

MINISTRY OF RURAL DEVELOPMENT
THE DEMOCRATIC REPUBLIC OF THE CONGO

THE STUDY ON COMMUNITY DEVELOPMENT PLAN
IN CATARACTES DISTRICT,
BAS-CONGO PROVINCE
IN THE DEMOCRATIC REPUBLIC OF THE CONGO

FINAL REPORT
SUMMARY

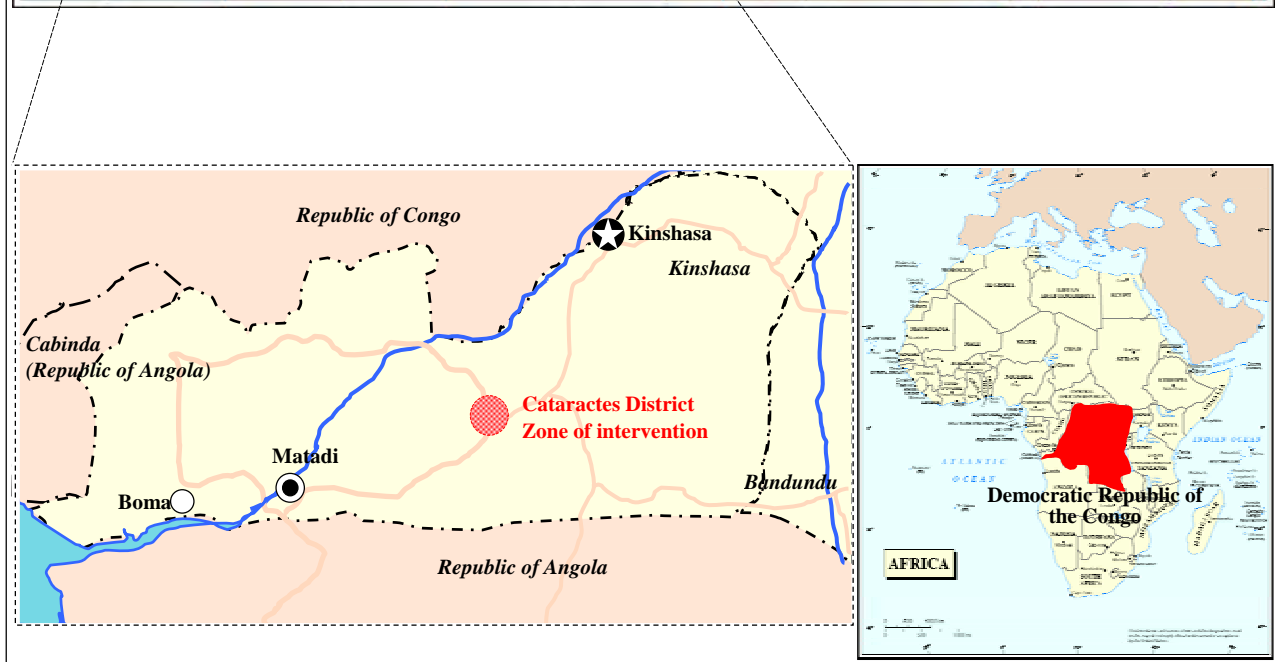
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NTC INTERNATIONAL CO., LTD.

The Study on Community Development plan in Cataractes District, Bas-Congo Province in the Democratic Republic of the Congo

Final Report



Location Map

ABSTRACT

Chapter 1 Introduction

The objectives of this Study are given as the following 3 components;

To define measures to implement and extend resident-led community development;

To mitigate the burden on the areas concerned created by the settlement of Angolan refugees, by attempting to strengthen the functions of communities through the process of the formulation of community development plans;

To ensure access, to promote exchange between communities and to increase the volume of physical distribution with a quick impact project (road rehabilitation).

The Study was based at Kimpese, a city of Cataractes district in Bas-Congo Province, about 220km southwest from Kinshasa, the capital city of the Democratic Republic of the Congo (DRC). The targeting area of the Study stretched out up to Nkondo site, 20km northwest direction from Kimpese including 11 villages, and Kilueka site, 18km northeast including 10 villages; therefore, there are 21 villages in which was conducted the Study. The Study was conducted during 18 months from July 2008 to December 2009. The counter part of the Study is the Ministry of Rural Development.

Chapter 2 Overview of the Democratic Republic of the Congo and the Study Area

2.1 Country Overview

The DRC is gradually recovering from intense conflict (1997 - 2007), which led to over 350 million fatalities. In 2006, a democratic election was held in 40 years, and "Poverty Reduction Strategy Papers" (1st edition) was adopted in July. According to the conflict, the socio- economic situation of the DRC has been worsened and listed at 168th rank in 177 countries in the Human Development Indicators. The disparities between rural and urban areas have been a problem.

After the conclusion of the Pretoria Agreement in 2002, the situation of the DRC seemed to have improved, but instability has not resolved due to the conflict over the presidential election, and sporadic conflicts involving neighboring countries.

2.2 Overview of the Bas-Congo Province and the Cataractes District

In the Bas-Congo province, with an area of 53,000 km² of the territory with total population of 2,833,168, and population density 53 people / km², 64.0 % of population live in rural areas. The province has 3 districts, 10 territories, 17 cities, 55 sectors, 366 blocks, and 6 local governments (3 in Boma, 3 in Matadi).

Chapter 3 Existing Conditions of the Study Area

3.1 Socio-economic Conditions

The Study Area is located in Kimpese sector, and more than 90% of the population of Kimpese Sector lives based on activities related to agriculture and animal husbandry. In addition, there are 2 sites of ex-refugee camps, Kilueka and Nkondo sites, where Angolans live, and they also live in Congolese villages.

The DRC's basic land ownership system is based on Bakajika Act of 1967 and the law of land tenure in 1973. In the former, the land ownership belongs to the state while the traditional customs are recognized in the latter.

3.2 Natural Conditions

The altitude around Kimpese is about 250 m to 400 m and there is the Bangu plateau with 700 ~ 800 m of altitude, and there are Lukunga river which has 6 tributaries of river at the foot of the mountain. The average annual precipitation is 1,614.2 mm (Mvuazi, INERA), average annual temperature is 24.5 °C, annual average relative humidity is 77.9 %, and 94-99 % of annual rainfall is concentrated in the rainy season.

The main soil type of the Study Area is Ferralsols orthotypes, and the vegetation of the Study Area is divided into savannah grassland, savannah shrub, and open forest.

Chapter 4 Existing Conditions of the Communities of the Study Area

4.1 Actors Involved in Community Development in the Study Area

The actors are Directorate of Community Development of Ministry of Rural Development, Directorate of Feeder Roads, the minister of Ministry of Agriculture, Rural Development, Fisheries, Animal Husbandry and Small and Medium Enterprise Promotion of Bas-Congo Province, inspectors of the Bas-Congo province, Cataractes district, and each inspector of Songololo territories, Kimpese sector as the smallest administration unit, international NGO operating with EU funds, Agrisud, local NGO called CRAFOD operating with funds from Germany's Protestant Christian missions, and CLERs carrying out road maintenance programs with participation of villages.

4.2 Characteristics of the Target Communities

The population of the villages subject to this Study is 9,869 in total with the average population per village of about 500. The major industry in the study area is agriculture and during the rainy season, cassava and maize are mainly grown, while during the dry season vegetables such as onions and tomatoes are mainly grown.

In the Study Area, under the customary law, the ownership of land belongs to clans¹. In principle, land is not offered for sale and clan members called *Mfumu a nsanda* inherit the land from generation to generation by the matrilineal line. And there also are child villages or grandchild villages derived from their parent villages.

Public facilities such as schools or health facilities are commonly used by several villages. In this Study, it was proposed to divide the Study Area into 6 zones in view of the flow of people and access to public services, etc.

4.3 Study Area's Issues and Needs

The villagers of many villages mentioned that the fertile soil is their strength in the area of agriculture, fruits trees and livestock. As for the living environment, most of the villages understand the fact that roads are in place is one of the strengths, and the public services including healthcare and education are within their village or within accessible distance. While, the issues listed include lack of seeds, tools and limited cultivation area in the agricultural area. In addition, poorly developed public facilities such as schools and health centers are issues commonly recognized by the villagers.

4.4 Analysis of Developmental Potential

There is room for improvement of agricultural productivity by the repair of the community roads. Villagers living along the community roads directly connected to the national highway or provincial roads have a strong need for the repair of the community roads, which are directly connected to their life and livelihood. In the Study Area, it is easy to access to Kimpese where the main market of the sector. And, livestock and fruit trees are grown in villages not only for self-consumption but also as a valuable income source other than farm products.

It is verified that there are high demands for ensuring village water supply, maintenance of community roads, installation of the mill, and improvement of roofing through workshops conducted in the villages. Although administrative services are insufficient in the region, the public facilities such as schools and health centers are installed for several villages.

4.5 Developmental Constraints

As impediments to development, land ownership issues pertaining to community road maintenance, the delay of road construction work in the rainy season, and a shortage of budget for maintenance after the work are identified. In addition, non-mechanization of farming and means of transportation of products, a shortage of improved varieties of livestock, unused land which would be able to be used for paddy fields, and difficulties of operation for public facilities such as schools and health facilities due to lack of funding are recognized. Moreover, hygienic conditions have not been improved for anti-

¹ People share a sense of connection through recognition that they have common ancestors. Generally, people's identification is determined by tracking back paternal or maternal origin. In 3.1.2 (2) "Traditional Land Ownership" in this report, it is explained that the right to land management belongs to the lineage, but the word "clan" is used in this section, since it is considered that in the study area villagers are not necessarily aware of their own identification based on their lineage.

malaria and water poisoning, which are the main disease in the Study Area.

4.6 Results of the Analysis of Communities in the Study Area

The potentials and impediments to development were arranged after the extraction of issues and needs of the Study Area sorted by the fields.

Chapter 5 Planning Orientation of Community Development Plan

5.1 Community Development Plan (design)

The contents of the community development plan were intended to items which the residents can implement development activities, and maintain and manage them by themselves. The development plan is consisted of 4 fields such as 1) rehabilitation of community roads, 2) improvement of 2) livelihood, 3) living environment, and 4) public facilities (services).

First of all, the Community roads field should be investigated and implemented because it directly affects the improvement of livelihood and living environment. Secondly, needs for livelihood improvement by strengthening of agricultural production is considerable. As improvement of community roads, the program of improvement of livelihood is pointed out as issues should be solved preferentially. The improvement of living environment should be conducted on a parallel with implementation of livelihood improvement. On the other hands, regarding public facilities which will be shared between several villages such as health center and school, these facilities will be planed and implemented by zone level which composed by several villages.

Implementation system was established for the sustainable implementation of community development plan.

5.2 Process from Implementation of Pilot Projects to Formulation of Community Development Plan

The basic concept of the Community Development Plan corresponds to the major issues of the Community Development Plan in the Democratic Republic of the Congo. It will be verified through implementation of PPs.

The budget required for O&M activities was considered to ensure the sustainability of development under the proposed implementation system.

Chapter 6 Pilot Projects

6.1 Implementation Policy of Pilot Projects

Based on a concept of the community development, the establishment of community development committees, road maintenance led by the committees, and the PP for community development for the villages along the community roads in the targeting area were implemented.

6.2 Establishment of Community Development Committee in the Study Area

The community development committees consisted of Dukis (village chief) of villages along each road were established considering the characteristics of the Study Area.

6.3 Road Maintenance under Initiative of Community Development Committee

Since maintenance of roads must be performed to keep them in good condition and to ensure lasting effects of development, the tools for maintenance were distributed free of cost and no deposit was requested.

6.4 Implementation of Pilot Projects for Community Development

PPs were based on villagers' participation, training of villagers in Kimpese, and presentation of contents of each PP and encouragement of prioritization of PPs in each village were conducted.

For promotion and monitoring of implementation of PPs, PP animators were dispatched to villages for advising villagers' organizations of each PP for making action plans, proposing arrangement of villagers' issues and appropriate PPs on them, introducing resource persons to make technical recommendations, and giving demonstrations on improved cooking stoves.

6.5 Implementation and Results of Pilot Project in Villages

PP evaluation workshops were organized and leaders of each villagers' organization reported their situation and exchanged their points of view. In those workshops, villagers' self-initiative was recognized since they discussed the means of collection of management fee and management to sustain their activities.

The objectives, verified items, details of achievement, relevant sector, terms of achievement, expected results, results and evaluation, feedback on the community development of each PP were integrated into the PP sheet, and the data about cattle ploughing, rice cultivation, animal husbandry, and replantation is summarized into a manual.

6.6 Project Evaluation

Benefits were calculated for PPs of improvement of livelihood.

6.7 Monitoring of Pilot Projects

In the currently assumed monitoring system, as shown in the figure below, 1) a group that performs activities in a village reports to the village development committee, 2) the reported village development committee reports to the community development committee, and 3) the community development committee opens a general assembly to approve the content of activities. It is also important that advice and guidance on each of the activities are given by the sector staff and the sector chief.

At the time of formulation of community development plan, a particular attention was paid on "contents should be implemented by villagers themselves," "available local resources and human resources in the area should be used," and "issues which cannot be cope with by individuals should be implemented by group."

Similarly, the monitoring of PPs related to road maintenance is important as well. Daily maintenance should be carried out for sustainable use of laterite pavement road, namely; cleaning of drainage, a simple repair of pavement, restriction of traffic in the rainy season, and mowing and cleaning around the road. The enhancement of villagers' organization should be carried out, and activities should be monitored to continue the monitoring mentioned above.

6.8 Items Validated by Pilot Projects

According to the results of implementation of PPs, implementation system, target year for the community development, and concrete technical contents of PP were arranged.

Chapter 7 Community Development Plan and Their Preparation Process

7.1 Concept of Community Development Plan and Setting of the Approach

For the community development plan, development vision, development objectives, and target period as a basic concept have been decided as a basic policy after the analysis of major issues on development and impediment factors in the chapter 4 and 5. In addition, development programs have been decided and an implementation system has been installed as an approach to realize the concept. Then, the community development plan has been formulated based on above mentioned process.

The period of short-term plan was set for 3 years from 2010 to 2012, and this was allocated as a period to build the basis of residents led community development. Within this period, high priority projects in target villages will be implemented and developed. The period of mid-term plan was set from 2013 to 2014, the model established during the short-term planning period should be improved by administration and NGO staff who would be trained during the precedent period. After this, the plan will start to horizontal spread with the same process of the short-term plan.

The development vision is "To meet the basic human needs (BHN) sustainably and to enhance tolerance toward conflicts as a future vision of target villages within the target period. The development objective is "To ensure minimum income required to meet BHN" for improvement of livelihood area, "Villagers satisfied with life in their communities with improvement of living environment" for Improvement of living environment area, and "Villagers receiving benefits of public services continuously with improvement of public facilities" for improvement of public facilities area.

The contents of community development plan of the targeting area is consisted of; arrangement of community roads and reinforcement of villagers' organizations which are the tool to promote emerging effects of development components, and stabilizing the area, improvement of agricultural

productivity, improvement in value addition to farm products, and diversification of incomes source in order to improve livelihood, improvement of living environment and natural environment in improvement of living environment area, and arrangement of public facilities in the improvement of public facilities area. It is vital to integrally implement those contents for community development.

7.2 Process of Preparation of Community Development Plans

In a post-conflict country like DRC, an integrated development approach considering with arrangement of financial resources for the maintenance of roads in order to increase potential sustainability of community development and conserve functions of rehabilitated roads. Therefore, it is desirable to apply the Kimpese Model, the approach proposed by the Study in which rehabilitation of Kilueka route and community development are integrally implemented.

Standing from this point of view, the study method of this Study, from a series of planning process up to the residents led plan formulation applied to the concrete planning process, is summarized as a guideline. After completion of this Study, it is expected that the method will be used to prepare a community development plan by counter parts themselves.

7.3 Preparation of Community Development Plan

The contents of community development plan and implementing priority projects in the Study Area are summarized through the above mentioned method. The route community development plan, and development plan of each village have been formulated, and the volume of projects are calculated.

Chapter 8 Emergency reconstruction of the implementation

8.1 Flow of Project Implementation

The Study was conducted in the first year, and from preparation of bid tendering, selection of contractor, and implementation of the work in the second year was carried out based on the results of the precedent Study as the quick impact project.

8.2 Creation of Tender Documents and Selection of Contractors

The work was to rehabilitate Kilueka road, and laterite and concrete pavement were employed. The ordering party is JICA representative office in the DRC, and administrator of the roads is Directorate of feeder roads in Matadi (Matadi DVDA) of the Ministry of Rural Development.

The bid tendering was held with the attendance of the chief of Matadi DVDA, and the contractual negotiation was conducted with M. W. AFRITEC, then both parties closed a contract.

8.3 Details of the Work

The designing of the road was followed following procedure; grasping the current amount of traffic and types of vehicles, an estimation of the amount of traffic and types of vehicles after rehabilitation, and setting of road specification. In addition, the types of work are preparation and clearance fee

(installation of an office, running costs, etc.), cutting and reclamation, demolition of existing facilities, road earthwork, drainage, safety facilities, bridges, and temporary works.

8.4 Environmental and Social Considerations

There are no policies, procedures, and guidelines for environmental assessment in the DRC; therefore, JICA’s social environmental consideration guideline was applied for this Study.

The Study on social environmental consideration is to assess, calculate, and evaluate the impacts on environment and local society by this Study. Since only "rehabilitation of Kilueka road" was evaluated to have negative environmental changes, the lessening measures were taken on work which would give any negative impacts by the implementation of this project.

Chapter 9 Lessons Learned and Recommendations

9.1 Lessons from the Quick Impact Project

The rehabilitation of the community road between Kimpese and Kilueka was implemented as a quick impact project. Length of 18 kilometers, width of 4.0 meters, road shoulder width of 0.5 meters, combination of laterite pavement (85% of the total length) and concrete pavement (15% of the same), five concrete bridges (of which four were rehabilitated), drainages installed along the entire route, and road crossing works 30 to 50 centimeters in width at 37 locations. An approximate costs are given below;

- * Total construction cost US\$ 2,545,400.61 226,541,000 yen
- * Construction cost per kilometer US\$ 141,400 per km 12,586,000 yen per km
- * Construction cost by work type Rate of US\$1 = 89.00 yen

Total	Total (US\$)	Total (yen)	Km unit/point (yen)
Laterite pavement	1,213,000	107,972,000	7,057,000
Concrete pavement	1,087,000	96,775,000	35,842,000
Bridges	57,890	5,152,000	1,030,000

* The construction cost for pavement includes construction costs for road earthwork, main work, and construction of drainages.
 * The total construction cost includes, in addition to the above, costs for field management, demolition of existing facility, signs, and temporary works.

9.2 Continuation of Monitoring on Pilot Projects

In the Studies of first and second year was performed to establish plans mainly regarding resident-led community development and road maintenance. At present, PPs implemented in relation to the community development plan have not demonstrated specific effects yet. Moreover, the community development plan established in this Study depends largely on farm products, which vary through time, and villagers or villagers’ organizations feed on them. Therefore, it is considered absolutely necessary to continue monitoring on the items checked through the PPs, in addition to monitoring in the rainy season performed in this Study period.

9.3 Proposal for Future Community Development

In a post-conflict area such as the Study Area where the administrative service is not functioning, the beneficiaries of the community road, drinking water facilities, educational facilities, and health facilities are not specific people but all the local residents. Therefore, it is advisable that the local residents perform maintenance through collaboration. For such initial investment and enhancement of capabilities required for maintenance, the implementation of projects are recommended, which listed in the following sections by using the Human Security Fund and through collaboration with the UN assistance agencies such as UNICEF and FAO.

The minister of Rural Development, which is the counterpart body of this Study strongly demand Japan to continue its cooperation through the official development assistance after the end of the Study. For this reason, on the basis of results obtained in this Study and in order to contribute to establishing peace in the DRC, we recommend ensuring technology transfer needed to promote the restoration and improvement of communities, and setting up a financial cooperation that will achieve the desired results effectively.

The Study on Community Development Plan in Cataractes District,
Bas-Congo Province in the Democratic Republic of the Congo

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Chapter 1 Introduction

1.1 Introduction

Bas-Congo Province, in which the Study Area is located, is one of the 11 provinces in the Democratic Republic of the Congo (DRC) and the westernmost province of the DRC. Bas-Congo Province is an agricultural area, since it has a warm climate all year round, high precipitation despite having distinct rainy and dry season, and abundant water resources of the Congo River Basin.

As the only province in the DRC facing the ocean (the Atlantic Ocean), it serves as the important base of the economic activities and physical distribution for the entire nation. Because of its geographic characteristics, it has experienced repeated influxes of refugees from Angola. However, the stagnant economic activities such as agriculture and physical distribution in the province caused by the long years of civil war have had significant negative impact on the agricultural production and the employment situation. Exhaustion of the communities and increase in the number of people in poverty caused by underdeveloped basic living infrastructures are at critical levels.

In the 1960's, the influx of refugees started in the Study Area, Kimpese Sector in Cataracts District in the central part of the Bas-Congo Province, because of the civil war in Angola. While some of the refugees were deported back to Angola because of delicate political considerations of the governments of the DRC (GDRC) and Angola, many others have settled down in the area and co-exist with the local Congolese through marriage, etc. A large number of refugees immigrated into the area in the 1990's and later, because of escalation of the Angolan civil war. The influx of the refugees has been increasing burden on local resources shared with the local residents. Under such circumstances, it has become important to strengthen the functions of and cooperation between the communities to create an order in the use and conservation of the local resources while promoting co-existence with the refugees. Therefore, improvement in agricultural productivity is urgently required for improving livelihood and basic living environment of the villagers, reducing the burden on the area which has increased because of the influx of refugees, enhancing tolerance toward community-level conflicts, ending conflicts in the entire nation, and providing the people with even a little distribution of peaceful living condition.

After JICA had implemented two project formulation studies, the DRC submitted request for this Study in March 2007. In response to the request, a Preparatory Survey was implemented in May 2007. As the result of this survey, it was decided to implement this Study. S/W of this Study was concluded on May 14th, 2008.

While the title of this Study includes a phrase "The Study on Community Development Plan," it includes not only components included in an ordinary "Study" in the DRC but also components associated with formulation of the community development plans in the Study Area, a pilot project to collect information contributing to the formulation of the plans and rehabilitation of community roads

as an quick impact project.

1.2 Objectives of the Study

The objectives of this Study are as follows:

- ◆ To define measures to implement and extend resident-led community development (Component 1)
- ◆ To mitigate the burden on the areas concerned created by the settlement of Angolan refugees, by attempting to strengthen the functions of communities through the process of the formulation of community development plans (Component 1)
- ◆ To ensure access, to promote exchange between communities and to increase the volume of physical distribution with a quick impact project (road rehabilitation) (Component 2)

1.3 Study Area

The Study Areas are located in the areas directly benefiting from the rehabilitation of two roads originating from Kimpese, in Cataractes District, Bas-Congo Province, situated at about 220 km southwest of the capital, Kinshasa. One of the roads goes to 20 km northwest to Nkondo Site and the other goes to 18 km northeast to Kilueka Site. A total of 21 villages, eleven and ten along the former and the latter, respectively, were selected for the Study Area. In this Study Area, these two roads are referred to as Nkondo Route and Kilueka Route, respectively.

1.4 Process of Plan Formulation

The flow of the formulation process of community development plans in the Study is described in chapter 4 to 7.

1.5 Schedule of the Study

This Study was implemented for about 18 months from July 2008 to December 2009.

1.6 Study Implementation Structure

The counterpart organization of this Study is the Ministry of Rural Development (MDR) of the central government. The technology transfer has been implemented continuously to these six counterparts, whose details are shown below.

	Name	Field of specialty	Affiliation	Designation
1	Mrs. Josephine Pacifique LOKUMU ESEMOTI	Support to women's activities in rural areas	MDR of the central government	Conseil
2	Mr. MUNDEKE OLENGAWEDY Michel	Rural Development	Direction of Community Development, MDR of the central government	Director of Community Development
3	Mr. LUSIAMA MAKOBELLE Andre	Rural Development	Ministry of Rural Development of Bas-Congo Province*	Acting Inspector
4	Mr. BIKAWA MAKIESE	Agricultural economics	Ministry of Rural Development of Bas-Congo Province*	Conseil

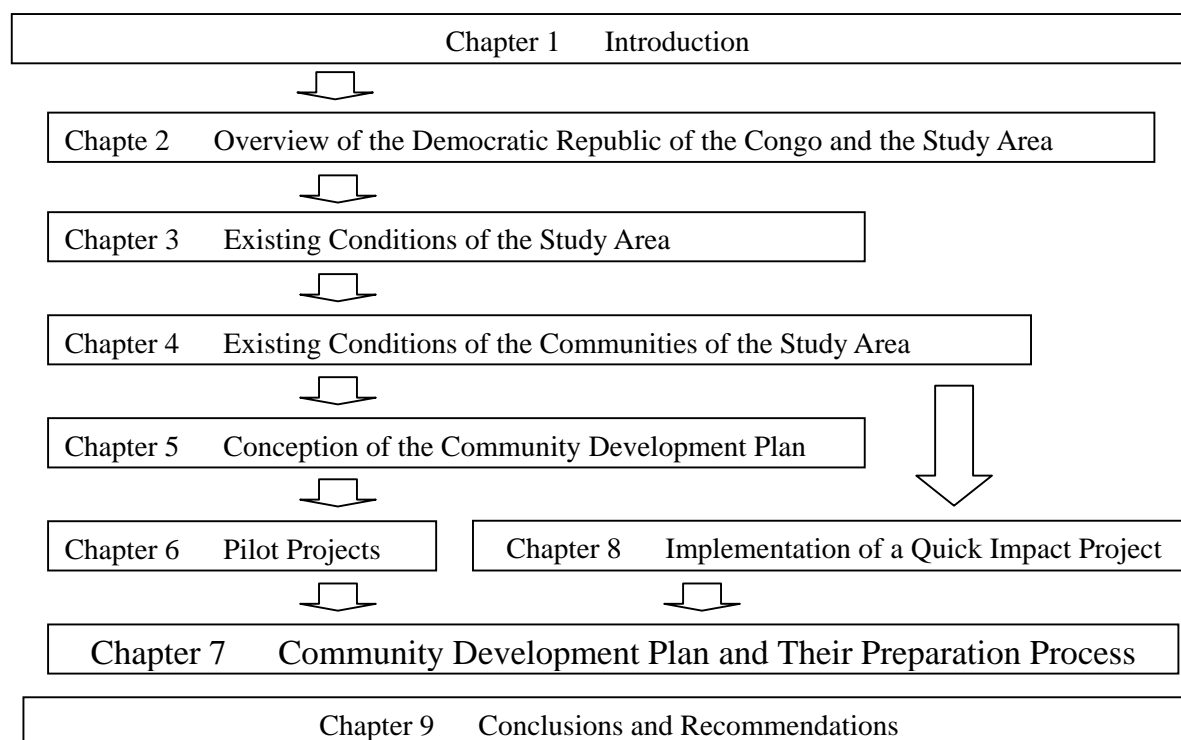
5	Mr. LUTETE LUKANDA Germain	Economics	Bas-Congo Province Government	Conseil
6	Mr. MUANDA NEKONO Honore	Agronomy	Kimpese Sector	Head of the Rural Development Section

* Official name is Ministry of Agriculture, Rural Development, Fisheries, Animal Husbandry and Small and Medium Enterprise Promotion of Bas-Congo Province

Also at the provincial level, other people associated with the Study on the DRC side belong to Ministry of Agriculture, Rural Development, Fisheries, Animal Husbandry and Small and Medium Enterprise Promotion of Bas-Congo Province and various administrations such as Cataracts District, Songololo Territoire and Kimpese Sector.

1.7 Composition of the Report

This report consists of four divisions and ten chapters. Chapters 1 - 3 describe the background of the Study and overview of the country and the Study Areas. In Chapter 4, the required practical scenario of community development is discussed with participatory analysis of the characteristics of the communities in the Study Areas. Chapter 5 presents a concept of resident-led community development plans, which include establishment of villagers' organizations and their organizational structures, prepared using the results of the analysis. Chapter 6 describes implementation of a pilot project (PP) to verify the concept of community development described in Chapter 5 and the feedback from the implementation of PP to the community development plans. Chapter 7 proposes community development plans which have been prepared as a reference materials for the counterparts to prepare actual development plans. Chapter 8 describes the quick impact project (road rehabilitation). The outcomes of the Chapter 8 are reflected upon in the community development plans described in Chapter 7. In the end, Chapter 9 describes lessons learnt and suggestions from this Study.



Chapter 2 Overview of the Democratic Republic of the Congo and the Study Area

2.1 Country Overview

2.1.1 Administrations

The DRC is gradually recovering from intense conflict that shook the country from 1997 to 2007 and involved the neighboring states. The year 2006 saw the undertaking of the first democratic elections in the country in 40 years.

In July 2006, the DRC adopted 'Poverty Reduction Strategy Paper'. It revolves around five pillars of development which are to promote good governance and to consolidate peace through institutions building, to consolidate macroeconomic stability and growth, to improve access to social services and to reduce vulnerability, to fight HIV / AIDS and to support community dynamics.

The strategy sets out a framework for the programs of GDRC and their partners of development. These new policies have already given significant results, especially for the economic stability of the country. Now the challenge is to initiate a process of sustainable development that will encourage partners in the DRC to increase their assistance, to contribute materially on improving the living conditions of Congolese and to stimulate private investment.

The third government of President Kabila since his election in 2006 led by Adolphe Muzito has 54 members including 5 women. Among the innovations are the abolition of posts of Minister of State with the President and Minister of State with the Prime Minister, the creation of a ministry responsible for decentralization, the separation of the Ministry of Foreign Affairs and International Cooperation, the separation of the Ministry of Agriculture and Rural Development. The number of ministries was decreased from 33 to 37.

2.1.2 Socio-economic Situation and Conflicts

(1) Social situation (social indicators)

After 10 years of war, the socio-economic situation in the DRC has extremely deteriorated and reached a lower level than in the 1980s. According to UNICEF, the average life expectancy at birth in the DRC is 46 years (2006). The infant mortality rate under 5 years is 205 to 1,000 people (2006). This percentage has not changed since 1990 and has not improved. The rate of access to drinking water is 46% for the total population of 82% for urban areas and 29% for rural areas (2004), which shows a marked difference between the two areas. The food problems related to poor nutrition are serious, leading to a rate of low birth weight of 12% (UNICEF, 2008).

The problems of HIV / AIDS, Ebola and cholera epidemics are serious (PNA, 2008). In addition, the index of social development is extremely low and Human Development Index (HDI) is the 168th rank in 177 countries in the ranking of UNDP (UNDP 2008).

There are large disparities between urban and rural areas, the poverty rate is higher (75.7%) in rural than in urban areas (61.5%) (national poverty rate is 71.3%), one of the causes of the exodus from rural to urban areas.

(2) Economic Situation

The DRC is emerging from a conflict that has claimed more than three and a half million deaths and lowered production capacity. Foreign companies have reduced their activities following the uncertainty associated with conflict, lack of infrastructure and the difficult business environment. However, after the conclusion of the Pretoria Agreement in 2002, things have significantly improved. The government initiated a reform of public order, and some improvements have been observed. Government revenues were to rise; countries and donors were to provide financial support, which should stimulate direct investment from abroad in the DRC. (CIA 2008).

(3) Conflict Situation

After the Cold War, Zaire and the United States of America have dissolved their relationship, allowing the neighboring country of Rwanda to invade the DRC to exterminate the extremist Hutu militias. Then the anti-Mobutu forces took control of the capital and elected Mr. Laurent Kabila to the presidency. The country then changed its name to DRC (the 1st civil war in DRC). Thereafter, the gulf between the group of President Kabila and the group of his former comrades in arms has widened, following a civil war between the Kabila and the anti-Kabila, which involved 5 neighboring countries (the 2nd civil war in the DRC (1998)) (BBC, 2008).

After the civil war, the Pretoria Agreement was concluded in 2002, and an interim government was established. A poll for a new constitution was completed in December 2005, which entered into force in February 2006. The presidential and parliamentary elections followed in July 2006, and the current President Mr. Joseph Kabila was elected (PNA, 2008).

However, the last opponent presidential candidate Mr. Bemba was not satisfied and led a major battle in Kinshasa in March 2007, and the situation remained tense with repeated battles with the national army. Meanwhile, the eastern region of the DRC remained calm after the Pretoria Agreement, but thousands of people were fled following the battle between Rwanda's Hutu militia and the national army of the DRC in April 2008 (BBC, 2008). In addition, military rebels led by Commander Laurent Nkunda resumed conflict with the national army in the eastern region of DRC.

2.2 Overview of the Bas-Congo Province and the Cataractes District

2.2.1 Socio-economic Situation and Conflicts in the Province

The province of Bas-Congo is one of the eleven provinces of the DRC with an area of 53,000 km² (2.3% of national territory) and a population estimated at 2, 833,168, of whom 64% live in rural

and 36% in urban areas. The population density is 53 inhabitants / km². The population in this province lives in a state of extreme poverty with a per capita income of U.S. \$ 0.39 / day.

2.2.2 Administrative Division

The province has 3 districts, 10 territories, 17 towns, 55 sectors, 366 communities, and 6 autonomous regional entities (3 at Boma and 3 at Matadi)). The administrative structure of the province includes two types of administrations. On the one hand, the provincial government, on the other hand, the territorial administration including decentralized administrative entities (cities and territories) and local autonomous entities (districts, municipalities, towns, sectors, communities).

The Ministry of Rural Development, in charge of implementation of this Study, is the national body for political guidance and strategy for all the activities. The central administration is headed by the General Secretariat represented in the Province by the Provincial Inspectors working under the Ministry of Agriculture, Rural Development, Fisheries, Livestock, Small and Medium Enterprises of Bas-Congo.

2.2.3 Policies of Community Development

To help achieve its mission, the General Secretariat for Rural Development has normative and specialized services. The Directorates of the normative and specialized services General Secretariat are represented in the province by normative offices supporting the provincial inspector in the implementation of its activities.

The Office of Community Development under the Inspector of rural development is responsible for the promotion in the rural area of self-promoted and self-managed structures including development NGOs, local initiatives for development, the various cooperatives, farmers' organizations and mutual development.

Community development activities are implemented on the ground in partnership with people concerned with the provincial coordination under the inspector of rural development. In the province, community development process is running at a snail's pace due to the lack of financial and logistics that would have enabled to carry out actions on the ground.

2.2.4 Angolan Refugees

In Angola, since the three military powers, the MPLA (Popular Movement for the Liberation of Angola-Labor Party), the FNLA (National Front for the Liberation of Angola) and UNITA (National Union for the Total Independence of Angola) have started the war for independence in the country in 1961, the confusion began. The country was in a state of war until the assassination of the leader of UNITA, in 2002, while the FNLA capitulated in 1984. Each time when a battle has arisen from this war, people fled to the neighboring countries.

UNHCR supported refugee camps since 1990, but was asked to record Angolans living outside camps in 2003. Accordingly, UNHCR has registered about 120,000 Angolan refugees (UNHCR, 2006). After registration, UNHCR has investigated the possibility of repatriation of Angolan refugees, and nearly half of them wanted to return to their country while half wished to stay in the DRC. Therefore, UNHCR launched an operation to support the repatriation from 2003 to 2006 for the half who wanted to return, and almost all of them have returned. The others that have remained behind seem to be the ones who wanted to stay in the country.

The influx of Angolan refugees took place in 1961, 1972 and 1992 in the Bas-Congo province. As mentioned above, the refugees settled in camps are mainly those of the 1990s, but the camps also include few refugees of the previous periods.

Chapitre 3 Existing Conditions of the Study Area

3.1 Socio-economic Conditions

3.1.1 Administrative Organization

The Study Area is located in Kimpese Sector. The chief of the sector is the territorial executive who manages the Sector. His office is constituted by 1 Secretary, 1 Clerk of main registry office, 1 Accountant, and 9 technical and 3 specialized sections.¹

The Sector is subdivided into groupings or communities. The chief of a grouping is in charge of the customary administration in the radius which is allocated to him. Furthermore, the Agglomeration is a centre having more than 1000 persons. The leader of Agglomeration is in charge of the population census in his radius and of other tasks entrusted to him by the main office; also dealing with disagreement between people under his authority.

3.1.2 Socio-economic Situation

More than 90 % of the population of Kimpese Sector lives through agriculture and animal husbandry, taking advantage of the railway and the National Road 1. The basic facilities of the sector are very shaded and less equipped, markets and wholesalers are quasi nonexistent. The access to drinking water, schools and health care is problematic.

On the other hand, the province of Bas-Congo has enormous economic potential, including two international river ports at Matadi and Boma to serve the country in terms of import and export. Yet most of the resources remain underexploited, especially large tracts of fertile land and mineral resources. Many sites of tourist interest are unused.

¹ The 9 technical sections are 1) Agriculture – Livestock, 2) Rural Development, 3) Environment, 4) Hygiene, 5) IPMEA, 6) Culture and Art, 7) Sport and Leisure, 8) Tourism, 9) Transport and communication. The 3 specialized sections are 1) Police, 2) ANR and 3) DGM

Although the majority of villagers' livelihood is agriculture, production of agriculture and animal husbandry shows a large deficit.

3.1.3 Land Ownership

(1) Land Tenure System

The base of this system is based on BAKAJIKA Act of 1967 and the law of land tenure in 1973. The former claims that the State holds "all rights of ownership over all land, including up to 20 km below the soil, forests, and mines throughout the territory". The latter allows the possession of certain types of private concessions permanent," and also recognizes the traditional laws that allow user charges on "non-allocated land in rural areas." Land users are considered holding usufruct rights by such laws based on the traditional land tenure system.

Under these laws, land is classified as public lands and private lands. Public lands are lands for public use or reserved for work and for which the usufruct can not be sold or transferred as long as the change is not allowed by law. On the other hand, private lands are divided into urban and rural land. For land in the urban area, it means the lands within the territory declared as urban area by law, and other lands are considered rural. The transfer and subdivision of the usufruct right of private land to a company or individual are allowed.

In addition, private lands are classified into five categories according to use, residential zone, commercial zone, industrial zone, agricultural zone and livestock zone.

The usufruct of private land may be acquired by the payment of the usufruct fee and taxes. In addition, the government allows the companies or individuals to acquire the usufruct of land, regardless of the nationality.

An applicant must negotiate with the owner of usufruct to acquire the right of usufruct. The contract is concluded after the agreement of both the parties and after the local government has verified the legality of the contract. Following the conclusion of the contract, the applicant pays the owner in kind as pets, etc. or cash in an amount corresponding to the cost of the usufruct. Thereafter, the land authorities investigate the land. The authorization of the prefecture or the provincial administration is necessary for wider lands. The Minister of Land has the authority to sign on the land exceeding 1,000 hectares. Eventually, the delimitation between the lands is defined, and is registered as private land owned by a company or an individual for a term limit of 5 to 25 years or 30 years. This right may be extended.

(2) Form of land Ownership

Villages' territories are scattered in Bas-Congo province, which create a complex mosaic of land. In addition, multiple rights exist on the land and several forms of traditional land ownership. The head of lineage (blood, or clan) or lineage owns the rights to manage the land. As villages are mainly based

on the lineage, one can say that the land is owned by each village. The reason for the dispersion of territories or the complicated mosaic arising from it is based on the following.

First, the villages have enclaves which are the secret places where properties and cattle are hidden. Secondly, the villages have remained divided. When a village is created on the basis of a lineage and the number of people increases, there may be a limitation to maintain economic unity of the village, or social limitations caused by the looseness of the relationship. Accordingly, it is inevitable that the villages are divided. Thus, the villagers' territory also dispersed several times.

Thirdly, the traditional belief of villagers on the land affects the current form of the territory. In Bas-Congo province, people should keep any land inherited from their ancestors and never give it up. Consequently, they have the clear recognition of the right to their lands even if they do not use them. The land used as graves has been paid particular attention, because of their recognition that the real land owners are their ancestors, and they only have usufruct rights of land.

Thus, in this province, the territories are scattered like mosaic, because in addition to the territories originally divided by the enclaves, the land was divided repeatedly due to their strong awareness of the rights even for the unused land.

(3) External pressure on the land during the colonial period

In addition to the aforementioned situation, external physical pressure was exerted on the land during the colonial period in Bas-Congo. Firstly, there is a deprivation of rights to land by European livestock. European settlers have positively managed livestock breeding by the need to cover their own consumption needs when they immigrated, and livestock breeding was focused on Bas-Congo province. Therefore, an increase of the size of the ranch that Europeans managed decreased the amount of land that local people could use.

Secondly, there is a displacement of villages by the administration or for economic reasons. The colonial government has moved to places along the road for administrative reasons. In addition, the villages have moved voluntarily to sell their agricultural products at high prices in the vicinity of a railway and a main road for transport to the city.

Thirdly, there has been an expansion of cultivated land based on the marketing of agricultural products. The needs of marketing products have rapidly increased with colonization and growth of the city in the province of Bas-Congo. It has caused an increase in the food price. As a result, the production has been stimulated and led the expansion of cultivated area.

(4) Disputes over land and its influence

The majority of land disputes stems from the lack of information on procedures for acquiring land. Often, people are not sufficiently informed about the BAKAJIKA law and they still believe they can inherit their ancestral lands on the basis of traditional law. Accordingly, as soon as the occupant

leaves or dies, people think they can reclaim the land without any formalities whatsoever. Therefore, when the State allocates concessions to new owners, there is conflict between villagers and those who have newly acquired the usufruct.

These disputes over land are factors obstructing the development of society, economy, culture and the rural community.

3.2 Natural Conditions

Bas-Congo extends from the fall of Kintambo near Kinshasa on the downstream stretch of Congo River basin to the Atlantic. The Study Area is located on Cataractes district which is characterized by a quieter relief, more homogeneous plateaus and hills. And the relief of the area can be divided into trays / Hills, bed, alluvial range. The altitude around Kimpese is about 250 to 400 m, and there is the Bangu plateau (700 - 800 m) which is mentioned above by the northern side of the Study Area.

The climate of Bas-Congo is divided into 2 types: the dry season is from mid-May to late September (savannah season, according to Köppen's climatic division) and the rainy season is from early October to early May. The rainy season is interrupted by a small dry season between January and February.

The average annual precipitation over the past 20 years is 1614.2 mm (Mvuazi, INERA). The rainfall is concentrated from 94 to 99% in the rainy season. The average annual temperature is 24.5 °C, and the annual average relative humidity is 77.9%.

The river basin accounts for the whole of this great river for an area of 3,684,000 km² which is 2nd largest river in the world after the Amazon. In the Study Area, the river along Lukunga from the bottom of Mt. Bangu north-east to south-west and then north-west to finally arrives in the Congo River around Luozi. There are also several tributaries of the river Lukunga. Most of these tributaries dry during the dry season, but they are used by local people for water for irrigation, drinking water and other waste water in the rainy season.

Concerning the pedology of the Province of Bas-Congo, the land is covered with tropical soils, especially Ferralsols and Kaolinite highly ferrous and Aluminum.

The province of Bas-Congo is a region dominated by grassy savannah more or less shrubby. These appear between savannah dense equatorial forests to the north and tropical forests in the South. The vegetation of the Study Area is divided into three types: savannah grassland, savannah and shrub forest.

Chapter 4 Existing Conditions of the Communities of the Study Area

4.1 Actors Involved in Community Development in the Study Area

Actors related to the community development in the Study Area are listed as preparing a development plan. The Ministry of Rural Development is the principle administration body of the community development, and the Directorate of Community Development (hereinafter referred to as “DECO”) is a directorate under the supervision of the Ministry of Rural Development and belongs to the Central Management Service of the Rural Development Office. Except for the Ministry of Rural Development and the DECO, an institution related to the community development in the Study Area is a Directorate under the control of the Ministry of Rural Development and belongs to the Central Management Service of the Rural Development Office called the Directorate of feeder roads (hereinafter referred to as “DVDA”). Other responsible institutions and individuals are the Ministry of Agriculture, Rural Development, Fisheries, Animal Husbandry and Small and Medium Enterprise Promotion of Bas-Congo Province and rural development inspectors, community road maintenance and improvement inspectors, agriculture inspectors assigned to each level of Bas-Congo Province, Cataracts District and Songololo Territoire. Besides, there are lowest-end administrative units called sectors and in the Kimpese Sector in which the Study Area is located, section chiefs for rural development and for agricultural dissemination are assigned under the supervision of the sector chief who was elected. Except for those belonging to administrative bodies, several organizations are in action including an international NGO operating with EU funds, Agrisud, a local NGO called CRAFOD operating with funds from Germany’s Protestant Christian missions and CLERs carrying out road maintenance programs with participation of villages (54 CLER groups in Bas-Congo Province). Currently, CLER Kiasungua is maintaining and managing the Nkondo route. In addition, there are other three directorates who can be considered as actors in the Study Area such as SENATRA, SNHR, and SNCOOP.

4.2 Characteristics of the Target Communities

The population of the villages subject to this Study is 9,869 in total with the average population per village of about 500. The smallest population is 30 in Mawewe and the largest is 2,500 in Kiasungua. As shown by these figures, the population difference is highly significant. The average size of a household is approx. 5 people.

The major industry in the Study Area is agriculture and during the rainy season, cassava and maize are mainly grown, while during the dry season vegetables such as onions and tomatoes are mainly grown. The grains are grown in the rainy season, while the vegetables are grown in the dry season. The average cultivation area of the rainy season per household where the staple food is grown is 4,678m², which is about three times of that of the dry season, 1,460m², when the cash crops are mainly grown. As other means of livelihood, animal husbandry (goat, pig and poultry) and wood

charcoal production are also carried out in some households. These, however, do not go beyond sideline means of income generation. Almost none of the villagers are full-time workers in business other than farming. The monthly and daily incomes from agriculture per capita in the Study Area are shown below. The other incomes include those from animal husbandry and commercial activities, but approximately 80% of the villagers' income comes from agriculture (78% during the rainy season and 84% during the dry season). Approximately, 30% of villagers obtain daily average income of over 1 dollar even if incomes from other than agriculture are included (Rainy season: 38%; dry season: 31%).

In the Study Area, land at lower altitudes is generally used as farmland as shown below. Land at relatively higher altitude is used as residential districts. In lowland near rivers, vegetables are grown actively during the dry season (photo on the right) using a bucket irrigation system. During the rainy season, however, lowland will be flooded over temporarily when there is heavy rain fall and it is not suitable for vegetable farming. And therefore, maize and sugarcane are grown during the rainy season. In the Study Area, the annual average temperature is around 25 °C, and due to the climatic conditions, the crops can be cultivated three times in a year. However, the land is used differently depending on the altitude. Cassava, which is a staple food, and peanuts are grown in the rainy season and cash crops such as vegetables are grown in the dry season. In Bas-Congo Province, useful tree species are also widely grown, particularly fruit trees.

In the Study Area, under the customary law, the ownership of land belongs to clans². In principle, land is not offered for sale and clan members called Mfunmu a ntoto inherit the land from generation to generation. Clan members have the right to become Mfumu a ntoto, regardless of genders. The Study Area, however, is characterized by the form of society represented by the matrilineal and virilocal marriage; and therefore, it is not easy for clan members who are inheritors of the land to continue to live in the village where they were born. Land is managed by the oldest member of the clan, or clan head (Mfumu a nsanda/Mfumu a dikanda), and even a clan member who is Mfumu a ntoto cannot put the land to lease without obtaining consent of the clan head. When the clan head is dead or unable to fulfil his role because of old age, the next oldest clan member living in the same village or nearby village will become the new clan head. If no clan member lives in the same or nearby village, a male clan member who works away from the village or lives in a faraway village or a male child of a female clan member who went out to get married will apparently immigrate into the original village to become the succeeding clan head. In principle, it is said that one clan head exists in one clan. As mentioned above, land in the Study Area is in principle not bought and sold, and it is absolutely necessary to obtain clan head's permission to lease or sell it.

In the Study Area, there also are child villages or grandchild villages derived from their parent villages. Each of such parent villages has its clan head who has the right to ownership of land of all the

² People share a sense of connection through recognition that they have common ancestors. Generally, people's identification is determined by tracking back paternal or maternal origin. In 3.1.2 (2) "Traditional Land Ownership" in this report, it is explained that the right to land management belongs to the lineage, but the word "clan" is used in this section, since it is considered that in the study area villagers are not necessarily aware of their own identification based on their lineage.

relevant villages including child and grandchild villages. The child villages and grandchild villages are formed by some families belonging to the same clan of the parent village who left the parent village and moved to other land for the reason of population increase, etc. Grandchild villages are those derived from child villages.

Rivers running through lowland are used as a water source during the dry season. In the Study Area, water of the Lukunga river or springs in Kimwana never dries up even during the dry season and water from the river and springs is used not only for farming but also for daily life in all the villages of the Study Area. In the Study Area, water source for village water supply use is from the Lukunga river and others such as wells, springs and streams.

In some villages, regular markets for items of daily use are available and public facilities such as elementary and junior high schools and medical facilities are in place.

There is a market at Sunday in Wene, at Wednesday in Kiluaka, and at Saturday in Kiasungua. Primary and secondary schools are in Kilueka Site, Malanga Cité, and Kiasungua. Wene, Kinanga, Mbanza-Ndamba, and Mpete have only a primary school. Kinanga, Kilueka, Malanga Cité, and Kiasungua have a health centre while Nkondo site has a health post. Villages which have both a primary and secondary school and a health centre are overlapping. The markets and public facilities are commonly used by several villages, and those who live in distant villages have difficulties in accessing these facilities. Although it is not only caused by poor accessibility, it was found that in elementary and junior high schools in the Study Area many children dropped out or repeated the same grade since they were unable to advance to the next grade. The proportion of dropout children on an average is 42% at elementary school and 47% at junior high school. Accessibility to social infrastructure in this Area is poor. There is a plan to construct collective collection and shipping center in Kiasungua along the Nkondo route and in Nkondo and Ndunguidi along the Kilueka route. In September 2009, the construction of one of such centre in Nkondo was completed. It was proposed to divide the Study Area into 6 zones in view of the flow of people and access to public services, etc. When focusing on each village's clan, it can be seen that users of public services and the clan are overlapping along the Kilueka route.

In each village of the Study Area, there already is a village development committee. A village development committee is composed of a representative (Duki), a deputy representative, a secretary and an accountant to promote village development. The village development committees hold a general assembly meeting several times a year and encourage all the villagers to participate as well as determine the direction of village development in accordance with laws and conventions. In addition, each village development committee has several sub-organizations for managing diverse factors including education, health and hygiene, water and animal husbandry and for each of these areas, under the supervision of such an organization, a villagers' organization is formed.

4.3 Study Area's Issues and Needs

4.3.1 Field Workshop

Field workshops were conducted focusing on the “strengths of the village,” “slogans” and “catch phrases of the village.” Villagers of many villages mentioned that the fertile soil is their strength in the area of agriculture. In addition, villagers also consider that fruit trees and animal husbandry (goats, poultry, etc.) are important. In relation to the living environment, most of the villages understand the fact that roads are in place is one of the strengths. Rivers such as the Lukunga and its tributary streams do not dry up throughout the year, which is recognized as a valuable water source. Villagers consider football is their major past time activity. And in 15 villages, there is a football team, which they consider as strength. Concerning the public services including healthcare and education, about a half of the villages consider it as strength that such services are within their village or within accessible distance. Finally, 17 villages consider it as a strength that the villagers cooperate with each other and join together.

Additionally, villagers were required to answer the questionnaire on village's issues. In the area of agriculture, the issues listed include lack of seeds and tools. It was revealed that the villagers cannot purchase improved cassava seeds, sufficient amount of basic farming tools, and equipment. the cultivated field is limited since the works are done manually and the total cultivated area cannot be increased through mechanization, which is another issue. In the entire Study Area, poorly developed public facilities such as schools and health centers are issues commonly recognized by the villagers. The countermeasures are grouped into the following three categories: 1) Agriculture (availability of farming tools and equipment); 2) Living (ensuring of drinking water); and 3) Public service facilities (rehabilitation of health facilities and schools).

4.3.2 Joint Workshop

Joint workshops were carried out in each zone (a zone is composed of several villages), taking into account of a range of conditions including geography and accessibility to nearby public facilities or markets. At the workshop, discussions and reviews were made on the direction of the project based on the zone's “strengths (S), weaknesses (W), opportunities (O) and threats (T).” In addition, by bringing the representatives of 20 villages together, a joint workshop was held on the first day as a forum to explain how the workshops would be carried out. At this joint workshop, issues of more public character were discussed.

4.4 Analysis of Developmental Potential

4.4.1 Community Road Rehabilitation

In Songololo Territory, in which the Study Area is located, the national highway, which traverses the territory in the east-western direction, has already been repaired and, thus, is in good condition.

The repair works on the provincial roads have already commenced and they are in good condition. However, few repair works are in progress in the network of 2,340 km of community roads, which crisscross the entire territory. Since the national highway has already been repaired and the provincial roads have been repaired, villagers living along the community roads directly connected to the national highway or provincial roads have a strong need for the repair of the community roads, which are directly connected to their life and livelihood. Meanwhile, there are several bridges in very poor condition along the provincial roads which have been repaired. The table below shows the conditions of the bridges along the Kimpese - Luozi Route which passes through the Study Area.

4.4.2 Improvement in Agricultural Productivity

(1) Expansion of cultivated areas

Farmland: Cassava cultivated in the rainy seasons is the staple food in the Study Area. It is cultivated for self-consumption and is also one of the important cash crops. Harvested cassava is sold as chickwangué, which in particular, is known for its quality and considered as a specialty, after being processed by village women. It is important for the farmland not to be affected by flood water from rivulets if it is to be used for farming in the rainy seasons. Therefore, inland valleys are not suitable for the farmland because they become temporarily inundated after rainfalls. There still remains significant area of unused land.

Inland valleys: Inland valleys along rivulets are used for cultivation of vegetables as cash crops in the dry seasons with irrigation using water from the rivulets. However, use of the inland valleys along rivulets for farming is limited because of the temporary inundation after rainfalls in the rainy seasons as mentioned above. The Study Area in which the Lukunga River flows in the north-south direction and many tributaries flow into it has a large area of inland valleys which are not used in the rainy seasons. Use of the valleys not used in the rainy seasons for dry-season vegetable farming requires removal of weeds which have grown vigorously during the rainy seasons or clearing, before every dry season. Meanwhile, a significant number of people living in Kimpese commute to villages in the Study Area do farming activities everyday.

(2) Introduction and expansion of cash crops

The Study Area has easy access to Kimpese, a market for vegetables and the center of the sector with a rapidly growing population. Because of the relative proximity to the markets, dealers come from the urban areas to the villages to purchase farm products. In the Study Area, INERA and NGOs (Agrisud and CRAFOD) are working on improving farming methods and providing improved seeds. Access to these agriculture-related organizations is easier in the study area than in other areas. The features of the activities of the said organizations include introduction of improved variety of cassava (with high yield and a short cultivation period) and assistance in extension of vegetable farming methods.

4.4.3 Improvement in Value Addition to Farm Products

The most common processed farm product in the Study Area is chickwangué produced from cassava. Other processed products are basically produced by processing the farm products harvested in villages. Such products include peanut paste, palm oil, sugarcane juice and sugarcane wine. These products were produced by manual processing with hand-made tools. Meanwhile, in Kimpese, an NGO produces *pili pili* (processed peppers), tomato purée, boiled vegetable and honey and the *pili pili* and tomato purée are widely distributed in the market.

4.4.4 Diversification of Income Sources

Livestock such as chicken, ducks, goats, sheep, guinea pigs and pigs are raised in villages not only for self-consumption but also as a valuable income source other than farm products. Before the civil war, piggery in well equipped pigsties and animal husbandry were practiced in addition to extensive livestock farming as practiced at the present day. Small-scale bee keeping and aquaculture are practiced in the Study Area.

As another source of income, fruit trees such as bananas, mangoes, oranges and safus are grown. Bananas are managed with regular root division. New species and improved varieties are purchased and grown by interested villagers from time to time.

4.4.5 Improvement of Living Environment

Strong needs for supply of drinking and domestic water, repair of community roads, repair of grinding mills and improvement in roofing materials (from grass to galvanized iron sheets) were confirmed in the workshops held in villages.

River water is used as sources of drinking and domestic water in many villages. Few villages use wells as water sources. It is assumed from the depths of the existing wells and existence of springs that a depth of 10 to 15 m is sufficient for a well to be constructed near a residential district of a village to supply sufficient amount of water to villagers. Establishment of a water source relatively close to a residential district will shorten the time required for fetching water. A chemical required for chlorinating drinking water can be obtained from EMI free of charge.

Because relatively easily accessible villages along the trunk roads were selected for the study, all the selected villages can be reached by vehicles. It appears that communal work systems among villagers such as *Salongo* are used for regular road maintenance and repair by villagers.

4.4.6 Improvement of Natural Environment

Villagers expressed personal opinions such as “It is very important to maintain the natural environment in and around the village in good condition” and “We should avoid destroying the environment for the coming generations” in the workshops held in villages. This observation is

considered as the evidence that they are well aware of the importance of natural environment. Many villagers admit that burning of fields is an act of destroying nature. However, they have not been able to find any measures against the burning and the burning continues destroying trees and bringing damage to farmland. Further educational activities for and replantation by villagers will be required for the improvement of the situation.

4.4.7 Improvement of Public Facilities

Although the administrative services in the Study Area are not sufficient, public facilities such as schools and health centers are found in every few villages. Although some teachers commute from Kimpese or other villages in the area to their schools because of lack of accommodations near the schools, schools have enough teachers. Similarly, health centers have sufficient nurses.

Schools and health centers in the Study Area do not receive sufficient administrative services from the administration and, in its place, NGOs and communities in which the schools and health centers are located maintain the facilities and the functions of the facilities. There is a strong need for literacy education for women who have been too busy with childcare, household chores and farming to receive sufficient education. There are so many literate farmers in villages that it will be easy to find teachers of literacy education. Health facilities are training health promoters with the target of one health promoter for every 15 households to implement information dissemination and educational activities in the health sector. It is expected that the educational activities in communities can reduce the cases of the major diseases, *i.e.* malaria and diarrhea. Since health promoters who have already received training and practical lessons have knowledge of the major diseases, the system of health promoter can be improved by implementing new educational activities such as picture story shows.

4.5 Developmental Constraints

4.5.1 Community Road Rehabilitation

The issue of landownership is on the top of the list of constraints to community road rehabilitation. The government owns land itself and farmers have a traditional right to farm on the land; therefore, sites for road works are legally owned by the government and the government has legal power to expropriate villagers. However, in reality, as some villagers complain or protest against land expropriation, very careful attention will have to be paid when expropriating land. Delay in the work itself in the rainy seasons is a constraint in the Study Area which has annual rainfall of 1,600 mm. Therefore appropriate work implementation management in the dry seasons will be required. As a plan for road maintenance after completion of the work, DVDA is to establish CLER for each and every improved community road to maintain all the community roads. However, because of the difficulty in securing the budget, maintenance by CLER has not been established for all the rehabilitated community roads. Since DVDA is an organization to implement manual road construction and maintenance works in principle, input of equipment will be required so that it can work on roads

which cannot be repaired manually.

4.5.2 Improvement in Agricultural Productivity

In the Study Area, not only farm work but also transport of farm product has not been mechanized. A series of work from weeding, felling of bushes, plowing, watering to harvest is done manually with several types of farming tools. A common means of transport of crops from farmland to villages or roadsides is to put them in a bucket or a sack and carry it on the head. Bicycles are used as means of transport on road. Transport vehicles such as lorries are used by dealers from urban areas for transport of farm products and no villager owns a lorry. Cattle ploughing such as oxen and donkeys are no longer in use. Expansion of cultivation area in the rainy seasons requires improvement of working efficiency of plowing, which is a major limiting factor for the expansion. It is practical to use cattle for the improvement of plowing efficiency including training on how to raise cattle and training of cattle for plowing.

Inland valleys along rivulets are not used because it is not possible to grow vegetables or other crops there due to temporary inundation after rainfalls. Although these valleys can be used as paddies, rice cultivation has hardly been observed in the Study Area. If the inland valleys along rivulets are to be used as rice-paddies, technical assistance in rice-cultivation will be required.

Onion accounts for a great majority of cash crop production in the Study Area. Since preparation for onion cultivation begins at the end of the rainy season and it is cultivated as a dry season crop in most of the cases, onions are harvested almost at the same time in almost all villages. Farmers do not practice sales of crops after keeping them at home for a certain period of time. Despite vegetable cultivation being the major source of income, farmers have problems that they cannot purchase agricultural materials and equipment at appropriate time, that cultivation technology is poor, etc.

4.5.3 Improvement in Value Addition to Farm Products

Processing of farm products observed in the Study Area is practiced by individuals with simple tools and processed products are mainly sold within villages. Because of the difficulty in finding means of transport and low sales prices, farm products cultivated and harvested in the Study Area do not always bring income to farmers. Besides vegetables, products such as mangoes cannot be stored for a long time after harvest.

4.5.4 Diversification of Income Sources

Large numbers of chickens and pigs can be raised with use of appropriate raising techniques. However, there is no farmer in the Study Area who raises livestock while keeping and feeding them in stables. Farmers are unable to raise large numbers of improved varieties of livestock because they cannot obtain enough feeds for livestock, they cannot obtain money to introduce improved varieties, they cannot afford the risk of simultaneous loss of a large number of livestock due to a disease, etc.,

they are too busy cultivating crops in farmland to have time to spend for care of livestock, etc. Therefore, at present, they raise chickens, pigs, goats, etc. with little care and their sales prices are low. Aquaculture using small streams and springs and beekeeping in forests near villages can be introduced to villages where the conditions required for these activities have been met. However, sufficient technical assistance including how to obtain fingerings will be required.

4.5.5 Improvement of Living Environment

It is observed how difficult it is to maintain wells. It will be necessary to implement educational activities on maintenance of wells prior to construction of wells in this Study and commence construction where and when villagers have fully understood the maintenance. In addition, it will be necessary to provide technical assistance on maintenance procedures and in preparation of manuals. It will be necessary to confirm availability of pumps and their parts not only in Kimpese but also in the capital, Kinshasa, and to have alternative ways of taking water from wells such as installation of well buckets and ropes in case it is found difficult to procure them at either place.

Since villagers have no tool other than farming tools meant for farming activities or no means of transport, while they have been repairing roads near villages partially as part of the maintenance work, they have not been able to respond to deterioration of road conditions, especially those caused by poor drainage. Because there is absolutely no possibility of road maintenance being provided as an administrative service, it is necessary at first to establish a mechanism which enables use of simple tools for road construction and wheelbarrows in Salongo in villages which are located relatively far from trunk community roads or have places requiring improvement or repair of drainage facilities.

Among the works performed by women, grinding of cassava, in particular, is one of the most strenuous works as it requires manual work with pestles and mortars and long hours of work. Collection of firewood for cooking is considered as work of women and children. Workload of household chores including those mentioned above, as well as water fetching for cooking and washing, is heavy. As a measure to reduce the workload of household chores through reduction in firewood consumption, improved cooking stoves will be introduced. In order to promote activities of women's groups, which does not exist in a large number in the Study Area, handicrafts in which women can work together will be introduced.

4.5.6 Improvement of Natural Environment

Although the administration imposes penalty for "field fires," the destruction of nature closest to villagers, the penalty has no impact and fields are burned at throughout the dry seasons. Under such circumstances, it will be necessary at first to restore vegetation gradually by commencing aggressive replantation activities to increase forest cover (fruit tree orchards) and to obtain harvest from the forests, as well as to continue educational activities steadily. Simultaneously with the replantation activities, technical assistance on seedling production will be provided with the aim of

training technicians who can grow seedlings at each village.

4.5.7 Improvement of Public Facilities

Because the administration does not allocate sufficient budget to the operation of public facilities in the Study Area, the budgetary shortfall has been supplemented with donation from NGOs and villagers. Despite the donation, the facilities have continued being unable to raise sufficient revenue required for their operation. In most cases, villagers repair the facilities voluntarily; however, they do not have enough materials or carpentry tools for the repair. Villagers perform part of the administrative services voluntarily; the largest task is how to ensure sustainability of such activities by villagers.

Existing schools and health centers are operated and maintained voluntarily by villagers who use these facilities, because administrative services in the Study Area are insufficient. However, they have problems such as lack of tools to repair facilities, as well as required materials and equipment.

While the need is high for literacy education, the administration does not provide support to literacy education at the moment. The priority should be given to the use of literate residents in villages as teachers of literacy education as an important measure to ensure sustainability of the project.

It is possible to reduce the cases of the major diseases in the villages, malaria and diarrhea, by improving sanitary conditions. At present, drugs for headache and fever are the most consumed drugs in the villages. In other words, drugs for malaria are the most consumed. Therefore, it will be necessary to continue educational activities on malaria, in particular. Although health promoters have already been appointed at the rate of one promoter per *ca.* 15 households, many of them are inactive. Implementing educational activities through promoters is practical and effective. However, it is necessary to improve the methods to make the activities easier to understand for the residential area.

4.6 Results of the Analysis of Communities in the Study Area

The problems and needs of the villages in the Study Area sorted out by field and summarized developmental potential and constraints.

Chapter 5 Planning Orientation of Community Development Plan

When the community development plan targeting on Lukunga river valley of Kimpese suburb area in Cataractes district, Bas-Congo province, was planned, the development vision based on the policies of the DRC, development potentials in the Study Area, and the results of analysis of impediment factors was set, and the development objectives of projects to achieve this vision and measures to realize those objectives were discussed.

5.1 Community Development Plan (design)

5.1.1 Overview of the Community Development Plan (design)

The contents of the community development plan were intended to items which the residents can implement development activities, and maintain and manage them by themselves. The development plan is consisted of 4 areas such as 1) rehabilitation of community roads, improvement of 2) livelihood, 3) living environment, and 4) public facilities (services) according to issues and needs, development potential and impediment factors which were discovered by the survey of the Study Area and community profiling survey.

(1) Rehabilitation of community roads

Although the community roads play a significant role such as transportation of products and access to the public services, the traffic is very difficult, particularly in the rainy season, because width of road becomes narrow due to erosion, and large bores appear by being affected by the rain. One of reasons is the lack of maintenance.

The plan relating to the road, it is planed that the road rehabilitation is separately implemented by the quick impact project for the Kilueka route, whereas the community road is kept in a good condition by maintenance for the Nkondo route, because it has been already rehabilitated.

(2) Improvement of livelihood

Priority should be given to improve agricultural productivity in this Study Area where most of the income depends on agriculture. Despite the favorable natural conditions of rainfall and temperature which enable cultivation of cereals during rainy season and vegetables during dry season, the current level of productivity remains quite low due to several factors such as low labor productivity of totally manual agriculture, unused fertile lands, deficient dissemination of adequate cultivation techniques, extensive manner of livestock raising, etc.

Therefore, the challenges to improve agricultural productivity include the enhancement of crop productivity by holistic improvement of cultivation techniques such as introduction of improved varieties, methods of cultivation, soil preparation, etc. as well as the enhancement of labor productivity by means of animal traction such as use of cattle. In addition, income sources other than agriculture should be diversified such as animal husbandry and aquaculture.

However, mechanization is not focused in this development plan taking into account the difficulty in its operation and maintenance, as foreseen in the case of pump to replace the current manual irrigation which is a bottleneck against expansion of vegetable cultivation areas, and in the case of tractor which may bring about great improvement in the labor of soil tillage. By contrast, the present development plan gives priority to introduction of the methods and techniques of cultivation which are already practiced in the Study Area or neighboring areas.

(3) Improvement of living environment

There are a wide range of issues related to the living conditions, an indispensable space for the residents' daily life, including the natural environment of the surrounding area as well as the matters of social/cultural character such as limited access to safe drinking water, heaviness of labors performed principally by women like milling of cassava and carriage of water, damages to trees and farmlands caused by burning practice around the villages, etc.

Most important issue in this category is to ensure access to drinking water. However, abandoned wells due to breakdown of pumps are observed in the Study Area, suggesting the weakness in the system of operation and maintenance by the residents which needs to be strengthened together with the proposed improvement of water facilities. Also, heavy labors imposed on women and children such as carriage of fuel wood and water should be relieved. In addition, activities participated by wider residents and groups like handicraft is encouraged as part of the improvement of living environment, in view of the fact that women's actions can become more active by providing them with opportunities to get together constantly among several persons to perform the same work with mutual communication.

As for the improvement of natural environment, conservation of remaining forests and intensive reforestation are needed. Although the effects of these activities require longer term to appear than others, the residents' own effort should be centered for improvement of the environment in such ways as selecting larger portion of fruit trees for planting, putting emphasis on technical trainings about preparation of seedlings from seeds and methods of transplantation, etc.

(4) Improvement of public facilities (public services)

Among the public facilities, schools are particularly in bad condition as for roof, wall and floor due to insufficient maintenance. Other public facilities such as health centers and roads are also deteriorated and this situation leads to quite strong demand by the communities for improvement and rehabilitation of public facilities.

In view of the foreseen difficulty of secure budget allocation by the government, this development plan focuses the operation and maintenance of the facilities led by the residents and proposes the rehabilitation of the facilities which could be achieved by the communities. Concrete proposals are also given on the method of operation and maintenance of rehabilitated facilities as well as acquisition of necessary fund. Regarding the rehabilitated roads by quick impact project, its sustainable operation and maintenance by benefited communities are included in the plan.

Public services are limited also for the prevention of malaria and diarrhea caused by water which are principal diseases and for the literacy education as well, in spite of great need for them. Efficient use of human resources found in the communities as well as adequate operation system is proposed in the development plan in order to tackle these issues effectively and with less cost.

5.1.2 Target Year of the Development and Items Relating to Each Field

Major issues of the Study Area and corresponding measures are summarized in the following table based on the field survey of current situation. They are classified in the plans of “improvement of livelihood” and “improvement of living environment (including the improvement of public facilities)”. It is expected that the implementation of these projects could contribute to the development of communities as desired by the residents. As it will be described, the rehabilitation of community roads is absolutely imperative to improve those fields. Furthermore, lack of electricity and scarcity of diversions in the villages were also mentioned as additional issues during the field survey. However, the formulation of community development plan should take into consideration the importance of sustainable development led by the residents rather than tackling all the issues at the same time. Therefore, those fields are excluded from short- and medium-term objectives.

Under the present concept of community development, 5 years is given for medium-term objectives, and corresponding actions form an integrated community development plan. On the other hand, regarding the issues of longer term, a specific target year is not set due to the current political instability of the DRC.

Issues and proposed measures of the Study Area

Issues	Measures	Plans
Low agricultural productivity; Limited income source	Expansion of cultivated area; Introduction of new crops; Diversification of income source	Improvement of livelihood
Poor natural environment; Hardships in daily life	Improvement of natural environment; Fund raising for local activities; Improvement of living environment	Improvement of living environment (actions achievable at village level)
Bad condition of roads (especially in rainy season); Poor educational conditions; Poor health/medical conditions	Rehabilitation of principal roads for transport of people and goods; Rehabilitation of schools; Rehabilitation of health facilities	Improvement of living conditions (improvement of public facilities at zone level)

(1) Prioritization of rehabilitation of community roads

Community roads directly affect the improvement of livelihood and living environment through transport of products and purchase of commodities. The following table compares the cases with and without the rehabilitation of roads, where the transport is currently troublesome. As shown in the table, rehabilitation of roads is expected to bring about improvement of livelihood and living environment, and should be given priority in the first place for planning and implementation of the community development.

Positive and negative effects are both summarized, and rehabilitation of community roads is accompanied with negative effect, it is expected to bring about more positive effects than negative ones.

(2) Improvement of livelihood

Average daily income per capita in the Study Area is estimated as 0.76US\$ in rainy season and

0.93US\$ in dry season, which evidences that the standard of living of many people is below 1 US\$ per day. Improvement of agricultural productivity was mentioned as first important issue in the workshops and people's need for livelihood improvement by strengthening of agricultural production is considerable. Therefore, "program related to improvement of livelihood" is positioned as an urgent issue to be solved in short term like "rehabilitation of community roads". The following table shows the issues of livelihood at field level and corresponding proposed measures.

Item	Issues	Measures
Improvement of agricultural productivity	Improvement of labor productivity by expansion of cultivated area with methods manageable by farmers instead of mechanization	Cattle ploughing
	Increase in crop productivity by improved farming techniques; Diversification of crops	Soil preparation and improvement
		Introduction of new varieties
Better use of lowland for cropping in rainy season	Promotion of rice cultivation	
Addition of higher value to products	Better use of excessive products; Improvement of transport efficiency	Treatment and processing for postharvest
		Transportation of farm products
Diversification of income source	Increase in income by introduction of improved strain (pig farming) and improved techniques; Introduction of industries to utilize local resources to guarantee other income sources than agriculture	Promotion of animal husbandry
		Aquaculture and fish processing
		Beekeeping

(3) Improvement of living environment (including improvement of public facilities)

Improvement of living environment as well as livelihood should be promoted for community development. It is desirable to begin with simple and familiar activities which can be implemented without much fund such as improvement of cooking stoves and small-scale handicraft.

On the other hand, some activities of improvement of living environment are difficult to be done by single village. Field survey revealed that health centers and schools are shared among several villages which are formed as "zone". As shown in the table below, zones will be in charge of improvement of public facilities together with establishment of better system of maintenance of facilities by the villagers. However, this public facilities improvement is regarded as a medium-term issue, because it requires improvement or construction of a management system of the facilities by residents; and therefore, it is difficult to solve the problem within a short-term.

Issues and measures related to improvement of living environment

Item	Issues	Measures	Responsible
Improvement of living circumstance	Activities to improve mainly the living circumstance of women	Improvement of cooking stoves and housekeeping	Village
		Literacy education and bookkeeping	
		Handicraft	
Disposal of garbage found in most noticeable places as an activity to maintain clean village	Reuse of plastic bags		
Conservation of natural environment	Introduction of techniques for conservation of remaining forest and reforestation (preparation of seedlings, transplantation, etc.); Introduction of new usage of currently undervalued tree species such as moringa	Forestry preservation and replantation	
		Moringa tree	
		Roadside trees	

Improvement of public facilities	System and method of maintenance of facilities by the residents after simple rehabilitation of existing facilities	Improvement of health facilities	Zone
		Maintenance and management of drinking water facilities	
		Improvement of educational facilities	

5.1.3 Implementation System

Basically, communities are expected to lead planning, implementation, operation and maintenance of the development activities with instructions provided by related sectors of public services in the Study Area.

Each village in the Study Area already has its organization (village development committee), but there is not any organization formed by residents to cover the whole area. The present community development plan proposes, as mentioned above, activities of different contents which could be done by single village as well as by several villages. Activities like improvement of agricultural productivity can be implemented by individuals or groups formed by villagers and do not have much relation with other villages. By contrast, operation and maintenance of such facilities as road and school should be responsibility of several villages where the beneficiaries live in. Therefore, implementation system should be structured in accordance with the contents of the activities.

The Study Area can be divided into the villages along Kilueka route and the villages along Nkondo route, which are two independent routes without influencing each other. Villages of each route (10 villages along Kilueka route and 11 villages along Nkondo route) are expected to establish a committee (community development committee) which would have function of 1) providing management and instruction for the activities implemented at route level, and, 2) providing indirect management and instruction for the activities implemented at village level. The village development committee stated above should be responsible for management and giving instructions for village level activities. In addition, it is expected that community development committees exchange information one another on the contents and situation of the village level activities, and also serve as access point to public services in case of any problem.

5.2 Process from Implementation of Pilot Projects to Formulation of Community Development Plan

Contents of the PPs in this Study are determined based on the development potentials and constraints of the Study Area. Particular issues to be verified through PPs can be related to the major issues of community development of the DRC as follows:

- ✓ Poverty alleviation: Improvement of agricultural productivity, Improvement of livelihood by diversification of income source, etc.
- ✓ Residents' participation in the selection, implementation and monitoring of development projects
- ✓ Development of regional leaders: Development of leaders of groups, villagers, unions, etc.

- ✓ Improvement of living environment in rural area: Saving fuel wood (improved cooking stoves), reforestation, development of health promoters, etc.
- ✓ Reinforcement of collaborative framework among central, provincial and district governments as well as local administrative agencies

PPs implemented in line with above issues are reflected in the community development plan through confirmation of the effects and verification of the contents of the projects, target year of the development, implementation system, etc.

5.2.1 Confirmation of Effects by Implementation of Pilot Projects

The following aspects such as improvement of livelihood and technical contents are verified by implementation of PPs:

Improvement of livelihood: Through the PPs of improvement of agricultural productivity (cattle ploughing, introduction of new varieties, rice cultivation), addition of higher value to agricultural produce and diversification of income source, the expected improvement of livelihood is evaluated including the initial input by the Study Team.

Technical review: Implementation of the PPs of cattle ploughing, vegetable cultivation (soil preparation and improvement and introduction of new varieties), rice cultivation, animal husbandry, aquaculture and beekeeping is subject to natural conditions such as topographic limitations and also contains technical aspect like structure of pigsty. Accordingly, the evaluation is undertaken from technical point of view including not only results of the PPs but also initial conditions as well as their process. Finally, technical manuals of crop farming and livestock farming applicable to the Study Area's conditions will be prepared.

Activity by groups: Each PP is implemented by group of willing participants as basic unit. In addition to this, existing organizations in the village and newly established organizations among several villages provide management and instruction for PPs. Different responsibilities of each organization should be made clear and the capacity building of these organizations through PPs will begin with development of human resources to take leadership.

Collaboration among villages: Apart from the activities at single village level, rehabilitation of schools and health centers which needs collaboration of several villages is implemented as PP. The village where the target facility is located should play principal role during the implementation: however, the process is monitored from the standpoint of shared responsibility of

the maintenance by all the villages which use the facility.

5.2.2 Verification of Contents of the Community Development Plan

As for the contents of the community development plan, their sustainability and feasibility of dissemination among residents (including other villages) should be clarified in the verification process.

Implementation procedure: Procedure from planning by the residents to implementation and monitoring of projects is verified to ensure the continuity of the projects.

Target year of the development plan is established based on the contents of programs and projects as well as the priority and necessity given by the residents.

Dissemination effect: Degree of dissemination (extension) of PPs among residents is verified to be fed back into efficient planning of project implementation.

5.2.3 Verification of Securing Management and Maintenance Expense by the Pilot Projects

Sustainability of community development led by the residents is expected to be ensured under this proposed system. However, fund for operation and maintenance is also necessary for sustainable development. The following costs are supposed for operation and maintenance:

- ✓ Maintenance cost of rehabilitated roads by quick impact project;
- ✓ Maintenance cost of public facilities such as health centers and schools.

Contribution by the communities to cover part of these costs should be an alternative due to the weakness of public services. PPs implemented in this Study include the component of livelihood improvement, and its costs are basically borne by the residents. Utilization of the repaid fund in this component also should be determined.

Constant maintenance is indispensable to maintain good condition of the road paved with laterite and lined with earth channel. Maintenance cost of the road should basically be borne by the beneficiaries, and the following alternatives will be studied to determine adequate way of collection:

- ✓ To collect transport charge from the cars which use the road of target communities;
- ✓ To raise the rent for land by reason of improved accessibility brought by this project, and collect the added portion of the rent;
- ✓ To collect contribution from the residents.

School fee is actually collected including the cost of maintenance: however, the amount is not sufficient to carry out even simple repairs. Maintenance cost of public facilities which do not create immediate direct benefit could be covered by such alternatives as collection of contribution from wide range of users and utilization of the income gained from farmyard which is prepared for this specific

purpose.

Cost of implementation of the PPs for livelihood improvement is basically borne by the residents, who in turn must pay back their temporal debt to the Study Team through the activities of PPs.

Community development committee should be responsible for the collection and disbursement of related funds, and the capacity development of the members will be promoted through opening of bank account in the name of the committee, training on book keeping, etc. As for the flow of the fund, especially the deposit and withdrawal of the account's money, it is important to establish a system which allows the supervision by sector chief as well as the mechanism of internal check within the committee.

Chapter 6 Pilot Projects

6.1 Implementation Policy of the Pilot Projects

PPs were implemented based on the concept of community development plan. This Study carried out PPs that included 1) establishment of the community development committee in the Study Area, 2) road maintenance under the initiative of the community development committee, and 3) implementation of a PP related to the development of the community along the improved road. Additionally, project evaluation of PPs implemented under this Study and examination of monitoring systems were also conducted. While granting the importance of technical verification of PPs and priority validation of PPs based on the villagers' needs, it is as important to validate whether the villagers are potentially capable of continuously implementing the PPs described in this chapter. As it is evident in the organization of this chapter, it is also one of the main objectives of PPs under this Study to test the activities of the community development committee established in the Study Area.

6.2 Establishment of the Community Development Committee in the Study Area

The Study Area has a provincial road that runs from Kimpese to the Nkondo Site in the northwest and a community road that runs from Kimpese to the Kilueka Site in the northeast. Since these roads are means of access for the residents of several villages to public services such as markets, schools, and dispensaries in this area, the surrounding area of these roads can be regarded as one community. In view of such characteristics of the Study Area, two community development committees were established to cover the two routes, each consisting of representatives of 10 villages along the Kilueka route and representatives of 11 villages along the Nkondo route. The community development committee consisting of representatives of 10 villages along the Kilueka route is called Lukunga Valley Development Committee I, and the community development committee consisting of representatives of 11 villages along the Nkondo route is called Lukunga Valley Development

Committee II.

6.3 Road Maintenance under Initiative of Community Development Committee

Maintenance of roads must be performed to keep them in good condition and to ensure lasting effects of development. Periodical maintenance is the responsibility of a road supervisor in the administration. The Kilueka route is under the jurisdiction of DVDA Bas Congo and the Nkondo route is under the jurisdiction of the Office de Route (O.R) Matadi. Daily maintenance of the Nkondo route should be conducted basically using the framework of a maintenance program that CLER founded by CTB will implement for three years from December 2009. For the Kilueka route, a maintenance system has been established consisting mainly of committee members as well as managers elected from each of the settlements and villagers. Cooperation will be obtained from the sectors as the supervisors of the activities and from the CCSO and DVDA as the providers of technical support. One set of road maintenance tools was distributed to each settlement. Unlike a PP, road maintenance does not directly yield profit. However, unless road maintenance is performed periodically, the road quickly loses its value and causes negative influence to other activities. Therefore, maintenance tools were distributed free of charge and no deposit was demanded. The usage conditions of tools are watched by the sector, and any stolen or broken tool must be supplemented under the responsibility of the village.

In view of these circumstances, an organization for the maintenance of the Kilueka route was formed within the committee instead of establishing a CLER. As of October 2009, the budget for paying wages to supervisors and managers is not secured. However, securing of budget described in the next section is in preparation for the sake of securing incentives for supervisors. Therefore, it was explained to the managers and supervisors that the payment would be temporarily suspended until the budget was secured, and obtained their approval for it. The following lists standard wage amounts in CLER in Bas Congo, which need not to be paid in full. It was also proposed to pay with food such as cassava. In addition to the payment to the supervisors, etc., the budget for simple road repair needs to be secured. An example of payment to 1) Supervisors : US\$3 per day x 3 persons per village x 10 villages x 4 weeks = US\$360, 2) Managers : US\$5 per day x 3 persons per route x 4 weeks = US\$60, and 3) Total : US\$420 per month x 12 months = US\$5,040 per year. Means for securing the maintenance budget under examination are (a) collection of tolls from passing vehicles and (b) collection through addition to rents. These collected amounts will be used by the committee as the road maintenance budget.

In this project, it is planned to restrict the passage of vehicles during rain by installing road blocking devices at a total of four locations in the entrances to the route and the branch road. At two of the locations with high traffic, tolls are collected from passing vehicles. The operation is to be managed by the Congo Drivers Association (ACCO), and 70% of the collected amount is returned as the maintenance budget to the community development committee. Most of the farmlands along the Kilueka route is owned by landowners of villages and rented by the Kimpese residents and villagers.

With the consent of these landowners, it was decided to collect a certain amount added to rents and give this amount to the committee. As describe earlier, daily maintenance will be implemented mainly by the villagers' organization in the current system. Even at present, the villagers including selected supervisors and managers are performing brief maintenance work on the roads near their settlements through salongo, with ineffective results due to lack of technical background. To ensure that the villagers carry out maintenance of the road for themselves sustainably, it is important to raise the villagers' awareness of the road maintenance work and provide assistance in their technology acquisition. This PP deepened their understanding of the maintenance work through supply of educational activities and maintenance training to them.

6.4 Implementation of Pilot Projects for Community Development

PPs were conducted mainly to verify the relevance and effectiveness of PPs proposed based on the concept of the community development plan. Since PPs are based on resident participation, the Study Team provided training in Kimpese, made visits to villages to inform the details of PPs, and promoted the identification of priorities of PPs to villages. Paying particular attention to the implementation system and the fund management system so that beneficiaries would become PP implementers voluntarily, PPs were implemented after the action plan for these items are submitted by the villagers. The Study Team did not compel the villagers to form a villagers' organization but encouraged those who understood and took interest in the purpose of a PP to form a group on their own initiative after presenting the implementation conditions. To ensure satisfaction of implementation conditions such as the repayment of project expenses to the community development committee, the three parties, i.e., the target group, the members of the community development committee and the village chief who was a representative of the village development committee, and the Study Team signed a contract and obtained approval from the Kimpese sector. Besides, the Study Team is encouraging to continue, after completion of the PPs in the current Study, community development activities based on similar contracts signed by relevant parties, even without guidance of the Study Team. The table below shows the specific procedure for implementing PPs.

6.4.1 Training for Briefing of Pilot Projects

As described in the concept of the community development plan, PP plans were prepared by extracting and analyzing development potentials and constraints from the problems and needs of villages and through comprehensive judgment. In order to ensure that the villagers understand the concepts of PPs, the first training was provided in Kimpese.

6.4.2 Priorities of Pilot Projects in Each Village

Priority questionnaire sheets in which the respondents filled out the project priorities, reasons for the priorities, and persons in charge were collected. They were required to fill out down to 5th priority from the top. The animal husbandry PP is in the top five in priority in almost all the villages.

The demand for the cattle ploughing PP is the next highest, being in the top five in priority in 13 of the 21 villages.

6.4.3 Pilot Project Selection Criteria and Selection Results

In view of the above circumstances, PPs to be implemented were selected according to the following criteria: (1) respecting priorities given by the villages as much as possible, (2) giving priority to effective use of the existing facilities, (3) adding the Study Team's proposals in view of resources owned by the villages, (4) avoiding similar PPs in one zone and pursuing dissemination from the initial stage, and (5) giving considerations to the balance between villages regarding the numbers of projects to be implemented.

6.4.4 Result of Pilot Project Briefing in Each Village

To reach a consensus about the above selection results in the villages, village chief meetings and briefing meetings for villagers were held according to the schedule shown in Annex 6.4. Although priority questionnaire sheets had been filled out at the villages, not all the listed projects were implemented during the Study period. Therefore, selection reasons were explained for selected projects, and future dissemination plans were explained for unselected ones.

This Study is intended to pursue particularly the sustainability and expansion of the scope of projects through capacity development of the community development committee. This intention was explained to foster understanding on the part of villagers. For example, if the cattle ploughing PP is implemented in this Study, the implementing village must repay the initial investment cost to the community development committee. This repayment is then used for dissemination to other villages and expansion to other groups in the same village. After fostering full understanding on the part of the villagers that this PP was implemented on a trial basis and did not represent all the development potentials of this Study Area, we pursued the promotion of making a model in which the villagers and other parties could perform spontaneous development.

6.4.5 Establishment of Villagers' Organizations of Each Project in Villages

There are many villagers' organizations for each field in the Study Area. For PPs implemented in this Study, we made the most of existing organizations that match project components if any, and attempted to enhance them if any defects are found in the organizations. If required, a manager was selected in accordance with components of a PP, and an organization regarding the component was established. Seeing that the average age of PP members in all the villages is about 40 years, it is apparent that the villagers' organizations consist of people in the prime of life. Looking at the element of clans in the structure of PP participants, Lusasa and Kimpalukidi were characterized by the general high ratios of certain clans to the organization members while Kimwana, Kilueka, and Nkondo Site had approximately evenly distributed ratios of clans in the group members. It will be extremely useful to keep track of the tendencies of the above villagers' organizations and the implementation statuses of

PPs to find and feed back the points to remember in founding organizations and establishing sustainable community development plans. In parallel with the establishment and capacity development training of the community development committee, enhancement training was provided to the villagers' organizations of each project, and internal rules for the organizations were prepared under the initiative of villagers.

6.4.6 Assignment of Pilot Project Animators

While multiple PPs are implemented in multiple villages, the PP animators shown in the table below were assigned to each of the zones from early May to promote the implementation of PPs and carry out monitoring. The PP animators who lived in the villages gave advice about the implementation plans established by the villagers' organizations of each of the PPs, identified problems encountered by the villagers, etc. and proposed appropriate PPs, introduced resource persons who could offer technical alleviation of PPs, and gave demonstrations of improved cooking stoves. Assignment of such PP animators to the villages will actively promote exchange of information between villages, PPs, villagers' organizations of each project, and villagers.

6.5 Implementation and Results of Pilot Projects in Villages

At the completion of PPs, PP evaluation meetings were held. At the meetings, the representatives of each group reported the status quo and opinions were exchanged, revealing the autonomy of the group members who considered the methods for collecting and utilizing funds. At the PP evaluation meetings, the questionnaire survey on PPs were conducted on the meeting members. The purposes, validation items, description, target area, implementation conditions, expected effects, results, and evaluation of PPs, and points to be reflected on the community development plan are summarized in a PP sheet. Additionally, the data about animal traction, rice cultivation, animal husbandry, and replantation is summarized into a manual.

6.6 Project Evaluation

Out of those projects implemented as PPs, the benefits of projects for the sake of livelihood improvement were calculated: cattle ploughing US\$1,950 per pair of oxen, introduction of new varieties US\$706 per 1,500 m², promotion of rice cultivation US\$3,529 per 2 ha, transportation of farm products US\$71 per set, animal husbandry US\$179, beekeeping US\$398, joint collection and shipment US\$1,355 per 1,500 m².

6.7 Monitoring of Pilot Projects

6.7.1 Monitoring System

A monitoring system was constructed through discussion with the sector and the community development committee members in order to ensure the sustainability of projects through the implementation of PPs. In the currently assumed monitoring system, as shown in the figure below, 1) a

group that performs activities in a village reports to the village development committee, 2) the reported village development committee reports to the community development committee, and 3) the community development committee opens a general assembly to approve the content of activities. It is also important that advice and guidance on each of the activities are given by the sector staff and the sector chief.

In the above monitoring flow, reports to be submitted are created regularly using prepared forms, which enable continuous monitoring. On the project management sheet one should record the composition of the village organization, its regulation, action plan, financial management plan, problems and measures. The sheets are also sent regularly to the Sector to keep the government to manage them.

6.7.2 New Projects and Repayments

A group implementing a PP related to livelihood improvement is obliged to pay a deposit before the project start and make annual repayments during the project implementation period.

Repayments from a PP, as shown in the figure below, are made to the village development committee, which in turn gives them to the community development committee. The community development committee manages the book and deposits them into an account opened in Kimpese.

The above repayments are for the cattle ploughing , introduction of new varieties, animal husbandry, and transportation of farm products. When they are used, new PP group will be selected in the same procedure as for the implementation of PPs. Repayments are intended to be used for the sustainable project implementation The interest from the introduction of new varieties can be used for various purposes such as road maintenance and health facility maintenance. However, the principal will be used for seeds in the introduction of new varieties project in the next fiscal year. All the project repayments collected from animal traction, transportation of farm products, and animal husbandry will be used for animal traction because transportation of farm product requires a small investment amount and animal husbandry allows other groups to acquire baby pigs.

As described earlier, repayments are used in the procedure shown in the figure below, in the same way as for implementing PPs; in other words, 1) a new group makes an activity plan and submits it to the village development committee, 2) the village development committee examines the activity plan and submits it to the community development committee, and 3) when the plan is adopted, the representative of the community development committee withdraws the budget from the account. Before the budget is withdrawn from the account, however, it is important that the representative of the community development committee obtains approval from the sector chief.

6.7.3 Implementation of Monitoring

When the community development plan was being prepared, a special attention was paid for the

items such as ; the plan must be something that can be implemented under the initiative of villagers, human resources and local resources in the target area should be utilized at a maximum, and if a task cannot be handled by individuals, handling of it in an organization (group) is examined. To make the community development plan more concrete, it is necessary to implement a PP for each item of the community development plan, find tasks for implementing and expanding the development plan through the validation activities, and feed back the result to the development plan. The items of the community development plan can be divided into the four major items such as : income increase for local residents, improvement of living conditions and natural environment, improvement of administrative services, and organization enhancement by villagers themselves (including the community development committee organized for both the routes). Through the implementation of PPs in the second-year Study, villagers established action plans in which problems in the target community were identified, and an improvement plan (draft) was prepared in which available the local resources were verified, allowing them to recognize the necessities of the organization. The resident-led activities were started based on a specific implementation plan created in the above process, but many of them have not demonstrated specific effects yet at this stage.

Likewise, the monitoring on PPs related to roads maintenance is necessary. Daily maintenance is indispensable for using a earth-and-sand pavement road permanently. After the completion of community road rehabilitation in November 2009, the maintenance activities must be continued under the initiative of villagers' organizations. Specifically, the work includes (1) removal of dirt from the gutters, (2) simple repair of pavement, (3) traffic restriction in the rainy season, and (4) weeding and cleaning of the road vicinity. To maintain these activities, we will continue to enhance organization management and perform monitoring of the activities.

6.8 Items Validated by Pilot Projects

The details of the implemented PPs are shown in the PP sheets in Annex 6.10. This section summarizes the PP implementation results to be reflected on the community development plan, regarding 1) implementation system of the community development plan, 2) target year of the development plan, and 3) technical details of PPs.

6.8.1 Implementation System of the Community Development Plan

In this Study, a community development committee consisting of Dukis of villages along the route was established. The community development committee serves as the mainstay of community development regarding maintenance of roads, implementation and continuation and PPs, and management of community development funds.

Many of the PPs for livelihood improvement are required to repay the project cost to the community development committee in five years, thus ensuring that activity funds are supplied to this committee continuously. Since the project members are liable for paying the project costs, it is

expected their ownership of each project will be cultivated and that the activities will be continued. The activities for livelihood improvement, as soon as they are well under way, are intended to implement living conditions improvement in the zone. In other words, when a sufficient community development budget is secured due to livelihood improvement and the needs of people have grown, the health sector improvement will be pursued through the improvement of health centers and the educational sector improvement through the improvement of schools, which do not improve people's income directly but are required for community development. Such a system of implementation in the current PPs is expected to be effective from the viewpoint of ensuring sustainability. A good way of community development is to establish a community development committee first, nurture sufficient recognition of the roles required for sustainable community development, and then implement specific projects for community development.

6.8.2 Target Year of Community Development Plan

As shown in the basic concept of community development, an attempt to achieve community development in the Study Area must start with the promotion of community road improvement.

Therefore, it is advisable to implement community road improvement in the first year after the implementation of community development is determined. In this Study Area, an emergency reconstruction project in this Study improved the road between Kimpese and Kilueka and, therefore, the community road improvement is assumed to have been implemented in 2009.

As shown in the basic concept of community development, it is advisable to place emphasis on livelihood improvement projects and implement part of the living conditions improvement projects. It takes at least one year to carry out production activities for agricultural products once each in the rainy and dry seasons. The application of introduced technologies does not guarantee the achievement of the assumed amount of products in the same year because the amounts of solar radiation and rainfall vary every year and the amounts of agricultural products vary widely every year. In other words, the livelihood improvement is not necessarily achieved in the year following the one when the community road improvement is completed, and therefore, at least two years are assumed to be required in this Study. Consequently, in 2010 and 2011, it is advisable to implement both livelihood improvement as well as minor living condition improvements possible at a village level.

At a stage when livelihood is gradually improving, it is advisable to promote the improvement of public infrastructures such as health centers and schools shared by the public in the zone. In the Study, the target year of 2014 is set, on the assumption that the improvement of all the health centers and schools in the Study Area takes about three years from the year when part of the livelihood improvement starts to be achieved.

6.8.3 Technical Criteria Identified in Pilot Projects

Some projects are restricted by geological and other conditions. The project-by-project criteria

for evaluation of implementation identified in PPs and the improvement standards are summarized. For specific implementation, the cattle ploughing, rice cultivation, animal husbandry, and replantation manuals shown in Annex 6.11 can be used.

Chapter 7 Community Development Plan and Their Preparation Process

7.1 Concept of Community Development Plan and Setting of the Approach

7.1.1 Outline of the Concept of Community Development Plan

Followings are the outline of the community development plan in the Study Area. Details will be described in this chapter.

- (a) Target area : 21 villages along the Kilueka and Nkondo routes in Kimpese sector
- (b) Target Period: From 2010 to 2014 (including the Study period)
- (c) Target Group: Resident in the target area and provincial staff of DECO and DVDA
- (d) Development vision : The area will be sustainably fulfilled the basic human needs
- (e) Target planning period : Short term period 3 years, medium term period 5 years
- (f) Development objectives : securing minimum incomes for fulfilling BHN, satisfying living in the community due to improvement of living environment, improvement of public services
- (g) Programs for realizing development objectives :
 - community roads rehabilitation (implemented as a Quick Impact Project in this Study),
 - improvement in agricultural productivity, improvement in value addition to farm products,
 - diversification of income sources, improvement of natural environment,
 - improvement of living environment, improvement of public facilities, support and reinforcement of villagers' organization

7.1.2 Preparation of Basic Concept for Community Development Plan

The basic concepts for preparation of the community development plan were set according to the policies of the DRC's government and analysis of development potentials and constrains in the Study Area;

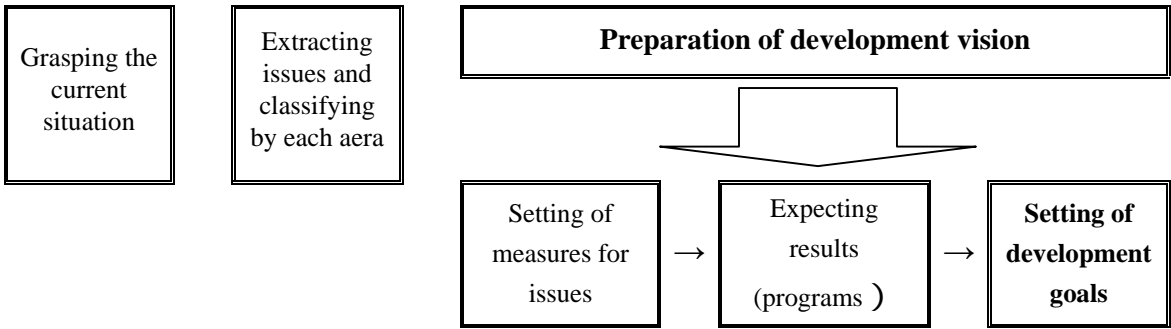
Basic concept 1 : To formulate plans in conformity with the contents of the “document on the policies and strategies of community development in the Democratic Republic of Congo” (hereinafter referred to as “the community development strategy document”) issued in December 2008, which is considered as superior strategy.

Basic concept 2 : To respect the residents' initiatives in the preparation of plans in order to ensure the sustainable maintenance by the residents' organizations

Basic concept 3 : To formulate plans as a model (“Kimpeze Model”) which could enhance the region’s stability through tightening the unity among local communities including the settlers in former Angolan refugees’ camp sites, by means of activities performed by the residents’ organizations for the maintenance of the community roads rehabilitated as quick impact project.

7.1.3 Planning of a Basic Conception of Community Development Plan

As mentioned in Chapter 5, the problems in the Target Area revealed by the field study have been classified into major areas of ‘livelihood improvement,’ ‘living and natural environment,’ ‘public facilities’ and ‘community roads.’ After the classification, the workflow described below was used to develop measures against the identified problems and to establish outputs expected from the measures (programs) and development purposes to be achieved in each area. The outcomes of the field study and the discussion with C/P were used to decide what the communities should aim for in the short-/medium-term target year in five years by achieving the development purposes. The figure below shows what the workflow has produced.



(1) Development vision

Development Vision: To meet the basic human needs (BHN) sustainably and to enhance tolerance toward conflicts

The field study has revealed that a great majority of the residents in the 21 villages along Kilueka and Nkondo Routes are engaged in low-productivity agriculture, which provides them with daily income of less than US\$ 1.0 per person. Difficulty in access to safe drinking water and poor state of health and school facilities in the villages put quality of their life at the lowest level. Any conflict in the Target Area with such a poor environment will make their life difficult.

Improvement of such a poor life of the villagers will require improvement of livelihood, living environment and public facilities in an integrated fashion. Therefore, ‘To meet the basic human needs (BHN) sustainably and to enhance tolerance toward conflicts’ has been identified as the development vision, as a future vision of the Target Area when the problems have been alleviated through continuous implementation of the projects in short- and medium-terms.

It is important to guarantee continuous access to income, living and natural environment and medical and educational facilities required for daily life. For this reason, it is important to maintain activities of the villagers' organizations, the owners of the operation and maintenance activities, and to advance resident-led community development by improving their organizational capacity.

(2) Development of measures and establishment of the development purpose in each area

(a) Development Objective 1 (Livelihood Improvement Area): To ensure minimum income required to meet BHN

Target indicator: To increase average income by 20 %

The villagers in the Target Area are found to have average income of US\$ 0.76 and 0.93/person/day in the rainy and dry seasons, respectively. Thus, the problem in the 'Livelihood Improvement' area is a large number of people living with less than US\$ 1 per day. At the workshops with the villagers, they raised improvement in agricultural productivity as the first issue.

The people living in the Target Area grow grain and vegetables in the rainy and dry seasons, respectively, taking advantage of the natural conditions favorable for agriculture in terms of precipitation, temperature, etc. However, there are problems: All farming activities are being carried out manually. Fertile land has been left unused. Appropriate farming technologies have not been disseminated. Livestock have been raised extensively. These have been the causes to keep the labor productivity at an extremely low level. Therefore, measures to improve agricultural productivity will be required in the Target Area where villagers earn almost all their income from agriculture. As practical measures to increase income, diversification of income sources to animal husbandry, aquaculture, etc. and an increase in value addition to crops being cultivated have been identified.

'To ensure minimum income required to meet BHN' has been selected as the target of the outputs of these activities (development purpose). With the aim of achieving an average income of US\$ 1/person/day from the current US\$ 0.76/person/day in 21 villages, 'to increase average income by 20 %' has been adopted as the indicator to evaluate achievement of the target.

(b) Development Objective 2 (Living Environment Improvement Area): Villagers satisfied with life in their communities with improvement of living environment

Target indicators: Drinking water accessible to all the villagers

No disorderly burning of field with enhanced awareness of villagers for conservation of natural environment

The problems in the 'Living Environment Improvement' area are insufficient access to safe drinking water and hard labor mainly carried out by women such as grinding of cassava and fetching water. Therefore, 'improvement of such living environment' is required. As a measure to realize outputs of the improvement, possibility of enhancing women's activities by creating more opportunities for small groups of women to get together and to work while communicating with each

other will also be considered. Since burning of field near villages has damaged not only trees but also farming land in the natural environment in the Target Area, measures ‘to improve such natural environment’ will be required. Conservation of the remaining forests, vigorous tree planting and restriction on burning of field are examples of such measures.

‘Villagers satisfied with life in their communities with improvement of living environment’ has been selected as the target of the outputs of these activities (development purpose). Attention has been paid to the environment for water supply and the forest environment around the villages when considering indicators to measure achievement of the target and ‘Drinking water accessible to all the villagers’ and ‘No disorderly burning of field with enhanced awareness of villagers for conservation of natural environments’ have been adopted as the indicators.

(c) Development Objective 3 (Public Facility Improvement Area): Villagers receiving benefits of public services continuously with improvement of public facilities

Target indicators: Education provided continuously by teachers stationed permanently

Villagers receiving medical services continuously from nurses stationed permanently: XX % of villagers understand lessons on prevention.

In the Target Area, roofs, walls, floors, etc. of school facilities are in poor condition and are maintained insufficiently. Conditions of other public facilities, e.g. clinics and roads, are also poor. These facts have contributed to deterioration of school education and medical environment in the area. The area residents strongly demand repair and improvement of these facilities. For these reasons, measures “to improve public facilities” described herein will be required.

‘Villagers receiving benefits of public services continuously with improvement of public services’ has been selected as the target of the outputs of these activities (development purpose). Attention has been paid to educational and health/medical facilities which are important for the development of the area when selecting indicators to measure the achievement of the target and ‘Education provided continuously by teachers stationed permanently’ and ‘Villagers receiving medical services continuously from nurses stationed permanently’ have been selected as the indicators.

(3) Formulation of (short- and medium term) plans

It is difficult to assume a long-term design target year in an unstable country like DRC in which drastic changes are expected in future. Therefore, the target year of the Project has been set at 2014, five years from now. The five-year period is divided into short- and medium-terms.

The design period of the short-term plan will be three years from 2010 to 2012. This period is to be considered as a period to form foundation for resident-led community development with continuous implementation of the contents of the programs. Capacity development for the C/P and creation of a Community Development Model (Kimpese Model) will also be incorporated.

The duration of the medium-term plan will be two years from 2013 to 2014. It will be a period for the engineers of administrative organizations and NGOs who have received training in the Short-term Plans to improve the models constructed during the Short-term Plans and to expand the programs horizontally both within and outside the Target Area.

Development plans for livelihood improvement and improvement of environment within villages will be prepared at the village level because owners and areas of activities are within single villages. The plans for public facilities used by residents of several villages will be prepared at the multiple-village level (or the zone level). The plans from which villages along a route benefit will be prepared at the route level.

7.1.4 Approaches to Realize the Concepts

To achieve the development vision after having achieved the above-mentioned Development Purposes 1 to 3, implementation of programs in the Essential Area consisting of those for community road improvement and assistance and empowerment of villagers' organizations, as well as programs in the three areas, Livelihood Improvement, Living Environment Improvement and Public Facility Improvement, will be required.

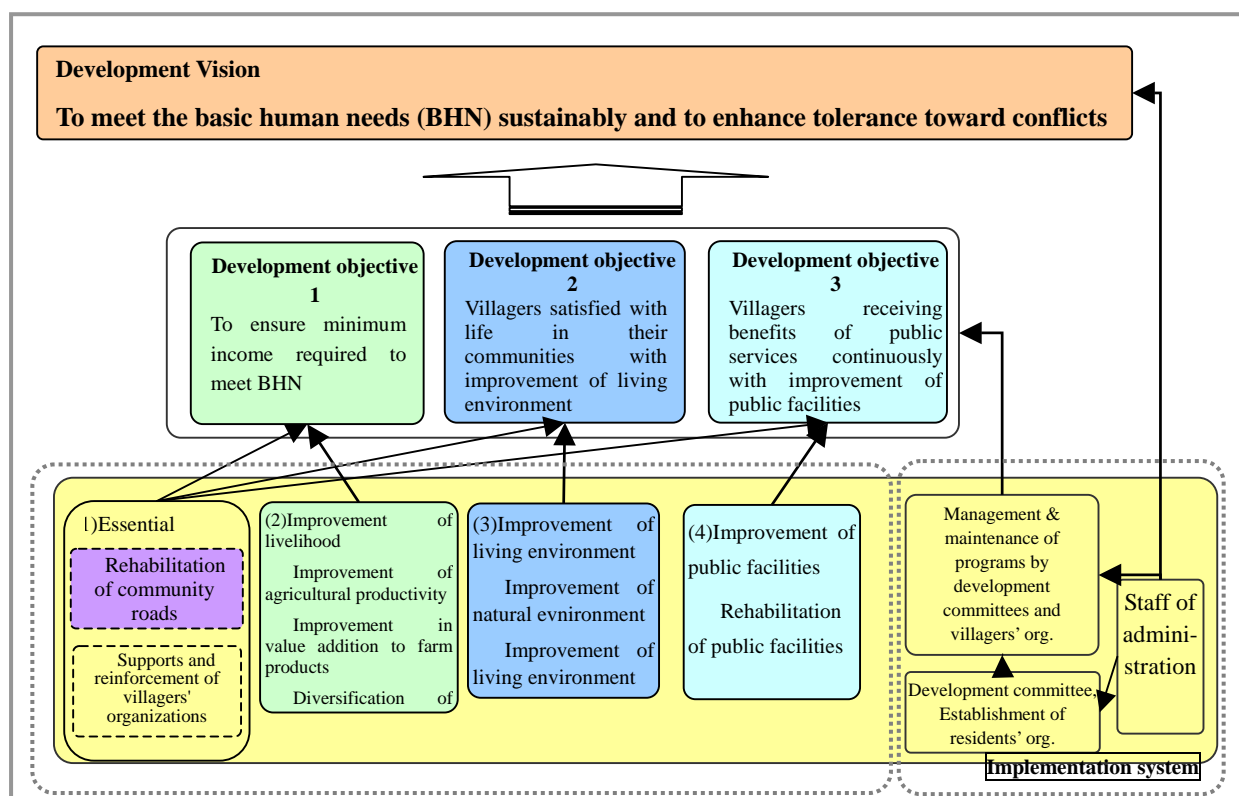
Development objectives and programs

Development objective 1	Programs for improvement of livelihood area	Programs for essential area
Development objective 2	Programs for living environment improvement area	
Development objective 3	Programs for public facilities improvement area	

Realization of the outputs of the programs in the Livelihood Improvement and Public Facility Improvement Areas in particular will be facilitated by improvement of community roads, which will improve distribution of farm products and access to public facilities. Therefore, the improvement of the community roads will have to be implemented as the most important factor for the livelihood improvement and public facility improvement.

It is important for development programs in the areas other than the Essential Area to be implementable by villagers continuously as the owners of the programs. It will be necessary to establish Community Development Committees and villagers' organizations as implementing bodies of the development programs and to construct implementation systems in which operation and maintenance of the programs are carried out by the established organizations with guidance and assistance from personnel of the administration. To realize such systems, it will also be essential to develop capacity of the target villages and administrative personnel.

In order to achieve the development vision, 'to be an area in which BHN are met sustainably,' it will be necessary to make effort to develop capacity in development programs of administrative staff through the activities of the Project. The figure below shows the relationships between the development vision, purposes and programs in each area.



Approach for realizing conception

(1) Formulation of development programs

The components of the Community Development Plans in the Target Area are classified into four areas and eight programs for the purpose of achieving the development objectives. Actual projects to be implemented exist under each program. The table below shows projects and programs by area.

Programs and projects by area

Areas	Programs	Projects
(1)Essential	Rehabilitaion of community roads	Rehabilitation of community roads
	Supports and reinfoecement of residents' organizations	Supports and reinfoecement of residents' organizations
(2)Improvement of livelihood	Improvement of agricultural productivity	Cattle ploughing
		Vegetable cultivation
	Improvement of value addition to farm products	Promotion of rice cultivation
		Treatment and processing for postharvest
		Collective collection and shipment
Diversification of income sources	Transportation of farm products	
	Animal husbandry	
	Beekeeping	
(3)Improvement of living environment	Improvement of natural environment	Aquacultre and fish processing
		Replantation
	Improvement of living environment	Improved cooking stoves
		Literacy education
		Handcraft
(4)Improvement of	Rehabilitation of public facilities	Maintenance and management of drinking water facilities
		Improvement of health facilities

Areas	Programs	Projects
public facilities		Of educational facilities

(2) Establishment of the implementation system

In community development, development purposes will be achieved through implementation of field studies, formulation of development programs and sustained implementation of the formulated programs. Sustained implementation of development programs requires establishment of implementation systems (implementing bodies) and, without this establishment, it will be difficult to achieve development purposes. In the Target Area, either the central or the local government does not have firm financial basis for governance to formulate and manage development plans at the community level. Therefore, the plans have been formulated with participation of villagers in the entire process from the planning to the implementation stages in accordance with the basic policy of “formulating plans incorporating intentions of villagers in order to enable sustainable maintenance by villagers’ organizations.” In the following, actors in the implementation systems and their details are described.

There are two villagers’ organizations of different character to lead the development, namely: villagers’ organizations formed by each project which acts as main player; and, development committee which controls the projects. In the present Study, the community development committees are very important actors since projects and management are led by residents.

Among governmental actors, “sector” can be mentioned in the first place as most important management agency, and technical assistance is expected to be provided by the “territory”, Ministry of Health, DVDA and CLER. Assistance from NGOs working in Kimpese (CRAFOD, Agrisud) will be coordinated for the development of the target communities.

The major actors relevant to the Community Development Plans are classified as follows:

- ✓ Residents of the target communities
- ✓ Villagers organizations: Community Development Committees, Village Development Committees and villagers organizations of each project
- ✓ The Administration: The Sector chiefs, employees of Sectors, DVDA, CLER and the Ministry of Health

7.2 Process of Preparation of Community Development Plans

7.2.1 Background of the Preparation of the Community Development Plans

In a post-conflict country like DRC, because of not only fragile governance and financial basis but also the limited availability of administrative organizations and human resources for sustainable community development, it is difficult to implement community development activities effectively in the entire country. Thus, such a county has to depend on assistance from aid organizations and other countries and cooperation from development partners for implementation of community development

activities.

The area around Kimpese Sector in Cataracts District, in which the Study Area is located, is bordered between Zaire Province of Angola and the Angolan enclave of Cabinda Province. The area is characterized by the fact that the Angolans immigrated as refugees or in search of work from Angola, which had been in civil war since the 1960's, have semi-settled down and coexisted with the local Congolese. Because of underdeveloped community infrastructure and fragile basis of livelihood based on agricultural production, many residents in rural areas are subjected to poverty and forced to live in harsh conditions.

Improvement of such conditions requires not only continuation of cooperation from development partners in community development, but also human resource development and capacity development of administrative organizations in community development. In order to enhance sustainability of community development and maintain the functions of the repaired road, a comprehensive approach to the development incorporating a means to finance road maintenance is required. Therefore, adoption of "Kimpese Model" proposed in this Study, in which repair of the Kilueka Route and community development are to be implemented in an integrated fashion, is recommended.

From the above-mentioned viewpoint and with the aim of providing materials to the counterparts for preparation of their own community development plans, a series of the plan preparation methods, from implementation of the community profiling, an output of this Study, and workshops to identify people's needs and application of the verified items identified in PP to the plans of the preparation of participatory plans, will be applied to the actual process of the plan preparation. In the following, the process is summarized as guidelines.

7.2.2 Steps in Implementation of the Community Development

(1) Selection of target areas of the Plan

The commonly used method of selecting target areas for preparation of a plan is to decide a developmental priority order among candidate areas by implementing a development potential study of each candidate area and comparing the results of the study. However, in the cases where there are few actors in community development and human resources in community development is still being developed as is the case with DRC, target areas are often determined in accordance with a developmental priority order empirically given to the areas by a person in charge of community development at the national or provincial level, who have sufficient experience and information in the field and is well-connected to donors and development partners.

In the beginning, a policy on and a scenario of the community development is to be decided in accordance with the basic development policy of the country. A plan can be prepared in accordance with the plan and scenario at a different level, *e.g.* national, regional, provincial, district, territoire,

sector, route, zone, *agglomération*, village or *quartier*, or group level. When considering project implementing bodies in the community development proposed in this Study which gives priority to repair and maintenance of community roads (Kimpese Model), persons in charge in the departments responsible for rural development and agricultural road development are to prepare plans and implement and manage projects in cooperation. In the case of Bas-Congo Province, a development potential study at each candidate area within the province has revealed significant difference in the developmental priorities between the communities along community roads connected to the National Highway No.1, which traverses the province, and the other communities because of the difference in potential in distribution and market access. In the absence of definite instruction from or decision by central government or provincial authorities, these developmental priorities will be used in the selection of target areas (districts, territories, etc.) of the Plan.

(2) Selection of target routes and improvement sections

If Kimpese Model, which combines repair and maintenance of community roads connected to National Highway No.1 and development of the communities along the roads, has been adopted, the next step will be identification of high-potential routes (community roads) within the target areas and sections of the routes for road improvement. Selection of target routes will be made by comparing indices including distances from urban areas, extents of damage to existing roads, road gradients and sizes of beneficiary populations. Once routes have been selected, sections of the routes in which the roads are to be repaired will be established within the area of jurisdiction of a sector. Implementation of community development is associated with a concern over emergence of conflicts of interest, such as jealousy between villages and among residents in a village because of the difference in benefit they receive and problems concerning land use between landowners and land users derived from new land use arrangement. As chiefs of sectors have an authority to mediate such conflicts, their involvement is essential in the preparation of highly feasible and sustainable plans. In fact, during this Study, occurrences of several problems were averted with prompt mediation by sector chiefs when there were concerns over occurrences of such problems. From this experience, establishment of an improvement section extending over two sectors has been avoided.

(3) Identification of project owners

An organization responsible for the plans will be at the level of central government for the need to control the nationwide activities or the level of provincial government. However, as Kimpese Model requires beneficiaries to take the lead in maintenance of project and facilities, villagers' organizations consisting of residents of villages located within the improvement sections will be owners of projects. Therefore, after beneficiary villages have been selected, the Community Development Committee consisting of the chiefs of the beneficiary villages will be established. Persons in charge of rural development of administrative organizations at the district, territoire and sector levels, as well as a local NGO, CLER, which is implementing road maintenance activities with persons in charge of road

improvement of the administration, will take responsibility of providing technical assistance during project implementation.

(4) Implementation of community profiling within the improvement sections and identification of developmental potential and impediments

Community profiling will be carried out in the villages within the established improvement sections to identify the current conditions and developmental potential and to understand the intentions of the residents. The current state of agricultural production in the beneficiary villages will be elucidated by analyzing the data obtained in the profiling and information on cultivation areas and periods by crop and the numbers of livestock in the villages.

(5) Preparation of the basic concept for the Development Plans

In the next step, current resource maps will be prepared with village residents to make them realize the potential that existing local resources have. At the same time, the (draft) basic concepts for the future development of the villages will be prepared. The residents will be requested to draw resource maps expected after the implementation of the Plans based on the basic concepts. By comparing the two resource maps, the residents will deepen their understanding of the changes in local community resources, concrete details of the basic concepts for the Plans and the establishment of the implementation system required for realization of the Plans including establishment of villagers' organizations.

(6) Preparation of Community Development Plans using the verified items

Preparation of a community development plan requires designing of specifications, scales, appropriate improvement standards, etc. for the projects under planning. In this Study, project contents will be designed using the verified items, outputs of PP, and following the process described below.

1) Explanation to the residents of the contents of the Development Programs and the criteria for the evaluation of technical receptivity

In this Study, the components of PP were decided in a workshop attended by residents. In the workshop, the residents were asked to select priority components for implementation in the villages among the components of PP for each of the areas of "Livelihood Improvement" and "Improvement of Living Environment." Conformity of the selected components to the evaluation criteria for technical receptivity of community groups implementing the components was verified. After excluding the components which had not conformed to the criteria, the components with high priorities (the top five) were selected as project components.

Since little difference in the current conditions is expected among rural areas in Bas-Congo Province, the project components selected in the above-mentioned process can be applied to other areas in the province. Thus, they will be considered as the contents of the Development Programs.

However, if the results of community profiling reveals that current conditions at an area are significantly different from those in the Study Area, a new development program will be added after confirmation of the intention of the residents as described below.

2) Confirmation of the intention of residents and developmental priority order decided from the technical viewpoint

A meeting will be held with several representatives of the villages, including the village heads, along the improvement sections on the target routes of the Plan. At the meeting, the route maintenance method will be explained and the contents and appropriate development standards of the Development Programs will be presented to the participants. Then, the intention of residents on the development at the village and zone levels will be confirmed and high-developmental-priority programs will be selected in each of the areas of “Livelihood Improvement” and “Improvement of Living Environment.” If residents propose a development component not included in the presented contents or the results of the community profiling reveal that the area concerned has conditions significantly different from those in the Study Area, a project component incorporating the characteristics of the area will be included in the contents and presented to the residents.

Conformity of the selected programs to the evaluation criteria for technical receptivity will be verified. After excluding the project components which have not conform to the criteria, representatives of the residents (villages) will give developmental priorities to the contents of the Development Programs.

The evaluation criteria for technical receptivity by project have already been described in Chapter 6.

3) Design of project components

Community development plans will be prepared for the programs with high developmental priority in accordance with the appropriate improvement standards and appropriate scale implemented in PP. Meanwhile, plans will be prepared by route for road repair and maintenance, by zone for schools, health centers, improvement of auxiliary roads, energy and leisure activities and by village for the other components.

The standards and specifications of the improvement deduced from the verified items are as described in Chapter 6.

(7) Evaluation of the projects related to Route Development Plans

By calculating the production costs of and profit from the plans for livelihood improvement and improvement of living conditions prepared at the village level at the current conditions and the project costs (production costs, costs for expansion of farm area, equipment maintenance costs, etc.) and project outputs after the completion of the plans, increase in benefit will be obtained. The operation and maintenance costs of the public facility and infrastructure improvement plans prepared at the zone

level at the current conditions and the project costs and operation and maintenance costs after the completions of the plans will be calculated.

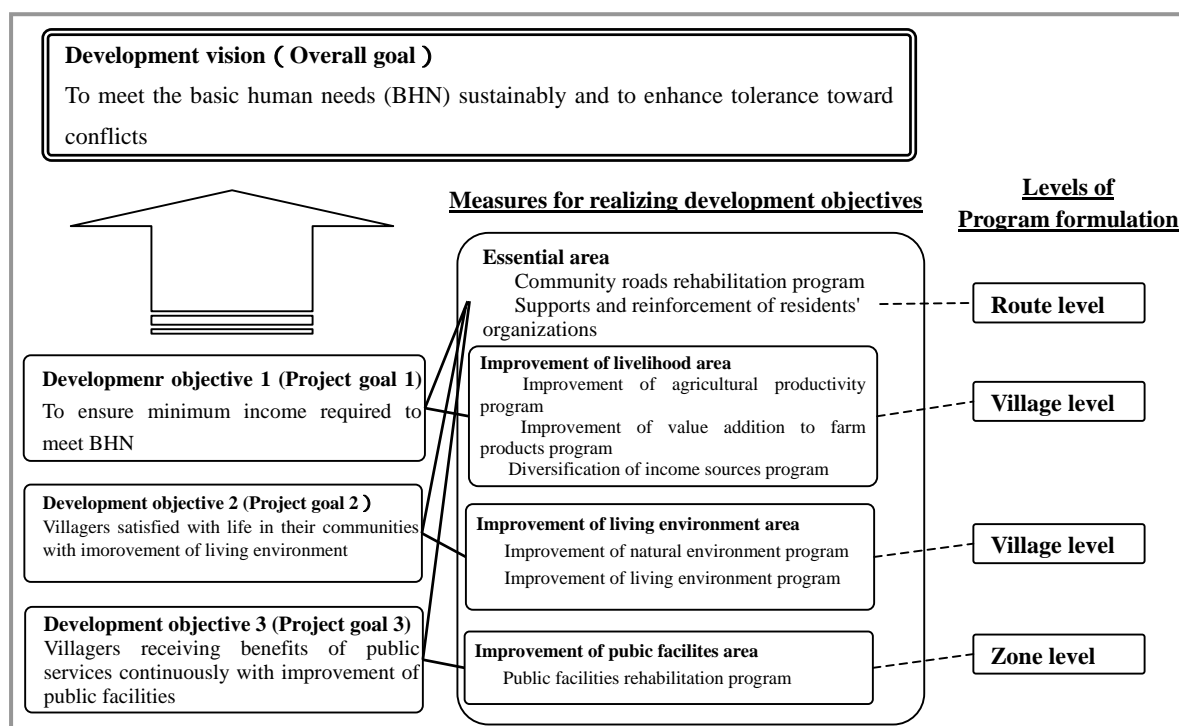
Then, by adding up the project costs, maintenance costs and increases in benefit calculated at respective villages and zones, projects in the plans at the zone level will be evaluated and relevance of the development will be evaluated. However, the project costs related to the road rehabilitation projects will be excluded from the calculation of the project costs in the project evaluation considering that the roads, as being public assets, should be improved with financing or assistance from the central government.

The following section summarizes the results of the estimation of project costs, calculation of project outputs and increase in benefit and the results of the evaluation of projects for the Route Development Plan on the Kilueka Route. However, the project costs of the road rehabilitation project are excluded from the estimation of project costs due to its nature of public goods, because this project will be financed by the government or donors.

7.3 Preparation of Community Development Plan

7.3.1 Development Vision and Development Objectives

The measures to realize the development objectives consist of programs in each area. Among the programs, (1) Community Road Improvement Program is to establish road networks in the Target Area and, thus, is essential for achieving the development purposes. (Improvement of the community roads in Kilueka Route has been implemented in the Study as an emergency reconstruction project.) (2) Program for Assistance and Empowerment of Villagers' Organizations intends to assist and empower the villagers' organizations, the implementing bodies, and to develop capacity of administrative services to guarantee sustainability of the programs. The programs in the Livelihood Improvement Area consist of (3) Program for Improvement in Agricultural Productivity, (4) Program for Improvement in Value Addition to Farm Products and (5) Program for Diversification of Income Sources. The programs in the Living and Natural Environment Improvement Area consist of (6) Program for Improvement of Natural Environment and (7) Program for Improvement of Living Environment, and (8) Program for Improvement of Public Facilities is the program in the Public Facility Improvement Area. The programs mentioned above are classified into those formulated at the level of each village (the programs in the Livelihood Improvement and Natural and Living Environment Areas), at the zone level (the programs in the Public Facility Improvement Area) and at the route level (the programs in the Essential Area).



7.3.2 Projects to be Implemented in the Community Development Plans

The Community Development Plans consist of projects to be implemented by each village, by each zone and by each route as shown in the table below. The projects have been selected on the basis of the outcomes of (1) Explanation to villagers of the contents of the development programs and the evaluation criteria for technical receptivity and (2) Confirmation of villagers' intentions and the developmental priorities assessed on a technical basis.

However, since the projects to be implemented in the Living Environment and Public Facility Improvement Areas are required for ensuring the basic living environment and the projects to be implemented at the route level are required for realizing outputs of the community development, these projects will be implemented in all the communities in the Plan.

Target villages	Priority projects			
	Projects implemented in each village		Projects implemented in each zone	Projects implemented in each route
	Improvement of livelihood area	Living environment area	Improvement of public facilities area	Essential area
Kimwana	Promotion of rice cultivation, Cattle ploughing, animal husbandary, aquaculture, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	Health promoters (Improvement of health and educational facilities are not applicable since those of Kimpese are used)	Maintenance of community roads Supports and reinforcement of residents' organizations
Ndembo	Cattle ploughing, animal husbandary, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts		
Wene	Cattle ploughing, animal husbandary, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts		
Ndunguidi	Animal husbandary, beekeeping, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts		

Nkondo	Animal husbandary, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	
Kinanga	Cattle ploughing, animal husbandary, beekeeping, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	
Kisiama	Cattle ploughing, animal husbandary, promotion of rice cultivation, promotion, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	
Mbanza Ndamba	Cattle ploughing, animal husbandary, aquaculture, beekeeping, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	Health promoters Improvement of health facilities Improvement of educational facilities
Kilueka	Cattle ploughing, animal husbandary, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	
Kilueka Site	Animal husbandary, vegetable cultivation	Replantation, water facilities, improved cooking stoves, handcrafts	

7.3.3 Setting of Project Scales and Standards

(1) Contents of programs implemented in each village

Programs of improvement of livelihood and living environment are formulated for each village. The project scale of each project in the village was based on the PP sheets and the target year is set for 5 years according to the results obtained from this Study.

(2) Project executed in zone

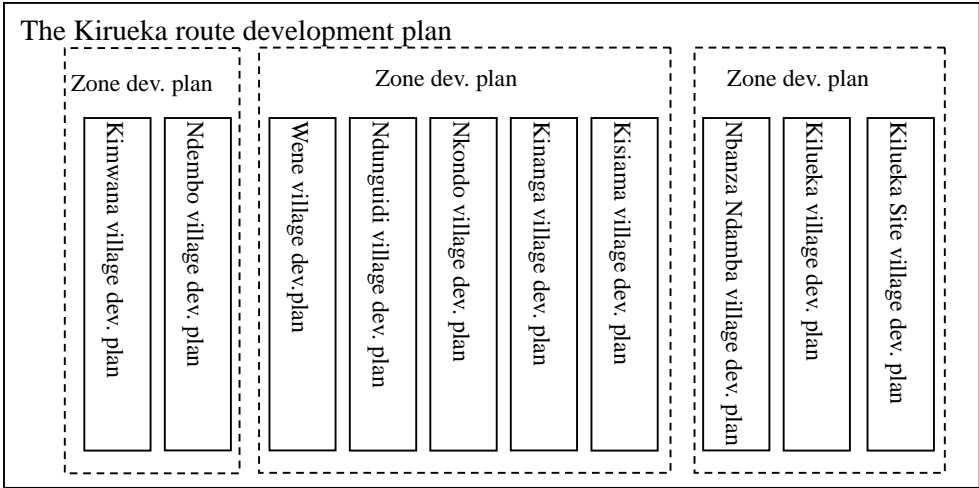
The health facilities improvement project and the educational facilities improvement project included in the improvement of living environment program area are executed in each zone.

(3) Project executed in route

The community road maintenance & management project to maintain the community road for the development of the community is indispensable. Therefore, it must be included in the project item of the community development plan.

7.3.4 Community Development Plan of Routes and Each Village

The community development plan of the Kilueka route is consisted of village community development plan including the whole route community development plan and community development plan of zones, as shown below, according to above mentioned project scale and standards. The route community development plan is summarized as PDM.



7.3.5 Action Plan

This development plan is set for 5 years, which is consisted of first 3 years as short term to make foundation of residents led community development plan, and second 2 years as medium term after the first 3 years to spreading period for other areas.

7.3.6 Project Evaluation of Each Project

The evaluation of the development plan of Kilueka route yielded the following results. In the group of projects related to increased livelihood and cattle ploughing; an investment of \$ 17,000 increased profits to \$ 19 500 per year. For the introduction of new varieties; an investment of 7,660 increased the profits to \$ 270,398 per year, for the promotion of rice cultivation project; an investment of \$ 50 increased the profits to \$ 7,058, for the project of transportation of farm products; an investment of \$ 400 increased earnings to \$ 71 per year, for the animal husbandry project; an investment of \$ 2,000 profit increased the profits to \$ 1,790, for the project related to collective collection and shipping center; the increased profits amounted to \$ 1,355 per year for 1,500 m2. For projects related to the improvement of living environment, no benefit is calculated as these projects contribute to improving the living standards. The investment for the leisure project is \$ 200 per event, for the reforestation project it is \$ 600, for the literacy education project it is \$ 800, for the proposed handicraft it is 100 \$, for the water supply facilities project it is \$ 35,000, for the health facilities project it is \$ 400, for the educational facilities project it is \$ 600, and for the manage and maintenance of community roads it is 5 040 \$.

PDM Development plan for Kilueka route

Development plan for Kilueka route (Whole Kilueka route)

PDM-0 Dec, 2009

Target Area : Kilueka Route

Target Period : 2010 ~ 2014 (including the Study period)

Target Group : Residents around Kilueka Route and DECO·DVDA workers in the province, 4100 people

Summary of the project		Main indicators	External Condition
Super Goal	Benefits of community development are distributed in the study area	Community development plan is prevailed by residents.	
Project Goal	Residents to conflicts will be strengthened through A) Improvement of livelihood, B) Living environment, C) Organization Empowerment of the community.. Assistance and monitoring power of the DECO·DVDA of the province will be improved.	<ul style="list-style-type: none"> · An average income is risen by livelihood improvement. · Residents are satisfied the life in community on following items by living environment improvement: <ul style="list-style-type: none"> XX% of residents can have access to drinking water Disorderly lighting is disappeared by rising awareness of conservation of natural environment. Classrooms are regularly opened through teachers' settlement. Residents can be received the medical services through settlement of nurses. XX% of residents understand knowledge regarding prevention. · Projects are continued by organizational capacity development. · The supports for communities are continued by capacity development of C/P. 	
Achievements	[Achievements through the Village Development Plan] A-1) Agriculture produce increases. A-2) Income increase through the improvement of agricultural techniques and the diversification of agriculture products.. A-3) Rice production increase through the extension of paddy field. A-4) Livestock, fish and bee production increase.. A-5) Non-agriculture income increase through the non-agriculture activities. B-1) Nourishment improves through livelihood improvement.. B-2) Importance of forestry protection is recognized and broadcast burning is reduced.. B-3) Wells are placed and the number of people who can access to the safe water increase. B-4) Morbidity rate decreases through health promoters' activity.. B-5) Labor burden of firewood collection and cooking pan washing is reduced through extension of utilization of improved cooking stoves..	<ul style="list-style-type: none"> Area cultivated by cattle ploughing : average cultivation area of the rainy season per household increases average 0.4ha. Sales of agricultural products: season for sale of vegetable Area of rice cultivation : 2ha Number of sales of pigs : 60 heads/groups Fish catch : Honey produce : 150ℓ/group Processed food produce : Frequency of transportation of farm products : Nutritional improvement : Replanting area Number of constructed wells Number of patients with malaria and diarrhea Number of improved cooking stoves 	<ul style="list-style-type: none"> People in the target area can continue their activities. Angolans are not sent to Angola. Congolese in Angola are not sent. Dynamic natural disaster does not occur. Policy for community development promotion does not change.

Summary of the project	Main indicators	External Condition
<p>B-6) Literacy rate is improved through literacy education..</p> <p>C-1) Organization empowerment is strengthened by activated group activities.. C-2) Financial base is established by operation of community field..</p> <p>[Achievements through the Zone Development Plan] B-7) Function of the health center is maintained through villagers' organization. B-8) Function of the school is maintained through villagers' organization</p> <p>[Achievements through the Route Development Plan] A-6) Income increases by cooperative collection and shipment of agriculture produce..</p> <p>C-3) Function of the road is maintained by continuous road maintenance and operation through villagers' organization.</p>	<p>Number of days of classes</p> <p>Changes in the number of participants of the projects Proceeds from community fields</p> <p>Number of health center rehabilitation Number of school rehabilitation</p> <p>Number of strage users</p> <p>Number of participants for road maintenance Time required from Kimpese to Kilueka</p>	
<p>Activities</p> <p>[Activities of the Village Development Plan] A-1-1) Cultivation area extend through cattle ploughing project.. A-1-2) Agricultural techniques are improved and improved varieties are introduced through introduction of new varieties and soil improvement projects. A-2-1) Production is diversified through introduction of new varieties project. A-3-1) Increase rice cultivation area and rice production through promotion of rice cultivation project.. A-4-1) Number of pigs increase through animal husbandry project. A-4-2) Number of fish increase through aquaculture project.. A-4-3) Honey production increase through beekeeping project.. (A-5-1) Processed foods are produced through treatment and processing for postharvest project..) (A-5-2) Products are carried through transportation of farm products project..)</p> <p>B-1-1) Activities of A-1-1) ~ A-5-2) are conducted. B-2-1) Planting method is understood and tree seedlings are planted through forestry preservation and replantation project.. B-3-1) Wells are installed through maintenance and management of drinking water facilities project. B-3-2) Well maintenance by beneficiaries is reinforced through maintenance and management of drinking water facilities project.. B-4-1) Health promoter training is implemented through improvement of health facilities project.. B-5-1) Improved cooking stoves extended through improvement of cooking</p>	<p>Input</p> <p>Human resources Staff of DECO, DVDA, SENATRA, SNHR, SNCOOP within the province (province · prefecture · territory · sector), Technical staff of rice cultivation of INERA, and staff of health zone</p> <p>Money</p> <p>Operating cost Cattle ploughing :17,000US\$ (10 sets, 4 sets already introduced by PP) Introduction of new varieties : 7,680US\$ (384 households×20US\$, cost of seeds) Promotion of rice cultivation:6,770US\$(1 place: 50US\$, cost of seeds) Animal husbandry :8,860US\$(1 place: 886US\$, 1 male and 3 female pigs) Aquaculture:100US\$(1 place: 50US\$, fry) Beekeeping :2,430US\$(1 place: 810US\$, honey gathering box, etc.) Transportation of farm products:250US\$(already practiced by PP) Replantation:1,000US\$(1 place: 100US\$, seedlings) Drinking water facilities:105,000US\$(1 place: 7,000, 2 places</p>	<p>Pre-condition</p> <p>Dynamic conflict does not occur.</p> <p>People wish to implement projects.</p> <p>Government is positive for the development of the target area.</p>

Summary of the project	Main indicators	External Condition
<p>stoves project..</p> <p>B-6-1) Literacy education is implemented through literacy education project.</p> <p>C-1-1) Activities of A-1-1) ~ B-6-1) are conducted.</p> <p>C-1-2) Artisan products are produced by handicraft project..</p> <p>C-1-3) Sports tournament is held through leisure activities project.</p> <p>C-2-1) Community field is operated through introduction of new varieties and soil improvement projects.</p> <p>[Activities of the Zone Development Plan]</p> <p>B-7-1) Health center is maintained through improvement of health facilities project.</p> <p>B-8-1) School is maintained through improvement of educational facilities project.</p> <p>[Activities of the Route Development Plan]</p> <p>A-6-1) Agricultural produce is collected and shipped cooperatively through grass-roots grant-aid project of cooperative shipping facility for agricultural products.</p> <p>C-3-1) Road maintenance activity is continued through organization strengthening program.</p>	<p>were already constructed by PP)</p> <p>Health promoter : 1,400US\$ (1 place: · 1 people: 100US\$, picturecard show, malaria test kit)</p> <p>Cooking stoves improvement : use of local utilizable materials</p> <p>Literacy education : 1,000US\$ (1 place: 100US\$, textbooks and blackboard)</p> <p>Handicraft : 1,000US\$ (1 place: 100US\$, knitting needles, etc., 1 village already practiced by PP)</p> <p>Laisure activities : 200US\$ (transportation/village: 8US\$, refreshment: 12US\$)</p> <p>Maintenance cost</p> <p>Health facilities : 410US\$ (200 ~ 210US\$/5 years · 1 place, paint, etc.)</p> <p>Educational facilities : 410US\$ (200 ~ 210US\$/5 years · 1 place, paint, etc.)</p> <p>Cost of community road maintenance : 5,040US\$ / year</p>	

Chapitre 8 Implementation of a Quick Impact Project

8.1 Flow of Project Implementation

In the first year, the study was conducted and, in the second year, contractors were selected through the bidding based on the result of the study in the first year, and rehabilitation of the work was implemented.

Work schedule

Year	[First year]									[Second year]						
	2008									2009						
Activity	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Site survey	■	■	■													
Plan and Design			■	■	■	■										
Cost estimation/ Construction planning			■	■	■	■										
Preparation for bidding					■	■	■	■								
Bid/ Selection of contractor								■								
Negotiation and contract									■							
Preparation for the work										■						
Execution of the work											■	■	■	■	■	■
Work shop of road maintenance			■	■				■							■	■

8.2 Creation of Tender Documents and Selection of Contractors

8.2.1 Outline of Construction Work

(1) Objective of construction work

- * Rehabilitation of the community road (Kilueka route): adoption of the laterite pavement and concrete pavement partially
- * The Client: JICA representative office in the Democratic Republic of the Congo
- * Road administrator: Direction des Voies et Dessertes Agricoles Bas-Congo (DVDA Bas-Congo) du Ministere du Developpement Rural

(2) Target road extension

- * Total length of 17,970m

Main road of 17,760m (Measurement points: No.0+280+No.18+39.7)

Branch road of 210m (Connected to No.16+950: Up to entrance of Kilueka site)

(3) Construction period

* Original contract: From April 10 to October 1, 2009 (175 days)

* Amendment contract: From April 10 to November 15, 2009 (220 days)

Condition on the Current state and post-rehabilitation of the road

Item	Current state	Post-rehabilitation
Surface of road	<ul style="list-style-type: none"> * Width of road : about 2.5 ~ 3.0m * Surface of road was quite unevenness. * Road side of steep slope sections was eroded deeply by rain water. 	<ul style="list-style-type: none"> * Width of road 4.0m+ shoulder 1.0m * Laterite pavement: 15.3km * Concrete pavement: 2.7km (in the steep slope parts more than 5%)
Longitudinal slope	<ul style="list-style-type: none"> * Longitudinal slope followed the shape of land. * There were not much excavation and embankment, but were many sharp slope in the road. 	<ul style="list-style-type: none"> * Longitudinal slope follows the shape of land in order to avoid the big excavation and embankment. * 0.5-1.0m height of embankment is set between Mbanza Ndamba and No.5 Bridge.
Bridge : 5 place	<ul style="list-style-type: none"> * Concrete beam bridge: 1 place and Concrete and steel beam bridge : 4 places * Main beams were in good condition but concrete of base plates were damaged and steel bars used with base plates were corroded. * Abatements were made of stone masonry, which did not subside and were not cracked. 	<ul style="list-style-type: none"> * No. 5 bridge does not need repair. * Beams of No.2-4 bridges are painted and concrete for base plate are re-cast. Abatements do not need repair. * Foot walks are added to No.1 bridge.
Drainage	<ul style="list-style-type: none"> * Drainage was not placed along the almost part of the road. * All crossing drainages (26 units) did not function, because of sediment expecting 1 unit. 	<ul style="list-style-type: none"> * Drainage whose width of 30-50cm is set all along the road. * L type drainage is placed in the road at Kimpese city (about 800m). * 37 crossing drainage are set.
Maintenance	<ul style="list-style-type: none"> * Villagers carried out cutting glasses and small reparation of the road around each village as the task of Salongo. 	<ul style="list-style-type: none"> * System of maintenance for road is established. * 3 people in charge of maintenance of the road in the each village are selected respectively. * 2 Workshops for maintenance of road are held.

8.2.2 Selection of Contractor

Bids submitted by bidders were opened in the presence of the Chef de DVDA Bas-Congo on March 25. M.W.AFRITEC which offered the lowest bid price was selected as the first candidate to be negotiated, and negotiation of the contract was made. There were three bidders. In the contract negotiation, the study team confirmed (1) construction planning, plan for heavy machine, and plan for quality control and (2) bank account, issue of securities, and payment method, and decided that it was generally free of problems. Consequently, a contract was awarded to M.W.AFRITEC on April 8 for amount of contract of US\$2,390,307.89 with period of contract due date of October 1. On October 1, amendment contract was signed due to a raise in the unit price of concrete and the extension of due date of contract. Accordingly, the contract amount was changed to US\$2,545,400.61 and the due date of contract to November 15.

8.2.3 Steps from Contract Negotiation to End of Construction

(1) Steps regarding contract

Date	Item	Content	Actor	Receptor
8, April	Acceptance of content of contract	Issuing Letter of Acceptance of Order after receiving Letter of Acceptance,	Contractor	JICA in DRC
9, April	Notice of Proceed	Issuing Notice of Proceed after signing contract. One day after signing shall be the commencement day.	JICA in DRC	Contractor
1, October	Amendment of Contract	Modifying amount of contract and contract period.	Both side	
22, November	Certification of the Work	Issuing Certification of the Work after completion of the work	Supervisor	JICA / Contractor
02, December	Procedure of Final Payment	Proceeding Final Payment after completion of the work	JICA	Contractor
XX, December	Payment of 5% of retention money	Proceeding retention money after receiving default security	JICA in DRC	Contractor

(2) Events on the construction site

- (a) April 10: Ceremony giving some gift to the land owners who own lands used as borrow site on the sites
- (b) April 18: Ground-breaking ceremony before the start of construction on the site
- (c) May 25: Commencement ceremony
- (d) December 7: Completion ceremony

8.3 Details of the Work

8.3.1 Road Design

The road was designed according to the flow shown below.

(a) Grasping existing situation on traffic and type of cars passing	
Item	Actual condition
[Actual condition]	[Information from CLER/Sector]
(1) Type of cars passing	*Truck for agricultural products, daily commodity etc.
(2) Traffic	*Rainy season: 0-5 cars per day, Dry season: 5 cars per day

↓

(b) Estimation of traffic and type of cars after rehabilitation of road	
Item	Conclusion
[Traffic prediction]	[Information from CLER/Sector]
(1) Type of cars	*Public transportation (bus, taxi etc.), Truck for agricultural products, daily commodity .etc.
(2) Traffic	*Rainy season: 5 cars per day, dry season: 10 cars per day *Pedestrian and bicycle pass the route frequently because of community road



(c) Setting standard of road	
Item	Conclusion
(1) Design speed	Standard of DRC: (1) Normal part: 60km/h, (2) Around village: 30km/h
(2) Width	* Width of road is decided for big track to be able to pass easily and for normal cars to be able to go by each other considering design traffic and type of car. * Lay-bys are installed for big tracks to go by each other every 300-500m. ->Width 4.0m+shoulder 1.0m in total 5.0m At embankment section, both side of the road are extended to 1.0m against erosion.
(3) Standard of pavement	* Traffic, type of car passing, cost of construction etc are applied to standard of DRC ->Laterite pavement is adopted, which is common type of pavement at community road in DRC. During rain, traffic shall be interrupted in order not to damage road. Concrete pavement is adopted more than 5% of slope section to avoid erosion by rain.
(4) Cross section	* 5 % of slope of cross section is adopted to drain rain from the surface of road.
(5) Drainage	* Side ditches (earth canal type) are planned all along the road to drain rain. Width of side ditches are 30 -50 cm based on calculation of amount of flow. * Crossing drainages (pipe culvert and U type canal) are planned to evacuate rain water. Diameter of pipes is 80cm in order to clean up inside with manpower.
(6) Bridge	* Bridge is designed for 14 ton-track to pass according to estimation of type of cars passing.

8.3.2 Construction Plan

The categories of the works represented are indicated as follows.

Item	Contents
Site preparation and clearing fee (installation of an office, running costs, etc.)	Installation of site office, transportation of materials, machine and staffs, set up of temporal site, Procurement of materials needed/ground rent, installation of water/electricity facilities, maintain of office, clearing of site
Cutting and reclamation and demolition of existing facilities	Cutting and reclamation, demolition of existing concrete pavement, demolition of existing drainage
Road earthwork	Excavation, transportation, embankment, slope protection,
Pavement	Laterite pavement, concrete pavement
Drainage	Earth canal, crossing drainage, L-type drainage
Safety facilities	Signalization,
Bridge	Demolishing of concrete, casting reinforced concrete, steel bar, masonry, balustrade(including painting): manpower and backhoe 0.6m ³
Temporary works	Temporary road (at bridges)

8.3.3 Construction Planning

Construction procedure

- (a) The work started from the section between the No.1 bridge and No.2 bridge (No.1+40 No.4+50), where longitudinal and cross leveling survey were completed.
- (b) As soon as a temporary road at No.2 bridge was set up, another team was added to the section after No.2 bridge to proceed with the work simultaneously. The work in each section started

from the part closer to the ending point if possible to ensure that the passage of heavy machine did not disturb the surface of the road completed.

(c) One team for the bridge work and another team for casting of concrete in the concrete pavement section were introduced.

(d) Side ditches were installed in the sections where work of laterite pavement had been completed.

8.3.4 Details of Construction

(1) Progress

Item	April	May	June	July	Aug.	Sept.	Oct.	Nov.
(1)Installation of site office	*	***	**					
(2)Topographic survey	*	***	***	***	***	***	***	*
(3)Cutting and reclamation	*	***						
(4)Temporary works		***	*					
(5)Demolition of existing facilities		*	*					
(6)Leveling		***	***	***				
(7)Earth work		***	***	***	***	***	***	
(8)Laterite pavement			***	***	***	***	***	***
(9)Concrete pavement				***	***	***	***	***
(10)Drainage			***	***	***	***	***	***
(11)Others			***	***	***	***	***	***

(2) Situation of each category of works

1) Site preparation

- Setting up of site office, concrete plant setup, transportation of heavy machine

2) Topographic surveys

- Preparation of shop drawings, Execution of engineering survey (using two sets of transits and levels).

3) Cutting and reclamation

- The work was conducted in two steps, cutting and root removal. Villagers were hired for this work.

4) Setup of temporary roads in the bridge section

- Temporary roads were installed at the second and third bridges from early May.

5) Material test

- Laterite (5 locations) and sand (river sand) were collected and subjected to quality test at the laboratory.

6) Demolition of existing concrete structures

- The current road, after being leveled with a motor grader, was widened with bulldozers, and the road height was adjusted to the planned height.

7) Land leveling and earthwork

- Grading with the self-propelled motor grader and bulldozer expansion and profiling

8) Laterite pavement

- Laterite was transported from five borrow sites using five dump trucks at the maximum.
- The procedure was as follows: (1) Laterite was transported using dump trucks and placed in such a way as not to form piles. (2) Motor graders were used to spread and level off laterite in a 30-centimeter layer. Workers were assigned to several locations to remove large stones. (3) The road was formed with motor graders to maintain a 5% of crossfall. Depressions were backfilled with laterite. (4) The road was compacted with vibrating compactors. The road shoulders were compacted with compactors (hand guide).

9) Concrete pavement

- The procedure included (1) base course installation and compaction degree test, (2) installation of mold forms and reinforcing bars for crack prevention, (3) cast of concrete, and (4) cure.
- For better workability, temporal roads along the section of concrete pavement were constructed in to allow for passage of heavy machine, vehicle for the work and villagers.
- Night work was performed for about eight days to accelerate the progress of work.

10) Bridge construction

- In August, the work started with No.1 bridge. In October, concrete casting was completed up to No.4 bridge.
- The procedure included (1) demolition of existing concrete, (2) anti-rust coating for existing bridge girders, (3) assembly of mold forms and reinforcing bars, (4) casting and curing of concrete, and (5) installation of hand rails.

11) Side ditches and road crossing work

- Road crossing drainage was dug with man power. Later, crossing pipes and inlet/outlet works were installed.
- L-type ditches were made using a combination of ready-made products and cast-in-situ concrete. They were used in the section with road-side houses in the city of Kimpese.

(3) Problems in construction

1) Status of construction by contractor

- Many heavy machines owned by the contractor were superannuated and failed in such a frequency that affected the progress of the work. Without exception, one of them failed every day. Although there were three mixer trucks and three compacting machines available, it turned out that only one of them was operative affecting the progress in September. Countermeasures such as supplement of spare parts and increase of mechanics were taken, but the progress was not improved significantly.
- The supply of materials was not smooth. In particular, lack of cement, base course materials, and reinforcing bars sometimes influenced the progress of concrete pavement. Although there were two cement factories near the site, cement ran short in the entire country of DRC so that, sometimes, no cement could be bought for three or four days.
- Work sites were dispersed in 18-kilometer of the road, but the engineers and supervisors were inappropriately stationed to such a place, which influenced the work progress and quality.

2) Employment of villagers

- The road rehabilitated in this project is going to be maintained and managed by the villagers after the completion of the work. In view of cultivation of the ownership of villagers to Kilueka route, the contractor was requested and agreed to hire the beneficiary in the work as much as possible.
- At the beginning of the work, conflicts between the villagers and their employers occurred due to insufficient explanation. Later, fewer problems occurred because both the parties deepened understanding on each other after making a list of persons who could be hired and as more meetings were held.

8.4 Environmental and Social Considerations

"The study on the environmental and social considerations" was done so that social and environmental impacts, which might be and/or was provoked by this study, were analyzed before the work starts, and expected and evaluated avoidance or mitigation measure were considered. As a result of preliminary study and a discussion made between the Study team and stakeholder etc, rehabilitation of the Kilueka route was presumed the only project with the potential to cause some adverse effects on the environment. After preliminary scoping exercise, which was executed only for rehabilitation of the road, IEE study, evaluation of countermeasures against impacts and monitoring during construction were conducted.

8.4.1 Laws, Regulations and Organization Related to Environmental and Social Issues

(1) Constitutional requirement of environmental protection in DRC

The constitution, also known as the Constitution of the Third Republic was adopted by the Government on 18 February 2006. Article 53 stipulates that “the environment must be protected.” Furthermore, Article 123 of the Constitution provides for the adoption of future laws, in particular, environmental protection and tourism. Article 203 allows for cooperation between the central government and provincial governments for environmental protection, natural sites and landscapes, and conservation of these sites.

(2) National legal framework for managing the environment

In DRC, studies of environmental and social impacts are not always systematically integrated into the planning of projects. There is still neither any policy for environmental management at the national level, nor any procedures for environmental and social impact assessment, nor any environmental guidelines.

(3) Legal system in DRC concerning environmental management

Despite the establishment of the Ministry of Environment in 1975 and the establishment of inter-ministerial committees for environment, the protection of the environment was not considered a priority for governments. The multiple creations of institutes, national networks, national centers and departments, provincial and local committees have been made in response to emergency situations or to pressure from international environmental lobbies.

8.4.2 Methodology of the Study on the Environmental and Social Considerations

The DRC has not yet put in place policies, procedures and guidelines for national environmental assessments, JICA procedures will be applied to the environmental and social considerations related to this community development project.

(1) JICA Guidelines for environmental and social considerations

The process of the guidelines is as follows: (1) Project Classification into 3 categories depending on the degree of environmental and social impact (Decision to undertake an IEE or EIA) (2) Provisional establishment of the scope of implications (3) Preparation of provisional terms of reference for the study of environmental considerations (based on the scoping study) (4) Undertaking of an initial environmental examination (IEE) or an Environmental Impact Assessment (EIA) (5) Monitoring (6) Evaluation

(2) Classification

For projects reviewed by JICA for its approval, guidelines for environmental and social considerations are given by JICA. According to these guidelines, projects are classified into three

categories depending on the extent of social and environmental impacts. The classification takes into consideration the characteristics of the project, location, the degree of sensitivity of the environment in which it was established, the extent and nature of impacts and changes in the natural environment and human expected.

8.4.3 Results of the Study on the Environmental and Social Considerations

(1) Categorization and its reasons

Upon consideration of environmental and social considerations based on the recognition of land on the project sites, workshops held with stakeholders, including villagers in collaboration with the concerned government staff, and analysis of existing documents, the activities to be carried out under the community development plan and pilot projects considered for implementation can be classified in **Category B** according to the following reasons;

- The Study aims to strengthen the community on the basis of reconciliation and coexistence of refugees with local populations, increasing incomes and improving living standards by improving agricultural productivity and reducing difficulties aggravated by the influx of refugees.
- Although planned for the rehabilitation of the road Kilueka under the Quick Impact Project has many positive effects on the community, some of the negative impacts are expected on the natural environment, including the removal of a number of trees, and health risks during construction and after it with dust and fumes among others. With the appropriate measures, these impacts can be reduced and controlled.

(2) Definition of the preliminary field of impact assessment or scoping and consideration of alternative

1) Provisional Scoping using the JICA format

- Several consultations with the affected villagers were held and they understood the contents of the projected work and pilot projects for the plan. Discussions focused on environmental and social issues relating to ownership of land etc with the government staff were held..
- The scoping was conducted on possible impacts by the implementation of the work regarding the rehabilitation of the Kilueka route.

2) Consideration on alternative measure and mitigation measure

As a result of provisional scoping, alternative measure including avoidance or mitigation measure were studied for items whose evaluations were B or C. 2 Alternative measures to avoid natural and social environmental impact are selected, which is shown as following: (a) To narrow the

width of road, and (b) To take alternate route to skirt the impacts.

For each alternatives, the negative impact on the health, hygiene, and water pollution will not be reduced (**evaluation B**). When alternate route is taken, the impact will increasing in regarding use of land and local resources, local conflict of interest, and diversity of animals and plants. Furthermore, the results of scoping are given regarding the impacts on social economic environment as follows;

- (a) To narrow the width of road: Because width of road are designed according to the estimated and assumed traffic and type of cars passing in future, the narrower road might disturb the economic development of villagers along Kilueka route; however, a partial diminution of width is supposed not to affect the transportation so much.
- (b) To take the alternate route to skirt the impacts: Because the current plan is rehabilitation of the existing road, alternation on making new other road shall create other big negative environmental social impact and cause increasing construction cost.

In this regard, adoption of the above option or alternative was regarded to be irrational and unrealistic, and mitigation measures shown below are applied to avoid natural and social environmental impacts.

Environmental components	Evaluation	Possible negative Impacts	Mitigation measures Envisaged	
Environnement Social	Involuntary Displacement	C	The ability to move people is much lower because there is enough space for the road already, but some houses too close could be affected if imposed extension	- Avoid re-installations by selecting the location of structures with minimal impact
	Use of land and local resources	B	Potential losses of crops and arable land sites borrowings, drop zones or release of-way	- Inform the population in advance to avoid the destruction of crops
	Local Conflict of interest	C	Destruction of valuable trees, forests sacred or cemeteries. Degradation of customs and traditions due to the installation of the staff of the company in a place.	- Educate engine drivers to respect the heritage and staffs to respect customs and traditions through meetings, integrating it in the rules and bylaws to be displayed at the headquarters
	Right of water and Admission	C	Construction works can lead to the destruction of current riparian access	- Restore access to all avenues leading to the roads
	Health and sanitation	B	The problems related to sanitation and drainage can cause vectors born diseases.	- Installation of culverts and other drainage facilities where necessary
	Risks of disasters and infectious diseases such as HIV / AIDS	C	Brewing staff with local people will certainly induce amorous adventures that will lead to the spread of STD and AIDS	- Inform and educate personnel on protection against STD / AIDS - Conduct a pronounced public awareness campaign for the peoples and workers

Category of evaluation: **A**: Serious impacts are expected, **B**: Some impacts are expected, **C**: Minor negative Impacts/ possible negative impacts later in the planning, **D**: Is not subjected to IEE and / or EIA, since no or some negative impacts are expected.

Environmental components	Evaluation	Possible negative Impacts	Mitigation measures Envisaged	
Environnement Naturel	Groundwaters	C	At wash areas and emptying the oil spill on the ground can cause contamination of groundwater	<ul style="list-style-type: none"> - Prohibit the discharge of vehicles and equipment on the bare ground - Concrete drainage areas, washing vehicles and machines and storage of toxic products - Handle bituminous products and paints with care to prevent soil and ground water
	Sol Erosion	C	The design of the drainage system concentrates the runoff in times of rain, thereby increasing the speed of runoff therefore erosion. Also some sections of road are the most often-profile excavated embankment, exposing the embankment fill erosion	<ul style="list-style-type: none"> - Cover the slopes of soil embankment at the end of the works before the rainy season and plant if necessary
	Hydrological situation	C	The particles torn during the runoff will capsize in rivers preventing their use, especially during the period of construction, which could also cause long rehabilitation beds of rivers and their possible extinction if nothing has done.	<ul style="list-style-type: none"> - Protect the sewerage and drainage masonry or concrete at the critical slopes
	Diversity of animals and plants	C	The release of-way during the construction work will entail the loss of vegetation and some wildlife	<ul style="list-style-type: none"> - Reduce the maximum outbursts of influence in protected areas. - Do not allow sites borrowings, or implantation of basic life
	Landscape	C	La research materials (lateritic sites borrowings and career) can distort the landscape, although several sites already exist along the road	<ul style="list-style-type: none"> - Consideration on the type and design of structures - Consideration of vegetation cover on structures

Category of evaluation: **A:** Serious impacts are expected, **B:** Some impacts are expected, **C:** Minor negative Impacts/ possible negative impacts later in the planning, **D:** Is not subjected to IEE and / or EIA, since no or some negative impacts are expected.

Environmental components		Evaluation	Possible negative Impacts	Mitigation measures Envisaged
Environmental Pollution	Air Pollution	B	The dust and gas fumes emanating from the work will pollute the air	<ul style="list-style-type: none"> - Water systematically all areas likely to produce dust (especially areas of work at homes, on average 3 times a day) - Require the wearing of dust masks to workers who must be given by the company
	Water Pollution	C	The run-off is contaminated by oil or construction materials left behind, either by particles torn by runoff and deposited in rivers pollute waters	<ul style="list-style-type: none"> - Prohibit the discharge of vehicles and equipment along the road or on the bare ground - Handle bituminous products and paints with care to prevent soil and ground water - The water tanks watering should be neither upstream nor at the points of use of populations
	Soil Pollution	C	In terms of areas of maintenance of vehicles and engines and their fuel supply, pollution may be due to accidental oil payment	<ul style="list-style-type: none"> - Prohibit the discharge of vehicles and equipment along the road or on the bare ground - Handle bituminous products and paints with care to prevent soil and ground water pollution
	Wastes	C	From the materials or purging and cleaning materials are deposited on construction sites	<ul style="list-style-type: none"> - Treatment of residual soil
	Noise and vibration	C	They are due to transportation of materials and movement of equipment at work	<ul style="list-style-type: none"> - The appropriate management of construction sites - Using types of low-pollution engine
	Risk of accident	B	The risks of accidents are also many well during the rehabilitation phase as the operation of the road.	Prohibit night work, the speed limit to neighborhoods of homes, protected areas and in view of animals. Prohibit the consumption alcohol / drug site

Category of evaluation: **A:** Serious impacts are expected, **B:** Some impacts are expected, **C:** Minor negative Impacts/ possible negative impacts later in the planning, **D:** Is not subjected to IEE and / or EIA, since no or some negative impacts are expected.

(3) IEE study

The study was presented as follows.

1) Objective

- Understand the physical, natural and socio-economic situation of the road and its surroundings
- Establish an outline of environmental management plan including mitigation measures and monitoring plan.

2) Content

a) Reason for classification

b) Project Summary: Rehabilitation of the road for 18 km and rehabilitation of 5 bridges

c) Environmental conditions of the project area

d) System of environmental consideration in the DRC

e) Elements of environmental impacts identified during the scoping exercise

f) Mitigation and Monitoring Plan

g) Useful Information

(4) Monitoring

Elements of environmental impacts caused by the rehabilitation of Kilueka route were reported to the contractor along with the mitigation measures below, which are checked monthly by the controller of the works

1) Elements of environmental impacts

Component	Monitoring method	Results of Monitoring
<ul style="list-style-type: none"> • Respect customs and way of life • Resource Protection • Protection against the risks of diseases and infections (HIV / AIDS) 	<ul style="list-style-type: none"> • Every month we verify that the regulation is still in place • Verification of content and number of meetings • Verification of the number of campaign against infectious diseases 	<ul style="list-style-type: none"> • Meetings with workers are held every Monday • Regulation is properly posted in the office • During the works the NGO CRAFOD conducted an awareness campaign against infectious diseases and AIDS in the villages (with distribution of condoms)
<ul style="list-style-type: none"> • Ensuring access to schools, health centers, markets, roads 	<ul style="list-style-type: none"> • Verification of the location of access roads 	<ul style="list-style-type: none"> • In August access has been cut by the works but was immediately restored by a temporary road.
<ul style="list-style-type: none"> • Verification of contractor safety measures 	<ul style="list-style-type: none"> • Verification of the assigned tools • Record of accidents 	<ul style="list-style-type: none"> • Tools are used correctly • No accident has been registered
<ul style="list-style-type: none"> • Onset of diseases due to lack of hygiene 	<ul style="list-style-type: none"> • Verification of installation and use of toilets • Verification of drains • Verification of meetings 	<ul style="list-style-type: none"> • 2 toilets have been installed on site and are properly used. • A discharge pipe has been installed to drain water from the offices • Meetings are held every Monday
<ul style="list-style-type: none"> • Road Accidents 	<ul style="list-style-type: none"> • Verification of number of night work and warning • Compliance and adequacy of speed limits • Verification of Accidents 	<ul style="list-style-type: none"> • Night work has been performed 8 times. The controller has verified site safety • No accident has been registered
<ul style="list-style-type: none"> • Mitigation of traffic jam 	<ul style="list-style-type: none"> • Verification of road signs • Verification of deviations • Verification of traffic 	<ul style="list-style-type: none"> • Several times we found that the signs were not placed before and after the works. The situation was rectified immediately. • The deviations were provided at 7 places on concreted road and for the 4 bridges • Limitations of traffic have been announced 2 times on local radio.

• Interdiction to cultivate on the road sides (5m)	• Verification of the ads • Verification of complaints	• The announcement of restrictions to cultivate on the road sides has been done once on local radio • 2 complaints were recorded concerning the land along the road. After checking with the authorities, it was found that the complainants were not owners, so the complaint was dismissed.
• Unvoluntary displacement	• Number of houses displaced • Number of land displaced • Amount of compensation	• No displaced house or land has been observed

2) Elements of environmental impacts

Composant	Méthode de suivi	Résultats du suivi
• Water pollution	• Check the number of stagnant water and places • Check the number of sanitation and drainage facilities. • Check unloading of land in the river • Check the number of complaints • Installation of facilities for washing and use	• No points of stagnating water was observed • A discharge pipe is installed between the site office and the ditch of the road. • No discharge of earth has been observed in the river • Number of complaints: None • Places for washing the machines have been confirmed
• Soil erosion and pollution	• Verification of control measures against soil erosion • Verification of excavated soil	• On the embankments, structures for protection of vegetation were installed • Cut slopes do not require special measures because the land is good and is hard • Soil excavated for the road is discarded at the end of the works
• Air pollution	• Verification of watering • Guidelines and implementation of meetings • Situation on the use of masks	• Every morning, the surroundings of the villages in the area of the works have been watered. • Meetings are held every Monday • The workers of the concrete station are wearing masks
• Noises and vibrations	• Number of night work • Use of machines	• Night work was recorded 8 times, in places far from population centres. • Difficult to use low noise machines that vibrate slightly in the DRC • In the surrounding villages day work is privileged. The work is done manually.

8.4.4 Land Issue During the Construction Period

(1) Using the way of the road to agricultural fields

The current road to be rehabilitated through several areas brought under cultivation, and some cultures were practiced on the side of the road within the zone established by law as an estate (5 meters either side of the road to agricultural services and 10 m for roads). People who engage in these crops domaniales areas were warned not to plant cassava because the crop cycle was longer still under development at the commencement of work the next year in April, the idea would be to allow rather to cultivate short-cycle crops they could harvest time before the work begins.

However, during the workshop held on November 29, 2008 with the village leaders on maintaining the road to rehabilitate, it was reported that some farmers, particularly in the village Ndembo cassava planted near the road in the grip despite advice given repeatedly. The chief of sector had again ordered the head of the Agriculture and Rural Development to continue raising awareness among recalcitrant and warn they would lose their crops if they persist in not following the watchword.

(2) Contribution symbolic landowners

The Land Law recognizes the existing traditional landowners as having a say on the use of land they have acquired through generations in rural areas. Since the work would go in sacred groves belonging to villages or use sites borrowing, it is advisable to request permission to land managers to whom a traditional small contribution should be paid (for the purchase of cola or wine according to tradition). The village leaders had pledged to inform the heads of land that nothing more should be asked to companies to be responsible for the rehabilitation of the road in addition to the traditional contribution, considering that the road will be for the benefit of villagers. On the other hand, they should not be alarmed and seek contributions impossible thinking that companies prospect for gold or precious metals in the sites of borrowing and careers while they seek only gravel and laterite for the construction of the road.

Chapter 9 Lessons Learned and Recommendations

9.1 Lessons from the Quick Impact Project

For the quick impact project concerning the rehabilitation of a section of the Kilueka route, a contract was signed with a local contractor, our Study having charge of supervising the works. The rehabilitated section is 18 km long, 4 meters wide, with road sides of 0.5 m. The rehabilitation involves the laying of a laterite lining on 85% of the length and a concrete lining on the rest (15%), works on 5 bridges (including 4 rehabilitated), 37 structures crossing the road of a width of 30 to 50 cm and a drainage ditch water along the entire length.

9.1.1 approximate Costs

The approximate cost was calculated as follows for your reference to the rehabilitation projects of roads planned in the future.

- Total cost of the works U.S. \$ 2,545,400.61 or about 226,541,000 yen
- Construction cost per km U.S. \$141.400 / km or about 12,586,000 yen / km
- Cost of works by type of work

Exchange rate 1 US\$= 89,00 yens

	Total amount (US\$)	Total amount (yens)	Unit price/ km (yens)
Laterite lining	1,213,000	107,972,000	7,057,000
Concrete lining	1,087,000	96,775,000	35,842,000
Bridges	57,890	5,152,000	1,030,000

- The cost of lining includes civil works, the lining works themselves and the drainage ditch works.
- The total cost of the works includes, in addition to the above, the cost of site management, cost of removal of existing facilities, the markup and the cost of temporary facilities .

9.1.2 Competence of Contractor

The contractor was selected through a bidding process. It was the lowest bidder, the company

AFRITEC won the contract. This contractor, which is placed in class A in the DRC regarding the achievements and the turnover, has also extensive experience in road works. It therefore has the technical capabilities that enable it to run smoothly works at this level. However its machines are old and degraded and it has an insufficient number of technicians, which had a strong impact on the construction schedule.

As countermeasures, we propose to fix the construction period, taking full account of the rainy season, to assess the capacity of the contractors in the bidding, to judge from their experience and reputation on past works, and to consider the number of machines and their running condition on the evaluation.

During the construction works, it is essential to keep in touch with the office of the contractor upon signing of contract to counter the lack of equipment on site. Technicians must regularly report to headquarters the progress of the works, and in case of problems the number of technicians must be rapidly increased and measures, including replacement finally taken.

Through this Study, we found that around Kinshasa and the provinces of Bas-Congo only large contractors (AFRITEC, 3-4 private companies including international companies and the Roads Directorate (OR) of the Ministry of Infrastructure and Public Works) can make repairs of roads whose scale exceeds the average by undertaking several works and with several brigades. In the bidding the largest contractor in the DRC has submitted an offer of 1.8 times the auction price. Regarding other contractors, they were judged incompetent to work in complex program because of the number of machines owned and the quality of their technicians.

Therefore, in future, when considering the rehabilitation of similar roads, given the quality of work required and the time frame, one must establish an estimate of the amount that can be accepted by big contractors, and take into account the experience and technical level of the bidder.

9.1.3 Employment of Residents as Laborers

In Congo, the rehabilitation of community roads with earth lining is undertaken through the HIMO system, employing villagers as labor force under the CTB funding. Here we used a contractor, but as after rehabilitation we had to set up a maintenance system with the villagers, we asked the contractor to use the villagers as laborers, which he did.

However, for the commitment, there were problems such as (1) dissatisfaction of the people regarding the salary, (2) the reduced working hours of residents, (3) the declining quality of work, etc.. for which we have called for measures through Duki. Moreover, the number of workers needed could not be obtained in the period of agricultural work; some have stopped because of the hard work, so it is difficult to say that the work was no problem.

For this work it was difficult to use only the villagers, and it is essential that workers acquire

technical knowledge through long-term jobs on construction sites to accelerate the work program. In the future, when recruiting villagers for similar projects, we propose to discuss in advance the content of the work, the number of employees and methods with Duki to avoid unnecessary problems.

9.2 Continuation of Monitoring on Pilot Projects

In the studies of the first and second year, we conducted the Study of community development and maintenance of roads centered on people, and we have established projects. In many cases, the effects of most PP made in connection with the community development plan are not yet visible. The community development plan relying heavily on agricultural products whose production varies in chronological sequence and are used by villagers and village organizations for their personal consumption, it is recommended that further investigations be carried out through the PP beyond the work done during the rainy season.

6 months of monitoring work after the end of the Study at the second year could see the emergence of differences between sustainability of the road project between villages, between groups, and guidelines for strengthening village organizations for the future.

During the monitoring mentioned above, it will be necessary to pay attention to non-beneficiaries and beneficiaries of the villages. As time passes and the benefits of community development project and its beneficiaries are identified, it is undeniable that conflicts can arise between people, for reasons of envy or jealousy. If this type of problem tends to occur, analysis of its sources and efforts will enhance the effects of this project and reduce problems and help the project in similar areas, particularly in the post-conflict areas.

As for road maintenance, the implementation of resident-led road maintenance activities was planned because of the weakness of the administrative organizations in the Study Area. For the Nkondo route, a road maintenance organization of CLER Kiasungua has been established before the project implementation. While, for the Kilueka route, no road maintenance organization had been established, and the community development committee established in this project is planned to serve as a maintenance organization. The comparison of these routes will yield guidelines for selecting and establishing an appropriate maintenance organization when a community road rehabilitation plan is formulated in the DRC in the future.

Furthermore, the correlation effect between the rehabilitation of the community road, which ends at the second year, and the other PP concerning the community should also be monitored. In other words, we propose a monitoring work in the third year to Study how the business of transporting agricultural products and the sales strategy of the inhabitants will be amended following the rehabilitation of the road, and to what extent the increased profits will benefit the road maintenance.

9.3 Proposal for Future Community Development

Community development focused on village organizations in post-conflict areas such as the Study area, increases living standards and improve the living environment of residents. The overall development of the area through mutual cooperation is essential to strengthen resistance to the emergence of new conflicts.

9.3.1 Recommendations on Adjustments with International Organizations Using the Funds for Human Security

In the purpose of this Study, village organizations have been created within the Study activities, and community development initiative of these organizations is progressing, in particular, the maintenance of common facilities by the community progresses. In similar post-conflict areas where the Administration does not work, it is desirable that the people work on maintenance because the beneficiaries of common facilities such as community roads, the water supply infrastructure, schools, medical and health care facilities etc..., are not specific people but all people.

But for the initial investment required developing these common facilities for example, it is difficult to expect a self implementation at the expense of residents. The following activities are recommended to improve capacity on the initial investment and maintenance, with the help of international organizations such as UNICEF and FAO, and using the funds for human security to contribute to; strengthening human capacity through the generalization of basic education; give first priority to the generalization of basic medical care; and cooperate to achieve the minimum standard of living as targeted by the Committee of Human Security

(1) Expected impacts

The expected impacts of the implementation of these activities are as follows.

- 1) Improving access to isolated villages and boost production activities throughout the area.
- 2) To improve schools and increase enrollment of children.
- 3) Reduce the risk of prolonged illness through the opportunity to benefit from simple care.
- 4) Reduce the number of patients with diarrhea or malaria, which are water-borne diseases.
- 5) Improve the capacity of administrative staff and leaders of village organizations and enable sustainable local development.

(2) Proposed project items

- 1) Project of maintenance and management of drinking water facilities
Improvement of wells (including training on the maintenance system of well facilities)

2) Project of improvement of educational facilities

Rehabilitation of schools (roof repair, painting walls, etc...)

Replenishment of school materials and equipment (introduction of equipment for making desks and chairs)

Development of school gardens (compensation for teachers' salaries, dissemination of farming skills (seeds of new varieties) through children, etc.)

Implementation of literacy education for adults

3) Project of improvement of health facilities

Rehabilitation of health centers

Training on the maintenance system for health facilities

4) Project of human resources development

Training and technology transfer for administrative officers and villagers' organization leaders

9.3.2 Proposal for Future Cooperation of JICA

The Minister of Rural Development, which is the counterpart body of this Study strongly demand Japan to continue its cooperation through the official development assistance after the end of the Study. For this reason, on the basis of results obtained in this Study and in order to contribute to establishing peace in the DRC, we recommend ensuring technology transfer needed to promote the restoration and improvement of communities, and setting up a financial cooperation that will achieve the desired results effectively.

(1) Proposal for technical cooperation project

In the community development plan, a development plan regarding improvement of livelihood, which can expect enhance its effects by the road rehabilitation and living environment, was formulated to aiming communities' reconstruction through implementation of both community road rehabilitation and its maintenance afterwards.

In order to spread this out of the Study Area, it is necessary to develop capacities of counterparts, who received technology transfer on the OJT basis throughout the Study, and technical transfer must be done to engineers who are in charge of areas where the plan will be transferred. For this to occur, it is proposed technical cooperation projects.

In the technical cooperation project, the community development plan, established in the Study Area of the Study on Community Development Plan in Cataractes District, Bas-Congo Province, is regarded as the Kimpese Model and the Model will be spread in the DRC. In the first stage of technical extension, technical transfer will be carried out in the other areas of the Bas-Congo province,

where the model has been established and there are counterparts who have had experiences with the Study to realize horizontal extension. After that, the technical transfer will be implemented in the rest of the province and other provinces (ex) North Kivu and Oriental) with applying findings acquired through the technical transfer in the Bas-Congo province including the results from this Study.

At the implementation of activities, the technical transfer will be carried out for counterparts from within and without of the province who will be invited to the Study Area of this Study as a place of demonstration or training. The objective and expected outputs of the project is shown below;

1) Super goal

Community roads maintenance and community development projects are appropriately implemented, and therefore, reconstruction of the community is promoted in the Democratic Republic of the Congo.

2) Project goal

The Kimpese model or similar community development plans are implemented in other provinces out of the Bas-Congo province.

3) Outputs

a) The organizational capacity development to the Direction of Community Development (DECO), the Direction of Feeder Roads (DVDA), and the Ministry of Agriculture, Rural Development, Fisheries, Animal Husbandry and Small and Medium Enterprise Promotion of Bas-Congo Province, all of which are the counterparts, is realized.

b) The capacity development of Local Road Maintenance Committees (CLEA), agricultural and rural development personals of provincial, district, and sector level, all of those are as actors of implementing community development, is realized.

c) The Kimpese Model is spread in the Democratic Republic of the Congo.

(2) Proposition of financial cooperation projects

It is necessary to quickly develop in order to avoid returning in a situation of conflict in the post conflict countries such as the DRC. Therefore, it is important to implement the roads rehabilitation by the financial cooperation at the same time of implementation of technical cooperation. However, there might be budget limitation and priority to other projects in the grant aid for general projects, and Japanese constructors may not be infested in participating a bid because the roads rehabilitation is implemented in the remote areas; therefore, the grand aid for community empowerment will be proposed in order that the local contractors will be able to bid for. The targets are agricultural roads which directly link to the National No.1 in the Bas-Congo province, and they should not be traverse the border of the sector. In addition, the same maintenance standards will be applied.