social evaluation of the Project components composing the Action Plan, qualitative evaluation of each component project was carried out based on 8 indices as shown in Table 6-10. As the final goal of this Action Plan was "prevention of desertification", the contribution of each component project to the prevention of desertification was awarded evaluation marks by the residents and by the Study Team. Thus, "the contribution to prevention of desertification" was given double the weight of that for the other 7 out of the 8 indices. The evaluation by the residents was carried out by the method of voting by 10 representatives from each village (including two women) in the interview survey of all the villages in the Pilot Project. 16 component projects were ranked by evaluation marks, with 3 marks for ranks 1 to 5, 2 marks for ranks 6 to 10 and one mark for ranks 11 to 16.

In demonstrating the effects of the small-scale comprehensive development projects, it is important for village development to give consideration to the participation of all the residents and to implement almost all the component projects simultaneously on an integrated base, so they yield a synergetic effect. The component projects to be implemented preferentially were considered in the order of higher evaluation marks in the above mentioned table:

① Improvement of literacy rate and extension of improved seeds and fertilizers for rainfed crops;
② Establishment of mini-nurseries and reforestation;

③ Support for establishment of microcredit system;
④ Construction of modern wells and small-scale vegetable cultivation;
⑤ Living standards improvement, and manufacture and extension of improved ovens; and
⑥ Support for organizing residents and training leaders.

These projects are deemed to be the core of village development.

Table 6-10 Social Evaluation of Component Projects

Evaluation Index / Evaluated Project		Evaluation by Resident			Evaluation by Study Team						Total Point
		Contribution to Village Development	Contribution to Prevention of Desertification	Needs from Residents	Contribution to Prevention of Desertification	Contribution to Poverty Reduction	Compatibility with Administrative Strategy	Ease of Technology Transfer to Villagers	Difficulty in Project Implementation	Gender Consideration	
1	Residents' project-operating capacity building project										
1)	Residents' organization support and leader training project	2	2	1	3	3	2	1	1	3	18
2)	Literacy rate improvement project	3	2	3	3	3	3	2	2	3	24
3)	Micro-credit system setup support project	3	2	3	3	3	1	2	1	3	21
2	BHN fulfillment project										
1)	Micro-credit system setup support project	3	3	2	2	3	2	1	1	3	20
3	Farmer's income stabilization project										
1)	Project for extension of improved seeds/fertilizers for rainfed crops	3	3	3	2	3	3	3	3	1	24
2)	Small-scale vegetable cultivation project	2	2	3	1	2	2	3	3	2	20
3)	Cereal bank construction project	2	1	2	1	2	3	2	2	1	16
4)	Vaccination station construction project	1	1	1	1	1	2	1	2	1	11
5)	Livestock productivity improvement project (incl. improved henhouses)	1	1	1	1	2	3	2	3	1	15
4	Natural resource conservation and management project										
1)	Mini-nurseries installation/reforestation project	2	3	3	3	1	3	3	3	2	23
2)	Land use rules establishment project	1	1	1	2	1	2	1	1	1	12
3)	Soil conservation project	1	3	1	2	1	1	1	1	1	12
5	Women's labor reduction project										
1)	Milling plant construction project	2	1	2	2	2	1	1	1	2	14
2)	Improved oven manufacture and extension project	1	3	2	3	1	1	3	3	2	19
3)	Handicraft manufacture and extension project	1	1	1	1	2	1	2	2	2	13
4)	Living improvement (health and sanitation improvement) project	3	2	2	1	1	3	2	2	3	19

* The difficulty level of project implementation is evaluated so that an easy-to-implement project has a high mark.

When considering “sustaining the activities of residents”, it is important to improve the literacy rate and build project operating and managing capacity. In considering the long-term prospect of “developing all the villages”, the residents’ organizations and the capacities of the leaders leading them are the key to village development. To intensively coordinate the objectives of each activity and energetically lead the residents, it is important to reinforce the village development organizations and train several leaders in each village. In addition, it is essential to reinforce the basic capacities of residents including literacy, revitalize economic activities based on the sound organization of residents and the existence of competent leaders, and secure economic growth based on the self-supporting and self-sufficient supply of foods.

The relation between the reduction of poverty and the prevention of desertification is like discussion of the chicken-and-egg problem. The priority of activities implemented for the purpose of improvement of residents’ living standards and village development cannot be simply determined. Activities for conservation and management of natural resources contribute directly to the prevention of desertification. Economic activities for reduction of poverty also contribute indirectly to the prevention of desertification unless they involve exploitation of resources. Residents who use natural resources as an agricultural production infrastructure contribute indirectly to the prevention of desertification through their activities to maintain a sound production infrastructure, whether they are conscious of it or not.

In the interview survey in all the villages in the PP as described above, the women answered that the extension and use of improved ovens reduced the quantity of firewood used by half. It was also seen that awareness of protecting natural resources improved through reforestation activities and the project for establishing land use rules in the villages. These activities contributed directly to the prevention of desertification. In addition, many residents had sold wood as a means of easily obtaining cash income for the purchase of food, ceremonial occasions, and for cases of illness and emergency. Instead, they are using the microcredit system, from which they can borrow funds for their activities such as small deals, stock-raising and soap manufacture in order to obtain income. Now, they do not need to cut down the trees. Such easy access to funds contributes to the prevention of desertification.

One of the concerns of the residents was the “alleviation of labor” as an effect of improvement in living standards. In the village interview survey, the “alleviation of labor” and “reduction in dangerous work (increased safety)” were pointed out as more important effects of the vaccination stations than the “reduction in the death rate of cattle”. In village development, the participation and contribution of women were important and the key was to alleviate the labor of women. By reducing the work of drawing water, milling millet flour and collecting firewood, women had time to direct their efforts to other activities such as vegetable cultivation and handicraft manufacture to increase their incomes and contribute to village development. However, the introduction of mills in the

milling plant project had a high incentive for the villages, but the investment costs were also high. It was essential to obtain sufficient backing from the residents' organization to improve the techniques of the operators and maintain the sound operation and maintenance of the milling plants.

If the organizing of residents and competent leaders are wanting, it is difficult to create a link between the component projects, resulting in the lower synergetic effect of the projects. If participation in projects by the socially disadvantaged such as women and young men is low, the effect on poverty reduction is also low. Therefore, the first requirement is literacy education in parallel with the establishment and reinforcement of the organizations and the training of leaders. However, organizing the residents and training the resident leaders in village development could not be implemented in a very short time, and the residents did not fully recognize the importance (though it was not raised as a problem in the PRA survey). So, it is deemed that the assisting parties should take such projects into full consideration and place stress on them before implementing them.

As pointed out in Hierarchy of Need [5] by the psychologist, Abraham H. Maslow, the need for affinity belongs in a higher level than the need for safety, and the need for ego belongs in a higher level than the need for safety. If living standards and life security are obtained through the projects for rain-fed farming products, improved seeds and promotion of fertilizers, the next need for mutual affinity arises in the residents' organizations. The residents had a high demand for projects promoting production technology including establishment of mini-nurseries and reforestation, small-scale vegetable cultivation and improved oven manufacture, which are deemed to be projects that can be implemented relatively easily.

BOX : Lessons to be drawn for similar projects

When implementing integrated small-scale projects, it is advisable to give due consideration to the following points to execute the Project:

① Establishment and capacity-building of villagers organizations (CGTV)
Projects are sustainable when carried out by small groups of residents. However, it is not sufficient for the sustainability in terms of rural development. Securing of rural development requires a residents' organization (CGTV) capable of operation by the residents' autonomy. Therefore, what is important is not only to follow each project up, but to fully enhance the functions of CGTVs.

② Continuation of literacy training
To execute the operating of CGTV and projects, abilities in reading and writing as well as in accounting are necessary to operate the CGTV and the projects. These capacities shall be fostered through repeated literacy trainings in the villages held by the local literacy teachers. Literacy teachers dispatched from outside by NGOs leave when the literacy training session is over, and the training cannot be pursued. Consequently, a substantial fostering of literacy teachers is important.

③ Valorization of local resources
Local human resources will be used as much as possible to create ownership, aiming at the sustainability of projects. As shown in the Extent of use of farmer-to-farmer approach in the trainings of Table 5-14, Chapter 5, the use of farmer lecturers in various projects such as

[5] A growth theory that advocates that human needs have a 5-level pyramid structure and that each individual wants to satisfy the needs in a higher level as he or she grows.

literacy training, brings about positive results. Also, the training of village masons to build simple facilities and repairmen to repair deep wells will ensure their sustainability by the residents themselves.

(3) Anticipated value for poverty alleviation

The purpose of the present A/P is to encourage residents to preserve the natural resources located in their living surroundings. The contribution of the literacy education and leader training projects to poverty reduction were highly evaluated as shown in Table 6-10, however, it is their indirect contribution to poverty reduction that was highly appreciated. The five projects in following table are related to a direct and short-term increase in residents' income. The impact exerted by these 5 projects on the domestic budget of average local UPA (increase in revenue) was estimated in Table 6-11, based on the PP results.

Tableau 6-11 Contribution to poverty reduction by project activities

Projects	Per capita income of project participant (estimated content) FCFA	Contribution to poverty reduction	Remarks
Microcredit system	**10,200** (product bought at 50 Fcfa are sold at 80 Fcfa in the market four months later)	72%	Example of average income from the resale trade of millet, with a loan of 20,000 Fcfa. A borrowing interest rate of 27% is adopted by most of the microcredit.
Diffusion of improved seeds and fertilizers	**6,400** (unit crop of millet increased from 870kg to 1300kg/ha ; local unit price: 50 Fcfa/kg)	45%	Trial calculation based on an estimated 0.75ha cultivated land area per capita in average UPA. Amount of increase for seeds and fertilizer input is 13,000 Fcfa per ha.
Small-scale vegetable cultivation	**4,000** (average income of project participant: when half of production is for personal consumption)	28% If personal consumption portion is included : 56%	Results obtained from PP. for an average plot of 30 m^2 and for one annual production in the dry season production .
Improvement of livestock productivity	**5,000** (average income for one sheep)	35%	Fattening period of 3 months in average.
Handicrafts	**6,000** (50 pieces × market unit price of 200 Fcfa × rate of return of 60%)	42%	Example of manufacture of soap. According to PP results, a group of women (5 pers.) produces 200 soaps a year.

Note : Contribution to poverty reduction was based on the following calculation :

① Current household income of residents is 14,200 Fcfa per capita (Phase-1 study data of 2003)

② Contribution: income per project participant ÷ per capita current household income × 100

In the case of average UPA in areas where a household survey was conducted during the Phase-1 study, we found 12 households with an approximate income of 170,000 FCFA (earnings from crops: 100,000; earnings from livestock and others: 70,000). From this current situation, it is assumed that the above projects respectively have quite a significant impact on the UPA household budget, as

shown in above table. During the PP of the Phase-2 Study, it was often the same women o the UPAs who took part in vegetable cultivation and manufacture of soap. In such a case, the contribution to poverty reduction reaches greater proportion. Further, these projects develop more in villages with easier access to market (in other words, where prospects for sales are good). One can say that improvement of roads between villages and nearby markets indirectly contributes to a further poverty reduction.

CHAPTER 7 Recommendations

In implementing this Action Plan, the following items are recommended to be taken into special consideration:

(1) To offer incentives to residents for activities for the prevention of desertification

In general, it is difficult to enhance motivation for participation among residents through the promotion of reforestation and the establishment of land use and pasturage regulations which have the aspect of limiting the conventional customs and actions of residents. The residents regard them as compulsory measures such as “reinforced guidance” or “stricter regulations and supervision”. Therefore, it is recommended that the administration examine the following means of offering incentives to residents in the promotion of reforestation and reinforcement of land use and pasturage regulations in which it is relatively difficult for the farmers to participate, while reinforcing “guidance and regulations”:

1) Promotion of reforestation: To plan event days such as a tree-planting ceremony in which materials (pots and barbed wire) and seedlings are awarded as prizes in kind.
2) Land use regulations: To support the setting up of a venue for meetings with residents for enforcement of the regulations and indicate excellent communes and villages on signboards.
3) Pasturage regulations: To provide vaccines as prizes to pasturage groups which observe the pasturage regulations in good faith.

As regards the promotion of reforestation in above item 1), social forestry activities (community tree planting) in large areas, in particular, shall be substantially supported by administration, compared to individual tree plantings implemented close to residence areas. Social forestry activities carried out in the PP were continued one or two years after the beginning of the project, but then, in two-thirds of the villages, either plantings stopped or planted areas became very small. The following reasons can be pointed out.

- The burden of taking care of trees after transplantation of seedlings is heavy.
  It is not possible to continuously water seedlings and protect them from damages by livestock → since reafforested areas tend to be distant from existing wells (residents naturally start planting trees in the most convenient lands), watering is particularly difficult except if new wells are excavated close to the planted areas.
- There is no favorable condition offering advantages to residents to the point where they will overcome above difficulties and grow forest trees.
  The Government of Mali has recommended the cultivation of baobabs for their young leaves and buds and of multi-purpose trees such as *Ziziphys* for hedges, and effort is made for their extension. However, the conditions for a reliable income generation from these products are not provided and this is why villagers give up the care of trees halfway through. Marketing of deliverables and

added value of commercial products are poor and do not procure benefit.

It is recommended to promote social forestry as follows.

- Assistance for the supplying costs of fences to protect trees from cattle.
- Assistance for the construction costs of wells as water source.
- Extension of value-added techniques and development of market distribution for a silviculture that generate income to residents.

(2) To support cattle sanitation measures and cattle improvement

There are limits to how far the stock-raising industry can enhance productivity only by the efforts of the stock farmers. Support from the administration is indispensable in fields such as cattle sanitation measures and cattle improvement. Therefore, the following measures are recommended:

1) Reinforcement of the manufacture of raw vaccines controlled by the Government and improvement of the vaccination rate by governmental campaigns;
2) Reinforcement of the breeder production sector for cattle improvement;
3) Guidance to the communes by the Government to appropriate stock income taxes for stock-raising promotion, especially stock sanitation measures and distribution measures, because all the revenue from this tax can be used at commune level.

(3) To plan and implement the construction of a regional arterial roads

The construction of arterial roads is indispensable to improve the distribution of agricultural products to rural areas. Therefore, it is recommended that the maintenance and management of existing arterial roads be reinforced and a regional arterial road be planned and constructed by the competent governmental bureau. As explained in 6.6 Evaluation of PP, projects conducive to a direct and short-term increase in residents' income such as vegetable cultivation and manufacture of soap are furtherly stimulated by good trading conditions, in other words, by good market access conditions. Improvement of rural roads between villages and nearby markets is indispensable and indirectly contributes to promote poverty reduction in rural area.

(4) To appoint additional CAPs and provide incentives

Among the 31 CAPs to be trained though this Study to play an important role as facilitators in implementing this Action Plan, there are a large number of CAPs who are near retirement age. Some of them might be appointed in a different area in the future, as it happened during the PP period. Besides, several CAPs are still in the process of developing their capacity as facilitators. Consequently, it is recommended that the appointment of additional CAPs be planned annually (2 CAPs a year), that as many of CAPs as possible be secured, their fostering reinforced and the same training provided in this Study continuously provided to the appointed newcomers.

In addition, examination of the following incentive measures will be recommended to avoid the loss of

enthousiasm for facilitation observed among CAPs during the PP period.

① Regular evaluation of CAPs, incentive awards and public announcement of the CAPs who obtained excellent marks.

② To prepare the road for promotion and rise of above excellent CAPs according to the DRA personnel system.

(5) Use and fostering of local NGOs

The role played by local NGOs remains essential in the implementation of the components of small-scale comprehensive development projects. For instance, CAPs play one of the moderators and are only partially in charge of facilitation in PRA, which is the first approach to residents. NGOs (or consultants) commissioned by the Project office are responsible for the greater part of facilitation in the support for residents' organization as well as leader capacity building training. From Phase 1 and during the 8 years of the PP implementation period, a number of NGOs capable of undertaking a part of the projects have been fostered. However, looking at their overall current situation, we presume that these NGOs are still slightly lacking abilities when considering the amount of projects for 50 villages, as proposed in the A/P. NGOs based in the other regions of Bamako and Sikasso could be used to solve this deficiency in capacity, but order placements would be costly (transfers, accommodation expenses, etc.) and ineffective. Besides, the fulfillment of facilitation is the fundamental principle of these development projects, human relations are essential for a smooth facilitation; the use of locally based NGOs is therefore a valuable asset. This is why, when using local NGOs, attention shall be paid to order allocation and a close supervision and guidance by the Project office, for the purpose of improving NGOs' capacities and fostering their manpower through friendly competition.