

## Annex 6.10 Results of the Pilot Projects

### (1) Agricultural productivity improvement program

Project 1. Cattle Ploughing					
Objectives	<p>In the target area, all the farming activities are carried out by human power, and ploughing is the heaviest work among them.</p> <p>In particular, in order to grow cassava which is the main crop in the area, ploughing the field is necessary. However, the cultivation area is limited. Meanwhile, ploughing using animal power has been practiced in the area such as Luozi, but not in the Study area.</p> <p>In this project, the effectiveness of improvement of labor productivity by cattle ploughing is surveyed on the assumption that existing ploughing, and preparation of planting by the human power will be improved by the cattle ploughing. In addition, it is aimed at creating the sustainable cattle ploughing system by the residents.</p>				
Checked items	<p>System management of the cattle ploughing by the villagers' organization</p> <p>Extending cultivation area by the cattle ploughing.</p>				
Details of achievement	Implementation Items	Implementation Organization / Executive	Implementation Period	Details	
	1	Training in Kimpese	Sector Staff	March 2009	<ul style="list-style-type: none"> <li>- Training on the cattle ploughing for all villages</li> <li>- Requests of extending cultivation area of rainy season crops (food crops) which needs a larger area are much more than dry season crops (vegetable) along the river.</li> </ul>
	2	Making equipments for cattle ploughing	Residents of Kimpese	April - August 2009	<ul style="list-style-type: none"> <li>- Preparing of nose rings, yokes, tillage equipment, and lister, etc. and loading these equipments to cows one by one during the training session.</li> </ul>
	3	Preparing training field for cattle ploughing	Villagers	April - July 2009	<ul style="list-style-type: none"> <li>- Forming of Villagers' organizations</li> <li>- Creating regulations by Villagers' organizations</li> <li>- Creating Action Plan by Villagers' organizations</li> <li>- Selecting villages for training</li> <li>- Preparing training field for cattle ploughing by the participants</li> </ul>
	4	Training of cows	Villagers	July - August 2009	<ul style="list-style-type: none"> <li>- Breeding of cows by training participants</li> <li>- Sorting out issues (ex. securing veterinary) on the cow breeding in the village</li> <li>- Conducting the training of cows</li> </ul>
	5	Transportation of cows from the training field to villages	Villagers	Sep. 2009	<ul style="list-style-type: none"> <li>- Transportation of cows from the training field to villages. Transportation begins from villages that completed the payment of 1 % of the total amount of materials including cows necessary for the cattle ploughing followed by villages that are ready to pay.</li> </ul>
	6	Conducting cattle ploughing in the PP target villages	Villagers	Nov. 2009 ~	<ul style="list-style-type: none"> <li>- Securing cow breeding area in each village.</li> <li>- Clarifying the villagers' organization, and breeding system (role of each person)</li> <li>- Specifying the breeding system or the member's role in the villagers' organization</li> <li>- Starting cattle ploughing in the rainy season</li> <li>- Conducting ploughing in the farmland other than that of the working group</li> </ul>
	7	Evaluation meeting on PP	Villagers	Oct. 2009	<ul style="list-style-type: none"> <li>- Exchanging views on the cattle ploughing PP among the members</li> <li>- Understanding of participants from surrounding villages on the cattle ploughing</li> </ul>
Relevant sector	<p>Nkondo road Nkenge (having joint training field for cows), Mawewe, Kiasungua, Nkondo Site Kilueka road Kinanga (having joint training field for cows, 2sets of cows), Ndembo, Mbanza Ndamba, Kilueka (Wene had been the original member of the PP , but it was excluded later, because it did not participate to the preparation and management work of the training field.)</p>				

Project 1. Cattle Ploughing																																							
Terms of achievement	<ul style="list-style-type: none"> <li>• Paying back the money that was provided as the initial investment for the cattle ploughing to the Lukunga Valley Development Committee in five years</li> <li>• If a village cannot pay back the money, after consulting in the LVDC, equipments and cows shall be moved to another village.</li> <li>• The villagers' organization should pay 1 % of the total amount of cattle ploughing materials including cows to the LVDC in advance of transportation of cows to the village.</li> </ul>																																						
Expected effects	<p>System management of the cattle ploughing by the villagers' organization</p> <ul style="list-style-type: none"> <li>• Forming the Villagers' organization</li> <li>• Creating regulations by the villagers' organization</li> <li>• System management by the villagers' organization</li> </ul> <p>Extending cultivation area by the cattle ploughing</p> <ul style="list-style-type: none"> <li>• Proper breeding of cows</li> <li>• Learning how to train cows</li> <li>• Ploughing equipment for the cattle ploughing</li> <li>• Implementation period of the cattle ploughing</li> <li>• Conducting the cattle ploughing</li> </ul>																																						
Results and evaluation	<p>Management of organization by the villagers' organizations</p> <ul style="list-style-type: none"> <li>• Forming the Villagers' organization <ul style="list-style-type: none"> <li>- Villagers' organization was formed.</li> <li>- Regulations on the group activity were formed and the role of members, contents of group activity and rules were specified.</li> <li>- The system of ploughing of the farmlands other than villagers' organization members earning wages was considered.</li> <li>- Transportation of the farm products by an oxcart was conducted during the non-cultivation period</li> <li>- Work journal and the account book for materials and wages were prepared.</li> <li>- A discussion was held concerning the management by group members.</li> </ul> </li> <li>• Creating regulations of the villagers' organization <ul style="list-style-type: none"> <li>- According to the survey results of the PP evaluation, although there were some people in Kiasungua and Ndembo who did not understand the contents of the regulations, all the survey respondents of other villages understood them.</li> <li>- In the regulation, "feeding and watering rotation," "working hours," and "the five-year detailed plan to repay the money," etc. are described.</li> <li>- According to the survey, meetings are held for about two times a month in every village. Meetings are held for about four times a month. In Mbanza Ndamba, issues on "how to collect funds to repay the initial deposit," "activities in the community field," etc. were discussed at the meeting.</li> </ul> </li> </ul> <p style="text-align: center;">Table : Meeting frequency held to form regulations</p> <table border="1"> <thead> <tr> <th rowspan="2">Route</th> <th colspan="4">Kilueka</th> <th colspan="4">Nkondo</th> </tr> <tr> <th>Village</th> <th>Ndembo</th> <th>Kinanga</th> <th>Mbanza -Ndamba</th> <th>Kilueka</th> <th>Nkenge</th> <th>Mawewe</th> <th>Kiasungua</th> <th>Nkondo Site</th> </tr> </thead> <tbody> <tr> <td>Meeting times required to create regulations</td> <td></td> <td>2</td> <td>2</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>2-3</td> <td>3</td> </tr> <tr> <td>Monthly average Meeting times</td> <td></td> <td>1-2</td> <td>2</td> <td>4</td> <td>2</td> <td>2</td> <td>2</td> <td>1-2</td> <td>2</td> </tr> </tbody> </table> <p>Source: PP Evaluation Committee Survey Results</p> <ul style="list-style-type: none"> <li>• Managing the cattle ploughing system by the villagers' organization members <ul style="list-style-type: none"> <li>- According to the survey, all respondents (30) but one who did not answer are satisfied at joining the cattle ploughing villagers' organization.</li> <li>- According to the survey results by the PP evaluation on the system of repaying all the initial money required for the cattle ploughing in five years, 68 % (21people) of the respondents answered "good," 9 % (9 people) of them answered "reasonable," and 3% (3 people) of them gave no response. Therefore, the validity of the system is confirmed.</li> </ul> </li> </ul>	Route	Kilueka				Nkondo				Village	Ndembo	Kinanga	Mbanza -Ndamba	Kilueka	Nkenge	Mawewe	Kiasungua	Nkondo Site	Meeting times required to create regulations		2	2	2	1	1	1	2-3	3	Monthly average Meeting times		1-2	2	4	2	2	2	1-2	2
Route	Kilueka				Nkondo																																		
	Village	Ndembo	Kinanga	Mbanza -Ndamba	Kilueka	Nkenge	Mawewe	Kiasungua	Nkondo Site																														
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Monthly average Meeting times		1-2	2	4	2	2	2	1-2	2																														

### Project 1. Cattle Ploughing

#### Extending the cultivating area by the cattle ploughing

- Proper breeding of cows
  - Areas for the breeding of cows are secured by the villagers' organization.
  - Members learned the skill of breeding, and feeding and watering are conducted properly.
  - Crops for breeding were grown.
  - According to the survey results, among the 31 respondents, 25 people (80.6%) answered they "wholly mastered" how to breed cows, 3 people (9.7%) answered "mastered partially," and 3 people (9.7%) answered "unable to breed cows by themselves."
- Learning how to train a cow
  - Cow breeding skills were learnt by participating the training
  - Cow training skills were learnt.
  - Cows training were conducted in Kinanga in Kilueka-route, and Nkenge in Nkondo route.
  - PP members participated in the cow training every morning from 7:00 to 12:00 during the two months of July and August.
  - According to the questionnaire conducted immediately after the two months training, all the participants (23 people) answered that the training was "good," and there were no answers of "reasonable" or "bad."
  - In regard to questionnaire on the trainer, 21 people (91.3%) answered "good," 2 people (8.7%) answered "reasonable" and there was no answer of "bad."
  - In regard to questionnaire on the training duration of two months, 12 people (52.2%) answered "best," 9 people (39.1%) answered "reasonable" and 2 people (8.7%) answered "short."
  - In regard to questionnaire on the cow breeding skills, all participants answered they "understood well."
  - In regard to questionnaire on the skills for cattle ploughing, 12 people (91.3%) answered "understood well," 2 people (8.7%) answered "understood" and there was no answer of "could not understand."
  - In regard to questionnaire on the training whole, 22 people (95.7%) answered "satisfied well," 1 person (4.3%) answered "satisfied" and there was no answer of "could not satisfied."
- Equipment for the cattle ploughing
  - Cows were bought from the areas of Luozi and Kinsaku located in the north of Nkondo route.
  - Cows were Ndama cows and they cost 1,000 US \$.per pair.
  - Transportation of cows cost around 200US \$ per pair.
  - Nose rings (about 5 US\$) , yokes (about 40 US\$), tillage equipment (about 50 US\$), and lister (about 50 US\$) are required as the cattle ploughing equipments
  - Materials of iron bar and iron plate to make these equipments are available in Kinshasa, and hey can be made in Kimpese.
  - A person who makes tillage equipment and lister used to live in Luozi, but he is living in Kimpese since late 2009.
  - Not all equipments are necessary at the same time. Tillage equipment and lister are used in surrounding villages in turns.
  - The least necessary medicine were given to cows. They cost 33US \$ per head. In addition, if there is an extra money, it is desirable to give vitamin K, and other necessary medicines.

Table Medicine given to 18 cows during the training.

	Name	Quantity	Amount
Antibiotics	Oxytétracycline	4 bottles of 100 cc	20 US\$
	Penistreptomucine	4 bottles of 100 cc	40 US\$
Vitamins	Vitamin ABC	4 bottles of 100 cc	30 US\$
Insecticide	Levamisole	4 bottles of 100 cc	30 US\$
	Negivon	4 Kg	260 US\$
Iron	Ducrofer	4 bottles of 100 cc	100 US\$
Antiseptic	Septiplaie	4 bottles of 100 cc	60 US\$
	Asuntol	4 Kg (powder either liquid)	50 US\$
Total			590 US\$

Project 1. Cattle Ploughing

- Implementation period of the cattle ploughing
  - The rainy season started late in 2009, and it rained only for a few times even until the end of Oct. The cattle ploughing is possible to be carried out after the soil become softer following the starting of the rainy season. Therefore, the cattle ploughing will begin in December after the rain in November.
  - In the meantime, the cattle ploughing is planned to be used for ploughing of the rainy season field. After that, it is planned to explore the unused land. Then, the unused land is expected to be developed by cattle ploughing.
  - Cows can be used for transportation of massive agricultural products other than the ploughing work or exploring the unused land. It was the harvesting time of onion in late dry season of Sep. and Oct. when the cows for the ploughing were introduced to each village after two months of training. Therefore, there were some villages that used ploughing cows to transport onion to Kimpese.
- Ploughing Work carried out by the cattle
  - The intention of extending farming area by conducting the cattle ploughing in the future was confirmed.
  - However, the intention of reducing the labor rather than extending farm area rapidly immediately after the starting of the cattle ploughing was also confirmed.

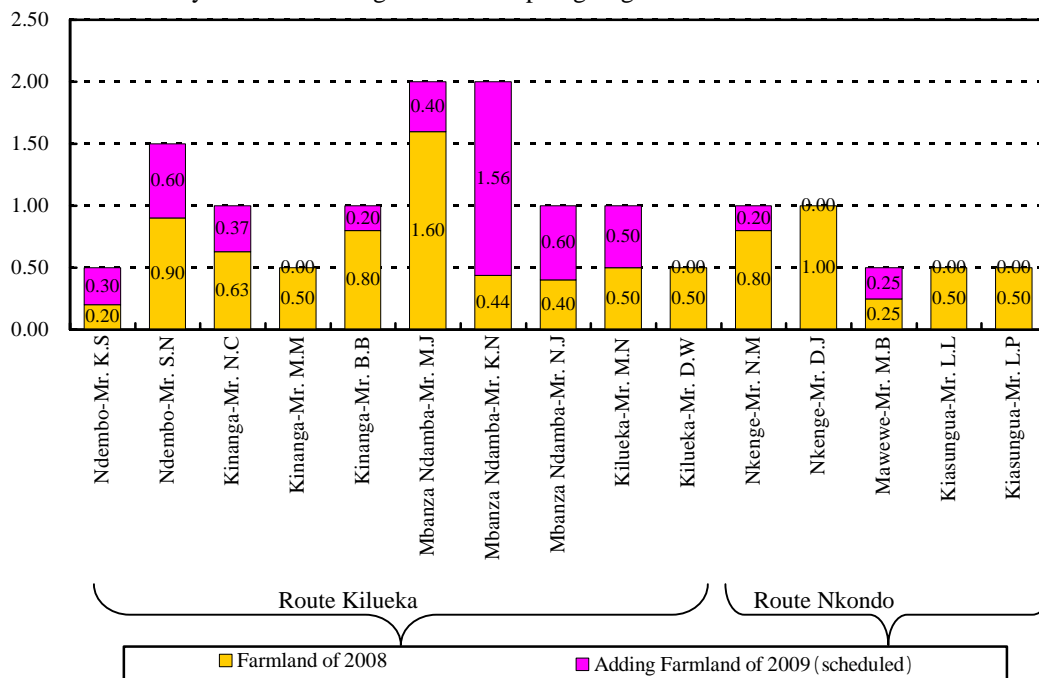


Fig. Extending Farm land by the Cattle ploughing

Source: Questionnaire results of PP Evaluation Committee

Notice: The answer to only either in 2008 or 2009 and obviously unreal numbers were excluded.

Feedback on the community development plan

- It was aimed at transferring the skills from trainers to villagers by participating of more than 3 people from each villagers' organization for two months training.
- Ploughing agricultural area by using the cattle ploughing is expected to be around 0.225 ha per day.
- Four months of rainy season from December to March are estimated as the cattle ploughing period.
- 1,680 US \$ is necessary for the operation and management of the cattle ploughing as the fee of a pair of cows and equipments.
- Manual for the cattle ploughing was prepared. (cf. Annex).

Project 2. Soil preparation and improvement					
Objectives	The soils of farmland tends to degrade because of progress of deforestation, shifting cultivation, and continuous planting of products of high soil nourishment deprivation, etc., This project promotes people's understanding concerning the necessity or the importance of preparing and improving of soil, along with extension of activity for the preparing of soil.				
Checked items	Understanding the materials made from organic materials (utilizing animal manure and compost) for soil improvement.				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training in Kimpese	Animator from Agrisud	Feb. 2009	- Introduction and training on how to create compost, providing a manual for each village
	2	Preparing community field	Villagers	April - May 2009	- Forming of Villagers' organizations - Creating regulations by Villagers' organizations - Selection of community plots - Procurement of necessary agricultural equipment and materials
	3	Training on the compost and soil conservation in the community field	Animator from Agrisud / villagers	April - Oct. 2009	- Making compost and utilization in the community field - Applying the methods of soil conservation in the community field
	4	PP Evaluation meeting	Villagers	Oct. 2009	- Impression of actual use of compost in the community field and their own opinions of the improvement of the compost are exchanged. In addition, measures for compost improvement are reviewed.
Relevant sector	All villages This PP was conducted along with "3. introduction of new varieties PP" and "14-1 Bookkeeping PP." However, this project was not conducted in Mawewe , because Mawewe is unable to secure enough water to grow vegetables in dry-season cropping.				
Terms of achievement	<ul style="list-style-type: none"> <li>• A part of revenues shall be returned to the Village Development Committee and the Lukunga Development Committee.</li> <li>• The system in which the funds of the Village Development Committee and the Lukunga Valley Development Committee shall be used for the management of public facilities existing in targeted area such as roads, schools, and medical centers.</li> </ul>				
Expected effects	Understanding of soil improvement materials made of organic materials <ul style="list-style-type: none"> <li>• Preparation of the demonstration field</li> </ul> Making compost <ul style="list-style-type: none"> <li>• Conducting compost making trainings</li> <li>• Checking the matured compost</li> <li>• Soil Conservation</li> </ul>				
Results and evaluation	Understanding of soil improvement materials made of organic materials <ul style="list-style-type: none"> <li>• Preparation of the demonstration field               <ul style="list-style-type: none"> <li>- Although targeted people for the community demonstration field were 400 people, 442 people including local residents participated in "training of preparation of the field and maintenance of stilt nursery."</li> </ul> </li> </ul> Making compost <ul style="list-style-type: none"> <li>• Implementation of training on compost               <ul style="list-style-type: none"> <li>- Compost making trainings were conducted</li> <li>- Targeted people for the community demonstration field were 400 people, and 267 (66.8%) people participated in "training of Making compost."</li> <li>- Materials that are available in the target area are collected.</li> <li>- Animal manure of pig, goat, and poultry are used as the compost materials.</li> <li>- Participants learnt on how to make compost, understood its effectiveness, and used it.</li> <li>- Participants understood that materials should be placed into multiple layers and be tilled from time to time and be fermented to make compost. As a place to put the material, a wooden frame of 1m x 1m x 1m shall be prepared. 25 cm height of dried leaves, etc., 10 to 15 cm height of wet manure, 5 cm height of soil, and 0.5 cm height of fermentation accelerator such as lime are put layer by layer inside the frame.</li> </ul> </li> </ul>				

**Project 2. Soil preparation and improvement**

- Checking matured compost
  - Participants understood that the fermentation of compost will be completed within 40 to 50 days , and then it can be used as a fertilizer.
  - Participants understood on recognizing the matured compost by the indicators of "dark brown color," "no heat," "no smell," "cabbageworms or earthworms are inside," "seeds slipped into the compost germinated," etc..
  - According to the PP evaluation Committee survey results (71 respondents) about the "training on the use of compost and fertilizer," 84.5% (60 people) of them answered "understood well," 15.5% (11 people) answered "understood," and there were not "no understanding" or "not participating."
- Soil Conservation
  - The people targeted for the community demonstration field were 400 persons, and 372 (93.0%) persons participated in the "training of compost making."
  - Participants understood that it is desirable to apply about 50ton/ha of compost as the basal fertilizer.
  - Participants understood that timing of applying additional fertilizer is different by the crops. The following timing is desirable: for potatoes, zucchini, cucumber, and tomato, etc. "15 to 20 days after germination," for eggplant, okra, peppers, watermelon, maize, melon, peppers, etc. "20 to 30 days after germination," for lettuce, Kyapetsu, spinach, radish, etc. "30 to 45 days after germination," and for carrot, radish, garlic, onion, celery, etc. "45 to 60 days after germination."

Table : Participants and participation rate of the training on Preparing soil by theme and soil improvement

Route	Village	Targeted people for community field	Training of preparation of the field and maintenance of stilt nursery		Compost		Soil Conservation	
			Participants	%	Participants	%	Participants	%
Kilueka	Kimuana	16	13	81.3	8	50,0	14	87.5
	Ndembo	20	14	70.0	17	85,0	18	90.0
	Wene	23	37	160.9	13	56,5	15	65.2
	Ndungidi	5	5	100.0	3	60,0	6	120.0
	Nkondo	24	26	108.3	15	62,5	25	104.2
	Kinanga	20	23	115.0	10	50,0	16	80.0
	Kisiama	20	18	90.0	10	50,0	15	75.0
	Mbanza-Ndamba	24	41	170.8	14	58,3	43	179.2
	Kilueka	27	55	203.7	34	125,9	36	133.3
	Kilueka Site	20	25	125.0	9	45,0	20	100.0
	<b>Sous-total</b>	<b>199</b>	<b>257</b>	<b>129.1</b>	<b>133</b>	<b>66.8</b>	<b>208</b>	<b>104.5</b>
Nkondo	Malanga Gare	20	15	75.0	9	45.0	14	70.0
	Malanga Cite	20	11	55.0	9	45.0	18	90.0
	Zamba	20	18	90.0	11	55.0	18	90.0
	Nkumba	20	24	120.0	11	55.0	21	105.0
	Nkenge	20	20	100.0	15	75.0	20	100.0
	Kiasungua	21	22	104.8	15	71.4	21	100.0
	Lusasa	20	18	90.0	14	70.0	13	65.0
	Kimpalukidi	20	20	100.0	14	70.0	10	50.0
	Mpete	20	19	95.0	19	95.0	16	80.0
	Nkondo Site	20	18	90.0	17	85.0	13	65.0
	<b>sub-total</b>	<b>201</b>	<b>185</b>	<b>92.0</b>	<b>134</b>	<b>66.7</b>	<b>164</b>	<b>81.6</b>
	<b>TOTAL</b>	<b>400</b>	<b>442</b>	<b>110.5</b>	<b>267</b>	<b>66.8</b>	<b>372</b>	<b>93.0</b>

Note: The participation rate has exceeded 100 percent because villagers other than targeted people participated

Feedback on the community development plan

- Animal manure of pig, goat, and poultry can be used as the compost materials.
- Compost can be used as the additional fertilizer besides the use as the basal fertilizer.
- Training on compost needs to include the goal, material, making methods, and methods to confirm maturity, etc.
- 10 persons per 10 a are necessary to manage the community field

Project 3. Introduction of new varieties					
Objectives	<p>Vegetables are planted in the targeting area in the dry season with small rivers as the water resources, and mainly onions have been grown as a cash crop. Although growing vegetables is the main source of income in the dry season, there are many problems such as low cultivation skills, the price collapsing because of the same harvesting time, and inability to put sufficient farming equipment and materials at the appropriate time.</p> <p>In this project, in order to improve these problems, the community field was established, and training on the planting skills was conducted in this field (Seedling, mulching, and diversified vegetable cultivation, etc.)</p>				
Checked items	<p>Stabilization and expansion of production by the improved skill learnt in the vegetable planting Training at the community field Diversification of vegetable cultivars</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training in Kimpese	Animator from Agrisud	March 2009	- Training on mainly vegetable growing
	2	Preparing community field	Villagers	April - May 2009	- Forming of Villagers' organizations - Creating regulations by Villagers' organizations - Selection of community field - Procurement of necessary agricultural equipment and materials
	3	Training on growing skills in the community field	Animator from Agrisud / Villagers	April - Oct. 2009	- Training on how to seed - Training on how to use stilts nursery - Training on how to transplant to mulch using squeezed sugar cane residue, etc. - Training on how to protect vegetables using pesticides and herbicides - Training on how to manage cultivation such as weeding
	4	Practical training at the villagers' farmland	Villagers	April - Oct. 2009	- The actual practicing of contents of the training at each villager's personal farmland
	5	PP Evaluation Committee	Villagers	Oct. 2009	- Impression of actual use of learnt skills on vegetable growing in the community field and their own opinions for improvement are exchanged. - In addition, measures for improvement of vegetable growing are reviewed.
Relevant sector	<p>All villages This PP was conducted along with "2 Soil Preparation and improvement PP" and "14-1 Bookkeeping PP." However, this project was not conducted in Mawewe, because Mawewe is unable to secure enough water to grow vegetables in the dry season cropping.</p>				
Terms of achievement	<ul style="list-style-type: none"> <li>• A part of revenues shall be returned to the Village Development Committee and the Lukunga Development Committee.</li> <li>• The system in which the funds of the Village Development Committee and the Lukunga Development Committee shall be used for the management of public facilities existing in targeted area such as roads, schools, and medical centers shall be established.</li> </ul>				
Expected effects	<p>Management system of the community field group</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Creating regulations by the villagers' organization</li> </ul> <p>Preparation of the community field by the villagers' organizations</p> <ul style="list-style-type: none"> <li>• Preparation for the vegetable growing in the field</li> </ul> <p>Management of the community field by the vegetable growing villagers' organization</p> <ul style="list-style-type: none"> <li>• Selection of seeds</li> <li>• Preparing stilts nursery</li> <li>• Promotion of seedling and Mulching with sugarcane residue</li> <li>• Use of pesticides and herbicides</li> <li>• Agricultural production in the community field</li> </ul>				
Results and	<p>Management system of the community field group</p> <ul style="list-style-type: none"> <li>• Formation of Villagers' organizations</li> <li>- According to survey results of PP evaluation, "appropriate number of people to manage the</li> </ul>				

**Project 3. Introduction of new varieties**

evaluation

field community (20a in this PP)" is, average of 18.6 people in Nkondo route, average of 26.4 people if Kilueka route, and the overall average was 26.6 people.

- 20 persons for 20 a are estimated in this PP, and this estimate was almost appropriate.

Table : Appropriate number of people to manage the field community

Route	Village	Appropriate Number (person)			Number Of respondents
		Average	Lowest	Highest	
Kilueka route	Kimwana	27.4	20	33	19
	Ndembo	20	20	20	1
	Wene	33.8	30	45	4
	Ndunguidi	15	15	15	2
	Nkondo	50	50	50	2
	Kinanga	20	20	20	3
	Kisiama	20	20	20	2
	Mbanza Ndamba	18.3	10	25	3
	Kilueka	20	20	20	3
	Kilueka Site	20	20	20	2
	subtotal	<b>26.4</b>	<b>10</b>	<b>50</b>	<b>41</b>
Nkondo route	Malanga Gare	20	20	20	2
	Malanga Cité	12.7	8	20	3
	Zamba I	18.8	15	20	4
	Nkumba	-	-	-	-
	Nkenge	16.7	10	20	3
	Mawewe	-	-	-	-
	Kiasungua	20	20	20	5
	Lusasa	19	17	20	3
	Kimpalukidi	20	20	20	3
	Mpete	20	20	20	3
	Nkondo Site	20	20	20	3
	Sub total	<b>18.6</b>	<b>8</b>	<b>20</b>	<b>29</b>
	<b>total</b>	<b>26.6</b>	<b>8</b>	<b>50</b>	<b>70</b>

Note: One respondent with lacking of the name of village was excluded.

- According to survey results of PP evaluation, people who know the system of returning the profit from the community field to the Lukunga Development Community are 97.2% (69 people) and who do not know are 2.8% (2 people).
  - In addition, people who think that this system is "good" are 80.3% (57), and think that as "reasonable" are 19.7% (14 people)
  - Creating regulations of the villagers' organization
    - According to survey results of PP evaluation, around 2.6 times meeting were held to create regulations.
    - According to survey results of PP Evaluation Committee, average 2.8 times meeting per month were held.
    - At the meeting, the role of community field members, punctuality, etc. are confirmed again, and the control of the period for the maintenance of the field, the working period, arrangement of harvesting period were conducted.
- Preparation of the Community Fields by the villagers' organization
- Preparation and maintenance of cultivation fields
    - The community field was prepared.
    - According to the PP evaluation survey results (71 respondents) about the "training of preparation of the Community field cultivation," 74.6% (53 people) of them answered "understood very well," 23.9% (17 people) answered "understood," there is no answer of "no understanding," and "not participating" and 1.4% (1 person) was "non-responding."



Project 3. Introduction of new varieties

Table : Field area by the village community field

Route	Village	Onion growing acreage ( m <sup>2</sup> )	Other varieties cultivated acreage ( m <sup>2</sup> )	Total acreage ( m <sup>2</sup> )
Kilueka route	Kimuana	260	300	560
	Ndembo	0	0	0
	Wene	470	20	490
	Ndunguidi	110	10	120
	Nkondo	350	295	645
	Kinanga	490	50	540
	Kisiama	436	100	536
	Mbanza Ndamba	455	115	570
	Kilueka	455	130	585
	Kilueka Site	800	405	1,205
	<b>Sub total</b>	<b>3,826</b>	<b>1,425</b>	<b>5,251</b>
Nkondo route	Malanga Gare	0	430	430
	Malanga Cité	160	505	665
	Zamba	265	1,210	1,475
	Nkumba	280	920	1,200
	Nkenge	420	935	1,355
	Kiasungua	320	1,480	1,800
	Lusasa	125	630	755
	Kimpalukidi	520	520	1,040
	Mpete	640	700	1,340
	Nkondo Site	500	960	1,460
	<b>Sub total</b>	<b>3,230</b>	<b>8,290</b>	<b>11,520</b>
	<b>Total</b>	<b>7,056</b>	<b>9,715</b>	<b>16,771</b>

Operation of the community fields by the group of vegetable cultivation

- Selection of seeds
  - In the community fields, other than onion, cucumber, zucchini, squash, and watermelon were grown.
  - The people related to the Community field project were 400, but 417 people including local villagers participated in "the Sowing training".
  - According to the PP evaluation Committee survey results (71 respondents) about the "training of preparation of nursery and sowing," 85.9% (61 people) of them answered "understood very well," 12.7% (9 people) answered "understood," and there is no answer of "no understanding," and 1.4% (1 person) was "not participating"
- Preparation of stilted nursery
  - Stilted nursery for cultivation of onion was prepared.
  - Among the 400 people of the target people of the community field , 442 people participated "training on the Preparation of the community field and stilted nursery"
  - Among the 400 people of the target people of the community field , 524 people including surrounding villagers participated "training on the nursery making of the stilted nursery"
- Nursery growth and mulching with sugarcane residues
  - According to the PP evaluation survey results (71 respondents) about the "training of transplanting to mulch," 83.1% (59 people) of them answered "understood very well," 12.7% (9 people) answered "understood," there is no answer of "no understanding", and 2.8% (2 person) answered "not participating" and 1.4% (1 person) was non-responding.
  - Among the 400 people of the target people of the community field , 322 people (80.5%) participated to "the training on transplantation to mulching."

Project 3. Introduction of new varieties

Table : Training participants and participation rate by introducing new varieties of different theme

Route	Villages	Number of people	Sowing training		Training of Nursery construction on Stilts		Training of planting on Mulching	
			Participant	Participation rate	Participant	Participation rate	Participant	Participation rate
Kilueka route	Kimuana	16	13	81.3%	13	81.3%	11	68.8%
	Ndembo	20	14	70.0%	19	95.0%	14	70.0%
	Wene	23	37	160.9%	37	160.9%	15	65.2%
	Ndunguidi	5	5	100.0%	4	80.0%	5	100.0%
	Nkondo	24	26	108.3%	26	108.3%	17	70.8%
	Kinanga	20	23	115.0%	11	55.0%	11	55.0%
	Kisiama	20	18	90.0%	17	85.0%	13	65.0%
	Mbanza Ndamba	24	41	170.8%	57	237.5%	16	66.7%
	Kilueka	27	55	203.7%	62	229.6%	34	125.9%
	Kilueka Site	20	21	105.0%	92	460.0%	22	110.0%
<b>Sub total</b>	<b>199</b>	<b>253</b>	<b>127.1%</b>	<b>338</b>	<b>169.8%</b>	<b>158</b>	<b>79.4%</b>	
Nkondo route	Malanga Gare	20	11	55.0%	15	75.0%	18	90.0%
	Malanga Cité	20	11	55.0%	11	55.0%	8	40.0%
	Zamba	20	18	90.0%	19	95.0%	17	85.0%
	Nkumba	20	21	105.0%	24	120.0%	20	100.0%
	Nkenge	20	20	100.0%	20	100.0%	20	100.0%
	Kiasungua	21	8	38.1%	22	104.8%	20	95.2%
	Lusasa	20	17	85.0%	18	90.0%	11	55.0%
	Kimpalukidi	20	20	100.0%	20	100.0%	19	95.0%
	Mpete	20	20	100.0%	19	95.0%	17	85.0%
	Nkondo Site	20	18	90.0%	18	90.0%	14	70.0%
<b>Sub total</b>	<b>201</b>	<b>164</b>	<b>81.6%</b>	<b>186</b>	<b>92.5%</b>	<b>164</b>	<b>81.6%</b>	
<b>Total</b>	<b>400</b>	<b>417</b>	<b>104.3%</b>	<b>524</b>	<b>131.0%</b>	<b>322</b>	<b>80.5%</b>	

Note: The participation rate has exceeded 100 percent, because villagers other than targeted people participated.

- Use of pesticides and herbicides
  - Training of insecticides and herbicides was conducted.
  - As natural insecticide material, Chromolaena Odorata, Nicotiana tabacum, Tetradenia riparia, Tithonia, Sesbania grandiflora, Leucaena leucocephala, and Cassia siamea or spectabilis were used.
  - Participants understood that when they use chemical insecticides they should be aware not to get them into children's mouths, should not breathe in, should not drink, should not eat, and should wash hands enough before and after using them.
  - Among the 400 people of the target people of the community field, 361 people (90.3%) participated "farm products protection training using insecticides and herbicides."
  - Among the 400 people of the target people of the community field, 296 people (74.0%) participated "cultivation management training such as weeding."
  - According to the PP evaluation Committee survey results (71 respondents) about the "Farm products protection training using insecticides and herbicides," 85.9% (61 people) of them answered "understood very well," 11.3% (8 people) answered "understood", 1.4% (1 person) answered "no understanding", and 1.4% (1 person) answered "not participating."

Table : Participants and participation rate of pesticides and herbicides training and cultivation management training

Route	Village	Targeted people for the community field	Farm products protection training using insecticides and herbicides		Cultivation management training such as weeding	
			Participants	%	Participants	%
Kilueka route	Kimuana	16	14	87.5%	14	87.5%
	Ndembo	20	16	80.0%	16	80.0%
	Wene	23	10	43.5%	10	43.5%

Project 3. Introduction of new varieties							
		Ndunguidi	5	5	100.0%	5	100.0%
		Nkondo	24	9	37.5%	19	79.2%
		Kinanga	20	13	65.0%	13	65.0%
		Kisiamia	20	14	70.0%	10	50.0%
		Mbanza Ndamba	24	63	262.5%	12	50.0%
		Kilueka	27	28	103.7%	16	59.3%
		Kilueka Site	20	20	100.0%	15	75.0%
		<b>Sub total</b>	199	192	96.5%	130	65.3%
	Nkondo route	Malanga Gare	20	18	90.0%	14	70.0%
		Malanga Cité	20	11	55.0%	14	70.0%
		Zamba	20	18	90.0%	18	90.0%
		Nkumba	20	20	100.0%	20	100.0%
		Nkenge	20	20	100.0%	18	90.0%
		Kiasungua	21	11	52.4%	11	52.4%
		Lusasa	20	16	80.0%	16	80.0%
		Kimpalukidi	20	17	85.0%	17	85.0%
		Mpete	20	20	100.0%	20	100.0%
		Nkondo Site	20	18	90.0%	18	90.0%
		<b>Sub total</b>	<b>201</b>	<b>169</b>	<b>84.1%</b>	<b>166</b>	<b>82.6%</b>
	<b>Total</b>	<b>400</b>	<b>361</b>	<b>90.3%</b>	<b>296</b>	<b>74.0%</b>	
Note: The participation rate has exceeded 100 percent because villagers other than targeted people participated							
<ul style="list-style-type: none"> <li>Agricultural production harvest in the community field                             <ul style="list-style-type: none"> <li>Harvesting started around Sep. in most of the community field.</li> <li>175.1kg of onions were harvested in the community field of 20m2 in Kimwana</li> </ul> </li> </ul>							
Feedback on the community development plan	<ul style="list-style-type: none"> <li>As the cultivation of vegetables in dry season, zucchini, squash, watermelon, etc. are possible other than cucumber.</li> <li>It is necessary to consider the marketing, such as sales methods or sales place when people introduce the new varieties of vegetables.</li> <li>10 people per 10 acre are necessary to manage the community field</li> </ul>						

Project 4. Promotion of rice cultivation					
Objectives	Average annual rainfall in this region, 1,600 mm / year and above and have enough rainfall to practice rice cultivation. In addition, temporarily flooded areas due to rising of river water levels due to rainfall in the low plains along the small rivers during the rainy season have not been used as cropland. On the other hand, according to the hearing survey, though the high demand for rice is confirmed, rice cultivation has not been practiced in the target area. Currently, low-lying mountain area has not been used during the rainy season, but fertility is the relatively high, and precipitation is enough for rice cultivation as described above. This project is to examine the possibility to take advantage of unused land for intensive cultivation of rice in the rainy season, and to promote continuously on the implementation.				
Checked items	Collaborative work of the villagers' organization for rice cultivation Possibility of rice cultivation in the area possible to ensure water				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implem entation Period	Details
	1	Organizing the potential of rice cultivation	Study Team	Feb. 2009	- The potential of rice cultivation (such as the suitable area, where to obtain seeds) is confirmed by the Study team.
	2	Training in Kimpese	Engineers from INERA	March 2009	- Showing the situation of rice cultivation, implementation methods of rice cultivation, and considerations for implementation in Bas-Congo Province.
	3	Preparation of rice field	Engineers from INERA/ Villagers	April 2009 ~	- Forming the Villagers' organization - Selection of rice fields - Implementation of the construction work Including the canal

Project 4. Promotion of rice cultivation					
	4	Training on rice cultivation Training on Seedling Training for transplantati on Training for nourishment term of growth Training for harvest Training on post-harvest	Engineers from INERA/ Villagers	March 2009 ~	- An engineer from INERA was living in Kimwana and practiced with the villagers. - Implementation of the seedling in the seedling stage (germination - planting) - Implementation of the planting - Management of cultivation and water management during the tillering stage (planting - young panicle differentiation), young panicle formation stage (young panicle differentiation - heading), ripening stage (heading ~ crop) - Harvesting
	5	PP Evaluation Committee	Villagers	Oct. 2009	- Discussion on paddy field maintenance, the impression of the first rice cultivation, difficult points, and improvements, etc.
Relevant sector	Kimwana in Kilueka road Kimwana has the water source and location that can have sufficient amount of water in the dry season, and the rice cultivation listed the first place in the priority , and the villager's high interest was confirmed.				
Terms of achievement	Equal amount of input seed rice has to be returned to the Lukunga valley Development Committee .				
Expected effects	Collaborative work by the rice villagers' organization <ul style="list-style-type: none"> <li>• Forming the Villagers' organization</li> <li>• Creating regulations by the villagers' organization</li> <li>• Evolution of group size</li> <li>• System management by the villagers' organization</li> </ul> Rice cultivation implementation in the area that can ensure irrigation water <ul style="list-style-type: none"> <li>• Selection of possible paddy field</li> <li>• Paddy field construction work including waterways</li> </ul> Implementation of the cultivated rice <ul style="list-style-type: none"> <li>• Implementation of raising seedlings, planting, and water management</li> <li>• Period of rice growing activities</li> <li>• Harvesting</li> </ul>				
Results and evaluation	Collaborative work by the rice villagers' organization <ul style="list-style-type: none"> <li>• Forming the Villagers' organization                             <ul style="list-style-type: none"> <li>- The villagers 'organization was formed</li> </ul> </li> <li>• Creating regulations by the Villagers' organization                             <ul style="list-style-type: none"> <li>- Regulations for the group activities were created in which the role of members, contents of activities, and the rules were clarified.</li> <li>- The meeting was held about 3 times per month. The agenda was the adjustment of the hour and the date of activities, harvest date, and the way of the distribution of the harvest.</li> </ul> </li> <li>• Evolution of group size                             <ul style="list-style-type: none"> <li>- According to the survey, the appropriate number of the rice cultivation group was from 26 to 40 people, and among the 22 respondents, the average number was 29.7 people.</li> <li>- Rice cultivation PP was formed by 18 people initially, after the weeding work started , people who showed the interest in the PP joined the group, and the number became 28 people in May.</li> <li>- Only women joined as the new members. Though there were some men who showed an interest, many men were just looking from distance.</li> <li>- Then, group members became 30 people.</li> <li>- Four people left at the peak harvest of onions in Sep. and Oct., and the number became 24 people in harvesting time.</li> </ul> </li> <li>• Management of the Villagers' organization                             <ul style="list-style-type: none"> <li>- In the rice cultivation PP, one pack of Sipi seeds and one pack of Jasmine seeds were input, and the villagers' organization should return the same amount of seeds after the PP. All 22 respondents understood this return system, 16 people (72.7%) answered that the system is</li> </ul> </li> </ul>				

**Project 4. Promotion of rice cultivation**

"good," and 6 people (27.3 %) answered "not good."

- All 22 respondents of the survey answered that they intended to continue the rice cultivation in the future.

Implementation of the Rice cultivation in the region where irrigation water is ensured.

- Selection of possible paddy field
  - Kimwana of Kilueka road can ensure the spring water, and the villagers' demand of rice cultivation was high.
- Paddy field preparation work including waterways
  - It took time to prepare the paddy field and to raise the waterway weir
  - This target area has been used to grow onions, and it was the first time to carry out the work, such as uprooting the weeds, leveling the land, and drawing the irrigation water. Therefore, many people were unfamiliar with these work, but under the guidance of engineers from INERA, the work proceeded.
  - 10 paddy fields were prepared.

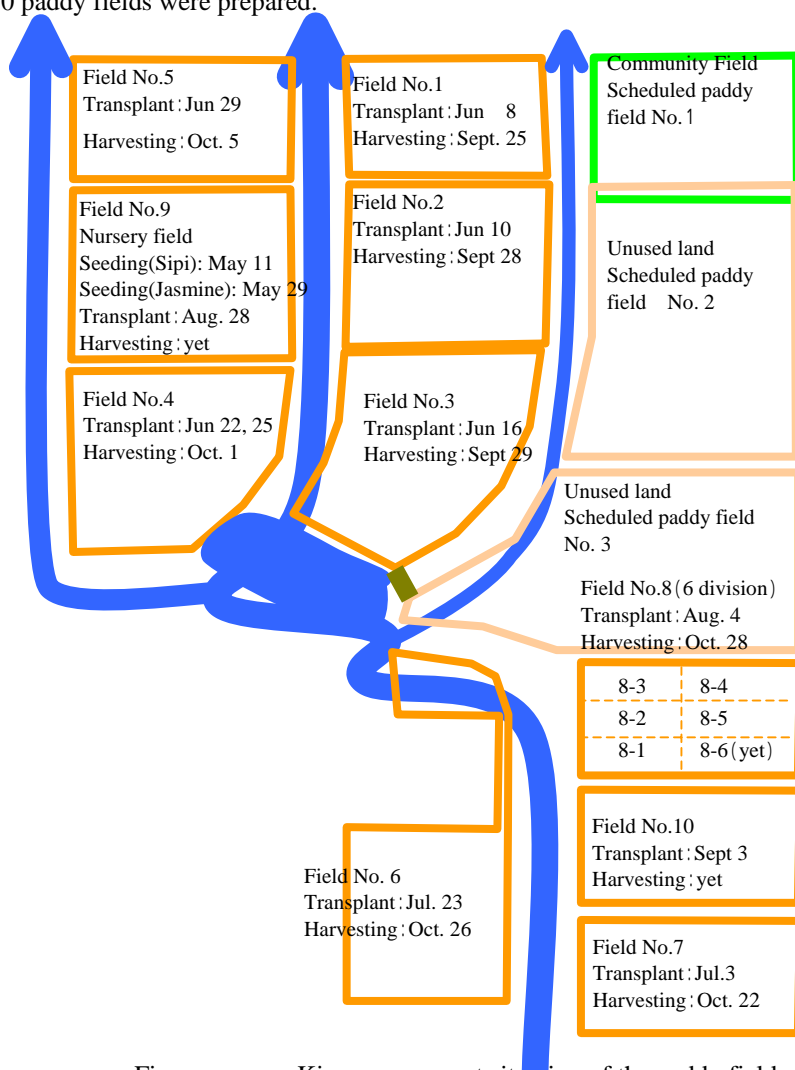


Figure Kimwana current situation of the paddy field

Implementation of the rice cultivation

- implementation of raising seedlings, planting, and water management
  - Sipi was sowed on May 9, 2009 and Jasmine was sowed on May 28 and 30, 2009.
- Rice cultivation in the region to ensure irrigation water.
  - Possible cultivation area was selected by the villagers' organization.
  - Construction work of nurseries and rice fields. was carried out.
  - Raising seedlings, planting, water management were conducted.

Project 4. Promotion of rice cultivation

- Time for Rice cultivating activities
  - Time for rice cultivation activities is 3 days per week, from 07:00 to 13:00.
  - It is necessary to adjust it with the vegetable cultivation activity time.

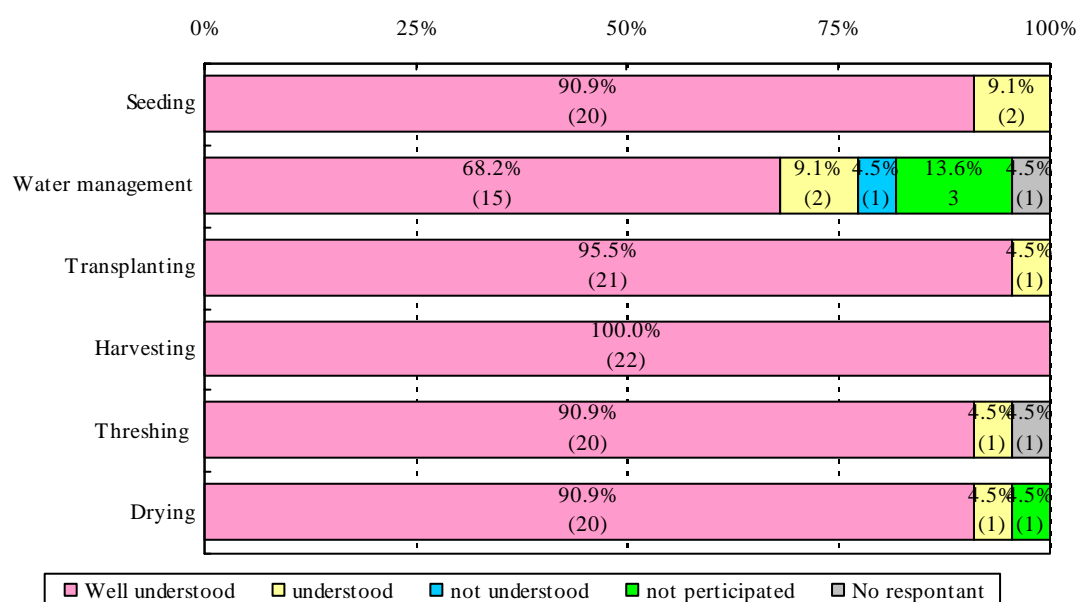


Figure Survey results on understanding of the rice cultivation skills  
source: inquiry of PP evaluation Committee

- Harvesting
  - Cutting heads was conducted
  - Yields are about 5.41ton/ha from Sipi, and average 2.89ton/ha from Jasmine.

Table : Yield of rice by field

Field No.	Variety	Date of transplantation	Date of harvest	Yield (ton / ha)	
				After harvest (Before drying)	Adjusted
Field No.1	Sipi	June 8	Sep. 25	No record	No record
Field No.2	Sipi	June 10	Sep. 28	6.17	5.24
Field No.3	Sipi	June 16	Sep. 29	7.00	5.95
Field No.4	Sipi	June 22, 25	Oct. 1	5.83	4.96
Field No.5	Sipi	June 29	Oct. 5	6.00	5.10
Field No.6	Sipi	July 23	Oct. 26	6.83	5.81
Field No.7	Jasmine	3 July	Oct. 22	--	4.16
Field No. 8-1	Jasmine	August 4	Oct. 28	--	3.30
Field No. 8-2	Jasmine	August 4	Oct. 28	--	2.66
Field No. 8-3	Jasmine	August 4	Oct. 28	--	3.08
Field No. 8-4	Jasmine	August 4	Oct. 28	--	1.82
Field No. 8-5	Jasmine	August 4	Oct. 28	--	2.33
Field No. 9	Jasmine	August 28	Not harvested	--	--
Field No.10	Jasmine	Sep. 3	Not harvested	--	--

- Because the second head grows well, after the cutting head of the first harvesting , the second harvesting is also possible.
- According to the result of the meeting among the members of PP after the Rice harvest festival they intend to expand a new paddy rice field behind the current ones.

Feedback on the community development plan

- In order to change the barren land to the paddy field, about one person per acre is necessary.
- In the area where the water supply can be ensured, it is possible to grow rice in dry season.
- The second harvest is possible after the first cutting heads.
- Under the appropriate management of cultivation and water, the yield is possible to reach around 5 ton /ha with husk.
- A manual of rice cultivation was prepared. (see Annex)

Project 5. Treatment and processing for postharvest					
Objectives	People's life in this area depends on the agricultural production. Onion is mainly cultivated in the dry season, and tuber crops such as manioc and sweet potatoes, grains such as corn, vegetables such as tomatoes and green peppers are grown during the rainy season. In this project, quantity of useful post-harvest processing currently being conducted shall be expanded. In addition, other ways of handling and processing shall be considered, and the introduction of new varieties and new processing methods shall be promoted.				
Checked items	Collaborative work by the villagers' organization Selection of agro-processing products				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training in Kimpese	CIVAK/ ISTACIA	Feb. 2009	- Introduction of Cases of post-harvest and agro-processing
	2	Implementation of post-harvest and agro-processing	Villagers	Sep. 2009	- Formation of the villagers' organizations - Creating regulations by the villagers' organizations - Creating an action plan (selection of processed products) by the villagers' organizations - Implementation of the processing of agricultural products by the villagers' organizations
Relevant sector	Initial candidate area Kimwana in Kilueka road				
Terms of achievement	The plan has to be sustainable				
Expected effects	<p>Collaborative work by the villagers' organization</p> <ul style="list-style-type: none"> <li>Forming the Villagers' organization</li> <li>Creating regulations by the Villagers' organization</li> <li>Management of the organization of the villagers' organization</li> </ul> <p>Selection of agro-processing products</p> <ul style="list-style-type: none"> <li>Selection of processing items suitable to the taste of the villagers' organization.</li> <li>Acquisition of processing method</li> </ul> <p>Prolongation of the consumption period by the processing of the excessive harvest.</p> <ul style="list-style-type: none"> <li>Selection of the processing products for self-consumption from the harvest of the village by the villagers' organization.</li> </ul>				
Results and evaluation	<p>Collaborative work by the villagers' organization</p> <ul style="list-style-type: none"> <li>Forming the Villagers' organization</li> <li>Creating regulations by the Villagers' organization</li> <li>Management of the organization of the villagers' organization</li> </ul> <p>Selection of the processing products</p> <ul style="list-style-type: none"> <li>Selection of the processing products suitable to the taste of the villagers' organization <ul style="list-style-type: none"> <li>Vegetables such as tomatoes, green peppers, eggplant, cabbage, amaranth, other than onions are cultivated during the dry season, and cucumber, zucchini, pumpkin, and watermelon have been introduced in the above-mentioned "PP of introduction of new varieties." The improvements of the post-harvest handling and the processing of these agricultural products were examined.</li> </ul> </li> </ul> <p>Prolongation of the consumption period by the processing of the excessive harvest</p> <ul style="list-style-type: none"> <li>Selection of the processing products for self-consumption from the harvest of the village by the villagers' organization. <ul style="list-style-type: none"> <li>It is verified that the production of processed products to the sale cannot overcome the imported items in the price</li> <li>Cooked tomatoes in spring water were proposed for auto-consumption during the dry season.</li> </ul> </li> </ul>				
Feedback on the community development plan	<ul style="list-style-type: none"> <li>Auto-consumption of processed products is feasible, but selling them cannot overcome the price competition.</li> <li>Processing products for auto-consumption is not an urgent matter, because foods are available in the target area even in the dry season.</li> </ul>				

Project 6. Transportation of farm products					
Objectives	<p>Currently, the villagers transport the products 1) on their head by putting them in bags, 2) on their head by putting them in a bowl, and 3) on the bicycle by putting them in a bag. Sometimes they lose balance and topple the whole, or the bag burst and spoil the products by rolling on the floor.</p> <p>This project will try to introduce the carts because it is expected to ease the transportation, and reduce the loss during the delivery. Since the maintenance system is crucial, the members of the organization in the trial village were required to record any malfunctions and countermeasures for them in order to apply for introduction to other villages.</p>				
Checked items	<p>Management of organization by the villagers' organizations Improvement of transportation</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	CRAFOD	Feb. 2009	- Comparison between advantages and improvement points of means of transportation by villagers with their participation
	2	Demonstration of transportation with carts	Villagers	May to Oct. 2009	- Introduction of different types of carts sorted by its objective
		Meeting on maintenance service			- Discussions on the maintenance system needed after introduction of the carts
3	Evaluation meeting on PP	Villagers	Oct. 2009	- Discussions on the situation of use and the system of management of the carts	
Relevant sector	<p>Kilueka road Ndembo (ox cart), Kilueka, Kilueka site Nkondo road Zamba, Nkenge (ox cart)</p>				
Terms of achievement	<p>The manufacturing cost of the carts will be refunded to the Lukunga Development Committee within 5 years.</p>				
Expected effects	<p>Management of organizations by the villagers' organizations</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organization</li> <li>• Establishment of regulations of villagers' organization</li> <li>• Management of organizations for transportation by the villagers' organization</li> </ul> <p>Improvement of transportation</p> <ul style="list-style-type: none"> <li>• Identification of transportation needs</li> <li>• Items to transport</li> <li>• Setting sections</li> </ul> <p>Identification of means of transportation (carts or wheelbarrow)</p>				
Results and evaluation	<p>Management of organizations by the villagers' organization</p> <ul style="list-style-type: none"> <li>• Formation of Villagers' organization <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- The regulations of organization were defined, and the roles of members, items of activities, and regulations were clarified.</li> <li>- The members of organization were requested to transport items by non members of the village, and they accepted to do so.</li> <li>- Diary of organization's activities and journal books for commissioned work were made</li> </ul> </li> <li>• Establishment of regulations of the villagers' organizations <ul style="list-style-type: none"> <li>- At the meeting, the members of organizations discussed "the role of carts management," "management methods," "storage facilities," and "contribution," etc.</li> </ul> </li> </ul> <p>Improvement of transportation</p> <ul style="list-style-type: none"> <li>• The needs for transportation <ul style="list-style-type: none"> <li>- Checking the needs of each village</li> <li>- According to the evaluation questionnaire, 37% of respondents (7 p.) recognized that the needs for carts were "great, " 47% (9 p.) responded that "there are needs" in the villages, and hence over 80 % of the respondents recognized that there are needs of transportation, whereas 16 % (3 p.) of respondents said that the needs are "moderate."</li> </ul> </li> </ul>				



**Project 6. Transportation of farm products**

	<ul style="list-style-type: none"> <li>- The means of transportation was discussed, and the type of cart was identified.</li> <li>• Means of transportation             <ul style="list-style-type: none"> <li>- The carts can be used to transport not only agricultural products, but also for transporting sand, stones, and other materials, which can be used for other PP; therefore, plans to work together with other PP have been developed.</li> <li>- According to the results of the evaluation questionnaire, the products transported with the carts are cassava, bricks, maize, onions, peanuts, tomatoes, bananas, coal, and water.</li> </ul> </li> <li>• Setting sections             <ul style="list-style-type: none"> <li>- The transportation cost from villages to Kimpese was calculated as shown below;</li> </ul> </li> </ul> <p style="text-align: center;">Table : Cost of transportation of a sack of onions from villages to Kimpese</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Kilueka road</th> <th colspan="2">Nkondo road</th> </tr> </thead> <tbody> <tr> <td>Kimwana</td> <td>1 000 FC</td> <td>Malanga Gare</td> <td>-</td> </tr> <tr> <td>Ndembo</td> <td>1 000 FC</td> <td>Malanga Cité</td> <td>-</td> </tr> <tr> <td>Wene</td> <td>-</td> <td>Zamba 1</td> <td>-</td> </tr> <tr> <td>Ndungidi</td> <td>-</td> <td>Nkumba</td> <td>-</td> </tr> <tr> <td>Nkondo</td> <td>-</td> <td>Nkenge</td> <td>-</td> </tr> <tr> <td>Kinanga</td> <td>-</td> <td>Mawewe</td> <td>-</td> </tr> <tr> <td>Kisiamba</td> <td>-</td> <td>Kiasungua</td> <td>2 500FC</td> </tr> <tr> <td>Mbanza-Ndamba</td> <td>1 500 FC</td> <td>Lusasa</td> <td>2 500FC</td> </tr> <tr> <td>Kilueka</td> <td>2 000 FC</td> <td>Kimpalukidi</td> <td>2 500FC</td> </tr> <tr> <td>Kilueka Site</td> <td>1 800 FC</td> <td>Mpete</td> <td>2 500FC</td> </tr> <tr> <td></td> <td></td> <td>Nkondo Site</td> <td>2 500 FC</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Identification of means of transportation (carts or wheelbarrow)             <ul style="list-style-type: none"> <li>- It will be easy to transport products with carts after rehabilitation of the roads.</li> <li>- In addition to introducing the rickshaws in Nkenge and Ndembo, the ox carts also were introduced.</li> </ul> </li> </ul>	Kilueka road		Nkondo road		Kimwana	1 000 FC	Malanga Gare	-	Ndembo	1 000 FC	Malanga Cité	-	Wene	-	Zamba 1	-	Ndungidi	-	Nkumba	-	Nkondo	-	Nkenge	-	Kinanga	-	Mawewe	-	Kisiamba	-	Kiasungua	2 500FC	Mbanza-Ndamba	1 500 FC	Lusasa	2 500FC	Kilueka	2 000 FC	Kimpalukidi	2 500FC	Kilueka Site	1 800 FC	Mpete	2 500FC			Nkondo Site	2 500 FC
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Feedback on the community development plan	<ul style="list-style-type: none"> <li>• It is possible to transport cassava, bricks, maize, onions, peanuts, tomatoes, bananas, coal, and water by using the carts.</li> <li>• The appropriate size for the carts by hands is 1 m x 2m</li> <li>• As a result of introduction of cattle in the villages, the demand for ox carts will emerge.</li> <li>• The appropriate size for the ox carts is about 2 m x 3 m</li> <li>• The villagers' organizations of carts are consisted to be more than 3 people.</li> </ul>																																																

**Project 7. Animal husbandry**

Objectives	<p>In the targeting area, the villagers rear pigs, sheep, goats, chickens and marmots, but those animals are reared extensively around houses and are limited in terms of their numbers. Since livestock plays important roles such as diversifying income resources, and living capitals for emergency; therefore, the promotion of animal husbandry should be done.</p> <p>The villagers tend to rear livestock extensively, and they do not practice to rear livestock in brans. However, improved breeding can be grown faster in the brans, and increase their weight and number of offsprings to bear. For that reason, the villagers were expected to understand this advantage and eventually they got use to rear livestock in brans</p> <p>This project verified the possibility of high income animal husbandry by introducing improved breeding and their rearing in brans instead of extensive rearing in this area.</p>			
Checked items	<p>Management by villagers' organizations for animal husbandry</p> <p>Adequacy of rearing technology</p> <p>Increasing revenue with improved breeding</p>			
Details of achievement	Implementation Items	Implementation Organization / Executive	Implementation Period	Details
	1 Training at Kimpese	CRAFOD	March 2009	- Training on livestock for all villages
2 Training on small livestock's breeding (pigs)	PP Animators	April to May 2009	- Training on brans and farming methods (food, water, daily care) in the targeting area	

Project 7. Animal husbandry																																	
	3	Experimental introduction of improved small livestock (pigs)	PP Animators/ Villagers	May to Sep. 2009	- Preparation of brans by the villagers' organization - Livestock (introduction of pigs) - Farming of livestock																												
	4	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on pig farming practiced in several villages on its situation and development																												
Relevant sector	<p>Kilueka road At Nkondo, the barns have been installed and the Study Team has helped the introduction of improved breeding. At Kilueka Site as well as Ndunguidi, they completed to construct brans, but it was a little late; therefore, they will receive piglets from other villages as a part of extension plan.</p> <p>Nkondo road Zamba 1, Lusasa, Nkumba, Mpete, Malanga Cité</p>																																
Terms of achievement	<p>The villagers' organization will refund all the amount of pigs' purchase money to the Lukunga Development Committee in 5 years. The same number of piglets against pigs supplied to the village will be distributed to other villages. After the breast-feeding, piglets will be distributed to other villages.</p>																																
Expected effects	<p>Management of organizations by the villagers' organizations</p> <ul style="list-style-type: none"> <li>• Formation of the villagers' organizations</li> <li>• Making regulations of the villagers' organizations</li> <li>• Management of organizations of rearing by the villagers' organizations</li> </ul> <p>Adequacy of rearing technology</p> <ul style="list-style-type: none"> <li>• Introduction of improved breeding</li> <li>• Construction of barns</li> <li>• Acquisition of breeding technologies</li> <li>• Forage</li> </ul> <p>Improvement of revenues by introduction of improved breedings</p> <ul style="list-style-type: none"> <li>• Number of piglets</li> </ul> <p>Extension of animal husbandry</p> <ul style="list-style-type: none"> <li>• Generation of several rearing activities</li> </ul>																																
Results and evaluation	<p>Management of organizations by the villagers organizations</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- The villagers' organizations were formed</li> <li>- The rules for organization activities have been established, and the roles of members, items of activities, and regulations were defined.</li> <li>- The members of organization reared according to their roles.</li> </ul> </li> <li>• Making regulations by the villagers' organizations <ul style="list-style-type: none"> <li>- They held 1 to 5 meetings to make regulations.</li> </ul> </li> </ul> <p>Table : Number of meetings needed to make regulations</p> <table border="1"> <thead> <tr> <th>Road</th> <th>Kilueka</th> <th colspan="5">Nkondo</th> </tr> <tr> <th>Village</th> <th>Nkondo</th> <th>Malanga Cité</th> <th>Nkumba</th> <th>Zamba</th> <th>Lusasa</th> <th>Mpete</th> </tr> </thead> <tbody> <tr> <td>Number of meeting to make regulations</td> <td>4</td> <td>3</td> <td>5</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td>Number of meeting in a month on average</td> <td>2</td> <td>2</td> <td>4</td> <td>1</td> <td>2</td> <td>2</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Management of organizations of animal husbandry by the villagers' organization <ul style="list-style-type: none"> <li>- All the 28 people who responded to the evaluation questionnaire confirmed that they recognize the refund of the amount to the Lukunga Development Committee and supply of 4 piglets. All responded said that this is a good system.</li> <li>- According to the evaluation questionnaire (28 respondents), 64.3% (18 p.) said that they want "to get started rearing improved pigs in the future." Whereas all 4 respondents of Nkumba</li> </ul> </li> </ul>					Road	Kilueka	Nkondo					Village	Nkondo	Malanga Cité	Nkumba	Zamba	Lusasa	Mpete	Number of meeting to make regulations	4	3	5	3	2	1	Number of meeting in a month on average	2	2	4	1	2	2
Road	Kilueka	Nkondo																															
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Number of meeting to make regulations	4	3	5	3	2	1																											
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**Project 7. Animal husbandry**

(14.3%) said that they do "not want to do."

- The activities other than the breeding of improved pigs, the villagers tried to raise poultry farming, ducks, goats, rabbits (Mpete), aquaculture (Zamba), the drug sale (Kilueka site), cassava flour (Lusasa), arrangement of schools (Nkumba), and arrangement of wells for drinking water (Nkumba).

**Adequacy of breeding technology**

- Introduced varieties
  - Large White variety and Pietran variety were introduced.
  - According to the evaluation questionnaire (28 respondents), all respondents said that introduced improved variety was what they had expected.
  - It was confirmed that the adequacy of introduced improved variety was adequate
- Structure of barns
  - The barns were built with local materials.
  - The barns are made from bricks, wood, concrete, and roofing material.
- The method of breeding
  - According to the evaluation questionnaire, 92.9% (p. 26) responded that they "understood" breeding methods. However, 2 people (7.1% overall) excluding 1 person of Mpete said that they did "not understand".
- Forage
  - In Zamba, the members of the organization are preparing to cultivate 50 m<sup>2</sup> of maize, 30 m<sup>2</sup> of soybeans, and 50 m<sup>2</sup> cassava as forage.
  - The villagers of Lusasa and Mpete are preparing forage as well.

**Improvement of revenue by installing improved varieties**

- Number of piglets
  - Piglets are born after about 3 months, 3 weeks and 3 days (114 days).
  - The number of offsprings bore has not been as high as expected in the PP, but the villagers actively continue to manage pigs.

Table: Number of offsprings of improved pigs and their date of birth

Road	Village	Date of installation of a couple	Date of birth and Number of piglets
Kilueka	Nkondo	July 27th	Oct. 30th : 5 Nov. 3rd : 7 Nov. 4 <sup>th</sup> : 6
Nkondo	Zamba 1	July 11th	Oct. 14th : 4
	Lusasa	July 11th	Oct. 14th : 4

**Extension of animal husbandry**

- Implementation of several livestock activities
  - It is observed that members of the villagers' organization in Zamba arranged barns from April to May before starting livestock activities in June, and they have started poultry raising from July by themselves.
  - The same organization was interested in aquaculture, and they have started to arrange a pond.

Feedback on the community development plan

- The barns are made from bricks, wood, concrete, and roofing material. The villagers can build them themselves.
- The villagers themselves know feeding livestock with food found in the region.
- The villagers can cultivate fodder by themselves.
- A manual for pig feeding was made.
- There is a possibility to extend to other animal husbandry based on this project.

Project 8. Aquaculture and fish processing					
Objectives	<p>According to the interviews of villagers and people of Kimpese, people prefer river fish (Tilapia or Clarias) to sea fish (frozen sardines) that are generally found in markets in the region.</p> <p>On the other hand, the water resources of the region are relatively abundant with Lukunga river, small streams, and springs; and the Study Team found the potential for aquaculture in the region.</p> <p>Aquaculture is currently practiced in Kimpese by an NGO and supply of fry is possible from it; the water resources is abundant as mentioned above, and the demand for freshwater fish is high.</p> <p>Through implementation of aquaculture in potential sites, this project aims to reduce expenditure in order to purchase imported fry, to increase protein intake, and to increase income by selling cultured fish.</p>				
Checked items	<p>Management of organizations by organizations of aquaculture</p> <p>Adequacy of techniques of aquaculture in the field</p> <p>Increasing the revenue by aquaculture</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	CRAFOD	March 2009	- Training on aquaculture for all villages
	2	Preparation of experimental ponds	CRAFOD/ villagers	May 2009	- Formation of villagers' organizations - Verification of proposed sites for the ponds by organizations and Study Team - Preparation of regulations - Preparation of activity plan by the organizations - Preparation of ponds by the organizations
	3	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on aquaculture
Relevant sector	<p>Initially proposed basin</p> <p>Kilueka road: Kilueka</p> <p>Nkondo road: Zamba</p>				
Terms of achievement	<p>Sites which fulfill the following conditions:</p> <ul style="list-style-type: none"> <li>• There should be sufficient volume of water during the dry season. Not to be dried up.</li> <li>• The site should not be flooded during the rainy season. The fish should not be taken away</li> <li>• There is a little gap in level between the rearing pond and source of water. (Easy to intake water)</li> <li>• The sites should be located where the villagers can easily take care of them.</li> </ul>				
Expected effects	<p>Management of organizations by villagers' organizations</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• The regulations of villagers' organizations</li> <li>• Management of organization of aquaculture by the villagers' organizations</li> </ul> <p>Adequacy of techniques of aquaculture in the field</p> <ul style="list-style-type: none"> <li>• Appropriate selection of pond sites</li> <li>• Appropriate level of ponds arrangement</li> </ul> <p>Improved revenue per aquaculture</p>				
Results and evaluation	<p>Management of organizations by villagers' organizations</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- The villagers' organizations were formed</li> <li>- The rules for organization activities have been established, and the roles of members, items of activities, and regulations were defined.</li> <li>- Diary of organization's activities and journal books for materials and fry were made.</li> <li>- The members of this villagers' organization thought that Tilapia and Clarias would be the varieties to cultivate, and eventually, they prepared a plan to cultivate Clarias.</li> </ul> </li> <li>• Preparation of regulations of the villagers' organizations <ul style="list-style-type: none"> <li>- The regulation has been prepared in 3 meetings. Half of the members attended all meetings and rest of those attended 2 times as well. Everyone understands the regulation.</li> <li>- 4 meetings are held monthly, at which they have been discussing about the rotation of the president, setting of meeting dates, arrangement of working days, preparation of activity plan with construction of canals, and a feeding plan etc.</li> </ul> </li> </ul>				

Project 8. Aquaculture and fish processing	
	<ul style="list-style-type: none"> <li>Management of organizations by villagers' organizations                             <ul style="list-style-type: none"> <li>Of the 9 people who responded to the questionnaire, 3 people responded that they spent 7 hours a week for the aquaculture, 5 people spent 5 hours, and 1 person spent 2 hours.</li> <li>All the respondents of the questionnaire (9 p.) wanted to continue this activity</li> </ul> </li> </ul> <p>Adequacy of techniques of aquaculture in the field</p> <ul style="list-style-type: none"> <li>Selection of appropriate ponds                             <ul style="list-style-type: none"> <li>The villagers' organizations selected appropriate sites for aquaculture and ponds were arranged.</li> </ul> </li> <li>Appropriate level of arranging a pond                             <ul style="list-style-type: none"> <li>At Zamba, the villagers have been working on arranging basins about 5 m x 8 m and 3 m x 5 m.</li> <li>4 people responded that they spent 14 days in the preparation of pond, 1 person spent 7 days, and 4 other people spent 4 days.</li> <li>Once arrangement was completed and confirmed sufficient water level, but a few days after the water level sharply decreased due to drought.</li> <li>It is advisable to wait several days before releasing fry to check the water level after installation of basin.</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>Tilapia and Clarias are the most wanted fish to aquaculture by the villagers.</li> <li>It is possible to install ponds by the villagers themselves</li> <li>It is advisable to wait several days before releasing fry to check the water level after installation of basin.</li> </ul>

Project 9. Beekeeping					
Objectives	<p>Previously, there were deep forests in the targeting area and the area was surrounded by green. There were farming households who used this forestry resources to produce honey; however, those households have been decreased due to decline of those forestry resources. It is important to reaffirm the beekeeping techniques and perfume trials as well as to recognize the importance of forestry. Honey is sold at Kimpese; therefore, it is verified that there are needs of honey. However, according to the field survey, there is nobody who sold honey in the targeting area, although some people have experienced the beekeeping. The honey which is sold would be brought from Matadi, where people are doing beekeeping, or wild honey gathered around Kimpese.</p> <p>This project aims to increase income by selling honey after introduction of beekeeping, which has economic efficiency, as well as consumption of honey by people.</p>				
Checked items	<p>Management of organizations by villagers' organizations of beekeeping</p> <p>Adequacy of beekeeping techniques</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	CRAFOD	Feb. 2009	- Training on beekeeping for all villages
	2	Preparation of beekeeping	CRAFOD/Villagers	April to Oct. 2009	- Formation of villagers' organizations - Selection of a site for beekeeping by the villagers' organizations - Arrangement of beekeeping sites by the villagers' organizations
Relevant sector	The initial candidate site Kilueka road: Ndunguidi				
Terms of achievement	<p>Sites that meet the following criteria:</p> <ul style="list-style-type: none"> <li>Presence of fruit trees and flowers</li> <li>There must not be any playgrounds and houses adjacent to nests.</li> <li>There must not be dangerous plants where bees might make their nests (e.g. banana trees).</li> <li>Sites should be located where the villagers can easily maintain them.</li> </ul>				
Expected effects	<p>Management of organizations by villagers' organizations of bee keeping</p> <ul style="list-style-type: none"> <li>Formation of villagers' organizations</li> <li>Preparation of regulations of villagers' organizations</li> <li>Management of beekeeping organizations by the villagers' organizations</li> </ul>				

Project 9. Beekeeping	
	<p>Adequacy of beekeeping techniques</p> <ul style="list-style-type: none"> <li>• Selection of appropriate sites by the villagers' organizations, and verification of them by the Study Team</li> <li>• Acquisition of beekeeping techniques</li> </ul>
Results and evaluation	<p>Management of organizations by villagers' organizations of beekeeping</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations               <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- The rules for organization activities have been established, and the roles of members, items of activities, and regulations were defined.</li> <li>- Diary of organization's activities and journal books for materials were made.</li> </ul> </li> </ul> <p>Adequacy of beekeeping techniques</p> <ul style="list-style-type: none"> <li>• Selection of appropriate sites by the villagers' organizations               <ul style="list-style-type: none"> <li>- Selected candidate sites by the villagers' organizations were verified by the expert of beekeeping (CRAFOD).</li> <li>- No village has fulfilled all the conditions for implementation, namely "presence of numerous fruit trees and flowers," "no playground and houses adjacent to the hives," and "no dangerous plants where bees might make their nests (e.g. banana trees)" etc.</li> </ul> </li> <li>• Acquisition of beekeeping techniques               <ul style="list-style-type: none"> <li>- The initial investment of beekeeping is about \$ 810 U.S. It is consisted of 10 hives (total \$ 450 U.S.), 2 bee captures (total \$ 60 U.S.), 6 working clothes of beekeepers (total \$ 150 U.S.), 4 smoking devices (total \$ 60 U.S.), 5 galvanized plates of 1.80m (total \$ 50 U.S.), and 4 plastic buckets of 40 l (total \$ 40 U.S.).</li> <li>- The appropriate size of hive is 50 cm (L) x 75 cm (W) x 25 cm (H)</li> <li>- The appropriate size of bee collection box is 25 cm (L) x 50 cm (L) x 25 cm (H)</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• The conditions of appropriate sites for beekeeping are "presence of numerous fruit trees and flowers," "no playground and houses adjacent to the hives," and "no dangerous plants where bees might make their nests (e.g. banana trees)" etc.</li> <li>• The appropriate size of hives is 50 cm(L) x 75 cm(W) x 25cm(H), and that of bee captures box is 25cm(L) x 50 cm(W) x 25 cm(H).</li> <li>• It will take a long time to select an appropriate target area.</li> </ul>

## (2) Natural environment improvement programme

Project 10. Forestry preservation and replantation						
Objectives	<p>In the targeting area, forests have been disappearing due to progression of logging and collection of fire wood. Despite the appearance of bald mountains, the logging has been progressing. A few but existing forests should be preserved and replantation should be promoted where there is a potential, because the area has good potential to form forests (soils and precipitation) and cultivation of rainy season's water needs them.</p> <p>This project is to restore the preserved forestry and plant fruits trees which will be able to increase revenues within some years.</p>					
Checked items	<p>Management of organization by villagers' organizations</p> <p>Replantation</p> <p>Forestry preservation</p>					
Details of achievement	Implementation Items		Implementation Organization / Executive		Implementation Period	Details
	1	Training at Kimpese	CRAFOD		March 2009	- Training on forestry preservation and replantation for all villages
	2	Training on forestry preservation	Villagers/animators	PP	Sep. to Oct. 2009	- Workshops on the functions, forestry preservation, and replantation - Raising seedlings - Replantation - Forestry preservation
	3	Discussions on sustainable preservation of forests	Villagers/animators	PP	Oct. 2009	- Verification of the potential and willingness of replantation

Project 10. Forestry preservation and replantation					
	4	Evaluation meeting on PP	Villagers	Oct. 2009	<ul style="list-style-type: none"> <li>- Exchange of views on the management of seedlings after the replantation</li> <li>- Exchange of views on replantation done by the villagers in several villages after the trainings in the villages</li> </ul>
Relevant sector	<p>Location of training (neighboring villages were encouraged to participate in the training)</p> <p>Kilueka road Ndembo, Nkondo, Ndunguidi</p> <p>Nkondo road Malanga Gare, Nkenge, Kiasungua, Nkondo site</p> <p>Performed together with [10. Forestry preservation and replantation] and [12. Roadside trees].</p>				
Terms of achievement	<p>The region where precipitation is sufficiently abundant to allow the planting</p> <p>The Plantation should be done in the rainy season where there is sufficient supply of water after the plantation.</p>				
Expected effects	<p>Management of organizations by villagers' organizations</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Preparation of the regulations of villagers' organizations</li> <li>• Management of organization of replantation by villagers' organizations</li> </ul> <p>Activities of replantation</p> <ul style="list-style-type: none"> <li>• Acquisition of methods of raising seedlings and transplantation</li> <li>• Replantation</li> <li>• Constructing a maintenance system and implementation of replantation</li> </ul> <p>Forestry preservation</p> <ul style="list-style-type: none"> <li>• Sensitization campaigns to the villagers by villagers' organizations</li> <li>• Understanding of the villagers to forestry preservation</li> </ul>				
Results and evaluation	<p>Management of organizations by villagers' organizations of replantation</p> <ul style="list-style-type: none"> <li>• Formation of vilagers' organizations <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- The rules for organization activities have been established, and the roles of members, items of activities, and regulations were defined.</li> <li>- A record book of activities was made.</li> <li>- According to the evaluation questionnaire, an organization of replantation should be from 8 to 20 people. At Malanga Gare, the villagers suggested that all the residents should participate to the group.</li> </ul> </li> </ul> <p>Activities of replantation</p> <ul style="list-style-type: none"> <li>• Acquisition of the methods of raising seedlings and transplantation <ul style="list-style-type: none"> <li>- 67 people in total attended the training the methods of raising seedlings and transplantation.</li> <li>- For Nkondo road, the training was held at Malanga Gare, Nkenge, Kiasungua, and Nkondo Site. At Malanga Gare, it was held on Sep. 8th with 4 participants. At Nkenge, it was held on Sep. 16th with 8 participants from the village and 1 participant from Mawewe, and hence 9 participants in total. At Kiasungua, it was held on Sep. 16th with 8 people from the village and 1 person from Kimpalukidi, and hence 9 participants in total. At Nkondo site, it was held on Sep. 17th with 19 participants from Nkondo site and 5 people from Mpetit, and hence 24 participants in total.</li> <li>- For Kilueka road, the training was held at Ndembo, Nkondo, and Ndunguidi. At Ndembo, it was held on Sep. 10th with 3 people from the village and 4 people from Kimwana, and hence 7 participants in total. At Nkondo, it was held on Sep. 9th with 2 participants from the village, 1 person from Kisiama, 3 people from Wene, 1 person from Kinanga, and 3 people from Kilueka site, and hence 10 participants in total. At Ndunguidi, it was held on Sep. 11th with 4 people from the village.</li> <li>- According to the questionnaire after the training of replantation in the field (67 people responded), 86.6% (58 p.) responded that the duration of the training was "appropriate," 13.4% (p. 9) said "too long", and nobody said it was "too short."</li> <li>- In addition, 89.6% (60 p.) responded that they "understood well" the training, 10.0% (6 p.) said "understood little" and 1.5% (1 p.) said "not understood."</li> </ul> </li> </ul>				

Project 10. Forestry preservation and replantation	
	<ul style="list-style-type: none"> <li>• Transplantation                             <ul style="list-style-type: none"> <li>- Planting orange, mango and safou has progressed.</li> <li>- According to the results of the evaluation questionnaire (68 responses, free and multiple responses), 73.5% (50 p.) said that they want to plan "Moringa," 60.3% (41 p.) said "Mangoes," 57.4% (39 p.) responded "Safou," 55.9% (38 p.) said "Avocado", 52.9% (36 p.) mentioned "Orange," and 32.4% (22 p.) said "Acacias" to plant in the days ahead.</li> </ul> </li> <li>• Constructing a maintenance structure and implementation of maintenance                             <ul style="list-style-type: none"> <li>- A maintenance structure after replantation was clarified by the villagers' organization of this project.</li> </ul> </li> </ul> <p>Forestry preservation</p> <ul style="list-style-type: none"> <li>• Understanding of villagers about the replantation                             <ul style="list-style-type: none"> <li>- According to the questionnaire following the training of replantation in the field, 91.0 % (61 p.) said "well understood" the contents of the importance of forestry, 11.9% (p. 8) responded "understood little", and nobody answered "not understand."</li> <li>- In addition 95.5% (64 p.) said "well understood" the disadvantage of wildfire, 3.0% (2 p.) responded "understood little," and 1.5% (1 p.) responded "not understand at all."</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• It is possible to establish a villagers' organization of this project by the villagers to disseminate the understanding of the importance of forestry preservation to other villagers, when replantation will be implemented.</li> <li>• A technology transfer on the methods of raising seedlings and transplantation should be taught through exercises.</li> <li>• When a training on plantation is held, the training on forestry preservation should be held at the same time because understanding of the importance of forestry and disbenefits from wildfire can be deepened by the training.</li> <li>• A replantation manual was prepared.</li> </ul>

Project 11. Moringa tree (water purification)						
Objectives	Moringa is a tree which has multiple functions and there are trees of this in several villages including Nkondo site in the targeting area; however, it has not been used at all because the villagers have not known the use of it. This project is to promote the use of Moringa such as cooking with it and purification of water.					
Checked items	The use of Moringa Planting Moringa Preparation of young trees of Moringa					
Details of achievement	Implementation Items		Implementation Organization / Executive		Implementation Period	Details
	1	Training at Kimpese	Study Team		March 2009	- Introduction of the functions and use of Moringa
	2	Utilization of Moringa	Villagers		March to Oct. 2009	- The use of Moringa in food - The use of Moringa as animal feed
	3	Distribution of Moringa seeds to villages	PP animators		Sep. - Oct. 2009	- Supply of plants in villages with no Moringa - Checking the growth of seedlings of Moringa graft
	4	Evaluation meeting on PP	Villagers		Oct. 2009	- Exchange of views on the use of Moringa in each village
Relevant sector	Location of training (neighboring villages were encouraged to participate in the training) Kilueka road Ndembo, Nkondo, Ndunguidi Nkondo road Malanga Gare, Nkenge, Kiasungua, Nkondo site Performed together with [10. Forestry preservation and replantation] and [12. Roadside trees].					



Project 11. Moringa tree (water purification)	
Terms of achievement	The region where precipitation is sufficiently abundant to allow the planting The Plantation should be done in the rainy season where there is sufficient supply of water after the plantation.
Expected effects	The use of Moringa <ul style="list-style-type: none"> <li>Understanding of the use of Moringa by the villagers' organizations</li> </ul> Planting Moringa <ul style="list-style-type: none"> <li>Moringa was planted as a part of replantation by the villagers' organizations as the principle implementers.</li> </ul>
Results and evaluation	The use of Moringa <ul style="list-style-type: none"> <li>Understanding of the use of Moringa by the villagers' organizations <ul style="list-style-type: none"> <li>The villagers were interested in the nutritional amelioration by Moringa from the demonstration of the use of Moringa.</li> <li>Villagers' organizations used existing Moringa for food or animal forage</li> <li>In the villages, the villagers have been mixing the leaves of Moringa in the soup to enhance its nutrition.</li> <li>According to the results of the evaluation questionnaire (66 respondents), 63.6 % (42 p.) responded that they "used" Moringa, whereas 36.4% (24 p.) "not used."</li> <li>Concerning the use of moringa, some said the they have "mixed in coffee or tea," "drank like medicine after drying it," "mixed as ingredients," and "eaten fruits as the fruits" at the workshop of evaluation.</li> </ul> </li> </ul> Planting Moringa <ul style="list-style-type: none"> <li>Moringa was planted as a part of replantation by the villagers' organizations as the principle implementers.</li> <li>The young trees of Moringa were transplanted by the villagers' organizations.</li> <li>The young trees of Moringa about 70 cm of height were grown upto about 5 m in a half year at Kimpese.</li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>When a training on forestry or nutritional improvement is held, Moringa should be introduced because people deepen the understanding of Moringa.</li> <li>Moringa should be planted when promotion of replantation is needed to be haste because it grows rapidly.</li> <li>A plantation manual including raising seedlings of Moringa has been made (see the Annex).</li> </ul>

Project 12. Roadside trees					
Objectives	Roadside trees will be planted and preserved by villagers' voluntarily labor from Kilueka and Nkondo roads such as the principle roads in the targeting area. The means of transportation for residents along the roads are generally by foot and are limited. The use of bicycle comes after the walk as the means of transportation, and villagers seldom use vehicles e.g. buses. Therefore, the shade of trees will be useful for pedestrians. This project will promote the plantation of fruit trees and enhance income by selling them. In addition, it will discuss a way to spend a portion of the revenues of fruits sales for road maintenance.				
Checked items	Management of organization by the villagers' organizations Planting roadside trees				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	CRAFOD	March 2009	- Training on reforestation and forestry preservation for all villages
	2	Plantation of roadside trees	Villagers/ animators	PP Sep. to Oct. 2009	- Workshops on functions of forestry, forestry preservation and replantation - Training on young trees - Training on trans plantation - Training on roadside trees
	3	Discussions of a maintenance system for roadside trees	Villagers/ animators	PP Oct. 2009	- Verification of willingness for reforestation and the potential of planting roadside trees

Project 12. Roadside trees					
	4	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on the management of young trees after the training on reforestation - Exchange of views on activities of villagers own replantation after the training on reforestation which was held in several villages
Relevant sector	Location of training (neighboring villages were encouraged to participate in the training) Kilueka road Ndembo, Nkondo, Ndunguidi Nkondo road Malanga Gare, Nkenge, Kiasungua, Nkondo site Performed together with [10. Forestry preservation and replantation] and [11. Moringa tree (water purification)]				
Terms of achievement	The region where precipitation is sufficiently abundant to allow the planting The Plantation should be done in the rainy season where there is sufficient supply of water after the plantation.				
Expected effects	Management of organizations by villagers' organizations of roadside tree plantation <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Management of organizations of roadside trees by the villagers' organizations</li> <li>• Coalition between villagers' organizations of other villages</li> </ul> Planting roadside trees <ul style="list-style-type: none"> <li>• Planting roadside trees</li> </ul>				
Results and evaluation	Management of organizations by villagers' organizations of roadside tree plantation <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>- Villagers' organizations were formed</li> <li>- The rules for group activities have been established, and the roles of members, items of activities, and regulations were defined.</li> <li>- Many people wanted to plant fruit trees as roadside trees</li> </ul> Planting roadside trees <ul style="list-style-type: none"> <li>• Arranging roadside trees by the villagers' organizations</li> <li>- The members of villagers' organization have understood the necessity of plantation.</li> <li>- Plantation was done by the villagers' organizations</li> </ul>				
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• Planting fruit trees along the roads as roadside trees will generate benefits for road maintenance.</li> <li>• The objective of plantation is not only to protect forests, but also to enhance the landscape , e.g. roadside trees.</li> <li>• A manual of plantation was made (see the Annex)</li> </ul>				

### (3) Livelihoods improvement programme

Project 13. Improvement of cooking stoves and housekeeping					
Objectives	In the targeting area, firewood is daily used for cooking. In addition, the villagers use ineffective cooking stoves with 3 stones, called 3 stones cooking stove. The collection of firewood is done by women and children, and the forest of the area has been extincting. This project aims to contribute to prevent deregulated cuts of forest by reducing the volume of consumption of firewood by using effective improved cooking stoves, and to improve the amount of housework time of women and children by reducing the time to collect firewood.				
Checked items	Improvement of volume of consumption of firewood Improvement of amount of housework time				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training Kimpese at	Employees of sector/Study Team	March 2009	- Training on improved cooking stoves for all villages
	2	Simple improved cooking stoves by the PP animators in the villages	Villagers/ PP animators	May 2009	- Demonstration and installation of the improved cooking stoves to each village by PP animators

Project 13. Improvement of cooking stoves and housekeeping																																																																					
	3	Promotion of installation of simple improved cooking stoves in all villages	Villagers/ PP animators	March - Oct. 2009	- Introduction of improved cooking stoves by PP animators in every village																																																																
	4	Training on Improvement of housework using the improved cooking stoves	Villagers/ PP animators	March - Oct. 2009	- Demonstration and verification of the effectiveness of improved cooking stoves (Reducing the volume of firewood).																																																																
	5	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on the forms of improved cooking stoves by each villager, the way to manufacture, advantages, and improvement points																																																																
Relevant sector	All the villages																																																																				
Terms of achievement	Villagers must demonstrate the will to continue to use the improved cooking stoves after installation of them in their villages																																																																				
Expected effects	<p>Preparation of improved stoves</p> <ul style="list-style-type: none"> <li>Acquisition of the manufacturing and use</li> <li>Preparation of materials necessary for manufacturing the improved cooking stoves</li> <li>Understanding of the effectiveness of improved cooking stoves</li> </ul> <p>Reduction of volume of consumption of firewood</p> <ul style="list-style-type: none"> <li>Reduced time spent fetching wood</li> </ul> <p>Improvement of amount of housework time</p> <ul style="list-style-type: none"> <li>Using created time for other activities by saving the time due to reduction of collecting time of firewood.</li> </ul> <p>Verification of the expansion process</p>																																																																				
Results and evaluation	<p>Installation of improved cooking stoves</p> <ul style="list-style-type: none"> <li>Acquisition of the manufacturing and use <ul style="list-style-type: none"> <li>The villagers have learned how to make improved cooking stoves.</li> <li>Of the 31 respondents to the evaluation questionnaire, 74.2% (23 p.) responded that they "understood well" the instructions given by PP animators, 22.6% (7 p.) "fairly understood" and 3.2% (1 p.) "poorly understood".</li> <li>Some people who did not participate the training began to make the improved cooking stoves by themselves being taught by other villagers or imitating from the improved cooking stoves installed in their village.</li> <li>An average time to make a cooking stove was 72 minutes. The fastest was in 30 min whereas the slowest was in 10 hours.</li> <li>At the end of Oct. 2009, there were 156 improved cooking stoves installed in the target area.</li> </ul> </li> </ul> <p style="text-align: center;">Table Evolution of number of improved cooking stoves installed in the villages</p> <table border="1"> <thead> <tr> <th>Road</th> <th>Village</th> <th>After the training at Kimpese (end of March)</th> <th>After the demonstration by PP animators (end of May)</th> <th>At the end of PP (end of Oct.)</th> </tr> </thead> <tbody> <tr> <td rowspan="10">Kilueka</td> <td>Kimwana</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>Ndembo</td> <td>2</td> <td>5</td> <td>36</td> </tr> <tr> <td>Wene</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Ndungidi</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>Nkondo</td> <td>0</td> <td>0</td> <td>8</td> </tr> <tr> <td>Kinanga</td> <td>0</td> <td>7</td> <td>10</td> </tr> <tr> <td>Kisiana</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Mbanza-Ndamba</td> <td>0</td> <td>7</td> <td>4</td> </tr> <tr> <td>Kilueka</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Kilueka Site</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td></td> <td><b>Sous-total</b></td> <td><b>2</b></td> <td><b>19</b></td> <td><b>66</b></td> </tr> <tr> <td rowspan="3">Nkondo</td> <td>Malanga Gare</td> <td>0</td> <td>0</td> <td>6</td> </tr> <tr> <td>Malanga Cite</td> <td>0</td> <td>3</td> <td>10</td> </tr> <tr> <td>Zamba 1</td> <td>0</td> <td>0</td> <td>1</td> </tr> </tbody> </table>					Road	Village	After the training at Kimpese (end of March)	After the demonstration by PP animators (end of May)	At the end of PP (end of Oct.)	Kilueka	Kimwana	0	0	2	Ndembo	2	5	36	Wene	0	0	1	Ndungidi	0	0	2	Nkondo	0	0	8	Kinanga	0	7	10	Kisiana	0	0	1	Mbanza-Ndamba	0	7	4	Kilueka	0	0	1	Kilueka Site	0	0	1		<b>Sous-total</b>	<b>2</b>	<b>19</b>	<b>66</b>	Nkondo	Malanga Gare	0	0	6	Malanga Cite	0	3	10	Zamba 1	0	0	1
Road	Village	After the training at Kimpese (end of March)	After the demonstration by PP animators (end of May)	At the end of PP (end of Oct.)																																																																	
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Project 13. Improvement of cooking stoves and housekeeping				
	Nkumba	0	0	1
	Nkenge	0	0	3
	Mawewe	0	3	2
	Kiasungua	0	0	1
	Lusasa	0	0	1
	Kimpalukidi	0	0	20
	Mpete	0	0	40
	Nkondo Site	0	7	5
	<b>Sous-total</b>	<b>0</b>	<b>13</b>	<b>90</b>
	<b>TOTAL</b>	<b>2</b>	<b>32</b>	<b>156</b>
	<ul style="list-style-type: none"> <li>• Preparation of materials necessary for manufacturing the improved cooking stoves <ul style="list-style-type: none"> <li>- The materials necessary for the improved cooking stoves are bricks, clay, water, and a pipe to emit the smoke.</li> <li>- The tools used to manufacture the improved cooking stoves are scoop, shovel, pallet, knife, and sickle, etc..</li> </ul> </li> <li>• Understanding the effectiveness of improved cooking stoves <ul style="list-style-type: none"> <li>- The improved cooking stoves are being used.</li> <li>- The improved cooking stoves which were introduced at the workshop in Kimpese were improved more.</li> <li>- During the evaluation meeting of the PP, a young man introduced his improved cooking stove with mixing straw, and participants from other villages were also interested in the stove.</li> <li>- According to the evaluation questionnaire, the advantage provided are "easy to manufacture," "reduction of consumption of firewood," "reduction of cooking time," "the pot does not get dirty", "dishes become delicious", etc. On the other hand, the disadvantages provided were "it collapses when it rains," "animals can crush it," and "it does not long last."</li> </ul> </li> </ul> <p>Reducing the volume of firewood consumed</p> <ul style="list-style-type: none"> <li>• Reducing the time to collect firewood <ul style="list-style-type: none"> <li>- According to the evaluation questionnaire, the number of days spent in collecting firewood was in average 2.36 days per week. After installing the improved cooking stoves, it was reduced to an average of 1.42 days per week, i.e. a saving of 0.94 days..</li> </ul> </li> </ul> <p>Improvement of amount of housework time</p> <ul style="list-style-type: none"> <li>• Using created time for other activities by saving the time due to reduction of collecting time of firewood <ul style="list-style-type: none"> <li>- All those who responded to the evaluation questionnaire (37 people) want to continue using the improved cooking stoves.</li> </ul> </li> </ul> <p>Verification of the expansion process</p> <ul style="list-style-type: none"> <li>- There had been needs of villagers, but the villagers could not install the improved cooking stoves because they did not know how to make it. After the introduction of the improved cooking stoves including manufacturing of them at Kimpese, there were villages where the participants of that introduction tried to make them by themselves. 2 improved cooking stoves were made in Ndembo on Kilueka road with techniques learned in training and with handouts at Kimpese's introduction.</li> <li>- After this, the PP Animators of this study demonstrated in the villages, and it is observed that the promotion of this stove is progressing.</li> <li>- According to the evaluation questionnaire, there are many people who said that they " learned from animators," and a few villagers said that they " learned from the villagers of their own village." Some have "made themselves by imitating the improved cooking stoves installed in their village."</li> </ul>			
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• The consumption of firewood is decreased and the time saved for firewood collection is 0.94 days per week (from 2.36 days to 1.42 days.).</li> <li>• The materials including brick, mud, and water are easily found in the village..</li> <li>• The way that the improved cooking stoves are promoted is the introduction by PP animators as a model. Once the cooking stoves are presented, they can be promoted by villagers of the same village or from other villages. And there will be villagers who imitate them when such villagers see the improved cooking stoves in their village.</li> </ul>			

**Project 13. Improvement of cooking stoves and housekeeping**

- The cooking stoves can be improved by the villages themselves, when they were installed in the villages.

**Project 14-1. Book keeping**

Objectives	<p>Almost all the villagers rely their livelihoods on agriculture. To manage their agricultural activities, they need to bear the costs (procurement of seeds, fertilizers, and insecticides, and transportation cost of products, etc.); however almost no farmer do the book keeping of agricultural expenditure or income.</p> <p>This project aims that the villagers will be able to prepare their future plan by verifying income and expenses of each household by themselves together with providing trainings on the book keeping.</p>																																																																
Checked items	Structuring a system of implementation of book keeping																																																																
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details																																																												
	1	Training at Kimpese	CECO	March 2009	- Training on the book keeping for all villages																																																												
	2	theoretical training of book keeping	Villagers/ Agrisud's animators	September 2009	- Workshops on the importance of book keeping																																																												
	3	Practical training	Villagers/ Agrisud's animators	Oct. 2009	- Practical training on book keeping																																																												
	4	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on the degree of understanding of book keeping																																																												
Relevant sector	<p>All villages</p> <p>Performed together with "2. Soil preparation and improvement, " "3. introduction of new varieties." However, Mawewe did not participate because the volumes of water were not sufficient for the vegetable cultivation in the dry season.</p>																																																																
Terms of achievement	Willingness of villagers to continuously keep the book keeping is confirmed																																																																
Expected effects	<p>Continuous book keeping</p> <ul style="list-style-type: none"> <li>• Understanding of book keeping</li> <li>• Book keeping</li> </ul>																																																																
Results and evaluation	<p>Continuous book keeping</p> <ul style="list-style-type: none"> <li>• Understanding of the book keeping</li> <li>- Theoretical and practical training on book keeping were given.</li> <li>- According to the results of evaluation questionnaire (71 respondents), 77.5% (55 p.) responded that they "well understood," 19.7% (14 p.) "understood" and 1.4% (1 p.) "not understood" to the question of the degree of understanding about group organization training. There was no response on "not participated" and 1.4% (1 p.) did not respond.</li> <li>- According to the results of evaluation questionnaire (71 respondents), 56.3% (40 p.) responded that they "well understood", 8.5% (p. 6) "understood," and 1.4% (1 p.) "not understood" to the question of degree of understanding about book keeping training.</li> </ul> <p>Table Attendance and participation rates to the training by the themes by the villages</p> <table border="1"> <thead> <tr> <th rowspan="2">Road</th> <th rowspan="2">Village</th> <th rowspan="2">No. of people in the community</th> <th colspan="2">Training on book keeping</th> <th colspan="2">Training of organization of the group</th> </tr> <tr> <th>Participants</th> <th>(%)</th> <th>Participants</th> <th>(%)</th> </tr> </thead> <tbody> <tr> <td rowspan="8">Kilueka</td> <td>Kimuana</td> <td>16</td> <td>3</td> <td>18,8</td> <td>8</td> <td>50,0</td> </tr> <tr> <td>Ndembo</td> <td>20</td> <td>2</td> <td>10,0</td> <td>17</td> <td>85,0</td> </tr> <tr> <td>Wene</td> <td>23</td> <td>2</td> <td>8,7</td> <td>12</td> <td>52,2</td> </tr> <tr> <td>Ndungidi</td> <td>5</td> <td>2</td> <td>40,0</td> <td>5</td> <td>100,0</td> </tr> <tr> <td>Nkondo</td> <td>24</td> <td>2</td> <td>8,3</td> <td>17</td> <td>70,8</td> </tr> <tr> <td>Kinanga</td> <td>20</td> <td>2</td> <td>10,0</td> <td>13</td> <td>65,0</td> </tr> <tr> <td>Kisiamama</td> <td>20</td> <td>2</td> <td>10,0</td> <td>8</td> <td>40,0</td> </tr> <tr> <td>Mbanza-Ndamba</td> <td>24</td> <td>2</td> <td>8,3</td> <td>29</td> <td>120,8</td> </tr> </tbody> </table>					Road	Village	No. of people in the community	Training on book keeping		Training of organization of the group		Participants	(%)	Participants	(%)	Kilueka	Kimuana	16	3	18,8	8	50,0	Ndembo	20	2	10,0	17	85,0	Wene	23	2	8,7	12	52,2	Ndungidi	5	2	40,0	5	100,0	Nkondo	24	2	8,3	17	70,8	Kinanga	20	2	10,0	13	65,0	Kisiamama	20	2	10,0	8	40,0	Mbanza-Ndamba	24	2	8,3	29	120,8
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Project 14-1. Book keeping							
		Kilueka	27	2	7,4	67	248,1
		Kilueka Site	20	2	10,0	20	100,0
	Nkondo	Malanga Gare	20	2	10,0	18	90,0
		Malanga Cite	20	2	10,0	9	45,0
		Zamba	20	2	10,0	15	75,0
		Nkumba	20	2	10,0	17	85,0
		Nkenge	20	2	10,0	15	75,0
		Kiasungua	21	2	9,5	11	52,4
		Lusasa	20	2	10,0	10	50,0
		Kimpalukidi	20	2	10,0	11	55,0
		Mpete	20	2	10,0	17	85,0
		Nkondo Site	20	2	10,0	15	75,0
<p>Note 1: The participation rate exceeds 100% because there were people who were not the member of community field participated in the training.</p> <p>Note 2: The number of participants to the training was set at 2 people per village</p> <ul style="list-style-type: none"> <li>Keeping the books <ul style="list-style-type: none"> <li>Some of the villagers began to keep the books</li> </ul> </li> </ul>							
Feedback on the community development plan	<ul style="list-style-type: none"> <li>The training on book keeping including practical exercises should be repeatedly given.</li> <li>It is important to continue to keep the books since it takes long time to see the effectiveness of bookkeeping.</li> </ul>						

Project 14-2. Literacy education					
Objectives	Many people want a place to learn to read and write, particularly the women who have received very little education. There are places run by NGOs for learning reading and writing, but not in the villages. This project verified issues on implementation of literacy education in the villages and whether the villagers can persistently manage the literacy education.				
Checked items	Construction of a management system of literacy education Training of instructors of literacy education				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	Villagers/ CECO	March 2009	- Training on literacy education for all villages
	2	Training on literacy education	Villagers/ CECO	Sep. 2009	- Formation of villagers' organizations - Verification of needs by the villagers' organizations - Discussions of a system of literacy education led by villagers by villagers' organizations - A training course for instructors of literacy education - Implementation of Literacy
	3	Evaluation meeting on PP	Villagers	Oct. 2009	- Exchange of views on the situation of literacy education in the villages and the conditions of achieving
Relevant sector	Kilueka road Ndunguidi, Mbanza Ndamba, Kilueka site Nkondo road Nkondo site				
Terms of achievement	Willingness of villagers to continuously open the literacy education in the villages Instructors and beneficiaries must agree on how to continue the classes The remuneration of instructors from participants must be clarified and both of them must agree on it				
Expected effects	Constitution of the management system of literacy education <ul style="list-style-type: none"> <li>Formation of villagers' organizations</li> <li>Verification of needs in the villages (grasping the number of people who want to participate to the classes)</li> <li>Verification of candidates of instructors of literacy education in the villages</li> </ul>				

<b>Project 14-2. Literacy education</b>	
	<ul style="list-style-type: none"> <li>• Securement of persistent management system (approximate cost calculation, discussion on the system of collection of management fee)</li> </ul> <p>Instructors training</p> <ul style="list-style-type: none"> <li>• Training of instructors of literacy education in the villages</li> <li>• Trial on literacy education in the villages</li> </ul> <p>Continuous implementation of literacy education in the villages</p> <ul style="list-style-type: none"> <li>• Course materials</li> <li>• Hours Course</li> <li>• Premium system for instructors</li> </ul>
Results and evaluation	<p>Constitution of the administration system of literacy</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- Villagers' organizations verified the needs of literacy education and secured instructors from the villages.</li> <li>- According to the evaluation questionnaire, people "responsible," "referable," "honest," "knowledgeable", and "well-behaved" should be selected when members of villagers' organizations are elected. In addition, it is said that the villagers' organizations should "function as an organization," "be mixed with men and women," and "all the members contribute."</li> <li>- Approximate cost of management was calculated and means of collection of management fee was defined.</li> </ul> </li> <li>• Verification of candidates for the instructors of literacy education in the villages <ul style="list-style-type: none"> <li>- 6 instructors were selected and trained: Kisoka Soukine (female, 43 years) from the village Ndunguidi, Nkia Wete Theresa (female, 32 years) and Angelique Mkiambi (female, 36 years) from the village of Mbanza-Ndamba, Dinayame (woman , 32 years) and Antonio Castelo (male, 40 years) in the village of Kilueka Site, Isabelle Antonio (female, 38 years) in the village of Nkondo Site.</li> </ul> </li> <li>• Securement of pertinent management system <ul style="list-style-type: none"> <li>- All the 25 people who responded to the evaluation questionnaire responded that they want to continue to implement the literacy education in their villages.</li> </ul> </li> </ul> <p>Instructor training for literacy education</p> <ul style="list-style-type: none"> <li>• Training of instructors of literacy education in the villages <ul style="list-style-type: none"> <li>- A training was given on the teaching method</li> <li>- At the end of the course, all the 6 people who responded to the questionnaire responded that the course contents were "good," one-week training duration was "just right," and the contents of the training were "well understood".</li> <li>- The results of the evaluation questionnaire shows that 2 people of Mbanza Ndamba "fairly understood" the contents of training while the other 4 people "understood" them.</li> </ul> </li> <li>• Trial on literacy education at the villages <ul style="list-style-type: none"> <li>- At the end of the literacy education training, all the 6 people who responded to the questionnaire indicated that the frequency of classes in the villages would be "3 times a week."</li> <li>- The results of the evaluation questionnaire, Nkondo site responded "8 times a month," Ndunguidi responded '12 times per month, Mbanza-Ndamba responded "8 times a month," and Kilueka site responded "12 times per month" to the question on the frequency of classes in the villages.</li> <li>- According to the questionnaire of training of literacy education instructors, the number of people wishing to follow the course for the time being is 40 in Nkondo site, 6 in Ndunguidi, 33 in Mbanza-Ndamba and 10 Kilueka Site.</li> </ul> </li> </ul> <p>Persistent implementation of literacy education in the villages</p> <ul style="list-style-type: none"> <li>• Course materials <ul style="list-style-type: none"> <li>- According to the evaluation questionnaire, all respondents of this question (17 people) responded that they wanted to use "class books of primary school" as course materials, while 2</li> </ul> </li> </ul>

Project 14-2. Literacy education	
	<p>people responded "a mobile phone", and a person responded "the descriptive pamphlet of drugs".</p> <ul style="list-style-type: none"> <li>• Course Hours <ul style="list-style-type: none"> <li>- According to the evaluation questionnaire, the question on class hours, 2 people of Ndunguidi responded 7:30 to 9:00 AM, a person of Nkondo site responded 8:00 to 9:00 AM, while 20 people of other villages (5 people of Nkondo site, 11 people of Mbanza-Ndamba, 4 people of Kilueka Site) responded 3:00 to 5:00 PM, 2 people of Nkondo site responded 3:00 to 5:00 PM.</li> </ul> </li> <li>• Premium system for instructors <ul style="list-style-type: none"> <li>- According to the evaluation questionnaire, the question concerning the remuneration of the teacher, Nkondo site responded "210 FC per course," Ndunguidi" responded "750 FC per course," Mbanza-Ndamba responded "300 FC per course," and Kilueka Site responded "100 FC per course."</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• When instructors of literacy education are elected, it is important to select people who fulfill following criteria; a person "responsible," "referable," "honest," "knowledgeable", and "well-behaved."</li> <li>• When a group of literacy education is established, following points should be paid attention; "the group operates as an organization, " "classes are mixed with men and women, "and "all members participate."</li> <li>• It is important to establish a system in which the villagers play a role as the main actors for persistent implementation of the literacy education.</li> </ul>

Project 15. Handicrafts					
Objectives	<p>There are only a few people who make handicrafts in the villages, although there are materials which can be used for manufacturing mats and baskets. And it is observed during the field study that nobody works together, even in farming.</p> <p>This project facilitates to produce items, such as hats and bags made by groups of few members, which can be used in households, and provides a place to work together.</p>				
Checked items	<p>Group activities by handicrafts groups</p> <p>Discussions on types of products possible with local materials</p>				
Details of achievement	Implementation Items	Implementation Organization / Executive	Implementation Period	Details	
	1	Training at Kimpese	Living artisan at Kimpese	March 2009	- Training on handicrafts for all villages
	2	Manufacturing bags and hats with plastic bags	Villagers/ Living artisan at Kimpese	Sep. 2009	- Formation of villagers' organizations - Verification of needs by villagers' organizations (type of product manufactured) - Implementation of training in crafts
	3	Evaluation of PP	Villagers	Oct. 2009	- Exchange of views about handicrafts manufactured by plastic bags
Relevant sector	<p>Kinanga on Kilueka road</p> <p>Nkondo Site on Nkondo road</p> <p>Performed together with "16. Reuse of plastic bags."</p>				
Terms of achievement	Willingness of villagers to make products from recycled plastic bags				
Expected effects	<p>Group activities by the handicrafts groups</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Preparation of rules by workgroups</li> <li>• Manufacturing handicrafts</li> </ul> <p>Discussions on types of outputs using local materials</p> <ul style="list-style-type: none"> <li>• Verification of materials available in the region</li> <li>• Verification of outputs</li> </ul>				
Results and evaluation	<p>Group activities by the handicrafts making group</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- Preparation of action plan (when and where) by villagers' organizations</li> </ul> </li> <li>• Preparation of rules by villagers' organizations</li> </ul>				



Project 15. Handicrafts	
	<ul style="list-style-type: none"> <li>- Two meetings were organized in Kinanga as well as Nkondo site.</li> <li>- The villagers' organization will meet once per month.</li> <li>- The meeting deals with the necessary materials and management of the organization.</li> </ul> <ul style="list-style-type: none"> <li>• Manufacturing crafts               <ul style="list-style-type: none"> <li>- 4-day training on the production of items with plastic bags was organized</li> <li>- Many women came together with their children, and they often came every day</li> <li>- According to the results of the evaluation questionnaire, 60.9% (p. 14) said that they "understood well" the course, 30.4% (7 p.) were "fairly understood," and 8,7% (p. 2) had "poorly understood."</li> <li>- During the evaluation meeting of PP women brought their production and compared them with each other. It is observed that the training was a chance to get acquainted and to know each other for women.</li> </ul> </li> </ul> <p>Discussions on the types of productions with local materials</p> <ul style="list-style-type: none"> <li>• Verification of local materials               <ul style="list-style-type: none"> <li>- There are palm leaves and straw in the villages</li> </ul> </li> <li>• Discussions on articles produced               <ul style="list-style-type: none"> <li>- A discussion on what they could produce was held.</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• If villagers are directed, they can make items from plastic bags reused.</li> <li>• The products produced are not to sell but used in the villages.</li> <li>• Women can bring their children. Even more, the solidarity can be consolidated through conversation during production because it is observed that they tend to meet new neighbors and chat with each other when they participate in the training.</li> </ul>

Project 16. Reuse of plastic bags					
Objectives	<p>Although the villagers in the targeting area always clean their surroundings, plastic bags are scattered around and spoil the landscape. Despite active cleaning by some village, litters and garbage are dispersed in many villages</p> <p>This project is conducted aiming to consolidate the solidarity of villagers through this project as a place where all the villagers participate. Regarding the aesthetics of the village, the villagers have discussed methods for using these plastic bags and enhanced awareness of elimination of those types of garbage in the village.</p>				
Checked items	<p>Implementation of collective work through collection of garbage in the villages with the participation of all villagers</p> <p>A village without dispersion of garbage through campaign "beautification of villages"</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	Study Team	March 2009	- Training on reuse of plastic for all villages
	2	Collection of plastic bags in the villages	Animators of PP / Villagers	May 2009	- Formation of villagers' organizations - Decision about the date of the campaign "beautification of the villages" - Implementation of campaign
	3	Effective use of plastic bags (hats, bags ...)	Vilagers / Living instructors of Kimpese	Sep. 2009	- Discussions on outputs from plastic bags - Usage of plastic bags
	4	Evaluation meeting of the PP	Villagers	Oct. 2009	- Exchange of views on the campaign - Exchange of views on the use of plastic bags
Relevant sector	<p>Kinanga on Kilueka road Nkondo site on Nkondo road Implemented together with "15. Handicrafts."</p>				
Terms of achievement	<p>Nothing in particular Garbage and litters are dispersed in most of villages of the targeting area; therefore, it is desirable to implement this PP in those villages.</p>				

Project 16. Reuse of plastic bags	
Expected effects	<p>Working together with the participation of all villagers to collect garbage</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Announcement of villagers' organizations on rural villagers "beautification of villages"</li> </ul> <p>Village without filth through campaigns "beautification of villages"</p> <ul style="list-style-type: none"> <li>• The use of effective plastic bags recovered</li> <li>• Campaign "pretty village" with the participation of all villagers</li> </ul>
Results and evaluation	<p>Implementation of collective work through collection of garbage in the villages with the participation of all villagers</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> </ul> </li> <li>• Announcement about campaigning "beautification of villages" to the villagers by villagers' organizations <ul style="list-style-type: none"> <li>- Discussions on contents of activities and working schedule of beautification by the working groups.</li> </ul> </li> </ul> <p>A village without dispersion of garbage through the campaign "beautification of villages"</p> <ul style="list-style-type: none"> <li>• The effective use plastic bags by the villagers' organizations <ul style="list-style-type: none"> <li>- Hats and handbags have been made from the plastic</li> <li>- The training on reuse of plastic was given to Kinanga and Nkondo site.</li> <li>- According to the results of evaluation questionnaire, all 23 answerers responded that they want to continue the reuse of plastic.</li> </ul> </li> <li>• Campaign "beautification of villages" with the participation of all inhabitants <ul style="list-style-type: none"> <li>- Garbage most often cited by villagers are "kitchen garbage", including acacia leaves or leaves.</li> <li>- At Kinanga and Nkondo site, garbage collection is done 4 times per month.</li> <li>- Holes for garbage were arranged in each village</li> <li>- The villages have been cleaned by the campaign "beautification of villages".</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• The villagers organize and implement a campaign "beautification of villages" by themselves</li> <li>• It is desirable to continue the training on plastic recycling, because many villagers wish to continue this activity.</li> </ul>

Project 17. Leisure activities					
Objectives	<p>It is repeatedly cited that the younger people from the villages have not settled in the village due to limited recreation by lack of electricity, which leads limitation of TV shows and cinema. When the Study Team asks to the younger people, they often say that they do not know how to pass the spare time. The boys play the football in week-ends, but there are no other hobbies in the villages. This project aimed at the villagers to think and to implement countermeasures to those situation by themselves. In addition, the project facilitated to strengthen solidarity among the villagers through the implementation of activities together.</p>				
Checked items	Activation of exchange among villagers and other villages through sports and recreation				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	CECO	March 2009	- First sports meeting-presentation of sport and recreation for all villages
	2	Promotion of sports	Villagers	April to October 2009	- Formation of villagers' organizations - Planning a sporting meet by groups
	3	First sports meeting	Villagers/ Study Team	August 2009	- Organization of a football match between villages of Kilueka road and Nkondo road
	4	Second sports meeting	Villagers/ Study Team	Oct. 2009	- Organization of a football match between Lukunga valley development committee team and the JICA Study team, and villages of Kilueka road and Nkondo road as well as skipping for the girl.

Project 17. Leisure activities																						
Relevant sector	All villages The sports meet was organized between villages of Kilueka road and Nkondo road																					
Terms of achievement	Nothing in particular It is desirable to implement sports meets on a regular basis (once each 6 months) in order to strengthen organizations.																					
Expected effects	Activation of exchange among villagers and other villages through sports and recreation <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Preparation of sports meets plan by villagers' organizations</li> <li>• Organization of sports meets</li> </ul>																					
Results and evaluation	Activation of exchange among villagers and other villages through sports and recreation <ul style="list-style-type: none"> <li>• Formation of villagers' organizations <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- The football and "skipping" as recreation were introduced to the boys and girls by the villagers' organization.</li> <li>- According to the results of the evaluation questionnaire (48 answers), the boys play the football and the "skipping" comes in the second place. The girls mainly play "skipping", "games by hands", and the football comes in the third place.</li> </ul> </li> </ul> <p>Table : Sports played by girls and boys in villages</p> <table border="1"> <thead> <tr> <th></th> <th>Football</th> <th>Volleyball</th> <th>Basketball</th> <th>Skipping</th> <th>Racing</th> <th>Games by hands</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>43 ( 89,6% )</td> <td>1 ( 2,1% )</td> <td>0 ( 0,0 )</td> <td>13 ( 27,1% )</td> <td>1 ( 2,1% )</td> <td>5 ( 10,4% )</td> </tr> <tr> <td>Girls</td> <td>7 ( 14,6% )</td> <td>1 ( 2,1% )</td> <td>1 ( 2,1% )</td> <td>31 ( 64,6% )</td> <td>0 ( 0,0 )</td> <td>12 ( 25,0% )</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Preparation of sports events plan by the villagers' organizations <ul style="list-style-type: none"> <li>- The sporting event plan was prepared by the villagers' organizations.</li> </ul> </li> <li>• Organization of sports events <ul style="list-style-type: none"> <li>- Sports meets were organized with participation of all the villages.</li> <li>- Participants are continuing to maintain contacts after the meets.</li> </ul> </li> </ul>		Football	Volleyball	Basketball	Skipping	Racing	Games by hands	Boys	43 ( 89,6% )	1 ( 2,1% )	0 ( 0,0 )	13 ( 27,1% )	1 ( 2,1% )	5 ( 10,4% )	Girls	7 ( 14,6% )	1 ( 2,1% )	1 ( 2,1% )	31 ( 64,6% )	0 ( 0,0 )	12 ( 25,0% )
	Football	Volleyball	Basketball	Skipping	Racing	Games by hands																
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Girls	7 ( 14,6% )	1 ( 2,1% )	1 ( 2,1% )	31 ( 64,6% )	0 ( 0,0 )	12 ( 25,0% )																
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• To promote the settlement of youth population in village, it is crucial that they enjoy the sports and games. Sporting events can animate the sports in the villages.</li> <li>• It is important to collaborate more with other villages in order to collect and deliver the products collectively and maintain the roads.</li> </ul>																					

#### (4) Projects to improve public facilities

Project 18-1. Improvement of health facilities					
Objectives	Most health centers in the targeting area have hygienic problems. This project rehabilitates health centres which need simple repairs and establish a maintenance system by the villagers.				
Checked items	Better understanding of the villagers about the major diseases (malaria and diarrhea) Rehabilitation and maintenance of public facilities (dispensaries) with the participation of villagers from several villages				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Discussions and arrangement with the administration	Villagers/ Ministry of Health/ Staff of sector/ Study Team	Feb. to March 2009	- Discussions with the administration concerning the rehabilitation of health centers
	2	Training at Kimpese	Ministry of Health	March 2009	- Training on health issues for all villages concerned

Project 18-1. Improvement of health facilities					
	3	Analysis of the situation under the leadership of village organizations	Villagers/ Ministry of Health	March - Oct. 2009	- Verifying the needs of healthcare including the usage of health centers.
	4	Improving the utilization environment of existing health centres	Villagers/ Ministry of Health	June - Oct. 2009	- Formation of villagers' organizations by the beneficiary villages - Preparation of a rehabilitation plan - Rehabilitation by villagers from several villages
	5	Evaluation meeting of the PP	Villagers	Oct. 2009	-
Relevant sector	Health centers at Kinanga and Kilueka on Kilueka road Health centers at Malanga on Nkondo road				
Terms of achievement	All villages that benefit from the rehabilitation of the health center must have a village organization to rehabilitate health centers.				
Expected effects	Rehabilitation and maintenance of health centres by the villagers from several villages <ul style="list-style-type: none"> <li>• Formation of villagers' organizations by villages from several villages</li> <li>• Preparation of the rehabilitation plan by villagers' organizations</li> <li>• Implementation of simple rehabilitation work with the participation of villagers from several villages</li> <li>• Preparation of maintenance plan by villagers' organizations</li> </ul>				
Results and evaluation	Rehabilitation and maintenance of health centres by the villagers from several villages <ul style="list-style-type: none"> <li>• Formation of villagers' organizations consisting of several villages                             <ul style="list-style-type: none"> <li>- According to the evaluation questionnaire, there are 9 members in the health centre of Malanga, 10 members in Nkondo site, 19 members in Kinanga and 12 members in Kilueka.</li> </ul> </li> <li>• Preparation of the rehabilitation plan by villagers' organizations                             <ul style="list-style-type: none"> <li>- A rehabilitation plan was established was prepared by the villagers' organization</li> </ul> </li> <li>• Rehabilitation work with the participation of villagers from several villages                             <ul style="list-style-type: none"> <li>- The work was carried out with the participation of villagers from several villages</li> <li>- According to the evaluation questionnaire, the important points raised for the rehabilitation of health centers are; "there are supports from nurses," "there should be a tight roof during the rainy season," "floors should be clean," "paint should be clean" and "there should be a budget which allows to purchase drugs."</li> </ul> </li> <li>• Preparation of maintenance plan by villagers' organizations                             <ul style="list-style-type: none"> <li>- The maintenance plan has been prepared by the villagers' organization.</li> <li>- Results of the evaluation questionnaire show that the maintenance charge of the health centre at Malanga collected by the family is 100FC and 100 FC, 500 or 1,000 FC per month at Kinanga health centre.</li> <li>- According to the results, many of them say that installing a community farm is one way to establish the fund to maintain the health centre.</li> <li>- Concerning the collection of funds from villagers 48.5% (16 p.) reported "practicing" while 51.5% (p. 17) say they do not collect them. In Malanga Gare, Zamba, Wene, Ndungidi, Kinanga, and Kisiama, majority of answers were positive whereas majority of answers were negative in Malanga Cité, Nkonge, Lusasa, Nkondo Site, Nkondo, Mbanza Ndamba, and Kilueka.</li> </ul> </li> </ul>				
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• A villagers' organization of the villages, which receive the same benefits from the same health centre, should be established when such a centre would be rehabilitated.</li> <li>• The important points to consider when a health centre is rehabilitated are; "there are supports from nurses," "there should be a tight roof during the rainy season," and "a clean paint."</li> <li>• For the maintenance of the health centres, it is possible to collect 100 to 1,000 FC per month per household.</li> <li>• An idea of a community farm development is considered as maintenance means of the health</li> </ul>				

Project 18-1. Improvement of health facilities					
	centres.				
	<ul style="list-style-type: none"> <li>Setting up a new health centre, which requires supports from nurses from the Ministry of Health, led by villagers themselves is difficult to implement.</li> </ul>				
Project 18-2. Activities of health animators					
Objectives	On the sector the percentage of patients suffering from malaria or diarrhea is very high, but prevention is possible. This project is mainly training health animators to prevent malaria and diarrhea, the major diseases in the targeting area, HIV/AIDS, sensitize bearing and child care, and implement sensitization campaigns on prevention for villagers.				
Checked items	Activation of activities of health animators Understanding of the villagers against major diseases (malaria and diarrhea)				
Details of achievement	Implementation Items	Implementation Organization / Executive	Implementation Period	Details	
	1	Discussions and arrangement with the administration	Villagers/ Ministry of Health/ Staff of sector/ Study Team	February to March 2009	- Training for animators, discussions with government on the rehabilitation of dispensaries
	2	Training at Kimpese	Ministry of Health	March 2009	- Training on the health for all affected villages
	3	Analysis of the situation under the leadership of village organizations	Villagers	March - Oct. 2009	- Discussion of a system that will allow the animators to work continuously in the villages
	4	Health animator training	Villagers/ Ministry of Health/ Staff of sector/ Study Team	Sep. 2009	- Designation of a health animator by the villagers' organization - Training of health animators
	5	Sensitization by health animators	Health animators / Ministry of Health	Sep. to Oct. 2009	- Sensitization for villagers
	6	Evaluation meeting of the PP	Villagers	Oct. 2009	- Exchange of views on the situation of rehabilitation of health centres - Exchange of views on the persistent maintenance of health centers
Relevant sector	All villages A minimal medical kit including simple examination kit of malaria and diarrhea is distributed to health nurses and health animators by the health sector of Kimpese. The distribution is made by 5-km perimeter. In the targeting area, kits are distributed to Malanga, Kiasungua on Nkondo road, and Wene/Ndunguidi on Kilueka road, since these villages are the strategic regions.				
Terms of achievement	There is an organization capable of maintenance of rehabilitated health centres There is an organization capable of maintenance of rehabilitated health centre which covers all the villages that benefit from that health centre.				
Expected effects	Activation of the activities of health animators <ul style="list-style-type: none"> <li>Verification of the activities of health animators</li> <li>Learning to sensitization about malaria and diarrhea</li> <li>Learning to a method of sensitization using paper theater</li> </ul> Increasing awareness of the villagers about diseases (malaria and diarrhea) <ul style="list-style-type: none"> <li>Acquisition of knowledge about prevention by the villagers as a result of activities of health animators</li> </ul>				
Results and evaluation	Activation of the activities of health animators <ul style="list-style-type: none"> <li>Verification of actual activities of health animators</li> <li>- According to the evaluation questionnaire, there were 2 health animators in Malanga Gare, 7 in Malanga Cité, 2 in Zamba, 1 in Nkenge, 2 in Lusasa, 3 in Nkondo site, 4 in Wene, 3 in Nkondo, 2 in Ndunguidi, 2 in Kinanga, 2 in Kisiana, and 4 in Mbanza Ndamba and Kilueka</li> </ul>				

Project 18-2. Activities of health animators	
	<p>combined.</p> <p>Examination of the content of awareness campaigns, malaria and diarrhea</p> <ul style="list-style-type: none"> <li>- A re-training of 18 health animators was performed. Themes were on malaria, the most prevalent disease in the villages, and bearing and child care and HIV/AIDS for the health of the mother and the newborn at birth.</li> <li>- All respondents (18 people) to the questionnaire who followed the course responded that the course contents were interesting.</li> <li>- The same survey shows that 50.0% (9 people) found that 3 days of training was "too short," 11.1% (2 p.) found that it was "appropriate," and 38.9 % (7 p.) found that it was "appropriate."</li> <li>- Concerning the degree of understanding, the same survey indicates that 61.1% (11 people) were "well understood," 38.9% (7 p.) were "moderately understood." Among the comments; "I wish there were another training course," "I wish to cooperate with the school of Kimpese."</li> <li>- According to the evaluation questionnaire of the PP, the activities of the health animators in the villages are "awareness campaigns to promote health," "information on malaria," "HIV/AIDS prevention," "promoting vaccination," "the advice to pregnant women," "weighing and regular measurements of newborns," "family planning," "clean-up activities of village surrounding" "methods for water drinking acquisition," "the mutual patrolling and assistance," "empowerment of women," and "reporting to the IME about individual activities and the field situation."</li> </ul> <p>Increasing awareness of the villagers about diseases (malaria and diarrhea)</p> <ul style="list-style-type: none"> <li>• Many people understood the importance of prevention</li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• It is effective to give re-training courses for health animators on malaria, since it is a major disease in the villages, and for " bearing and child care and HIV/AIDS " to manage the health of mother and child at the birth.</li> <li>• Activities as a health animator to prevent diseases include "sensitization of promotion of health", "dissemination of information about malaria," "HIV/AIDS prevention," "promoting immunizations." It is also included that "pregnancy counseling," "weighing and regular measurements of newborns," and "family planning" in the field of women and children. In addition, the hygiene campaigns in the villages and the empowerment of women can be performed.</li> </ul>

Project 19. Maintenance and management drinking water facilities					
Objectives	In the targeting area, a very few villages have a well and access to drinking water. Moreover, even villages that use quality water sources are difficult to access during the rainy season. This project aims to construct wells and establish a management and maintenance system as well as fostering villagers who will be in charge of well maintenance in order to use chlorine by themselves.				
Checked items	Construction of wells with the participation of villagers A maintenance system by villagers' organizations Understanding of the villagers on maintenance				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	Ministry of Health	March 2009	- Training on maintenance of water facilities to all villages in the area
	2	Discussions of water facilities with the administration	Villagers/ Ministry of Health/ Staff of sector/ Study Team	Feb. to May 2009	- Discussions with Ministry of Health at Kimpese sector on wells development
	3	Discussions about a system of maintenance of water facilities	Villagers/ Ministry of Health/ Staff of sector	March - Oct. 2009	- Formation of villagers' organizations - Preparing a maintenance plan by the villagers' organizations - Discussions of a maintenance system by the villagers' organizations - Explanation on maintenance to the villagers and their understanding

Project 19. Maintenance and management drinking water facilities																
	4	Construction of water facilities	Villagers/ Ministry of Health/ Staff of sector/ Study Team	June - Oct. 2009	- Construction of wells with the participation of villagers											
	5	Evaluation meeting of the PP	Villagers	Oct. 2009	- Exchange of views on the maintenance system and the future maintenance organizations											
Relevant sector	Kilueka road Kisiama, Wene Nkondo road Mawewe, Nkenge															
Terms of achievement	There must be an organization capable of maintaining rehabilitated water facilities.															
Expected effects	<p>Construction of wells with the participation of villagers</p> <ul style="list-style-type: none"> <li>• Establishment of a villagers' organization</li> <li>• Excavation of wells</li> </ul> <p>A maintenance system by the villagers' organization</p> <ul style="list-style-type: none"> <li>• Preparation of a maintenance plan by the working group</li> <li>• Explanation of a maintenance plan to villagers</li> </ul> <p>Understanding of the maintenance by the villagers</p> <ul style="list-style-type: none"> <li>• Understanding of water charges</li> </ul>															
Results and evaluation	<p>Well construction with the participation of villagers</p> <ul style="list-style-type: none"> <li>• Formation of villagers' organizations                             <ul style="list-style-type: none"> <li>- Villagers' organizations were formed</li> <li>- The results of the evaluation questionnaire illustrates that there are 10 members in the villagers' organization of Wene, 6 in that of Kisiama, 7 in that of Nkenge, and 10 in that of Mawewe.</li> <li>- The rules of well usages and the contents of group activities were clarified.</li> <li>- The results of the evaluation questionnaire shows that the groups meet on an average of 2 times a month to discuss about planting trees around the well, collect money for maintenance, cleaning vicinity of wells, and opening hours of the wells etc.</li> </ul> </li> <li>• Excavation of wells                             <ul style="list-style-type: none"> <li>- The villagers' organization has selected a place to dig a well and the Ministry of Health confirmed.</li> <li>- The villagers participated in the excavation of wells.</li> <li>- The well of Mawewe (depth 5 m) costed U.S. \$ 6 699.</li> <li>- 4 digging points ensured the water at about 5 ~7 m in depth.</li> </ul> </li> </ul> <p>Maintenance system by the villagers' organization</p> <ul style="list-style-type: none"> <li>• Preparation of maintenance plan led by the villagers' organization                             <ul style="list-style-type: none"> <li>- The plan has been prepared</li> <li>- The instructions for the adequate maintenance of the water facilities have been established; "defense of washing utensils or clothes near the well", "defense to throw garbage into the well," and "plantations around wells."</li> <li>- In most of all the villages, the hours of use have been well established.</li> </ul> </li> </ul> <p style="text-align: center;">Instructions for maintenance of water facilities</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Road</th> <th>Village</th> <th>Rule</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Kilueka</td> <td>Kisiama</td> <td> <ul style="list-style-type: none"> <li>- Water can not be used after 22 H</li> <li>- Prohibition of washing utensils at the well</li> <li>- Prohibition of washing the feet at the well</li> <li>- Understanding that a well is not a toilette</li> </ul> </td> </tr> <tr> <td>Wene</td> <td> <ul style="list-style-type: none"> <li>- Prohibition of bathing in sink</li> <li>- Prohibition of washing utensils at the well</li> <li>- Maintenance</li> </ul> </td> </tr> <tr> <td>Nkondo</td> <td>Mawewe</td> <td> <ul style="list-style-type: none"> <li>- Prohibition of washing utensils and clothes at the well</li> <li>- Prohibition of bathing at the well</li> </ul> </td> </tr> </tbody> </table>					Road	Village	Rule	Kilueka	Kisiama	<ul style="list-style-type: none"> <li>- Water can not be used after 22 H</li> <li>- Prohibition of washing utensils at the well</li> <li>- Prohibition of washing the feet at the well</li> <li>- Understanding that a well is not a toilette</li> </ul>	Wene	<ul style="list-style-type: none"> <li>- Prohibition of bathing in sink</li> <li>- Prohibition of washing utensils at the well</li> <li>- Maintenance</li> </ul>	Nkondo	Mawewe	<ul style="list-style-type: none"> <li>- Prohibition of washing utensils and clothes at the well</li> <li>- Prohibition of bathing at the well</li> </ul>
Road	Village	Rule														
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Nkondo	Mawewe	<ul style="list-style-type: none"> <li>- Prohibition of washing utensils and clothes at the well</li> <li>- Prohibition of bathing at the well</li> </ul>														

**Project 19. Maintenance and management drinking water facilities**

	Nkenge	<ul style="list-style-type: none"> <li>- Prohibition of washing utensils and clothes at the well</li> <li>- Respect the hours of use of wells</li> <li>- Group members must comply with the instructions of the group leader</li> <li>- The group leader must respect the views of members</li> <li>- Planting trees and greenery around the wells</li> <li>- Prohibition of throwing garbage in the wells</li> <li>- Understanding that a well is not a toilet</li> <li>- Management and maintenance deposit</li> <li>- Maintenance of wells</li> <li>- Love</li> </ul>
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- Explanation of maintenance plan for the villagers
  - An explanation on the management and maintenance was given to the villagers.
  - All the villagers have recognized the importance of well maintenance according to the evaluation questionnaire.
  - An amount of about US\$ 950 was offered to each village for the well maintenance and the villagers manage the fund.

**Well maintenance budget**

Materials		Quantity	Unit price ( US\$ )	Amount ( US\$ )
machettes	machettes	2	6,2	12,4
houes	hoes	2	6,2	12,4
bêches	spades	2	5,0	10,0
tenailles	pincers	1	2,5	2,5
marteau ord,	hammer	1	4,5	4,5
pelles	shovel	2	3,8	7,5
scie à métaux	metal saw	1	4,3	4,3
lames de scie	blade	3	3,0	9,0
Niveau	level	1	9,0	9,0
scie à bois	wood saw	1	3,0	3,0
marteau de 5kg	hammer5kg	1	10,0	10,0
Pioches	pickaxe	2	8,8	17,5
pince	pliers	1	2,0	2,0
sceaux galv,	bucket	3	7,5	22,5
brouette	barrow	1	50,0	50,0
ficelle	string	1	3,0	3,0
graisse	grease	3	3,0	9,0
brosse métal,	brush	3	2,5	7,5
corde	rope	6	0,7	4,2
Treuil	Hoist	1	250	250,0
Module	Module(Form)	1	500	500,0
			<b>Total</b>	<b>950,3</b>

**Understanding of the villagers for maintenance**

- Understanding of the needs of water charges
  - Most of the villagers understood the contents of management and maintenance.
  - The working groups repeatedly explained the needs of water charges to the villagers.
  - The villagers where this PP was implemented started to collect the fee for the well maintenance.
  - About 500 to 600 FC per month per household were collected to establish the fund to the well maintenance.

**Well maintenance fund**

Route	Village	Fond		
Kilueka	Kisiamia	500FC/household/month	27 household	162 000 FC/year
	Wene	500FC/household/month	60 household	360 000FC/year
Nkondo	Mawewe	600FC/household/month	6 household*	43 200FC/year
	Nkenge	500FC/household/month	34 household	204 000FC/year

\* Mawewe's population, which is 30 people, is an estimation. It is difficult to count the exact number of members of households because each household lives together.



Project 19. Maintenance and management drinking water facilities					
Feedback on the community development plan	<ul style="list-style-type: none"> <li>Well users must consent and follow the operation hours after the construction of the wells.</li> <li>Well users must consent and follow instructions, e.g. "prohibition of washing utensils and clothes by the well," "prohibition to throw garbage into the well," and "planting nurseries around the wells," for persistent use of it.</li> <li>For the maintenance of the wells, it is possible to collect 500 to 600 FC per month per household.</li> </ul>				
Project 20. Improvement of educational facilities					
Objectives	<p>There are 3 primary schools on the Nkondo route and 4 primary schools on the Kilueka route while there is no primary school in more than half of the villages in the targeting area; and therefore, the children have to travel to schools to the nearest village. As for the young children, not only that it might be difficult to go to school because of the children's physical development, but also the traffic accidents may be high. In addition, they often can not continue to attend school for economic reasons. This project will carry out the rehabilitation of existing educational facilities (schools). In the future, it is considered to open small classes targeting the smallest children and to arrange the community fields so that the revenues from the community fields can support the costs of study.</p>				
Checked items	<p>Understanding of the importance of maintenance of public facilities by villagers who use the educational facilities Rehabilitation of educational facilities by them Establishment of a management and maintenance system by villagers' organizations consisting of several villages</p>				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Training at Kimpese	Ministry of Education	March 2009	- Discussion with the government on the rehabilitation of educational facilities
	2	Discussions with the Ministry of Education	Villagers/ Ministry of Education/ Staff of secteur/ Study Team	Feb. to April 2009	- Discussion and arrangement with the government on usage guidance of educational facilities by each village
	3	Studying the installation of small classes in the villages	Villagers	March - Oct. 2009	- Grasping the needs of educational facilities in which first and second level class children do not have to travel for long distances by the villagers' organizations. - Preparation of management plan of small classes (number of students, availability and salary of teachers, etc.).
	4	Rehabilitation of existing educational facilities	Villagers	March - Oct. 2009	- Formation of villagers' organizations consisting of several villages - Preparation of the rehabilitation plan by the Villagers' organization - Implementation of rehabilitation with the participation of villagers who use the educational facilities - Preparation of maintenance plan by the Villagers' organization
	5	Evaluation meeting of the PP	Villagers	Oct. 2009	- Exchange of views on the rehabilitation of educational facilities - Exchange of views on the ongoing maintenance of schools
Relevant sector	<p>Kilueka road Rehabilitation of existing educational facilities of Kinanga (Betelemi), Wene, Kilueka Site Mbanza-Ndamba Nkondo road Rehabilitation of existing educational facilities of Malanga Cité, Kiasungua, Mpete</p>				
Terms of achievement	<p>There is an organization capable of maintaining educational facilities after the rehabilitation. There is an organization that covers all the villages which receive the benefits from the same educational facility when it is rehabilitated.</p>				
Expected effects	<p>Understanding of the importance of maintenance of the public facilities by the villagers who use them.</p> <ul style="list-style-type: none"> <li>Formation of villagers' organizations</li> </ul>				

Project 20. Improvement of educational facilities	
	<ul style="list-style-type: none"> <li>Understanding of contents of management and maintenance of educational facilities by the villagers' organizations</li> </ul> <p>Rehabilitation of educational facilities by the villagers who use them</p> <ul style="list-style-type: none"> <li>Preparation of the rehabilitation plan by the villagers' organizations</li> <li>Implementation of rehabilitation with the participation of villagers led by the villagers' organizations</li> </ul> <p>Establishment of management and maintenance system by villagers' organizations of several villages</p> <ul style="list-style-type: none"> <li>Preparation of a management and maintenance plan and establishment of the maintenance system by villagers' organizations</li> </ul>
Results and evaluation	<p>Understanding of the importance of maintenance for public facilities by the villagers who use the educational facilities.</p> <ul style="list-style-type: none"> <li>Formation of villagers' organizations                             <ul style="list-style-type: none"> <li>Villagers' organizations were formed by villagers from several villages</li> <li>The rules have been established, the role and work of each member and standards were defined.</li> </ul> </li> </ul> <p>Rehabilitation of educational facilities by the villagers who use them</p> <ul style="list-style-type: none"> <li>Preparation of the rehabilitation plan by the villagers' organizations                             <ul style="list-style-type: none"> <li>The rehabilitation plan has been prepared by the villagers' organizations.</li> <li>Repairs have been made with the participation of villagers of Ndungidi</li> </ul> </li> </ul> <p>Construction of a maintenance system of management by villagers' organizations from several villages</p> <ul style="list-style-type: none"> <li>Preparation of management and maintenance plan and establishment of the maintenance system by villagers' organizations                             <ul style="list-style-type: none"> <li>The maintenance plan for educational facilities is prepared by the villagers' organizations as the principal entity.</li> <li>The workshops on management and maintenance for villagers were conducted.</li> </ul> </li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>A villagers' organization of the villages, which receive the same benefits from the educational facilities, should be established when such a facility used would be rehabilitated.</li> <li>An idea of a community farm development is considered as maintenance means of the educational facilities.</li> <li>Setting up a new educational facility, which requires supports from teachers of the Ministry of Education, led by the villagers is impossible.</li> </ul>

Project 21. Rehabilitation of feeder roads					
Objectives	The feeder roads located in the remote villages to the principal roads, which are in poor condition, are rehabilitated by the villagers where rehabilitation is needed. This project involves the paving of bridges and roads rehabilitation with the participation of villagers.				
Checked items	Simple repair of feeder roads Simple road maintenance by villagers				
Details of achievement	Implementation Items		Implementation Organization / Executive	Implementation Period	Details
	1	Identification of needs for road maintenance by villagers	Villagers/Sector/DVD A/CLER	Feb. to Oct. 2009	- Understanding the contents of maintenance - Construction of a maintenance system
	2	Training of villagers	Villagers/Sector/DVD A/CLER	Feb. to Oct. 2009	- Training of supervisors on the road maintenance technicians by DVVD / CLER
	3	Repair of bridges	DVDA	Sept. 2009 Oct.	- Repair of the bridge between Nkondo and Ndungidi
	4	Simple road repair with the participation of villagers	Villagers/Sector/DVD A/CLER/Agrisud's Animators	July to Oct. 2009	- Implementation of road rehabilitation with the participation of villagers
Relevant sector	A part of the road between Nkondo and Ndungidi				

Project 21. Rehabilitation of feeder roads	
Terms of achievement	The villagers continue to maintain the road after its rehabilitation.
Expected effects	Administration maintenance organizations by village organizations <ul style="list-style-type: none"> <li>• Formation of villagers' organizations</li> <li>• Preparation of the rehabilitation plan by the villagers' organizations</li> </ul> Simple rehabilitation works by the participation of villagers <ul style="list-style-type: none"> <li>• Implementation of simple rehabilitation works with the participation of villagers</li> </ul>
Results and evaluation	Management of maintenance organizations by village organizations <ul style="list-style-type: none"> <li>• Organizations' management <ul style="list-style-type: none"> <li>- Villagers' organizations were established</li> <li>- Sections to rehabilitate have been identified by the villagers' organizations</li> <li>- A rehabilitation plan has been prepared by the villagers' organizations</li> </ul> </li> </ul> Simple road rehabilitation by villagers <ul style="list-style-type: none"> <li>• A part of the track between Nkondo and Ndungidi was rehabilitated by villagers.</li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• It is possible to implement simple road rehabilitation by mobilizing villagers.</li> </ul>

Project 22. Road Maintenance					
Objectives	The maintenance of community roads must be done to keep them in good condition and maintaining the effects of development. This project is to establish a system of road maintenance of Kilueka, the main road in the sector, implemented by a village committee. On Nkondo road, the project applies the CLER which has already been established by BTC after its road rehabilitation in 2005 as a maintenance structure. The content of this project includes acquisition of a budget and, the construction of a maintenance system in which the committee is the main actor, and training on road rehabilitation and supervisors' training.				
Checked items	Establishment of a system of road maintenance Villagers' understanding of the content of maintenance				
Details of achievement	Implementation Items	Implementation on Organization / Executive	Implementation Period	Remarks	
	1	Awareness campaign on the importance of road maintenance	Village Chiefs / CLER / Study Team	Oct. 2008 to Oct. 2009	- Explanation of the importance of road maintenance - Explanation of the contents of maintenance
	2	Organization of villagers organization and construction of road maintenance structure	Villagers / Sector / DVDA / CLER	Nov. 2008-Oct. 2009	- Formation of a group with representatives of villages along the road - Understanding the content of the maintenance - Constitution of a maintenance structure
	3	Selection of supervisors	Villagers	April 2009	- Selection of 3 people per village as supervisors
	4	Training of supervisors	Villagers / DVDA / CLER	April to Oct. 2009	- Training on maintenance for supervisors by DVDA / CLER
	5	Training of villagers on maintenance / distribution of maintenance tools	Villagers / DVDA / CLER	Oct. 2009	- Training on maintenance for villagers by DVDA / CLER - Distribution of maintenance tools
	6	Implementation of maintenance	Villagers	Nov. 2009	- Implementation of maintenance by the villagers
Relevant sector	Villages along Kilueka road				
Terms of achievement	Implemented along the community roads				

<b>Project 22. Road Maintenance</b>	
Expected effects	<p>Road maintenance organizations' management</p> <ul style="list-style-type: none"> <li>• Road maintenance structure was established by the villages along Kilueka road.</li> </ul> <p>Establishment of a maintenance system</p> <ul style="list-style-type: none"> <li>• Trainings for supervisors were performed and the knowledge and maintenance technologies were acquired.</li> <li>• Villagers' understanding of the maintenance was deepened.</li> </ul>
Results and evaluation	<p>Establishment of a maintenance structure</p> <p>(a) Development of a working structure by the village organization of project A</p> <ul style="list-style-type: none"> <li>- 3 people per village were selected as supervisors, and 3 people were elected as controllers</li> <li>- Each village was divided into 4 groups, and maintenance activities based on Salolongo once per month were established and allocated to each of 4 groups.</li> </ul> <p>(b) Control of road maintenance and strengthening of technical support</p> <ul style="list-style-type: none"> <li>- Supervision of maintenance work was undertaken by sector, CCSO and DVDA, and the technical support structure was established.</li> <li>- The regulation was established, the role, everyone's job and rules were defined</li> </ul> <p>(c) Distribution of road maintenance tools</p> <ul style="list-style-type: none"> <li>- The project has distributed the tools necessary for road maintenance. Those are kept in a management system established by the village.</li> </ul> <p>(d) Acquisition of funds for road maintenance activities</p> <ul style="list-style-type: none"> <li>- The cost of road maintenance has been calculated and the means to collect the funds were discussed.</li> </ul> <p>Trainings on road maintenance</p> <p>(a) Training on road maintenance by DVDA / CLER</p> <ul style="list-style-type: none"> <li>- 30 people attended the training on road maintenance, which was conducted from April 16 to 19 and Oct. 19.</li> <li>- Through comprehension of theories and practices, the contents of training were well understood.</li> </ul> <p>(b) Training on road maintenance by the DVDA / CLER</p> <ul style="list-style-type: none"> <li>- Training courses attended by an average of XX people were performed from Oct. 20 to 26 for the villagers.</li> </ul> <p>Road maintenance operation</p> <ul style="list-style-type: none"> <li>- The maintenance works by the villagers were performed from late Nov..</li> <li>- The maintenance works by the supervisors began from late Nov..</li> </ul>
Feedback on the community development plan	<ul style="list-style-type: none"> <li>• The work control and technical supports are necessary for the construction of maintenance system by the villagers, and therefore, an organization which has such a role should be formed.</li> <li>• For the road maintenance to be continued, there should be a collecting system of running cost.</li> <li>• It is necessary to continue to sensitize villagers on the importance of road maintenance.</li> </ul>

## Annex 6.11 Manual for PP implementation

### Manual for Animal Traction PP

#### Balula Ntoto Ngombe JICA

##### I. NGENESI

Beto tu banzanga ye kitulanga nsadulu a zi mpatu kua zingombe bonso diambu dia bankaka (ancetres) dikondolo mfunu kua beto, landila zi mbakulu zeto. Kua bayeto minvati mu nsi za zangama, nsadulu yayi beti yo tatamana nate ye buabu, beti yo sangisa ye nsadulu za masini mamanene, mu teza kulula ntalu.

##### II. NSODOLO YE NGIUKUSULU A BIBULU

###### 2.1. NSODOLO

Nsiku umosi weti kutu songa vo nsololo a bibulu yilenda kututukisifa mimvu miamingi mia salu kia mbote evo kiambi.

- Sola bi bulu biantuena biatoma vuluka, kadi tulenda bio tekulula vo tulembolo bio sadila (vo binunini).
- Ma vembo ma fueti kala mambote, mianzi mia malu (mabunda) mi fueti kala miatoma siana mpe.
- Tu sola biobio bia vokulua (bia niemua nkandi) tekila mvu wa fuana (9 a 12 mois).

###### 2.2. NGIUKUSULU

Nyukusi ka fueti toma visa vo bulu kiandi ki ka tomene simba mu koko kuandi kina toma kimwila na dede ye bulu mpe ka fueti toma zaya vo nyukusi andi kalendi ku nlomba salu kiokio kilutidi ngolo zandi ko.

Ngiukusulu yoyo yi fueti salama ntangu ka ntangu ye ka lutisa lumbu ko kidi bia toma siana, melemba malemba mu ndambu nana bonso ebu :

**Ntudulu a nlunga wa mbombo (anneau) :** Tufueti tula nlunga mu mbombo ya bulu kieto ntangu yoyo yi tu zolele vungika bulu kieto, mpasi fu bi amputa bia toma salama, kidi za lembua tondakana diaka mu ntangu ya ngiukusulu.

###### 2.2.1. Mvungukulu (isolement)

Kanga bulu mu nti ,leba yandi tezanga kundikila mungua va kandazi kia koko kuaku evo matiti, mu lumbu bi



ya (4 jours). Diodio dibokodolo ngiukuasani.

**Nkangulu a zingombe zole :** Tu bindamene mu toma kanga ngombe zeto zizole mpasi vo kabalendi nikuka ko, mu diodio tulenda kanga minkole mu nsanga evo mu mpoka.

###### 2.2.2. Ndiatulu

Tufueti longa kua bulu mu diata bua sungama, mu telama, mu baluka mu ndinga ya sikila ye ndinga yoyo ka i lendi sobua ko tangu zazonsono zina sala ngombe.



###### 2.2.3. Ntudulu a vangu (Joug)

Mu ntudulu a vangu va zi nsingu za zi ngombe za zole, tueti vanga kintuadi kia ngombe zole (paire), bu zena za kangama mu nti(piquet) evo mu nsampa. Bulu biole biobio bi fueti toma solua bia mbamdu yimosi ye bu nene mpe bumosi, ye yukusua bio mu zinga kintuadi, bia toma zayasana kidi bia toma salasana.



###### 2.2.4. Ndiatusulu a zi ngombe zole mu kintuadi

Longa kua ngombe zole mu diata kintuadi, mosi ku lumoso wa nkaka ku lubakla, tumamana ndinga ya nyukusi mu bisalu biabionsono bi keti ku balomba mu sala, ka ku babalula ko, ya lumoso ku lumoso kaka, ye ya lubakala mpe kulubakala kaka ntangu zazonsono, ku ba yukusua mu buabana ye bantu, zi tomabilu ye masini mampila mu mpila ye sabuka biamvu ye fulu bia mpasi. (lumbu kumi ye zole).

###### 2.2.5. (Buku) hindi kia nti

Kanga kintuadi kia ngombe zole (paire des boeufs) buku kia nti ki balenda bendanga lumbu ka lumbu, tombulanga evo kudikilanga malemba malemba zitu, mu lumbu bisambanu (6 jours).

### 2.2.6. Nkokokolo a kalu dia mpamba

Kokika kalu dia ba ngombe dia lembo zitu mu kati mu ku ba yukusu mazu ma kalu, bosu badika tulanga zitu fioti fioti ,kidi ba toma siama, lumbu kumi ye zole (12 jours)



### 2.2.7. Ndongolo mu balula ntoto

Kiaki ni ki kada kilutidi mfunu evo nkinzi mu ngiukusulu kadi, tu fueti longa kua bibulu mu landa nzila ya sungama na nsui, kikesa kiakingi kua ngombe mu benda kisadulu landila ndambu yantete yi tekele balulua kidi mua lembua monika bifulu bia lembua balulua. Teka badikila va zulu zulu, bosu kobisanga malembe malembe mu zinda evo sunda, landila tezo kia ngolo zau kidi belembua toma beba nitu (lemba).

### 2.2.8. Bimbevo

Mu kati kua bimbevo bitoma kuamisanga zi ngombe, tubeki kimbevo kia zi nkuwa (nkuba) zi nuanga menga ma bulu, ye ki monikanga va zulu nkanda. Ka tulendi katudila nkuwa mu moko ko kadi di lenda tukisa mputa, i diau tuna sadila kipompolo kia bilongo kidi za yuma. Mu bimbevo bia nkaka, tu bindamene mu bokila dokuta dia bibulu (vétérinaire).



N.B. Ngiyukusulu ka yi sukini vava ko, Tu bindamene lumbu ka lumbu mu vana ksalu kua bi bulu kani mu ntangu yoyo yi tu kondolo bisalu bia bilanga, kimana vo ka balendi vutukila fu kiau kia ntama kia kimpumbulu ko ; ye toma visa mpe vo ka tulendi viokisa lumbu kiamvimba ko lembua kua dikila bibulu, kani vo bisalu biele bingi, buna bibulu bilenda fuema ye kituka nganzi, kimpumbulu ye kondua kua ngolo mu salu.



### Bisadulu

- 1)Charrue : kiau kibalulanga ntoto
- 2)Billonneur : mu diambu dia sala minkala
- 3)Charrette : mu diambu dia natina bifunda (colis).

### Bia nkaka

- Kikununu (semoir) : Mu diambu dia kunina
- Ki sakudulu (sarclair) : mu sakudila bilanga
- Motoculteur (masini) : mu balula ntoto, sakudila, fudumuna ye sala minkala.

### Nkanda wa zintalu

Date	SALU	NKOTOSO LO	MVAIKISI LU	ZISIDI
15 / 10 / 2009	Balula ntoto 0,25 Ha Mr Mansoni	30.000 Fc	-	30.000 Fc
19 / 10 / 2009	Nsadusulu a bibulu kua dokuta (vétérinaire) dia secteur	-	15.000 Fc	15.000 Fc
28/ 10/ 2009	Ndatunu a bibiliki 3000 Mr . Diambote	180.000 FC	-	195.000 FC

### Ndandu

Landila zi ndongokolo zimani salua va kati kua nsadulu za mu moko ya nsadulu kua zi ngombe, dimoneke vo kintuadi kia ngombe zole kilenda balula tezo kia 25 ares mu lumbu kimosi, fuanana ye salu kifueti sala makumi mole ma bantu mu lumbu kimosi.

Balula ntoto : ngombe zole mu lumbu bi ya (1 ha) dedede ye salu kia lunana lua bantu.

Ma sonokono kua tata **Honore MUANDA NEKONO**  
Ntombokolo / Secteur ya Kimpese

## Riziculture Irriguée

Mukuna loso lua maza fulu kina kifuete kalanga ye maza tangu za wonsono tuka nkuninu teye kuna zengolo ya loso.

### (1) Nkubukulu a mpatu ya loso lua maza (préparation du champ)

Muna mvatulu a loso lua maza, nkubukulu a mpatu yifueti kala ye mpila yoyo, maza malenda kuiza vuandanga ye vaikisunganga muna mpatu a loso.

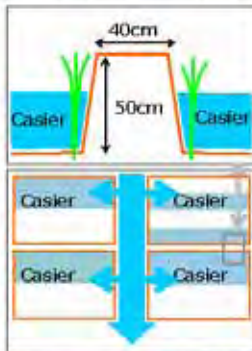


### (2) Nkubukulu a semence ya loso (Selection de la semence)

Kubika lekua kilenda baka 15 dia lita za maza ye sanga kilo bitatu bia mungua, kunima tula muna kati kilo 25 ya semence. Toma nikuna, nginga zozo si zakala va zulu a maza zifueti lozua.

### (3) Ntungulu ya diguette ye zi casiers (préparation des diguettes et casiers)

Mutunga zi diguettes tufuete baka ntoto wowo utukidi muna ntimunu ya mvuila, kunima tufuete kabula ntoto wuna ndambu zi zole za mvuila ye diatikisa wau. Diguette ifuete kala 50cm mu zanguka ye 40cm mu sadila. Bimvuila mvuila bia fioti biau si biakabulanga maza mu tupangu tua fioti fioti tu bokilanga casiers.



### (4) Balula ntoto ye lelangasa (Labour et Planage)

Ntoto wowo wukubamene mu kunua loso ufuete balulua mu nsengo mu sunda kua



15-20cm, kadi ntoto wowo ufuete kala wakubama mu tambula loso lolo luna tuka kuna pepinieie. Ikuma tufuete kotisa maza muna casier (mabulu) momo tubaludi ntoto ye maza momo mafuete vuanda muna tumingu tole (2 semaines) ye sunda kua maza kufuete kala mu tezo kia 5-10cm mudiambu dia zezisa mabungila mantoto. Bu tu meni balula ntoto, tekila tua kuna nginga za loso mu mabulu, tufuete yalangesa ntete ntoto.



### (5) Mvangilu ya Pepinieie (Etablissement de la pepiniere)

Vo pepinieie yi sadulu va ntoto wa yuma, yau yifuete muangunuanga maza mu alozualu (arrosoir). Kansi pepinieie ya mu maza yi vanagamenanga muna kati kua dibulu dia loso. Pepinieie ya va ntoto wa yuma i lenda vangulua va mbela vata mu diambu kengila yau.



### (6) Nsekulu a loso mu dibulu (Repiquage)

Mvuza ya loso vo yilungisi bilumbu tuka 20 te kuna bilumbu 30, buna pepinieie yoyo yi fuete sekulua muna mabulu.

Mvuza ya loso yi fuete teka kubikua tekila kuenda kuna yawu muna mabulu. Ntete ntoto wufuete kala wanzizi. Mvuza za loso zifuete zengua mianzi ye kufika makaya.

Nkia mpila tu lenda sekudila mvuza za loso muna mabulu. Ntoto muna kati kia casier ufuete kala wa teba.

Nkununu a loso muna casier ifuete kala mu nlonga. Mu diambu tulenda zaya ntalu a mvuza loso muna casier ye katulendi kala ye nkankalani ko mu ntangu ya sakudila.

Mu ntangu yoyo tueti sekula mvuza ya loso muna casier, tufuete kuna landila ntatuki ya 20cmx20cm ye tula mvuza (nti) tuka 1 te ye 5 za loso muna konso kua dibulu.



### (7) Bunkete bua mpatu a loso (Conduite d'irrigation)

Tulenda kotisa ye vayikisa maza muna bulu (casier) vo tumuene vo ntangu yifuene. Vo tumanisi sekula loso (apres repiquage), casier

ya loso yifuete kala ye nteba kansi maza ka malendi kotusua ko mu tezo kia bilumbu biya. Kunima bilumbu 4 tufuete kotisa maza muna casier mu profondeur ya 10cm.



**(8) Bueyi tulenda kotisila ye vayikisa maza (Comment irriguer et drainer)**

Kanga mvuila (canal principale) mu ntoto, buna maza makotele mu bi mvuila mvuila (canaux secondaires). Mu diodio, tufuete vanga fi nzila muna diguette ya casier. Kanga canal secondaire (fi mvuila mvuila) ye maza makotele muna casier.

Zibula fi nzila muna diguette yoyo yitakabula casier ye fi mvuila mvuila, ye mpila yina maza sima vayika muna casier malutidi muna fi mvuila mvuila te kuna mvuila wa nene.

**(9) Nkatululu a matiti mambi muna mpatu a loso (Sarclage)**

Tulenda tinisa matiti mambi muna mpatu a loso vo tukotese maza mu ntangu yambote. Nsakula yantete ifuete vangama ku nima bilumbu kumi ye tanu landila nsekula loso. Nsakudulu ya nzole ilenda vangama ku nima bilumbu 25 ovo 35 landila nsakula yantete. Mutinisa mpuku, maza ka malendi kondua ko muna casier.

Mutinisa binzanzala (bimfuetete) tufuete kuna makanda ma loso momo matinsanga bimfuetete ye sakudila mpatu.

**(10) Mvelolo ya loso (Récolte)**

Loso lufuene muzengua vo tumuene nsanga mia loso (panicules) mikele nitu ya maza ma nsaki, yi kitukidi bonso nianga yayuma tufuete lo vela kadi lufuene. Mulenda vela loso vo ntangu yifuene, tusadilanga zimbele muzengila nsanga mia loso.



**(11) Nguimusunu a loso (Sechage)**

Tekila tua bunda loso lolo tuvelele, tufuete lo yumisa ntete tezo kia lumingu lumosi evo bilumbu nsambodia.



**(12) Tuta ye vevula loso (Battage et vannage)**

Mu tuta loso mukatula nianga tufuete tuta ye minti (zi panicules). Ye ku nima tufuete vevula mu vambula nginga za loso ye matiti ma mintinti (zi panicules). Tutambulanga lusadisua lua mupepe. Kuna nsuka tufuete yanika loso ku muini mu toma loyumisa mbote mbote.



**(13) Ndundulu a mvuulu (Conservation)**

Vo kuna dia evo teka loso luaku munzaki nzaki ko, buna fuete toma lo lunda; vo nkatu binonia, bimfuetete, zimpuku ye nsizi, balenda lo dia ye loso lulenda beba, buna si wa baka mvuulu.



**(14) Ntetolo a loso (Decorticage du riz)**

Kina vo mi mvati mia loso mu mavata kabena ye masinu malenda nika ovo teta loso ko, minvati muna mavata basadilanga mabuka ye misu. Vo bulendakana balenda vanga kimvuka ye kutika mbongo mukuenda nikisa loso luawu kuna ma compani mena ye masinu ma tutanga loso evo nikanga loso.

**Mfoko (Conclusion)**

Loso luena madia mambote ye ka makalanga mpasi ko mu lamba. Mu bedisa nsatu, mbote tuakunanga loso lua maza kadi luawu lutoma vananga mvuulu yayingi. Kansi lolo lua nseke kalutoma butanga ko. Nkununu a loso lua maza luena luvu mu bifulu biobio biena ye mazanga.

Manaka			
20-30 kunima	(5) Mvanguilu ya pepniele		
	10-15 kunima		
	Nsakula loso		
	10-15 kunima		
Mbonda 3	(6) Nsakula a loso mudibulu		
	4 kunima		
	(7) Bunkote bua mpatu	(8) Bueyi kotisila ye vayikisila maza	(9) Tanunu a loso kua zimbeni
	10-15 kunima		
	(9)-1 Nsakula		
	25-35 kunima		
	(9)-2 Nsakula	(11) Mvelolo a loso	
40-65 kunima			

L'ingénieur Binzunga di Nseke 0998864158, [binzungaandri@yahoo.fr](mailto:binzungaandri@yahoo.fr)  
et L'agronome Kialunda Jean



## MALONGI MA NTUEDOLO A ZINGULU

Ingenier Simon Mbanzulu Tel :0812647592

### 1. MAMBOTE MA NGULU YA MPUTU I MAMA

- ✓ Nkudulu yena ya nsualu beni, ye nkotolo mu mbutulu yena mu ntangu ya fluma (ngonda sambanu evo nsambodia) ;
- ✓ Yi pezanga zi kilo za zingi beni (60-130 kg) ;
- ✓ Wu butanga bana tuka tezo kia nana na teye kumi ye bole evo vioka mpe ;
- ✓ Nsuni andi wena wambote beni mudia ;
- ✓ Matuvi mandi mena mfunu beni mu tombula mbodila a ntoto ye mu dikila mbizi mu mazanga.



### 2. MPAKA A ZINGULU EVO NZO A BANGULU

#### A) NSODOLO A FULU

- ✓ Fulu kifueti yakidikisa nkotolo ya tomabilu, brouette, bantu, kotisa ye vayikisa ngulu mu mpaka ;
- ✓ Fulu kifueti kala kia yuma nadede, kadi nzizi i tuku kia bimbevo ;
- ✓ Mpaka yi fueti tungua ntatuki ye zinzo, tezo kia meta kumi ;
- ✓ Fulu kiena kia vedila ye mupepe wa wingi ;
- ✓ Fulu kifueti kala kia yalumuka mu nenivisa mpaka ;



### B) NTUNGULU A MPAKA A ZINGULU

#### 1) Nene kua mpaka

(Kifuani: Mbakala mosi, Nkento tatu ye bana)

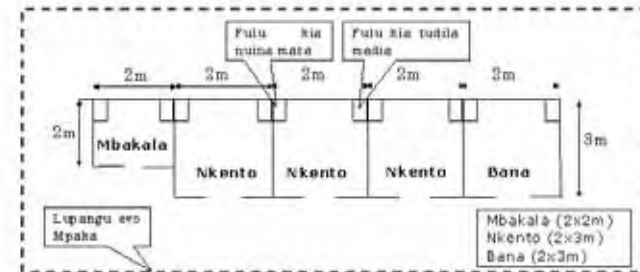


Fig. Kifuani kia ntungulu a mpaka ya zingulu

- Ntela wa kibaka :
- ✓ Kuntuala : 1,20 m (nsuka)
  - ✓ Vakati : 1,80 m (nsuka)
  - ✓ Kunima : 2,10 m (nsuka)

#### 2) Bilekua bituvuidi mfunu mu tunga mpaka

Bilekua	Mpila	Biansadila
Kibaka:	kifueti toma kala kia ngolo beni kidi ngulu za lembo vayika. Tulenda mpe sadila minti ye mabaya	Brique, Minti, Mabaya, Bambou
Niudi:	Wu vananga mpozi ye kakidila mvula ya kota mu mpeka . Tulenda mpe sadila matolo.	Nianga, Matolo, Baya, Tolo
Vansi:	Toma sangisa ciment mpati vo pavement ya kala ya ngolo ye tula fi pente mu toma sukula mpaka	Ciment, Matadi, Zelo
Lupangu:	Lu sadiluanga mu kakidila ngulu mu vayika ku mbazi ya lupangu. Tu lenda mpe sadila minti misasanga.	Minti mi sasanga (example Mingiengie)



### 3. MADIA MA BANGULU

#### A) MADIA

1) **Madia ma lutidi mfunu** :Vo tu sangisi madia ma mvimba tu fueti baka 100kg. Madia malutidi mfunu mafueti sumbua. Madia matu lenda buela ma lenda sumbua mpe evo soba mu madia ma tulenda kudikila, kadi tulenda mo baka ku bilanga.

	Aliment concentré	Tu lenda kudikila
Malutidi mfunu	Son de blé (30 Kg) Tourteau (25 Kg) Mungua (1 Kg)	
Ma tulenda buela	Masangu (15 Kg), Soya (13 Kg), Fufu (10 Kg) Poudre calcaire (6 kg)	Sorgho (Masambala 15 Kg) Wandu (13 Kg) Fufu (10kg) Poudre calcaire (6 kg)
Total	100kg	100 kg

2) **Nsangusulu ye tezo ki tulenda vana kua ngulu** :



Son de blé (30 Kg)  
Tourteau (25 Kg)  
Mungua (1 Kg)  
Masangu (15 Kg),  
Soya (13 Kg),  
Fufu (10 Kg)  
Poudre calcaire (6 kg)

Tezo kia madia i 5 Kg mu lumbu, tuka madia ma kimundele ye makivata.



3) **Madia ma tulenda baka mu zimpatu zeto** :

Madioko, Nsaki, Payipayi, mbala, ngazi, matembele, Kikalakasa, Moringa, mingiengle, madiadia, tolatola, bowa dia lukunga, zindunda.



#### B. MAZA

Maza ma fueti toma kalanga kaka mu mpaka konso kalumbu, tezo kia maza ki fueti nua ngulu i 3 litres ya maza mu lumbu.



#### 4. BUTANA YE BUTA

- ✓ Landila ngonda sambanu evo nsambodia, ngulu yilenda kota mu mbutulu ;
- ✓ Kisubulu kia ngulu a nkento kikuizanga kia nene ye kia mbuaki mu ntangu yi kena mu ngonda (chaleur) ;
- ✓ Tufueti nata ngulu ya nkento mu mpaka ya mbakala mu diambu dia mbundasani ;
- ✓ Bu tuzeyi lumbu (date) yi bundusu ngulu, buna tulenda zaya mpe date (lumbu) yilenda buta ngulu. Tufueti toma kengila ngulu eto vo ntangu a buta yi fueni mpasi ka lembo lambila bana.
- ✓ Landila ngonda zole, tufueti vambula bana.



#### 5. BIMBEVO YE TRAITEMENT

(contact person Dr. Kalala Tel: 0819055992)

- ✓ Landila lumbu bitatu, tufueti vana fer ngulu bu yi butukidi (1 ml) ;
- ✓ Gâle (makuanza) : sangisa ye kusa mafuta ye petrole, yobisa mu savon munganga ;
- ✓ Nioka za vumu : vana Levamisol (1 cc /10Kg) ;
- ✓ Peste : bilongo nkatu.

#### 6. NTEKOLO A NGULU

Bisundidi mbote mu teka ngulu ya ngonda zole bu kakididieteti madia mayingi ko, kondua kua vingila ngonda sambanu.



Manual for Forestry preservation and replantation PP

SUPPORT DE FORMATION SUR LES PEPINIERS D'ARBRES

Preparer par Davier Bameni

1 MFUNU AZI MFINDA YE MINTI (Importance des arbres)

- Minti i bilokua bia ntalu beni kadi kinsungidila (environnement) kieto kia ntete kiena kia simbua kua minti

NKIA BILERKUA TULENDA BAKAMU MFINDA ?

Mu mfinda tulenda baka madia mampela mu mpila : bonso, nsafu, manga, mfumbua, luvua, bimpialu, ye bibulu mpa (Nso za bibulu i mfinda)

Machia momo tudiangamo ye tunga nitu zeto, i momo mpe tubakulanga ngolo za nsadila (energie) Mu mfinda mpe mueti tuka mabaya ma saduluanga mu ntungulu ( construction), nsadula a bikiti, papela ye bonso bobo

Mu mfinda tubela mpe zi nkuni ye makala ma ndambila

Mu mfinda mutukanga mpe madia ma bi bulu bi tutuelanga ( fourrage)

Biobio biabio bitutengi bilenda mpe tekua mboki tubela mbongo, zilenda kutu sadisa mu mamingi mu singu kieto



NKIA MAMBU MANKAKA MA MBOTE MATUKANGA MU MFINDA ?

- zimfinda I zawu ZIBENDANGA ZIMVULA , bonso buayi ? Makaya bu mena mamingi buna mawu matombulanga mufuta (evaporation) ye mufuta womo buwulueki mu zulu wele vanga matuti ma mvula mboki mvula zifuti toma nokanga,

- ezemple, ku haut cong, mvula zazingi zinokanga mudiambu dia zimfinda

- Zimfinda I zawu ZITANINANGA NTOTO diambu dia nkuka a nlangu ( erosion ), ntoto wa nsadila (terre arable) ka wulendi mana kukulanga ko, mu diambu dia makaya bumena mamingi mawu makakidilanga ngolo za matela mamvula, Kansi mpe mianzi mia ni I mawu misimbanga ntoto, kadi maza malandanga mua yenda mianzi. Huna kamalendi timunanga ntoto ko ye vanga makanga ye mabanga mpe

- Minti mi VANANGA KIMPOZI, muntu bukuna mu nzila evo ku bilanga evo mpe ku vata ye bukasolele vunda yevo tina muini buna kafuete sosa kaka kala ku nsa kimpoci Kani vo mu ntangua mambu ku vata ( Palabres), Nti kaka mi soruanga.

- Mu diambudia MAVIMPI METO, mupope wutu vumunanga, wusukuluanga kua makaya ma minti, poussiere yisangamanga mboki beto tusti fulumuna (oxygene) yeti tuka mu makaya ma ni

- Nti miamingi mpe misaduluanga bonso bilongo (tisane) Mianzi (racines), Makaya (feuilles) ye kiubula (ecorce) bifikusuanga ye sadisa Bantu



MU NKUPI : Tutoma visu va NTI kalekua kua nsakinako, kadi I TUKU KIA LUZINGU. (ORIGINE DELA VIE)

2 BONSO BUE TULENDAKUNINA MINTI ? (PEPINIERE)

Tekila tua songa bue tulenda kunina minti, tuzolele teka zaya nka minti miomio

mitoma kalanga mu kinsungidila kieto

Tuena ye

- Malala
- Manga
- M'voka
- Maba ma ngasi
- Nsafu
- Papayi
- Mankondo
- Mfulunta
- Mingianga
- Mi n'kamba ye bonso bobo



A) PEPINIERE

I fulu kua NKUNINA ye SANSILA MINTI

Minti mi kunuanga ku pepiniere, kadi ikhati kua pepiniere kuena ye n'kala

mia vambuka mu diambu dia menisina kaka zi nginga, tekila mia vambulua, ye fulu kio kio kibekuduluanga: GERMOIR.

GERMOIR INKI ?

Germoit, I n'kala watoma kubukua va n'toto wa mbote wena ye mbodila (fimisier), mu nkala miomio mu tenduanga zi nzila (silona) I muna mukunuanga zi nginga (graines) Kansi mpe n'kala miomio mifute kala ku nsi a n'tampa mu diambu dia mini.

Kuna kati dia pepiniere tulenda kala ye germoirs zazingi, ye makanda mpe mamingi ma MINTI.



NKIA FULU TULENDA TULA PEPINIERE ?

Fulu bia mbote i biabi :

- Va mbela maza ka ma yumanga ko
- Vovo va lembua vuandanga maza



- Fulu kiokio kikitanga muini
- Fulu kikondolo mupepe wangolo
- Fulu kiena ye n'toto wa mbote, (fertile), wa ndombe
- Fulu kia vuanda evo kia kuluka

**MANDANDA MA NKUNUNU A MINTI** ( les etapes pour la preparation dela pepiniere)

- Nsololo a fulu kia nsadila pepiniere ( choix du terrain )
- Katula matiti, balula n'toto, kubika mi n'kala, sala zi nzila ( sillons )
- Kuna zi nginga (semer)
- Tulanga maza, nsiuka evo nkokila vo m'vula kazeti noka ko.
- Vo tezo kia vambula kifueni, tula minti mu zi sachets nate ye ntangu a nkununu
- Va fulu ki mifuate butila (Transplantation)



**B) PEPINIERE EN PANIERS OU EN SACHETS.**

Tubezi, mpe nzila ya n'kaka yi tulenda kunina minti i nzila ya zi sachets evo paniers mu diambu dia kuena ye makanda ma minti mia n'kaka ka mitoma vangamanga ko mu vambula vo kamiena ye buma kia n'toto ko ( motte de terre ) bonso : n'safu, m'voka, accacia.....

I dina tufuete kunina kaka mi m'bamba mu zi sachets, mpasi vo mu ntangu ya nkununu ka mi lendi fua ko ( TRANSPLANTATION )



**BUE TULENDA KUNINA NTI MU ZI SACHETS**

- Tufuete baka n'toto wa mbote wa ndombe, ku mfinda evo ku fuku va vata
- Soka n'toto wowo mu zi sachets
- Ningisanga mpasi watoma kota ( secouer )
- Ka fulusa nate va zuluko mu diambu dia maza (arrosages)
- Bumanisi, kuna mi m'bamba evo nginga (za fioti bonso malala, zole-zole, vo m'bamba wumosi kaka)
- Tulanga maza, nsiuka evo nkokila (arrosages)

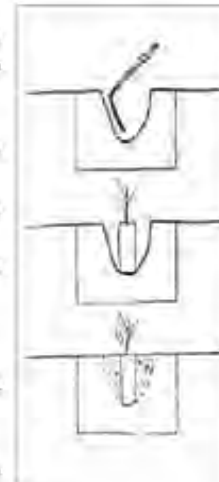
**BUE TULENDA VAMBUDILA MINTI** ( transplantation ) **KU NKUNKU** (verger ) **EVO KU VATA** ( village ); trouaison, comblement, plantation, paillage, arrosages.

**NKIA NTANGU YA MBOTE MU VAMBULA MINTI ?**

Ntangu ya mbote, I mu ngonda za ntete za m'vula. ( Novembre, decembre, janvier )

**BUE TULENDA KUNANGA MINTI MIETO ?**

Ko n'kaku, mu mbola noka ku lupangu, mu mbola n' ngo, mu ndilo za n'toto ye mu mbola kulanga ( ku nkunku evo m'vula ) tatula minti mu kuna tezo kia 6 m te ye 10 m)

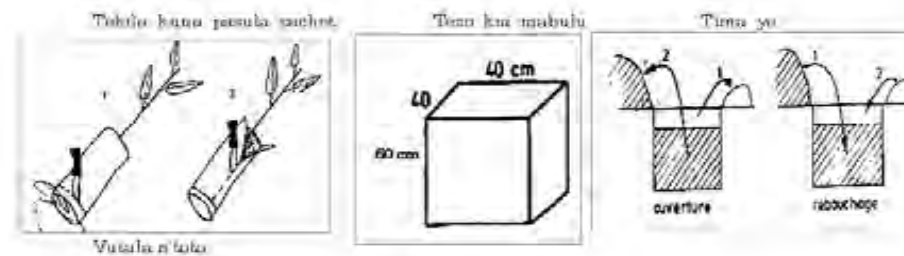


**BUE TULENDA SANSILA MINTI MPASI VO MIA TOMA BUTA**

- Dia ntete, tufuete toma mio sakudilanga, kadi matiti mi ni mavondanga
- Dia nsole, vo ku vata, tufuete tanga lupangu mu diambu dia hbulu ye bana ba fioti
- Dia ntoto, kamsanga mi ni mu tyia, (coupe four)

**NKIA MAMBU MAMBI MATUKUSUANGA KUA TTVA ?** (les avantages de fin de l'annnee)

- Tiya tu yokanga minti, mañiti, ye bebisa n'toto mpe
- Minti vo nkatu, maza ma m'vula makukulanga mu ngelo ye l'annuu evo mukula, n'toto wa mbote (lessivage de la terre arable)
- Mvula ka zilendi toma nokanga diake ko, vo si mfinda nkatu
- Ntoto za n'angu zifote mana yuma, kadi mianzi mia nti mi fuete hotsanga maza mu n'toto nkulu ( engraisment des sources )
- N'toto wa mbote buwu meni kukula buna mada kamalendi toma buta diake ko nastu ye crise mpe bikotele. **LUZINGU MPE KALULENDI KALA LUJA MBOTE KO**



Le formateur, animateur Davier Bamani

**Annex 6.12 Calculation of Project Effects**

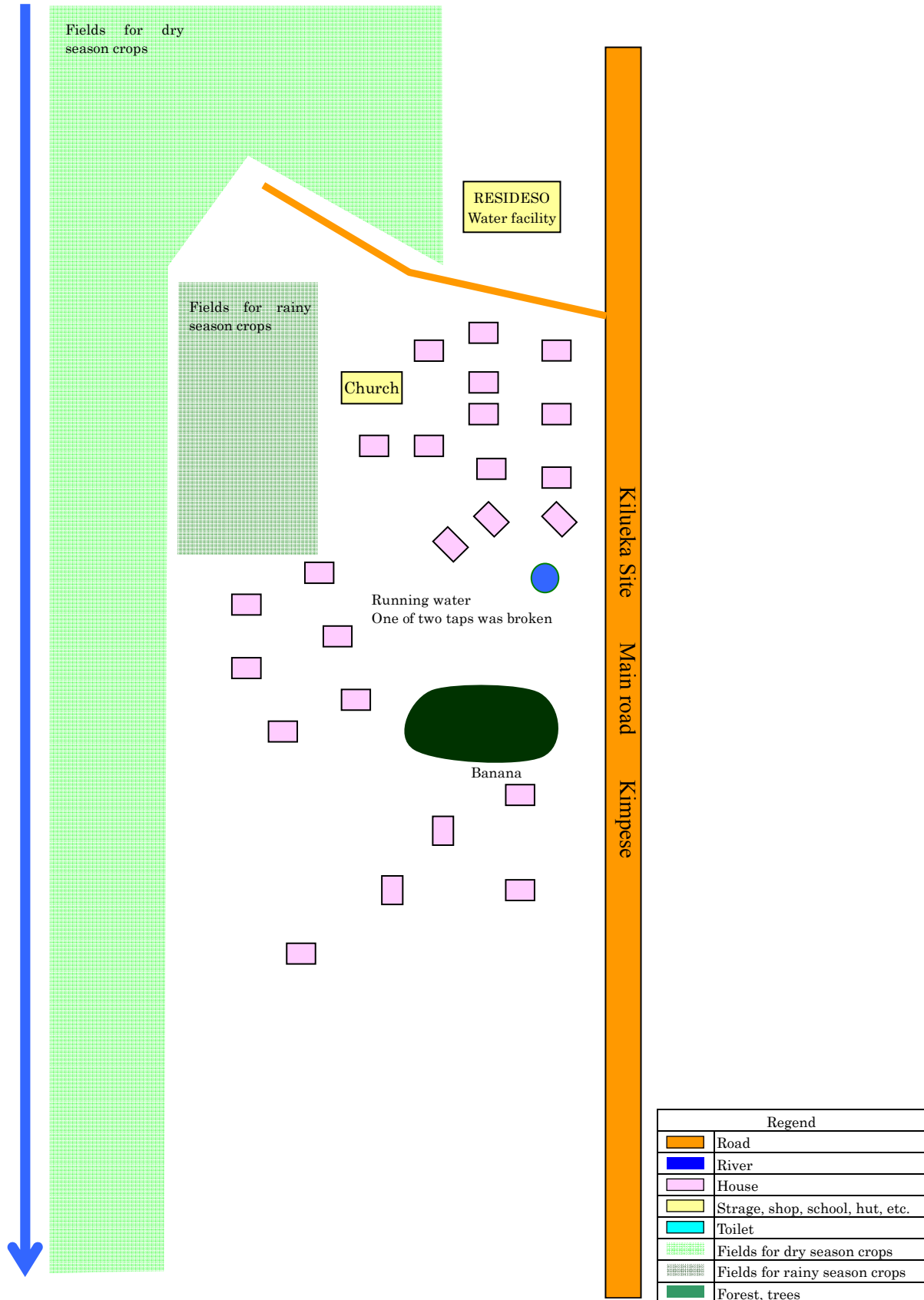
Project	Current						Planned								
	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc/ha)	Operation and maintenance cost (Fc)	Profit (Fc)	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc)	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)	
Animal traction	Profit per unit area (0.50 ha) (current)														
	0.5	2.5	200	0	0	250,000	-	-	-	-	-	-	-	-	
	Current (18 ha) and planned (21.6 ha) benefits per unit area														
	18.0	2.5	200	0	0	9,000,000	21.60	2.5	200	0	142,800	10,657,200	1,657,200	3,314	
Calculation conditions (1) Possible cultivation area per pair of oxen: 0.225 ha per day (10-year average) 1st year            0.10 2nd year            0.15 3rd year            0.25 Average            0.225   The annual cultivation area is 21.60ha on the assumption that the working period is 4 months from December to March in the rainy season. 4 months x 24 days x 0.225 ha =           21.6 ha (2) No production cost is posted because plants are cultivated from cuttings instead of seeds. (3) The operation and maintenance cost is US\$1,680, including prices for a pair of oxen, plow, etc. required for animal traction, which are assumed to remain operational for 10 years. 1,680 dollars/10 x 850Fc =           142,800 Fc <b>(4) The profit is 250,000 Fc per 0.5 ha, which is gained from cultivation of cassava and beans according to a hearing survey on sector personnel.</b>															
Vegetable cultivation	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc/ha)	Operation and maintenance cost (Fc)	Profit (Fc)	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc)	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)	
	Onions	0.15	10.0	400	49,200	0.0	550,800	0.15	10.0	600	49,200	0.0	850,800	300,000	600
	Onions	1.00	10.0	400	328,000	0.0	3,672,000	1.00	10.0	600	328,000	0.0	5,672,000	2,000,000	<b>4,000</b>
	Calculation conditions (1) The benefit of vegetable cultivation includes the following items. • Earlier cultivation period due to use of high nursery beds ... Shipment at the time of high selling prices • Soil improvement by making compost • Lower frequency of watering due to mulching • Management enhancement by making an account room (2) The effect was calculated assuming that products are shipped at the time of high selling prices by using high nursery beds. (3) The unit area used for calculation is 0.15 ha, the average cultivation area of the target area (4) No operation and maintenance cost is incurred in particular for high nursery beds, the introduced technology, because they are maintained using wooden frames and field soil.														
Promotion of rice cultivation	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc/ha)	Operation and maintenance cost (Fc)	Profit (Fc)	Planting area (ha)	Unit yield (ton/ha)	Price (Fc/kg)	Production cost (Fc)	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)	
	1st year	0.00	0.0	0	0	0.0	0	2.00	3.0	500	0	2,100,000	900,000	900,000	1,800
	2nd year and later	0.00	0.0	0	0	0.0	0	2.00	3.0	500	0	0	3,000,000	3,000,000	<b>6,000</b>
	Calculation conditions (1) The current cultivation area is 0 because rice is not cultivated in the target area. (2) Regarding the planned costs, the effect was calculated by including the cost for creating paddy fields in the operation and maintenance cost in the 1st year. • 14 persons x 8 days x 3 dollars x 500 =           210,000 (Labor cost per 0.20 ha) (3) In the second year and later, the creation of paddy fields is no longer required, and no operation and maintenance cost is posted.														

**Annex 6.12 Calculation of Project Effects**

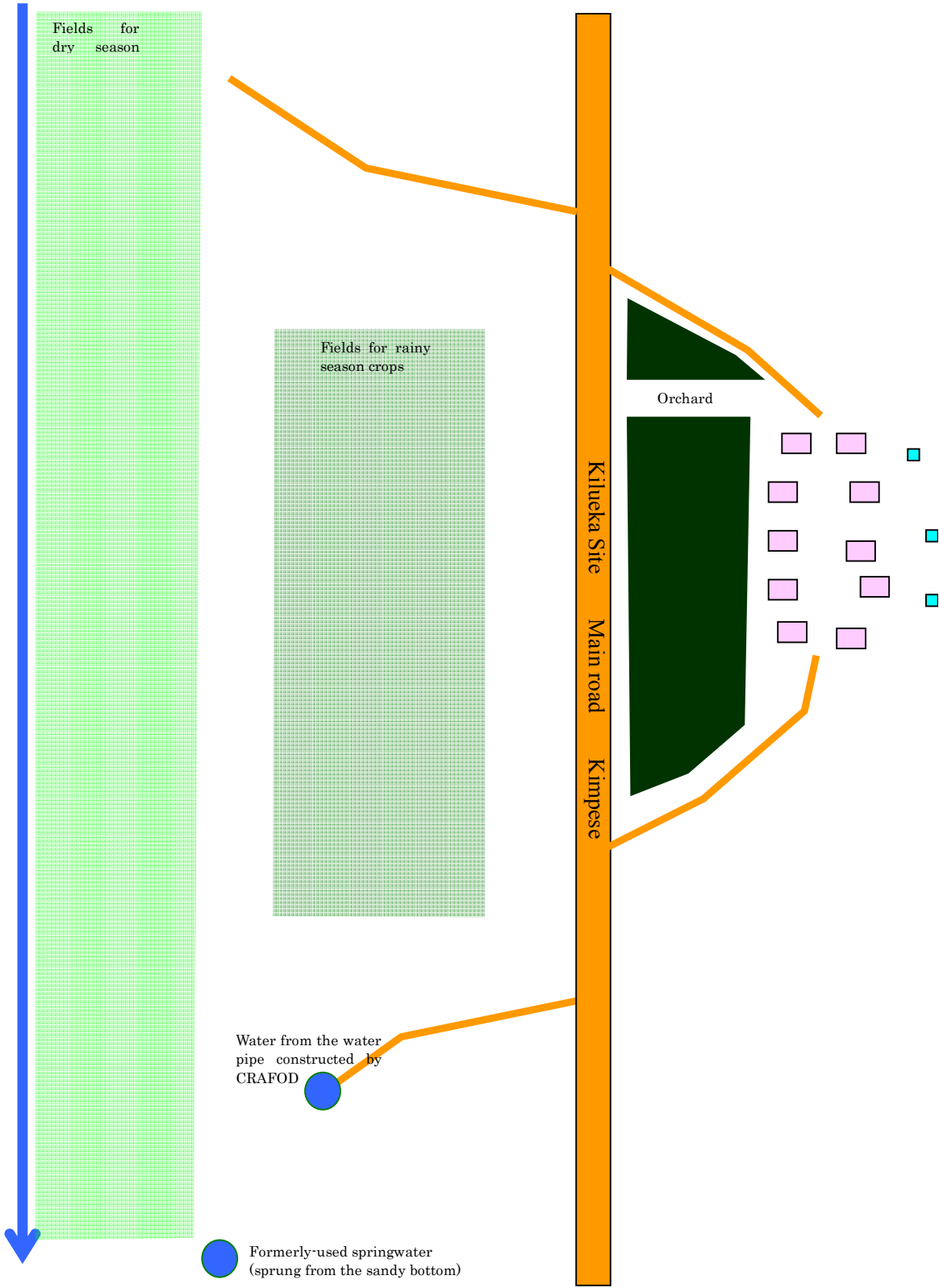
Project	Current						Planned							
Transportation of farm products	-	Transported amount (sac)	Price (Fc/kg)	-	Operation and maintenance cost (Fc)	Profit (Fc)	-	Transported amount (sac)	Price (Fc/kg)	-	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)
	-	-	-	-	-	-	-	0	1,000	-	-68,000	-68,000	-68,000	-136
Calculation conditions (1) Ox-drawn carts are used for transportation of farm products. (2) Transportation by bicycle is requested when a small amount of farm products is transported. (3) The benefit was calculated assuming that carts are used instead of bicycles that require a transportation cost of 1,000 Fc per sac. (4) Carts are used to carry 8 sacs at one time, four times a week in one month after harvest. 4 weeks per month x 1 month x 2 times per week x 8 sacs = 128 (5) The operation and maintenance cost is 400 dollars for the carts. The carts have a service life of 5 years.														
Pig farming	Number of pigs	Weight (kg)	Price (Fc/kg)	Production cost (Fc/head)	Operation and maintenance cost (Fc)	Profit (Fc)	Number of baby pigs	Weight (kg)	Price (Fc/kg)	Production cost (Fc)	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)
	7	9	3,000	18,000	-	171,000	10	17.5	3,000	75,000	127,250	322,750		646
	For 2nd female pig and later							10	17.5	3,000	17,500	65,250	442,250	
Calculation conditions (1) The currently raised local breeds and the newly introduced excellent breeds are compared. (2) Baby pigs are sold after 2 months. The number of pigs born and the weight after 2 months are as follows: • Current: 7 pigs born, 9.0 kg in weight • Planned: 10 pigs born, 17.5 kg in weight (3) The production cost includes the price of a pair of pigs. It also includes the cost of cement of the floor concrete to be used for the pigsty. • Current: 9,000 Fc x 2 pigs = 18,000 Fc • Planned: 17,500 Fc x 4 pigs = 70,000 Fc      One pair (male and female pigs) Cement cost = 40,000 Fc (4) The operation and maintenance cost includes the costs of livestock feed and immunization against diseases. These are not necessary for local breeds. • Livestock feed worth 120,000 (Cost of feed for 2 parent pigs)      120,000 Fc      Total input for introduction of 4 pigs      Parent pig cost      70,000      Parent pig immunization cost      20,000 • Immunization worth 4,000 (for 2 parent pigs)      4,000 Fc      443,000Fc      Cement cost      40,000      Baby pig immunization cost      13,000 • Immunization worth 3,250 (for 10 baby pigs)      3,250 Fc      Feed cost      300,000														
Aquaculture	Calculation conditions (1) Aquaculture is made for personal consumption. (2) The maintenance of an aquaculture pond in an aquaculture project is basically earthwork performed by the group. Therefore, no cost except for fry as the initial input is incurred. (3) The benefit is the elimination of need to buy "frozen horse mackerel" mainly bought in the village.													
Beekeeping	Number of bees	Weight (kg)	Price (Fc/kg)	Production cost (Fc/head)	Operation and maintenance cost (Fc)	Profit (Fc)	-	Production (liter)	Price (Fc/liter)	Production cost (Fc)	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)
	-	-	-	-	-	-	-	150	2,000	81,000	20,000	199,000	199,000	234
Calculation conditions (1) Since beekeeping is introduced in this project, no comparison is made with the current status. (2) The production cost includes the initial investment for beehive boxes, bee protection suits, buckets, etc. worth 810 dollars. The service life is 5 years. • Operation and maintenance cost: 810 dollars ÷ 81,000 (3) The operation and maintenance cost is 40 dollars for the cost of plastic buckets, which are covered in the above production cost but must be renovated every year.														
Collection and shipment	-	Shipped amount (sac)	Price (Fc/kg)	-	Operation and maintenance cost (Fc)	Profit (Fc)	-	Shipped amount (sac)	Price (Fc/kg)	-	Operation and maintenance cost (Fc)	Profit (Fc)	Increased benefit (Fc)	(US\$)
	-	50	25,000	-	0	1,250,000	-	50	50,000	-	100,000	2,400,000	1,150,000	1,353
Calculation conditions (1) This project constructs a joint collection and shipment station from which onions are shipped when the selling price is high. (2) Therefore, the benefit is generated by a difference in selling prices. (3) The planned operation and maintenance cost is the usage fee of storehouses. • Storagehouse usage fee: 1 sac x 2000 Fc = 2,000 (4) The benefit is calculated based on the amount of 50 sacs, a crop yield from 1500 m2.														

## Annex 7.1 Resource Maps of Kilueka Route

### Kimwana



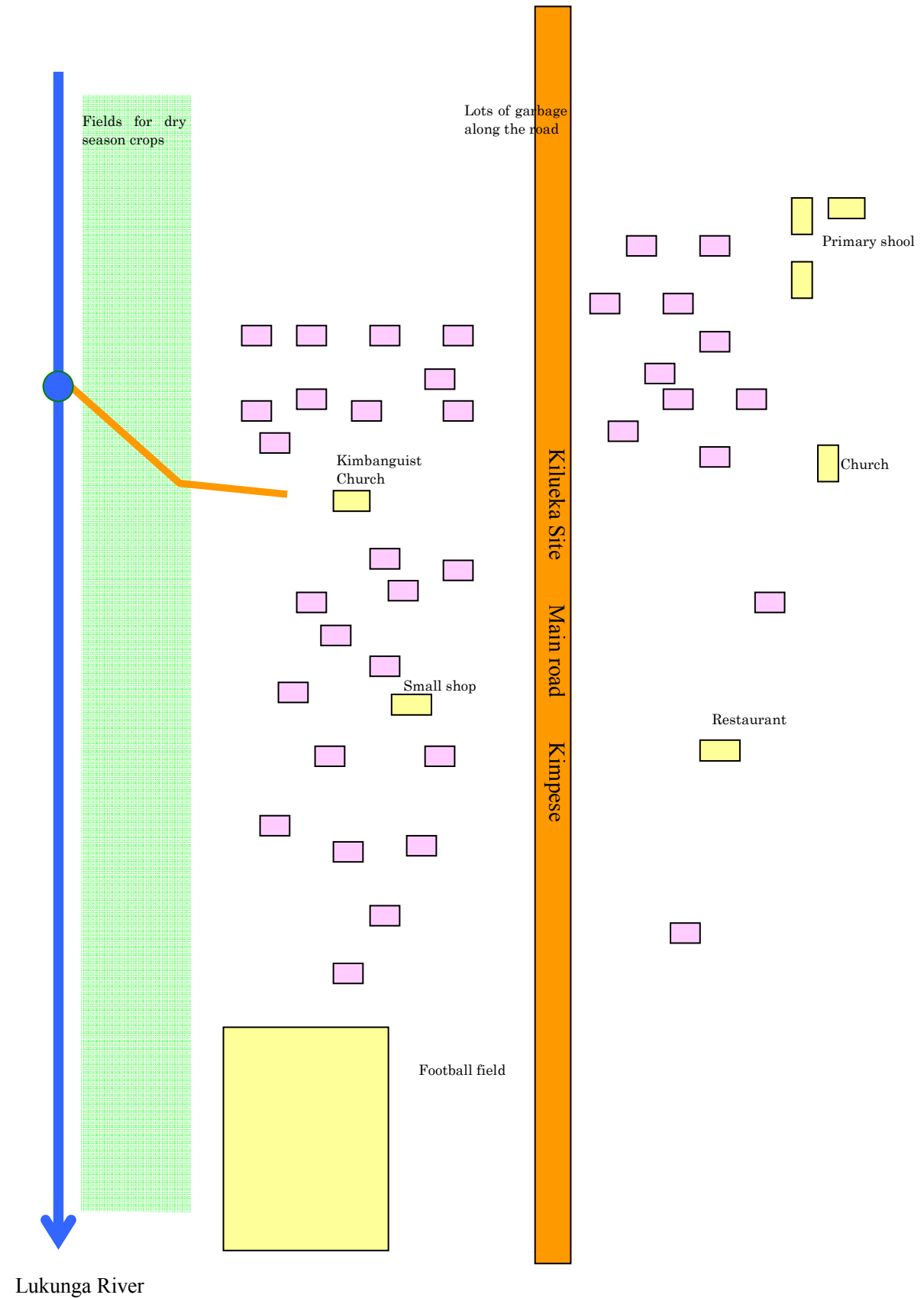
# Ndembo



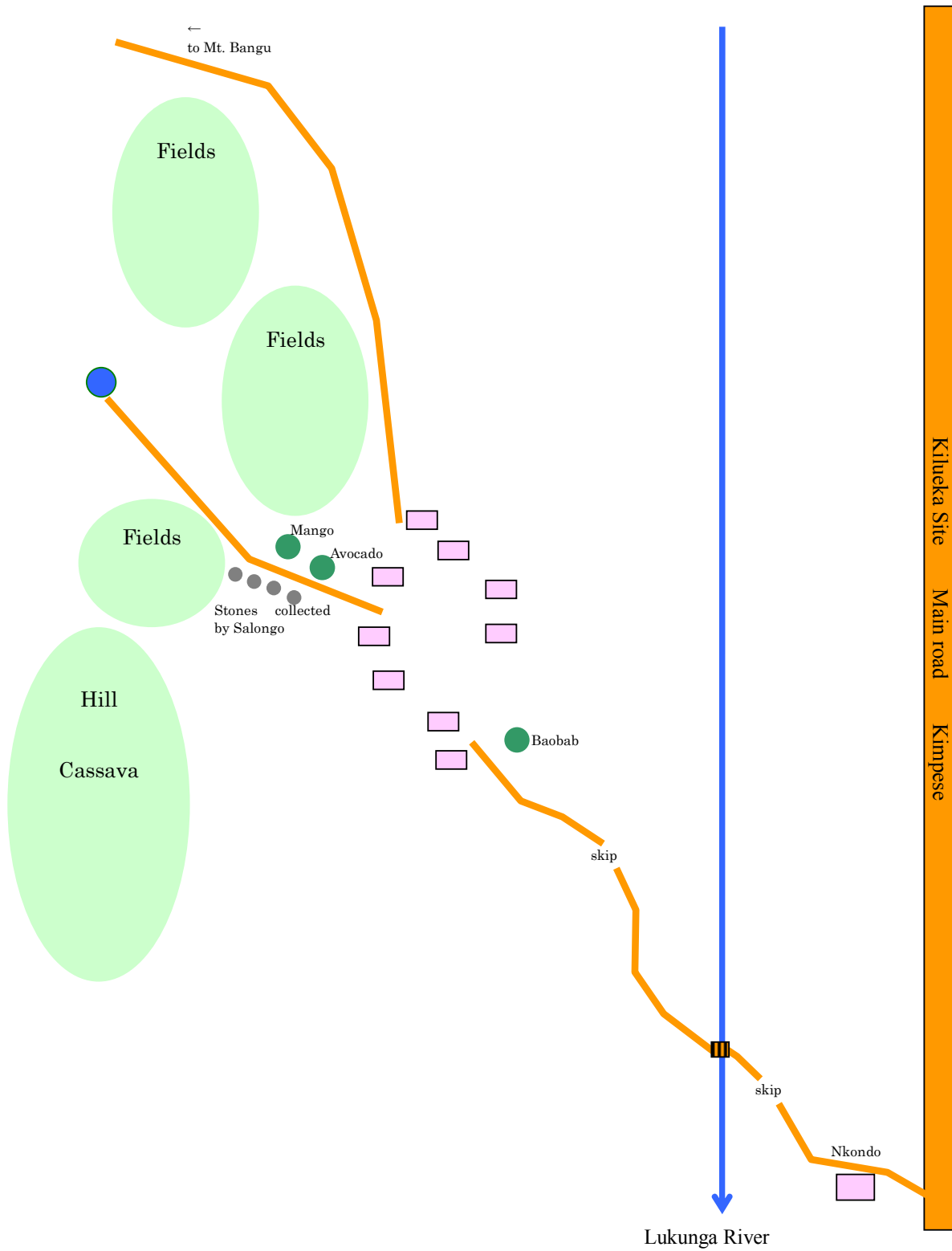
Lukunga River



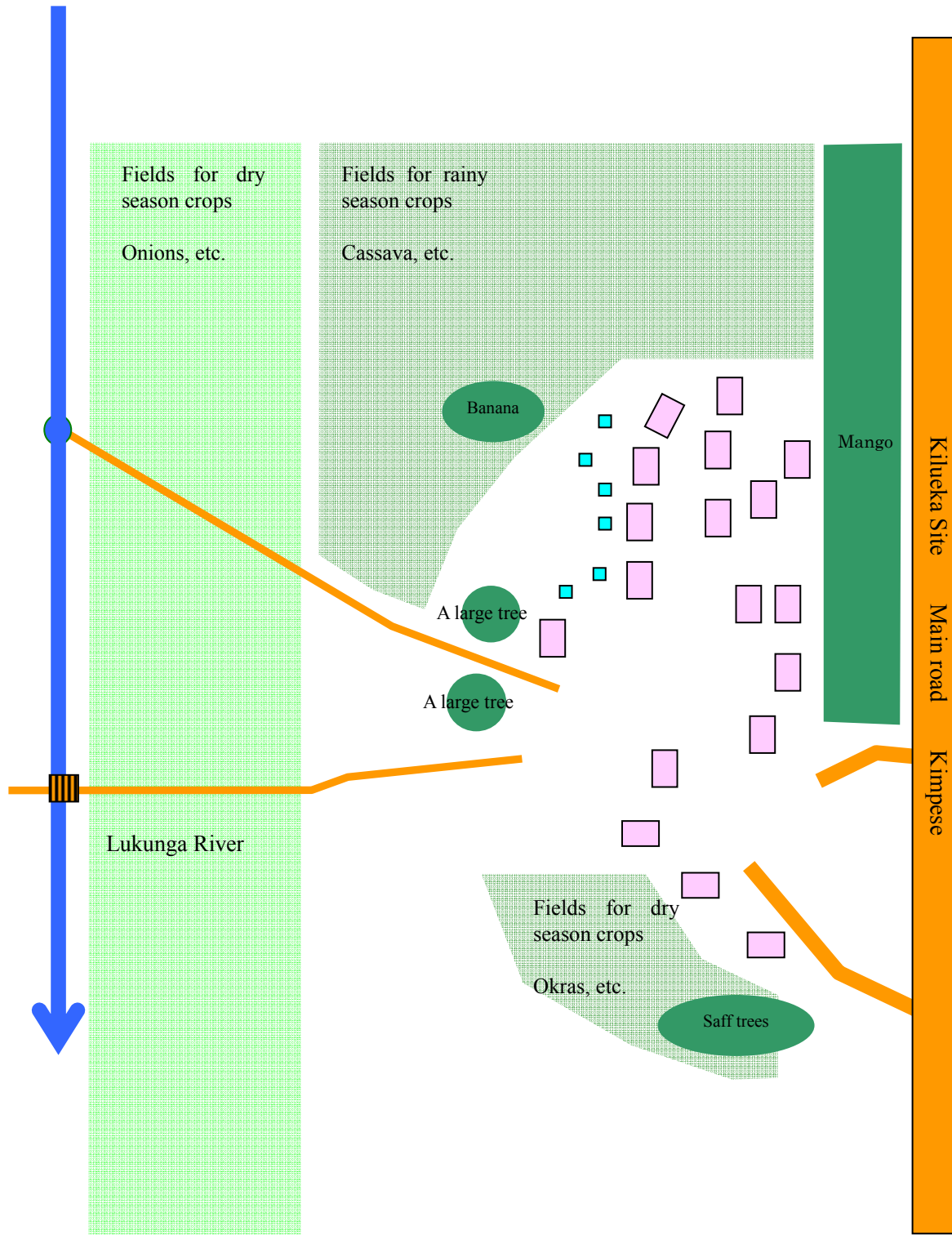
## Wene



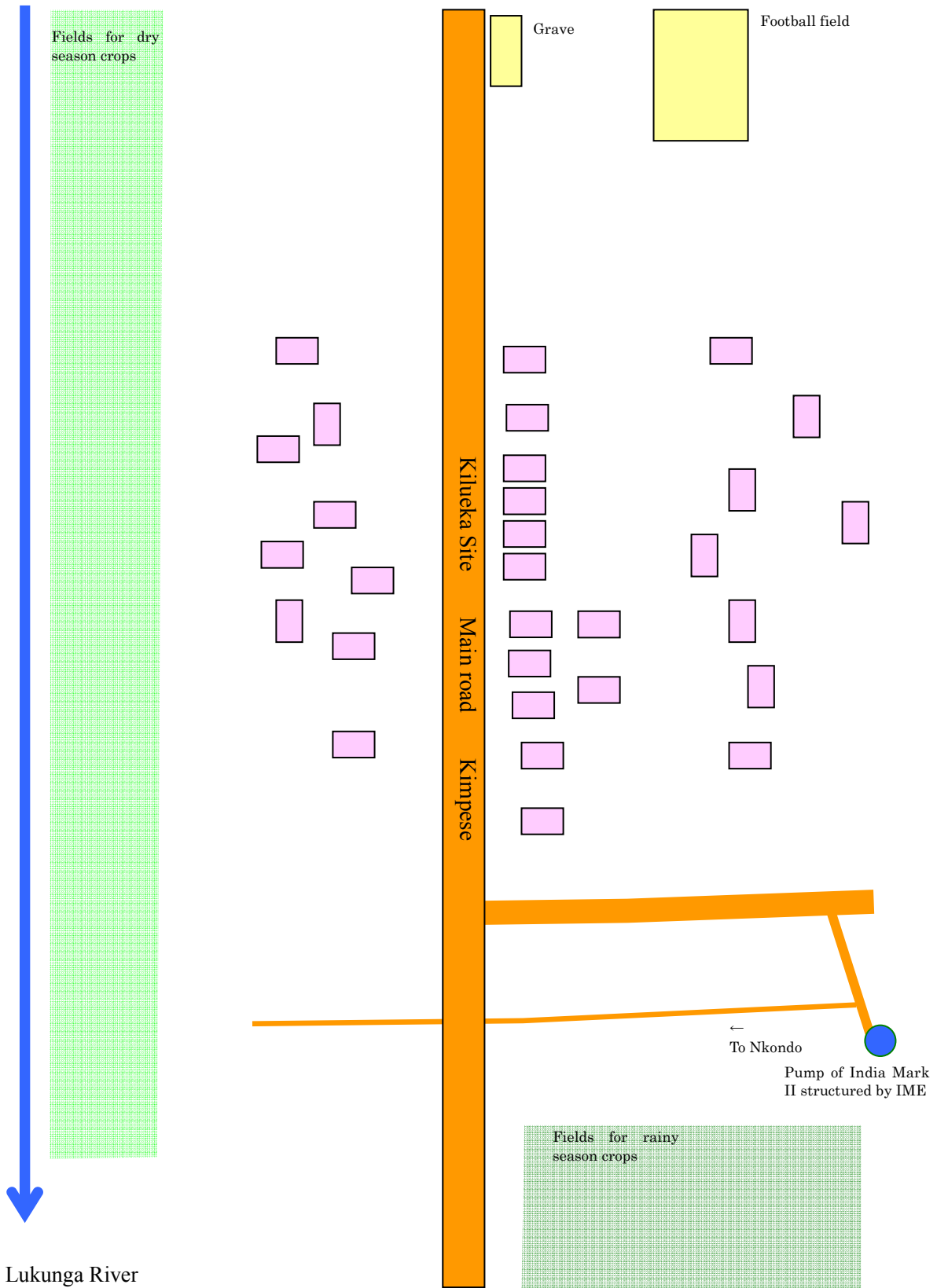
## Ndunguidi



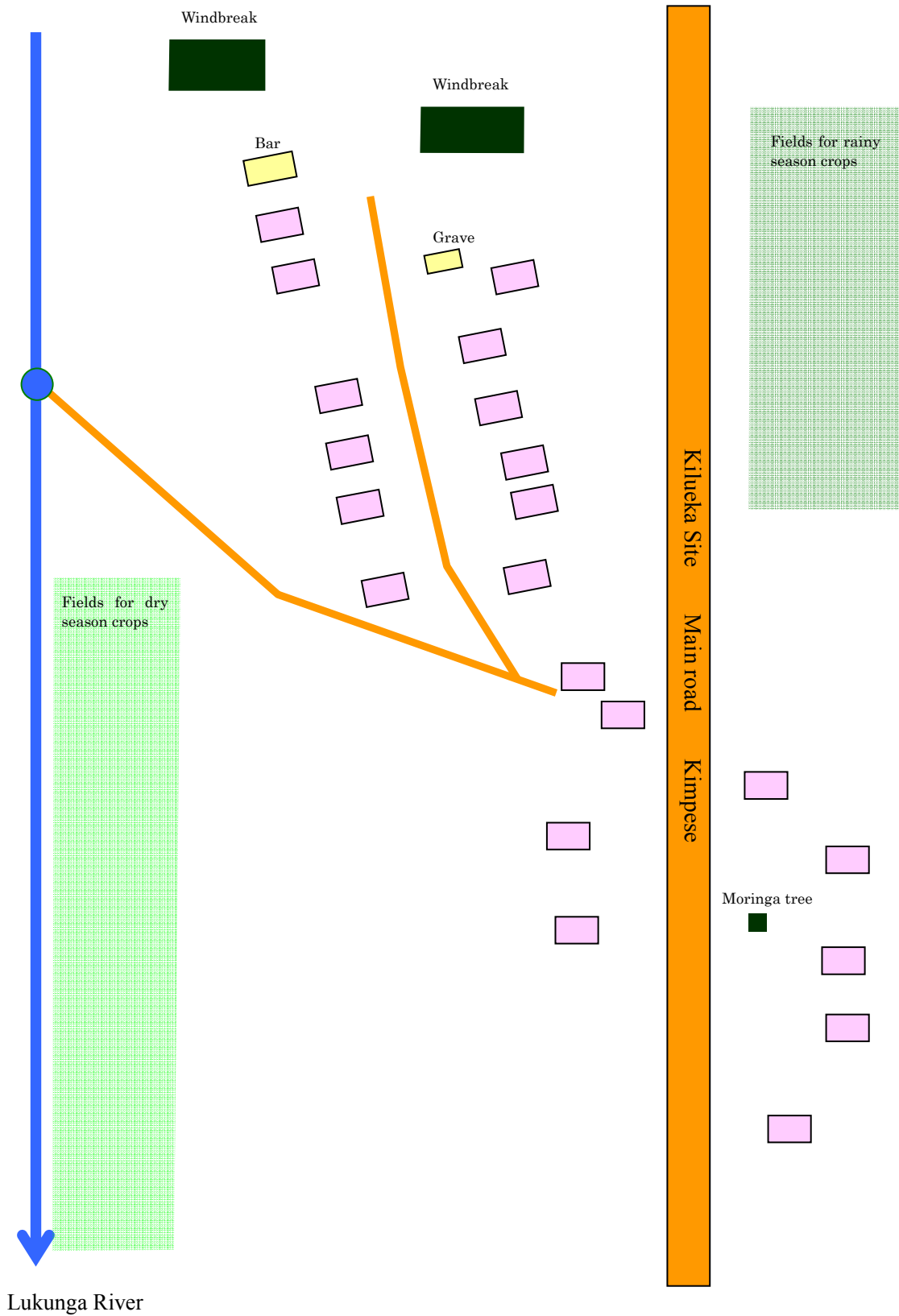
## Nkondo



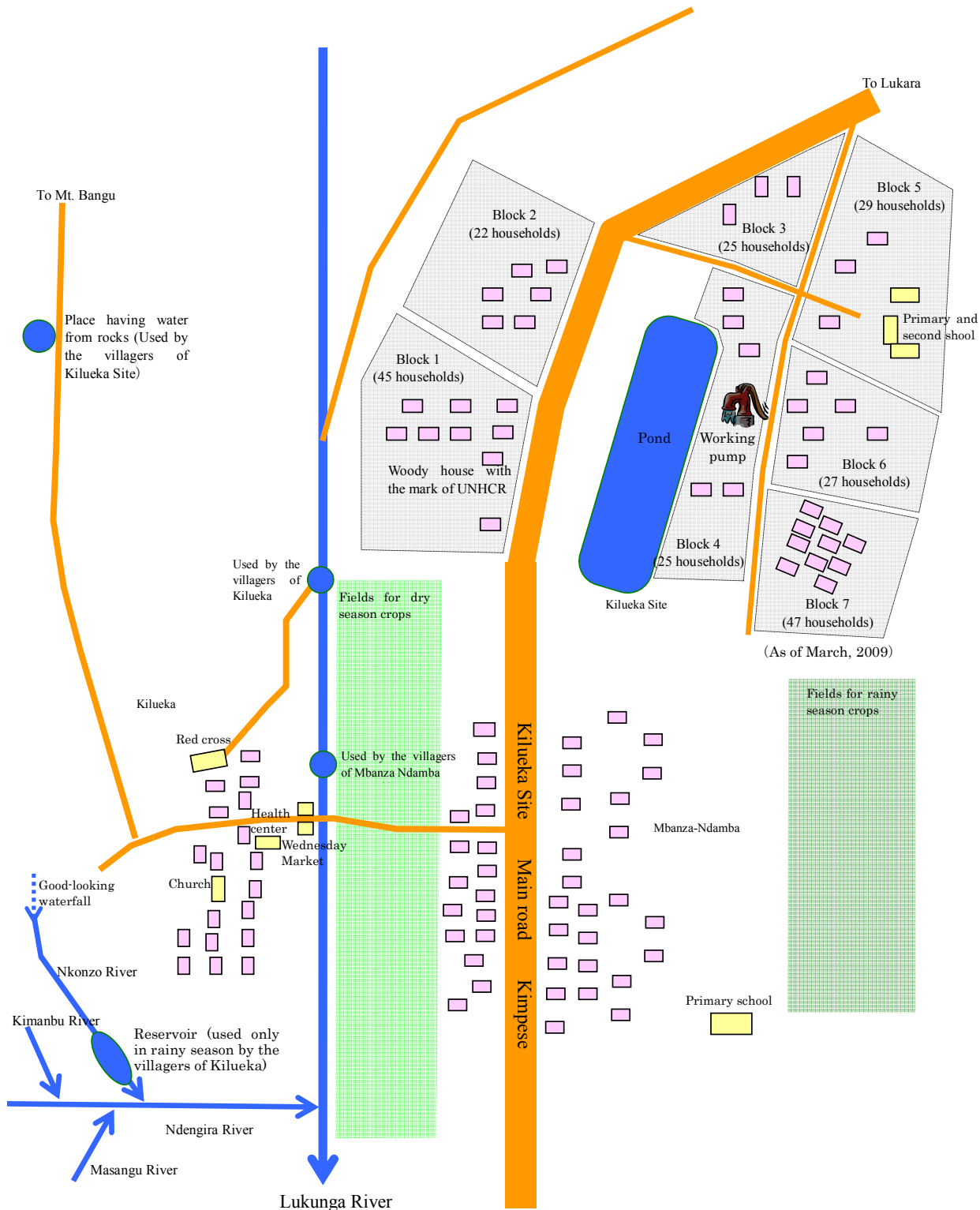
## Kinanga



## Kishياما

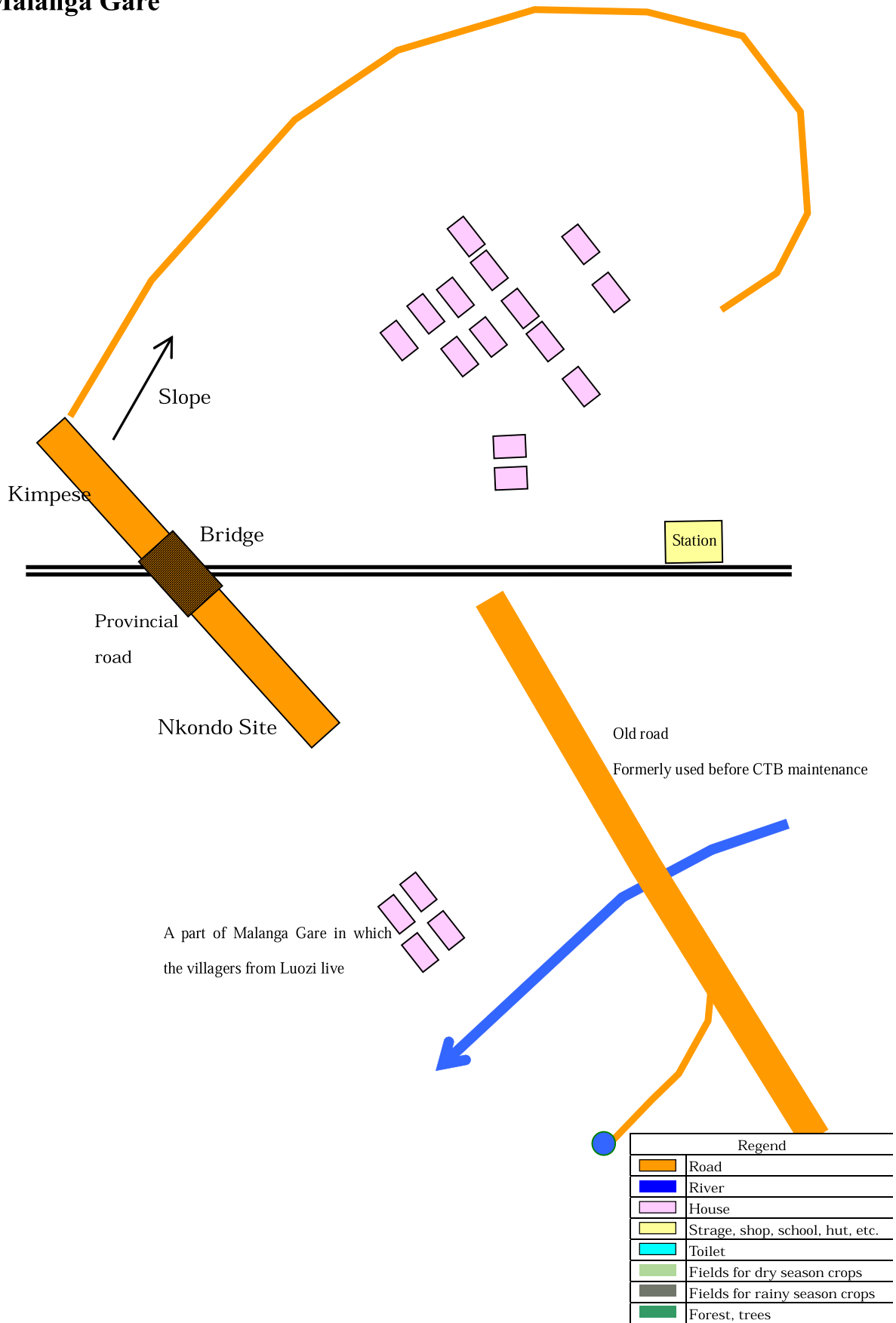


## Kilueka Site / Kilueka / Mbanza Ndamba

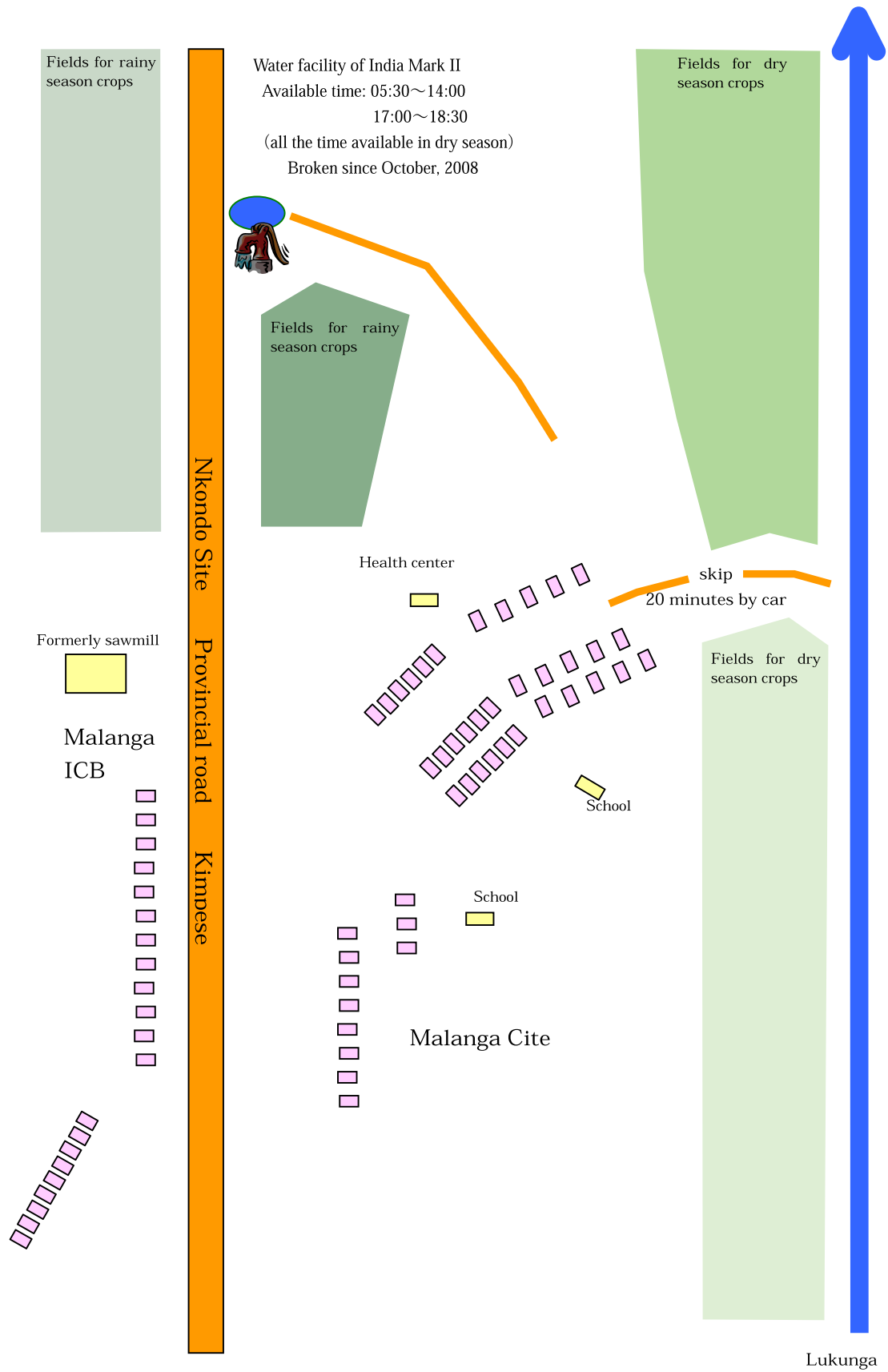


**Annex 7.2 Resource Maps of Nkondo Route**

**Malanga Gare**

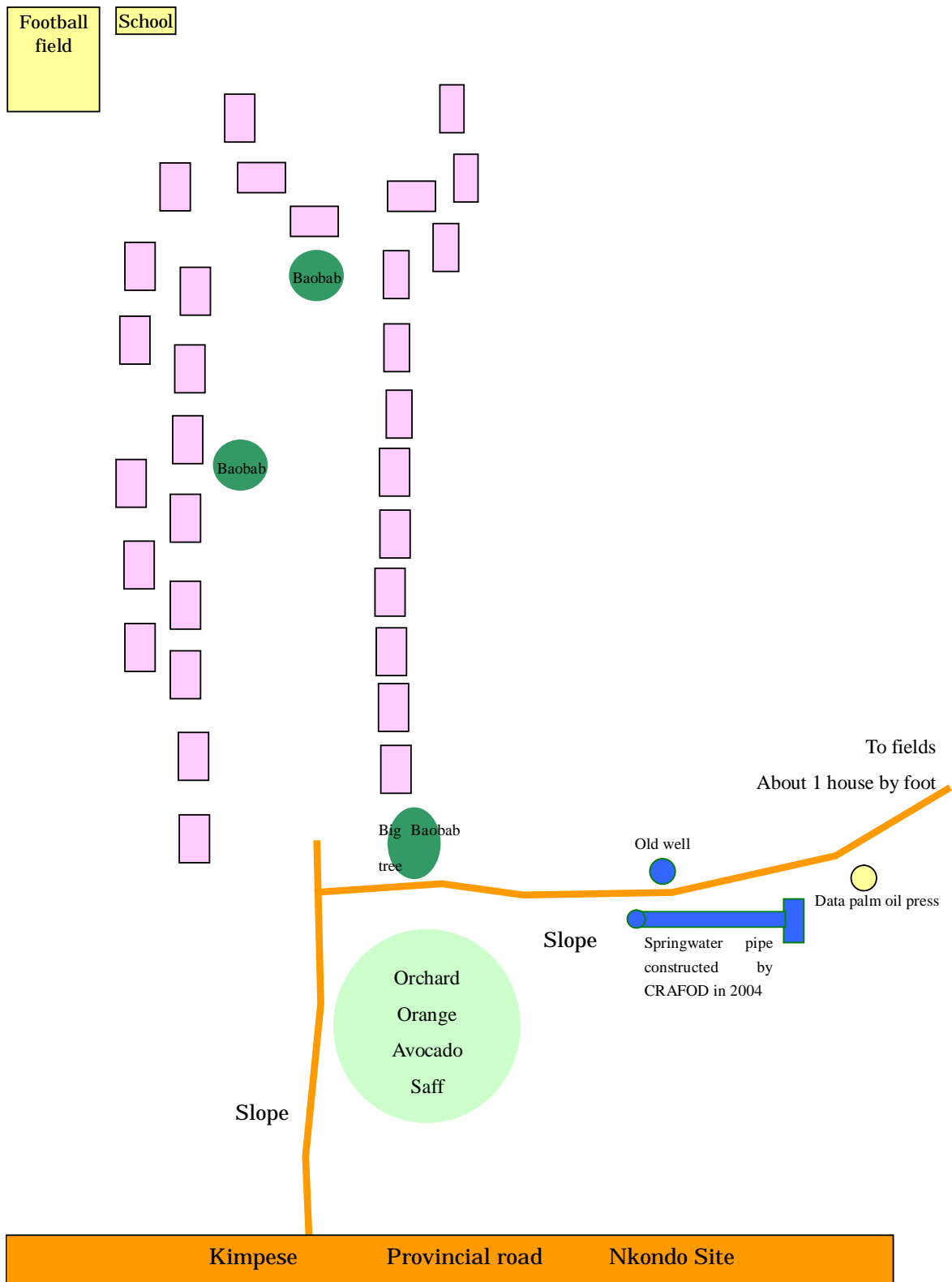


## Malanga Cité

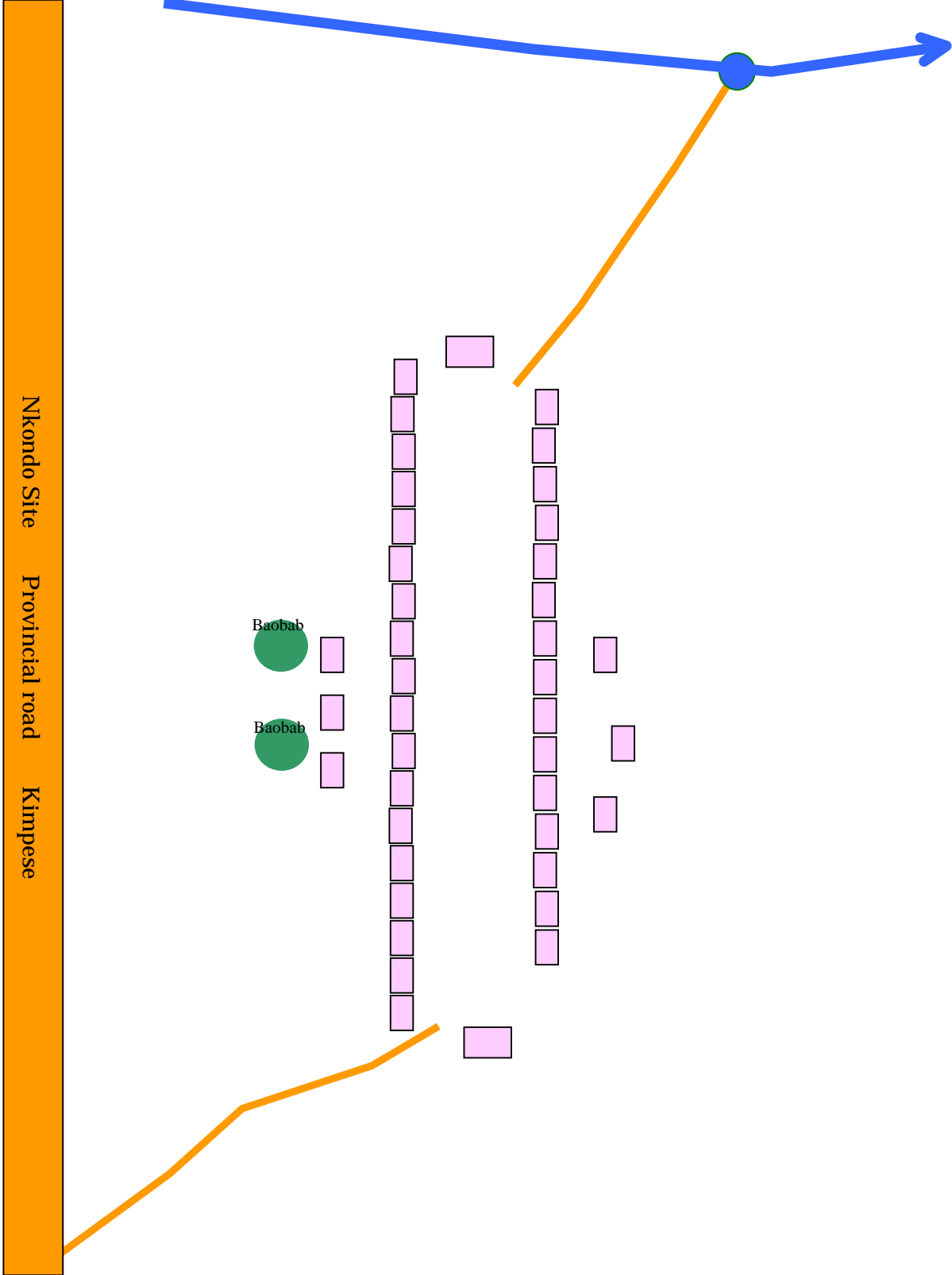




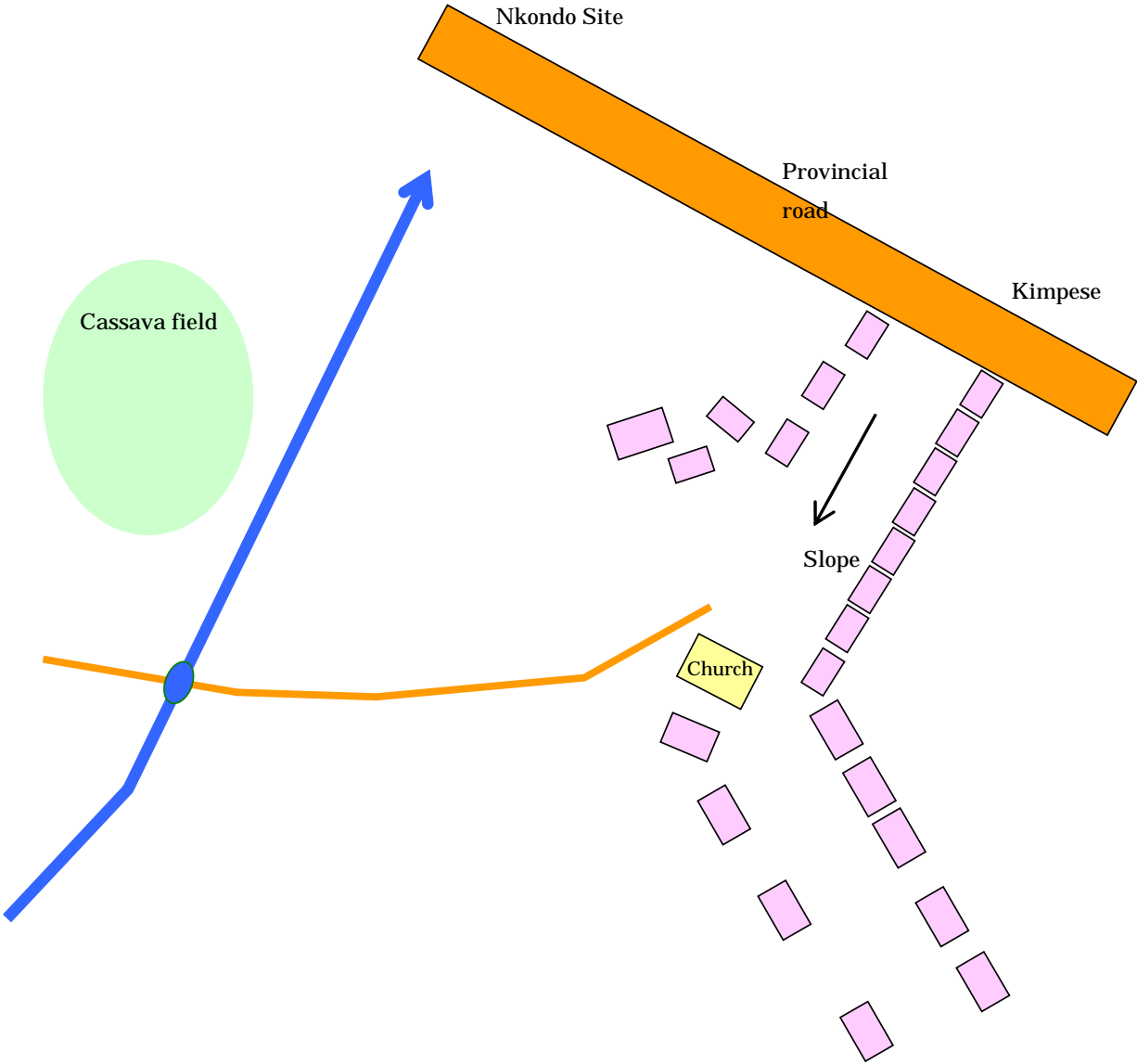
## Zamba



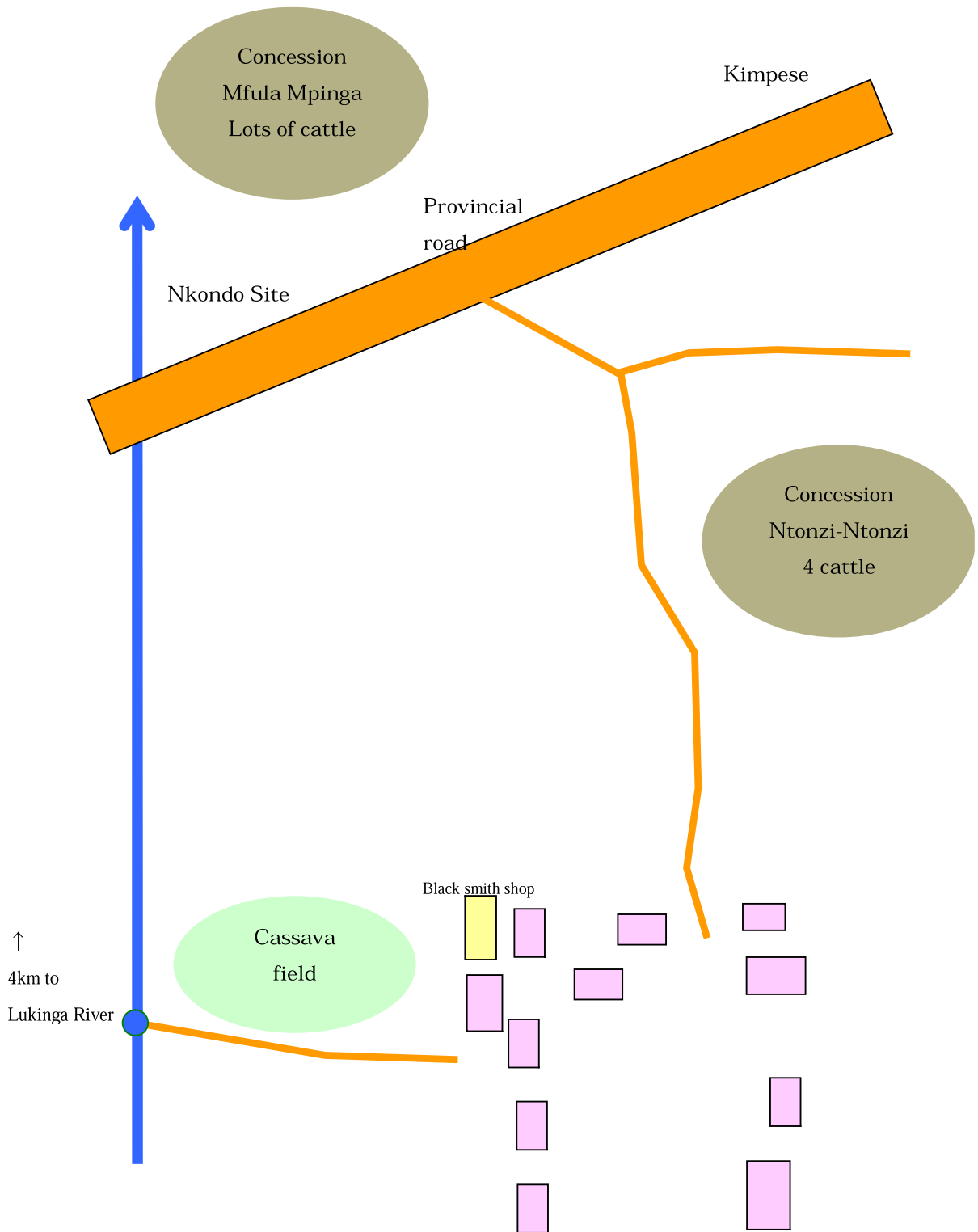
# Nkumba



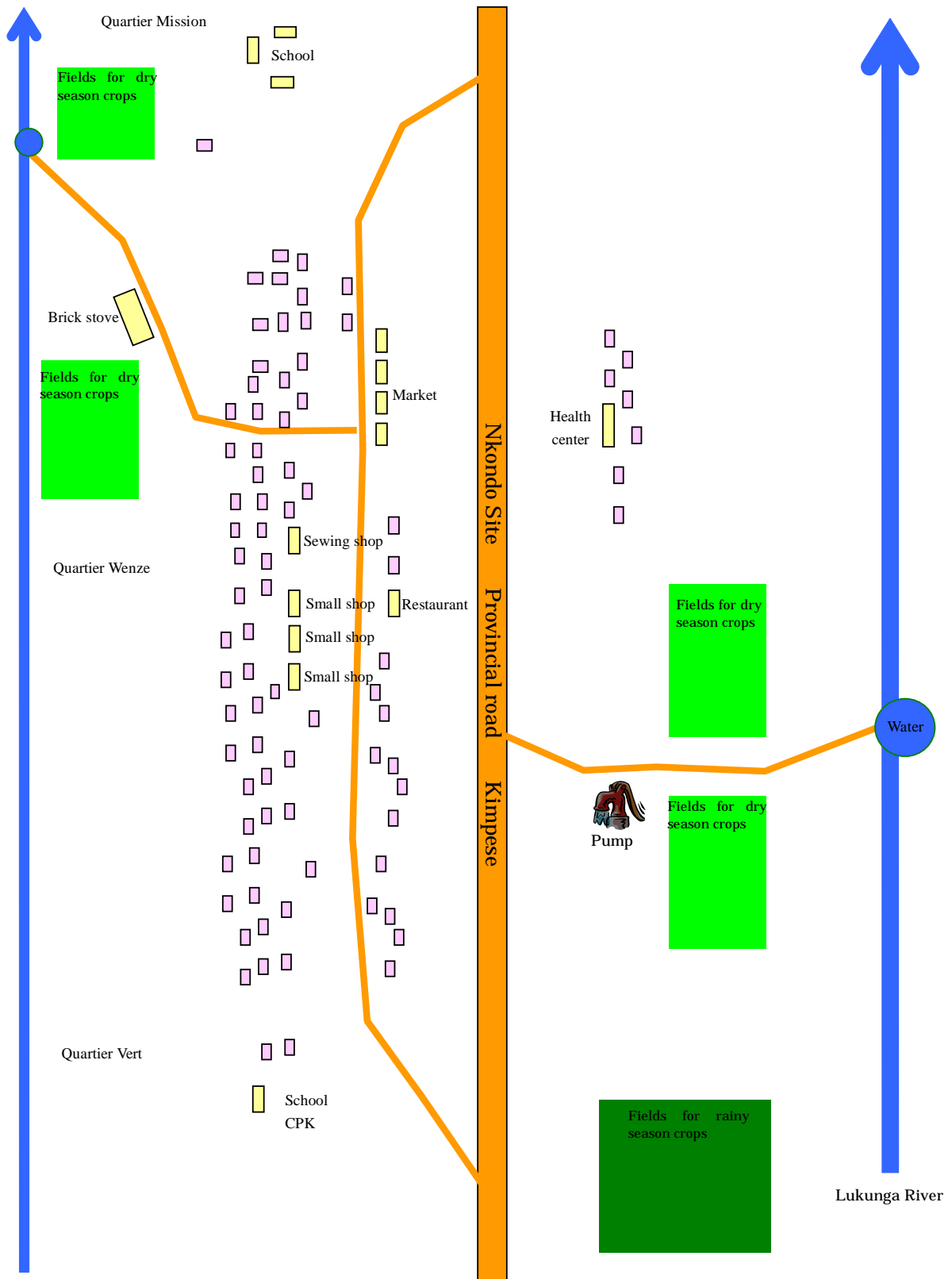
# Nkenge



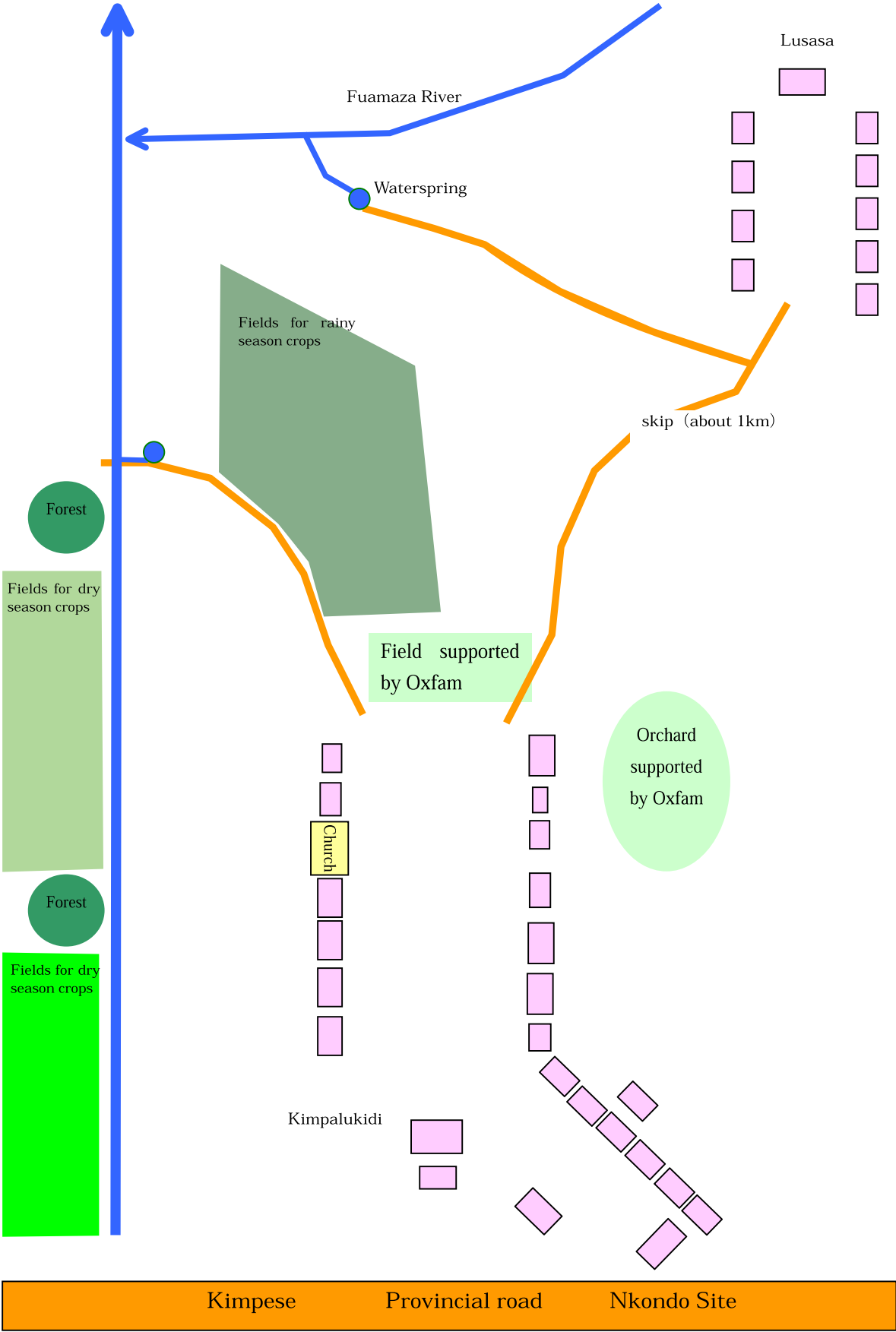
## Mawewe



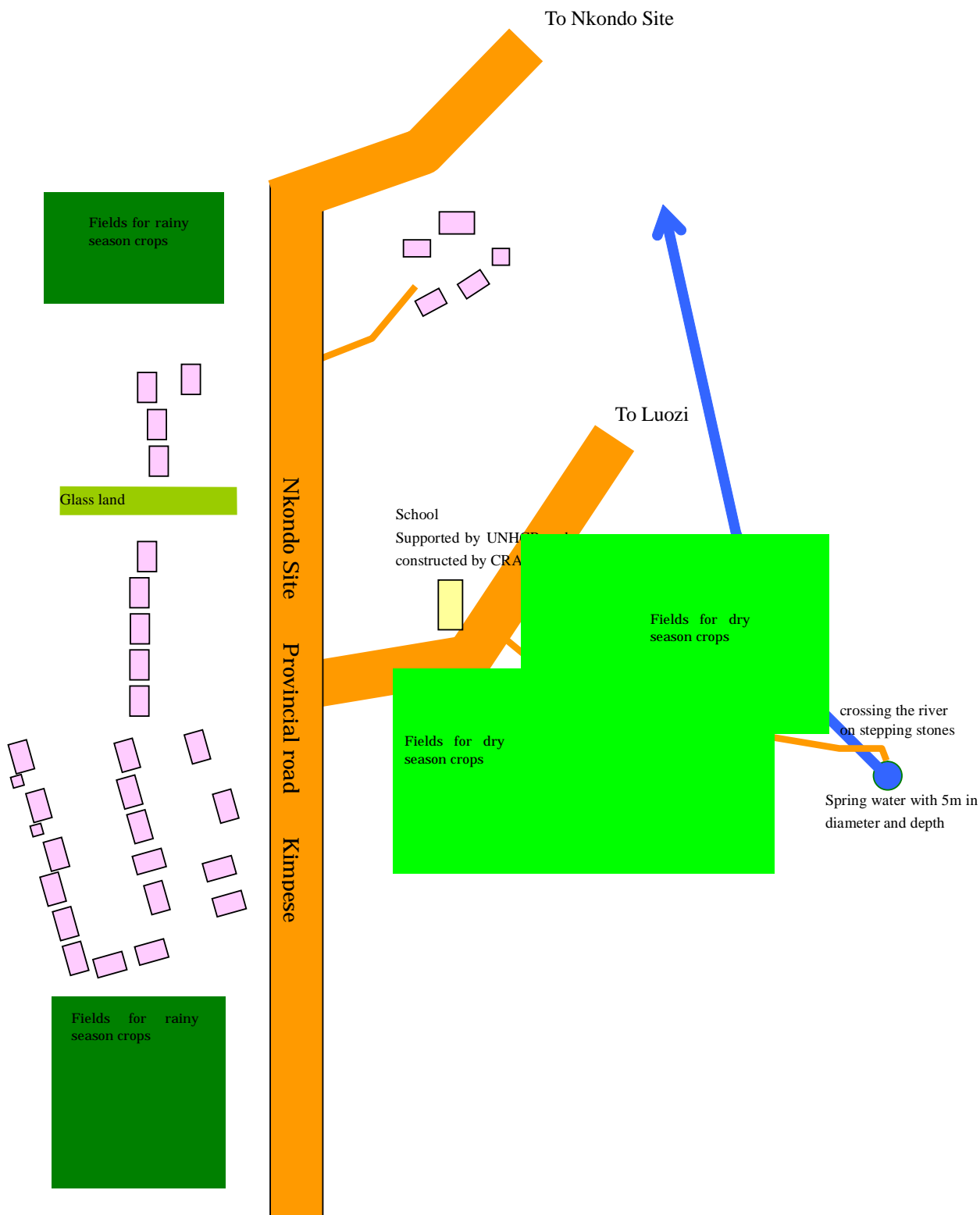
## Kiasungua



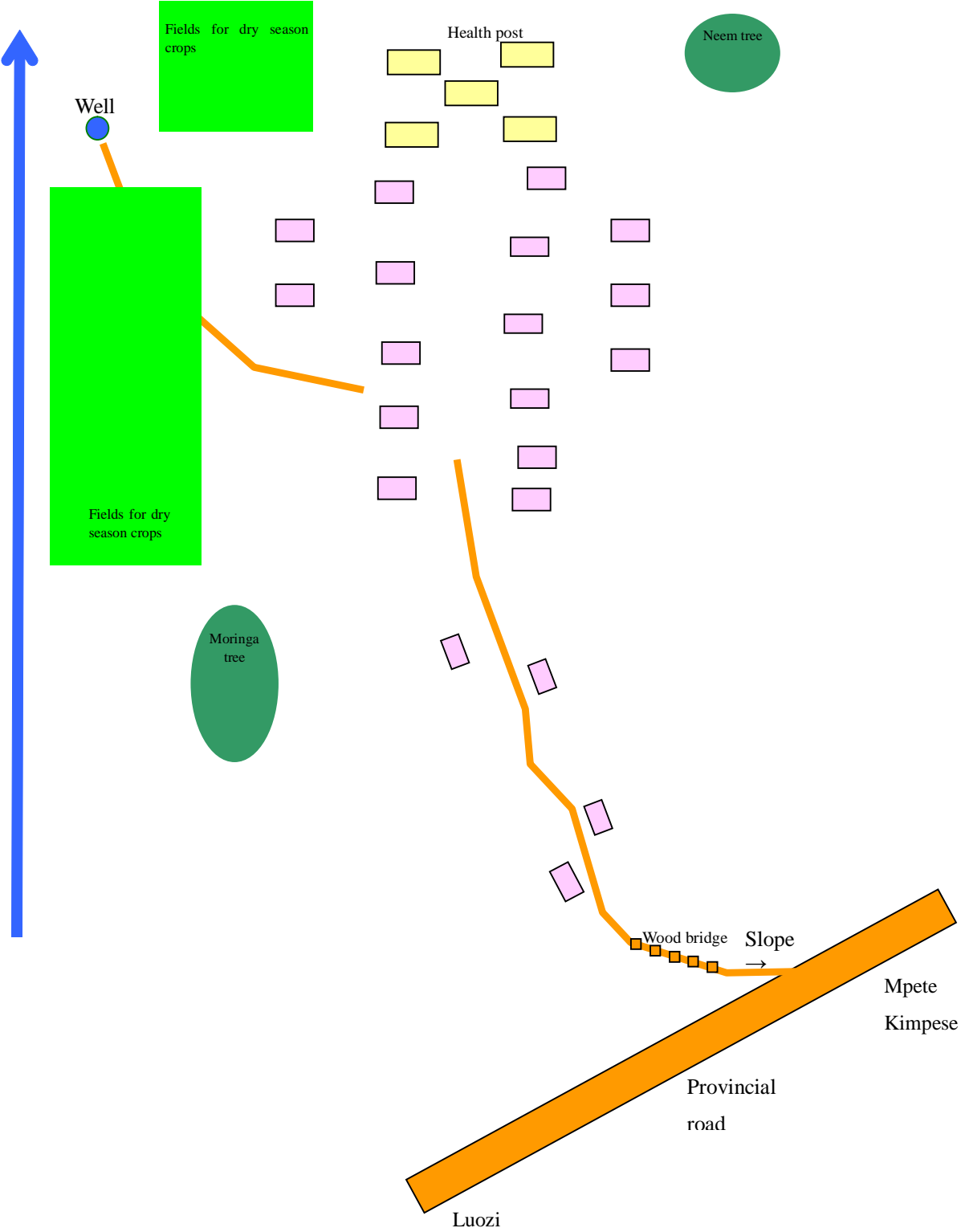
**Lusasa/Kimpalukidi**



## Mpete



# Nkondo Site





## Annex 8.1 List of Environmental Conservation Laws

Order 1 July 1914, as amended by the orders of November 25, 1936, from July 5, 1940 and March 28, 1942 on pollution and contamination of water sources, lakes, rivers and parts of rivers
Decree of May 6, 1952 on the concessions and the administration of water in lakes and rivers
Order of July 18, 1953 prohibiting the flow of liquid left in the springs, lakes and rivers, or throw or deposit any materials which may contaminate
Order of December 31, 1958 regulating the irrigated crops to protect the public health
Act of July 20, 1973 establishing a general regime of property, land tenure and property on the dams, sewage plants, crossings of watercourses (bridges, rectification of riverbanks, erosion devices ...)
Departmental order of September 2, 1986 prohibiting the use of natural water other than water supplied by REGIDESO
Planning Code November 26, 1958
Order of December 21, 1985 on safeguarding the northern district of Kinshasa
Order of May 28 and June 28, 1959 on sanitation in cities
Order of September 6, 1989 on the protection of health in cities
Mining Code of July 11, 2002 on the appropriate provisions ensuring the protection of mining environment and nature protection
Order No. 75/231 of July 22, 1975 establishing the powers of the Department of the Environment, Nature Conservation and Tourism, and repealed by Decree No. 03/027 of 16 September 2003 determining the functions of Ministries
Decree of 26 November 1958 on preservation of nature and land use
Order No. 50/445 of August 21, 1959 concerning the rules to be followed by the provincial land commissions
Order No. 74/148 of 2 July 1974 on measures to implement the Land Law made in the fight against land degradation in urban areas after anarchic construction
Ordinance Act No. 69-041 of August 22, 1969 governing the specific area of nature conservation
Decree of 2/07/98 on the territorial and administrative entities
Decree of 16/09/03 on the functions of the Ministry of Environment, Health and Public Works
Order of 14/02/81 on the creation of the National Action Committee / Water and Sanitation
Check Out of 17/02/81 on the creation of the National Department on Sanitation
Order of 19/03/82 on the organic framework of the State services / Sanitation
Order of 10/05/29 on the creation of the Directorate of Technical hygiene in each county
Order of 12/07/75 on the functions of the Ministry of Environment
Order of 22/07/75 on the creation of an interdepartmental committee for the environment
Order of 22/07/77 on the transfer of divisions and departments in the Ministry of Environment
Decree of 18/03/77 on the creation and organization of the National Network for Environmental Information
Ordinance 5 / 05 78 on the establishment of the Institute for Conservation of Nature
Order of 25/06/98 on the creation of a National Information Center on the Environment
Order of 21/05/52 on pollution sources, aquifers and water use
Decree of 26/11/58 on the Conservation and Land Use
Order of 12/02/53 on the dangerous, unhealthy and troublesome institutions
8/12/33 London International Convention on the conservation of fauna and flora in the wild
15/09/68 Algiers International Convention on the Conservation of Nature and Natural Resources.
Order of 22/08/69 on the Conservation of Nature
4/06/94 International Convention on Biological Diversity. Rio de Janeiro