CONGO LIVELIHOOD IMPROVEMENT AND FOOD SECURITY PROJECT
Cooperative Agreement No. 623-A-00-03-00068-00

END OF PROJECT SURVEY

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2421 Pennsylvania Avenue, NW, Washington, DC 20037, USA
Bringing people, ideas and actions together in sustainable ways

Forward

During the past 2 years and seven months of the CLIFS project, it is my pleasure to thank all those who have been involved with its successful activities. Our thanks go to those in USAID/DRC for its financial assistance to IRM as its implementing partner. We also thank the local authorities and communities with whom we have worked as well. We also wish to thank the IRM team that has worked from the beginning to the end of this project.

The end of project survey was implemented by IRM itself. The supervisors and enumerators were hired by the project in the field. We would like to thank all those who contributed to this survey. Specifically we would like to thank the following people.

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We would also like to thank our regional office representatives, their assistants and other local staff who work along the CLIFS axes.

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List of abbreviations

CLEP: Comité local d'entretien des pistes – Local road maintenance committees
CLER: Comité local d'entretien des routes – Local road maintenance committees
CLIFS: Congo Livelihoods Improvement and Food Security
#: Effective number (statistically speaking)
F.C: Congo Francs
ICC: ICRAF CIAT CIFOR team
IRM: Innovative Resources Management.
MUCREFEKI: Savings and loan association in Kikwit
MUCREMBA: Savings and loan association in Mbandaka
NA: Data not available
NGO: Non governmental organization
PMP: Performance Monitoring Plan
SO: Strategic Objective
SOCODEVI: Société de Coopération et de Développement International
SPSS: Statistical Package for Social Sciences
USAID: United States Agency for International Development.
YD: Yield

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Results Summary

General overview

The objective of this end of project survey is to compare the results of this survey with the results of the baseline survey done at the beginning of the project. The end of project survey was implemented along the same axes used during the baseline survey with the exception of the Mushi-Kiri axis. During the baseline survey, 642 households were surveyed in 68 villages. In the end of project survey 268 households were surveyed in 27 villages. The end of project survey was implemented by IRM staff, whereas the baseline survey was implemented by ICC.

1. Principal results

1.1. Activities providing financial capital in surveyed households

In the baseline survey, 38.06% of households were principally agricultural, followed by 17.45% principally fishing families, and only 10.8% of households had salaried incomes. The end of project survey did not find any change from this repartition of family income sources.

1.2. Average monthly revenue

From the baseline survey, average monthly income was $8.98. Along each axis monthly income varied. Average monthly income by axis was as follows: for Kikwit-Idiofa is was $3.00: for Mbandaka-Bikoro it was $5.83; for Mbandaka-Ngombe-Bobangi it was $23.08; and for Gemena-Akula it was $12.05.

At the end of the project, the average monthly income was $13.50. Average monthly income by axis was as follows: for Kikwit-Idiofa it was $9.83: for Mbandaka-Bikoro it was $19.16; for Mbandaka-Ngombe-Bobangi it was $19.00; and for Gemena-Akula it was $4.08.

1.3. Household resources and assets

At the beginning of the project, an average household had 2 machetes, 2 hoes, and one ax. Over 23% of households surveyed did not even have one hoe, 30% did not have a single bed and 45% of them did not have either a table or a chair. 74% did not have a bicycle, 66% did not have a radio, 99% did not have a television and not one household surveyed had a car or motorcycle.

At the end of the project, an average household had at least 2 goats, 11 chickens, 2 duck and one pig. Most households also had 1 canoe, 3 machetes, 3 hoes, 1 shovel, 1 rake, and 1 ax. 85% of surveyed households had at least one bed, 72% had tables and chairs, 1% had a car, 2% had motorcycles, 33% had a bicycle, 57% had a radio and 2% had televisions.

One sees a real improvement for households with respect to households' assets at the end of the project.

1.4. Agricultural productivity
1.4.1 Yields for principal crops
At the beginning of the project, average yields for annual crops were as follows per hectare.

Kikwit-Idiofa axis

Average yields for annual crops in Bandundu province were 0.74 t/ha for corn, 0.81 t/ha for rice, 0.87 t/ha for peanuts and 0.26 t/ha for cowpeas.

Gemena-Akula axis

Average yields for annual crops in Equateur province were 0.74 t/ha for corn: 0.84 t/h for rice, 0.71 t/ha for peanut, 0.50 t/ha for cowpea and 0.78 t/ha for soybeans.

Average yields for annual crops in South Ubangi were: 0.76 t/ha for corn: 0.68 t/h for rice, 0.70 t/ha for peanut, 0.50 t/ha for cowpea and 0.80 t/ha for soybeans.

At the end of the project average yields were as follows:

Kikwit-Idiofa axis: 1.93 t/ha for corn, 1.33 t/ha for rice, 0.93 t/ha for peanuts and 0.67 t/ha for cowpeas, and 0.65 kg/ha for soybeans.

Gemena-Akula axis: 1.50 t/ha for corn: 1.95 t/h for rice, 0.99 t/ha for peanut, 0.52 t/ha for cowpea and 0.49 t/ha for soybeans.

1.4.2 Increase in average yields over project start-up average yields

The average yield increase per hectare in % over the life of the project for province average yields was as follows:

Province	Corn	Rice	Peanut	Cowpea
Kikwit-Idiofa	160.00	64.19	6.89	157.69
Gemena-Akula	102.70	132.14	39.34	4.00

The average yield increase per hectare in % over the life of the project for district average yields was as follows:

District	Corn	Rice	Peanut	Cowpea
Kikwit-Idiofa	25.57	75.00	6.89	191.30
Gemena-Akula	100.00	186.76	41.42	4.00

One can see a major increase in crop yields for targeted communities when measured against either provincial or district averages.

1.5. New varieties introduced by IRM

The majority of households, (77%) verified that the CLIFS project helped them by introducing new crop varieties. The specific new varieties were: Samaru for corn, Vita 7 for cowpeas, Afya for soybeans, JL 24 and Red Beauty for peanuts, IRAT 112 for rice and F85 for cassava. With respect to fruit trees, it was principally Tenera for oil palms and new varieties of citrus.

1.6. Increase in the number and size of crop fields

47 % of households increased the number and the size of fields they worked as a result of CLIFS activities.

1.7. Agricultural technologies adopted

During the baseline survey the identified technologies used in agricultural production, transformation and fish transformation were very crude and rudimentary. The only technology used to restore soil fertility was leaving fields in fallow.

At the end of the project the following improved technologies were being used that had been introduced by the project:
- Community seed production;

- Fruit tree grafting, rooting stem material, and seed germination; and
- Intercropping with legumes in an agroforestry setting.

1.8. Household extension of adopted technologies

The target household on average spread what they had learned to an average of 13 other households

1.9. New associations created, and assisted existing associations

Over the life of the project, CLIFS staff organized 241 organizations with the following themes
- 4 road user associations (original name) later changed to local road maintenance committees (CLER and CLEP)
- 2 saving and loan associations with outlying antennas (1323 members)
- 8 input supply facility management committees
- 5 management committees for manioc flour production and rice decortication
- 3 production associations for cacao
- 16 region improved fishery management platforms composed of 206 fishing community management committees

All of these organizations were operational at the end of the project.

The CLIFS project helped 464 other associations through training and or the provision of materials (seed, seedlings, and tools). The associations were as follows:
- 199 community seed production associations
- 39 fruit tree nursery associations
- 95 vetiver nursery associations
- 62 fish transformation associations (drying, smoking and salting)
- 69 fishing associations

At the end of the project 273 of the 464 were operational.

1.10. Improved market access

1.10.1 Increased sales
During the end of project survey, 49% of households indicated that their sales of products increased due to CLIFS related activities with resulting increased in income.

1.10.2. Reduction in corruption
During the baseline survey it was noted that market access was severely constrained by road barriers between production sites and markets, on average 3.3 barriers per village. By the end of the project:

- Market access was no longer constrained by barriers except along the Gemena-Akula axis and the Mbandaka-Ngombe-Bobangi axis where there were on average only 1 barrier between production sites and the nearest principal market;
- 67% of surveyed households declared that there are no longer any barriers at all between production sites and the nearest principal markets; and
- 80% of all households indicated that petty corruption had been reduced over the life of the project.

1.11. Improved use and availability of credit

At the beginning of the project there was not a single example of credit available for sampled households.

At the end of the project, 2 saving and loan associations had been created with a total of 1323 members of which 916 were women and 374 were men. The two associations have 1953 individual savings accounts in place of which 1361 belonged to women and 559 belonged to men. The first loans began in September 2004 and since that time 1284 loans were given out, 987 to women and 297 to men.

2. Introduction

Context and survey objectives

This report presents the results of a survey that was done at the end of the CLIFS project. The CLIFS project was implemented by IRM with funding from USAID whose principal beneficiaries were rural communities in Bandundu and Equateur provinces. The life of the project was originally 24 months with a seven-month extension until April 30, 2006, the PACD.

In the beginning of the project, a baseline survey was implemented whose objectives were:
1. Examine the status of natural, physical, social, financial and human capital in project zones;
2. Obtain raw data to measure key project indicators in order to determine the starting point for the project that would then be used at the end of the project to determine impact; and
3. Create a database for all data collected.

The objectives of the end of project survey were:
1. Measure as much as possible the evolution of project indicators;
2. Evaluate the performance of project activities at the end of the project;
3. Document the opinions of project beneficiaries with respect to the activities that they participated in during the life of the project; and
4. Provide certain recommendations to USAID on how to insure that impacts remain sustainable after the PACD both in the medium and long term.

3. Methodology

3.1 Survey sites

The end of project survey was implemented along 4 project axes. These were:

1. Kikwit-Idiofa-Panu-Lusanga in the Kwilu district, Bandundu Province;
2. Gemena-Akula in the Sud Ubangi district, Equateur Province;
3. Mbandaka-Ngombe-Lilanga-Bobangi in the Equateur district, Equateur Province; and
4. Mbandaka-Bikoro in the Equateur district, Equateur Province.

3.2 Sample number and unit size for survey

For the end of project survey, analytical units were: households, villages and axes.

3.2.1. Households

Extended households as defined in this survey are composed of people who physically share the same lodging, combine their financial resources together, who have a head of household, and who share meals prepared in a single pot. (N'ZINGA LUYINDULADIO et. al. 2004)

3.2.2. Villages/sites and axes

For the 4 study axes, the survey was implemented in 27 villages. The selection criteria for these villages were based upon the list of villages surveyed in the baseline survey in 2004 and the size and number of project activities in those villages.

The actual villages are listed below by axis.

a. Mbandaka- Bikoro axis:
Mooto, Mpenzele, Bikoro cité, Ilanga, Wendji Secli, Bongonde, Kalamba, Iyembe Monene, Mpaha, Itipo
b. Mbandaka-Ngombe-Lilanga-Bobangi axis:
Mobenzeno, Maïta, Ngombe, Bobangi, Malange, Elima, Lokekia

c. Gemena-Akula axis:
Boketa Salongo, Bodanu, Gbatikombo, Talasuma II, Mbonga II
d. Kikwit-Idiofa-Panu-Mangai axis:
Lusanga, Aten, Panu cité, Mangai cité, Dibaya cité.

3.3 Sample composition and choice of households within each village

One of the important strategies used by CLIFS was to select principal intervention sites and antenna intervention sites. Most of the CLIFS activities were carried out in principal sites where resident facilitators lived. Antenna sites would mostly be served by the extension of knowledge from principal households to antenna households through word of mouth. Therefore it was logical to select the end of project survey villages to correspond to principal intervention sites.

In each selected site (village), households were divided into two categories, those that participated in project activities and those that did not.

For households participating in project activities, a list was established by the local facilitator from which an average of 9 households per village was selected. Random selection from the list was done by putting the head of household names in a closed box and then names were drawn out by random selection until 9 households were selected.

For the four remaining households in a village to be selected (total village sample size was 13), the choice was made based upon their location with respect to the main road in the village. Every fifth household was chosen on the right hand side of the road and every sixth household on the left hand side of the road, two households being chosen on each side for a total of four. If one of these happened to be a household that was a direct beneficiary of project activities they were excluded and the count resumed.

CLIFS recruited, trained and monitored in the field 4 local enumerators and 4 supervisors. One supervisor and one enumerator made up a team and there was one team assigned to each of the four axes.

3.4 Survey activity

Before implementing the end of project survey, the questionnaire was tested in Nkalamba and in Ilanga in Equateur province and in Lusanga and Aten in Bandundu province. This test allowed for modifications to the questionnaire to be made based upon reactions in these four sites.

The baseline survey was implemented along five axes, Kikwit-Idiofa and Mushie-Kiri in Bandundu province; Mbandaka-Bikoro, Mbandaka-Ngombe-Bobangi and Gemena-Akula in Equateur province. For the end of project survey, the Mushie-Kiri axis was dropped due to high logistical costs and its isolation from the other axes.

3.4.1. Kikwit-Idiofa axis

For this axis, the survey was implemented from 19 January until 9 February, 2006. Found in the Kwilu district, this axis is accessible from two directions: Kikwit to Idiofa to Panu on the Kasai river; and Kikwit to Lusanga. A total of five villages were surveyed.

Table 1: Number of households surveyed by village/site along the Kikwti-Idiofa axis

Villages surveyed (name)	Number of households surveyed	Observations
Panu	14	8 households were mainly involved with CLIFS while 6 were not
Mangai cité	12	7 households were mainly involved with CLIFS while 5 were not
Dibaya Lubwe	14	8 households were mainly involved with CLIFS while 6 were not
Aten	12	7 households were mainly involved with CLIFS while 5 were not
Lusanga	13	7 households were mainly involved with CLIFS while 6 were not
Total	65	37 households were mainly involved with CLIFS, 28 were not

3.4.2. Mbandaka-Bikoro axis

This axis was surveyed from 20 January to 5 February 2006. Surveyed villages lie on the road between Mbandaka and Bikoro. A total of 10 villages were surveyed and 76 households.

It is important to note that there have been a significant number of surveys done here in comparison to the other three axes and this is because IRM has several other projects operating along this axis in addition to the CLIFS project. In this case, everyone wanted to be surveyed so the sample size was increased a bit to accommodate this.

Table 2: Number of households surveyed by village/site along the Mbandaka-Bikoro axis

Villages surveyed (name)	Number of households surveyed
Wendji Secli	6
Bongonde Djole	12
Ilanga	6
Mpenzele	1
Nkalamba	4
Mooto	4
Iyembe Monene	11
Bikoro	11
Mpaha	8
Itipo	3
Total	76

3.4.3. Mbandaka-Ngombe-Lilanga-Bobangi axis

This axis was surveyed from 21 January to 4 February, 2006. Sixty-six households were selected. This axis also has a unique characteristic in that the axis contains three rivers: the Congo, the Ubangi and the Mpoka rivers.

Villages selected by river axis are as follows:

The Congo River:
- Maïta
- Ngombe
- Malange

The Ubangi River
- Mobenzeno
- Lokekia
- Bobangi

The Mpoka River
- Elima

Table 3: Number of households surveyed by village/site along the Mbandaka-Ngombe-Bobangi axis

Villages surveyed (name)	Number of households surveyed
Maïta	16
Ngombe	14
Malange	7
Mobenzeno	8
Elima	7
Lokekia	7
Bobangi	7
Total	66

3.4.4. Gemena-Akula axis

The survey was implemented from 18 January to 7 February, 2006 along this axis. Survey staff used motorized canoes to move from village to village. The number of households per village is shown in the table below.

Table 4: Number of households surveyed by village/site along the Gemena-Akula axis

Villages surveyed (name)	Number of households surveyed
Gbatikombo	13
Talasuma II	13
Mbonga II	12
Bodanu	13
Boketa salongo	12
Total	62

3.4.5. Data entry and analysis

Data that was collected was entered into an Access database. The database was analyzed using SPSS II except for yield data, financial credit data and qualitative association data.

Once the database was established following data entry, certain statistical variables were calculated. These were frequency, averages, median values, standard deviations, and chi square. Comparisons were made among these calculated variables.

Yield data was obtained using in field measurements using test plot samples (yield squares). Average yields were calculated from measurements in 321 fields along the Kikwit-Idiofa axis and 30 fields along the Gemena Akula axis.

Information on micro-credit was obtained from SOCODEVI monthly reports, our micro-credit sub-grantee. The number of organizations participating on the project comes from quarterly CLIFS reports.

Table 5: Summary table for all axes, villages, and households surveyed

Axis	Number of villages surveyed	Number of households surveyed
Gemena-Akula	5	62
Kikwit-Idiofa	5	64
Mbandaka - Bikoro	10	76
Mbandaka-Ngombe-Lilanga-Bobangi	7	66
Total	27	268

4. Principal survey results

4.1. Objectives and results from the Performance Monitoring Plan (PMP)

The CLIFS project that falls with Strategic Objective 4 at USAID/DRC uses the following Performance Monitoring Plan FY 2004-2008.

Strategic Objective 4: Livelihood improvement in project zones
> Indicator: % increase in household revenue in project zones

Intermediary Result 1: Increase in agricultural productivity
> Indicator 1.1: % increase in food production for selected crops
> Indicator 1.2: % increase in yields per hectare for selected crops
> Indicator 1.3: Number of producer organizations created by the program
> Indicator 1.4: Number of producer organizations that become operational

Sub Intermediary Result 1.1.1: Increased number of agricultural and other technologies developed
> Indicator 1.1.1: Number of agricultural and other technologies developed

Sub Intermediary Result 1.2: Increased improved technologies and inputs that augment productivity in selected zones
> Indicator 1.2: Number of Improved technologies and inputs that increase productivity in selected zones

Intermediary Result 2: Market access improved along selected axes
> Indicator 2.1: % increase of selected food crop sales
> Indicator 2.2: Index of reduction of corruption and illegal taxation

Intermediary Result 3: Improved access to financial services
> Indicator 3.1: % change in financial service use within project zones
> Indicator 3.2: Number of projects implemented using other sources of capital
> Indicator 3.3: Ratio of loans given to men versus women

Intermediary Result 4: Critical needs for vulnerable groups satisfied
> Indicator 4.1: % reduction for moderate and severe malnutrition among infants less than 5 years old

The National Public Health School implemented an initial baseline survey as well as an end of project survey looking at the nutritional status of children under five years old and that for women. The indicator calculations for IR 4 are found in their report and are not repeated here.

4.2. Principal findings of CLIFS baseline survey, 2004

The principal findings are listed below.

Average annual revenue

Average annual household revenue for our project axes were as follows.

Mbandaka-Lilanga-Bobangi	$277
Mushie-Kikri	$206
Gemena-Akula	$150
Kikwit-Idiofa	$36
Mbandaka-Bikoro	$70

Average crop yields

Average yields by province in tons per hectare

Province	Corn	Rice	Peanut	Cowpea
Bandundu	0.74	0.81	0.87	0.26
Equateur	0.74	0.84	0.78	0.71

Average crop yields by district in tons per hectare

District	Corn	Rice	Peanut	Cowpea	Soybean
Kikwit-Idiofa	0.71	0.76	0.87	0.23	
Gemena-Akula	0.76	0.68	0.70	0.50	0.80

Household assets

23% of households did not have a hoe, 30% of households did not have a bed and 45% of households had neither a table nor a chair.

Market access

Farm to market access was impeded by a serious of barrier across farm to market feeder roads. At the time of the survey, a total of 221 barriers and control points were listed. An average of 3 barriers and control posts existed for each village.

Agricultural technologies

Agricultural technologies were very rudimentary and crude. The only technology used for increasing soil fertility was letting fields go fallow.

Access to financial services

There was no access to financial services in project zones at the beginning of the project.

4.3 CLIFS performance analysis at the end of the project

This is the essential section of this report. It presents the level of performance obtained over the life of the project due to the implementation of project-funded activities.

The concept of performance versus impact has been used on purpose. We believe that a project that strives to improve household livelihoods by increasing revenue, by the adoption of new agricultural

technologies, etc. will not be able to show true impact after only two years of action in the field. This time frame is too short to see if a new variety of manioc or a new fruit tree species that is introduced is actually adopted, is practical and has significant impact on household productivity, sales and income generation

This situation has led us to seriously think about how we might look at impact and draw conclusions that are valid and reflect what is actually happening at the household level. Therefore we have tailored this survey to examine if activities implemented have permitted stakeholders to see how if they continue implementing these activities over the medium and long run, impacts will likely be highly positive with respect to livelihood improvement.

We also tailored this study to permit us to measure in a quantifiable way the indicators found in the SO4 PMP at both the strategic and intermediary results level.

4.3.1 A few socio-demographic characteristics of surveyed households

Table 6: Partition of households surveyed by head of household sex

Sex of head of household	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Male	50	78	71	93	55	83	43	69	219	81
Female	14	22	5	7	11	17	19	31	49	19
Total	64	100	76	100	66	100	62	100	268	100

Of the 268 households surveyed, 81% were led my male head of household and 19% were led by women. However along the Gemena-Akula axis there was an elevated level of women led households, 31%.

Table 7: Partition of households surveyed by head of household age

Age of head of household	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Less than 19	-	-	-	-	-	-	-	-	-	-
19 to 35	7	11	14	18.5	14	21.2	6	9.7	41	15
36 to 59	48	75	58	76.3	44	66.7	18	29	168	63
60 to 70	8	12	2	2.6	8	12.1	38	61.3	56	21
More than 70	1	2	2	2.6	-	-	-	-	3	1
Total	64	100	76	100	66	100	62	100	268	100

Sixty three percent of households surveyed have heads of households whose age is between 36 and 59. This age group dominates three of the four axes. Whereas along the Gemena-Akula axis the major age group is 60-70 years old for heads of households. This situation is due to the fact that younger men and women have left to fight in civil conflicts in other parts of the country.

Table 8: Partition of households surveyed by head of household education level

| Educational level of heads of household | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
No schooling	1	1.56	3	4	6	9	2	3	12	4
Primary ed.	35	54.6	5	7	5	8	1	2	46	17
Secondary ed	25	39	63	83	51	77	53	85	192	72
University	3	4.6	5	7	4	6	6	10	18	7
Total	64	100	76	100	66	100	62	100	268	100

72 % of heads of households have at least a secondary level of education. Very few (4%) have no education at all.

Table 9: Partition of households surveyed by head of household marital status

| Marital status of heads of households | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Married	60	94	63	83	60	91	60	97	243	91
Unmarried	2	3	3	4	2	3	1	1.5	8	3
Widowed	1	2	10	13	1	2	0	0	12	5
Divorced	1	2	0	0	3	5	1	1.5	5	2
Total	64	100	76	100	66	100	62	100	268	100

91% of all heads of households are married for all axes.

4.3.2 Estimates of household revenue

It is not easy to accurately measure household revenue in rural areas. Several socio-economic approaches have been developed as found in scientific literature, however, results obtained are usually weak and subject to questions about their accuracy. When responding to questionnaires in a survey like this one, heads of households rarely provide accurate information for total revenue and in most cases under states it for fear of having the government hear about it and charge them more taxes for example.

This situation becomes even more complicated when we must measure a change in revenue over the life of the project that is attributable to project activities that have been adopted by the household especially for rural agricultural families. This is due to the long-term nature of adoption and the short-term nature of the project. Agricultural technologies take time to become firmly implanted and successfully adopted, all kinds of externally occur such as bad weather, or disease infestations or conflict. Certain project activities will only have impact after 5-7 years such as the time needed for fruit trees to bear fruit subsequent to transplanting seedlings.

We have adopted a simplified approach to our estimates to include as much potential revenue as possible. We have therefore asked a series of questions that will help use understand the sources of income and their impacts on revenue generation. These are:

- What is the principle source of household revenue?
- What does the household have in the way of material assets?

- What is the level of household financial expenditures?
- What is the financial value of marketed agricultural production in the last six months?

Responses to these questions can then be compared with the baseline survey and we can then determine if there have been any increases observed in income generation.

4.3.2.1. Sources household revenue

Table 10: Number of persons living in each household

	Bandundu	Equateur			Total
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Average	8.02	9.53	9.86	10.71	9.53
Minimum	3	2	2	2	2
Maximum	16	18	19	20	19

The average number of people living in one household over the entire sample is 9. It varies from 8 along the Kikwit-Idiofa axis to 11 along the Gemena-Akula axis

Table 11: Principal activity of head of household

Activity	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Agriculture	31	48.4	64	84.2	23	34.2	57	91.9	175	65
Fishing	3	4.7	-	-	30	46	-	-	33	12
Herding	-	-	-	-	1	1.5	1	1.6	2	0.8
Commerce	3	4.7	3	3.9	3	4.5	1	1.6	10	4
Teaching	6	9.4	6	7.8	3	4.5	1	1.6	16	6
Hunting	-	-	-	-	-	-	-	-	-	-
Artisan	1	1.6	-	-	-	-	-	-	1	0.4
Collecting leaves and fruits	-	-	-	-	-	-	-	-	-	-
Vine prod.	-	-	-	-	1	1.5	-	-	1	0.4
Civil service	14	21.9	3	3.9	1	1.5	-	-	18	7
Aquaculture	-	-	-	-	-	-	-	-	-	-
Other	6	9.4	-	-	4	6.1	2	3.2	12	4.4
Total	64	100	76	100	66	100	62	100	268	100

From this table it is evident that agriculture holds the number one position with respect to heads of household's principal activity, followed by fishing (12%), civil service (7%) and teaching (6%). Indeed agriculture is the principal activity across all axes except for Mbandaka- Ngombe-Bobangi where fishing is the principal activity at 46%.

Table 12: Principal activity used to generate income among households

| Activity | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Agriculture	34	53	68	89.5	30	45.5	56	90.3	188	70
Fishing	5	7.8	-	-	25	37.9	-		30	11
Herding	1	1.6	1	1.3	2	3	1	1.6	5	2
Commerce	5	7.8	1	1.3	3	4.5	1	1.6	10	4
Teaching	4	6.3	3	3.9	2	3	-	-	9	3.3
Hunting	-	-	-	-	-	-	-	-	-	-
Artisanat	2	3.1	-	-	-	-	-	-	2	0.8
Collecting leaves and fruits	1	1.6	-	-	-	-	-	-	1	0.4
Vine prod.	-	-	-	-	-	-	-	-	-	-
Civil service	10	15	2	2.6	2	3	-	-	14	5
Aquaculture	-	-	-	-	-	-	-	-	-	-
Other	2	3.1	1	1.3	2	3	4	6.5	9	3.3
Total	64	100	76	100	66	100	62	100	268	100

It is logical to assume that the same information would be found when looking at income for all family members combined. Again agriculture is in the number one position with 70%, followed by fishing at 11%, civil service at 5%, commerce at 4%, teaching at 3.3% and herding at 2%. This is true even for households who live along rivers, i.e., agriculture is still the principal source of income for the family as a whole.

4.3.2.2. Household assets

Table 13: Animal numbers

| Animal type | Bandundu | Equateur | | | Average |
| | Kikwit-Idiofa | Mbandaka-Bikoro | Mbandaka Ngombe-Bobangi | Gemena-Akula | |
Goats	2	2	1	1	2
Cows	0.00	2	0.20	0.1	1
Sheep	0.1	0.42	1.11	0.23	1
Chickens	8	10.20	12.57	11.11	11
Ducks	2	0.95	2.42	3.32	2
Pigs	1	0.61	2.32	2.03	2

Overall, a household has on average 2 goats, 11 chickens, 2 ducks, and 2 pigs. Raising chickens is the main livestock activity at the household level.

Table 14: Quantity of work related assets

Assets	Bandundu	Equateur			Average
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka Ngombe-Bobangi	Gemena-Akula	
Canoes	0.42	0.13	2.03	0.00	1
Machetes	2.89	5.70	2.32	2.05	3
Hoes	3.22	4.41	1.29	0.85	3
Shovels	1.17	1.05	0.29	0.23	1
Rakes	0.48	2	0.11	0.13	1
Axes	1	2	1	0.81	1

Therefore, an average household has 1 canoe, 3 machetes, 3 hoes, 1 shovel, 1 rake, and 1 ax.

Table 15: Number of oil palms, and other fruit trees

Kinds of trees	Bandundu	Equateur			Average
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka Ngombe-Bobangi	Gemena-Akula	
Oil Palms	23	45	10	51	33
Grub palms	3	20	0.47	25	12
Fruit trees	9	10	6	5	7

Overall, a household has 33 oil palms, 12 grub palms and 7 fruit trees of other species. However, along the Gemena-Akula axis, we find that a household has 51 oil palms and 25 grub palms, whereas households along the Mbandaka-Bikoro axis have slightly more fruit trees (10).

The large number of palm trees per household is indicative of the income generating capacity of oil palms where palm oil is produced at the household level rather than at an industrial level. Indeed the industrial production of oil palms has ceased to exist due to the economic crisis the cessation of all oil palm processing facilities. Grub palms serve to grow and extract palm grubs that are sold as a foodstuff and as such are an important non-timber forest product especially along the Gemena-Akula and Mbandaka-Bikoro axes.

Table 16: Average amount of household assets

Assets	Bandundu	Equateur			Total
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka – Ngombe-Bobangi	Gemena-Akula	
Car	-	2	-	-	2
Motorcycle	-	5	1	1	7
Television	-	1	5	-	6
Generator	3	6	6	2	17
Solar panel	-	5		2	7
Bicycle	21	50	7	18	95
Sewing machine	17	22	15	13	67
Radio	37	50	46	21	154
Living room with chairs and table	55	56	37	45	193
Closet	34	37	10	18	99
Beds	64	73	39	40	216

Modern dishes and utensils	54	3	40	17	114
Lantern	62	75	64	34	235
Flashlight	44	46	41	31	163

It is interesting to note that along the Mbandaka-Bikoro axis few households have modern dishes and utensils nor TVs, while at the same time these households have a large number of other household assets similar to the other axes.

Overall, households have more home assets at the end of the project than at the beginning of the project when we observed only one household having a lantern, chairs and mattresses and only two having a bed and an eating table with chairs. Therefore we conclude that the acquisition of household assets as measured at the end of the project is due to an increase in disposable income and a reduction in insecurity allowing households to hold on to their goods.

4.3.2.3. Income at the household level

Table 17: Monthly household expenses

Expenses	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe - Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Less than 2000 FC	1	1.6	00	00	33	50	-	-	34	12.7
2000 to 5000 FC	15	23.4	00	00	1	1.5	20	32.3	36	13.4
5001 to 10000 FC	15	23.4	7	9.21	10	15.2	-	-	32	11.9
10001 to 15000 FC	12	18.8	10	13.2	6	7.6	-	-	27	10.1
15001 to 20000 FC	3	4.7	12	15.8	8	12.1	-	-	25	9.3
More than 20000 FC	8	12.5	47	61.2	6	9.1	40	64.5	101	37.7
No response	10	15.6	00	00	3	4.55	-	-	13	4.9
Total	64	100	76	100	66	100	62	100	268	100

This table shows that overall, 37.7% of households had monthly expenses greater than 20,000 FC ($47.6 using a conversion rate of 420 FC/1 US$). On the other hand, the majority of households along the Kikwit-Idiofa axis and the Mbandaka-Bikoro axis had monthly expenses in the 5,001-10,000 FC range ($11.90-$23.80) and in the lowest range of less than 2,000 FC ($4.76).

Table 18: Average income over the last six months in FC

Income by source of sales	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe - Bobangi		Gemena-Akula			
	#	Average income	#	Average income	#	Average income	#	Average income	#	Average income
Peanut	8	17,275 (6,767)	22	34,977 (17,164)	-	-	44	43,295 (11,244)	74	38,009 (8,417)
Livestock	18	43,267 (20,486)	35	75,366 (23,129)	6	23,225 (6,847)	14	33,271 (8,461)	73	55,092 (12,407)
Gathering	-	-	1	1,000			21	56,240	22	53,730

				(0,00)				(17,262)		(16,649)
Squash	13	5,031 (788)	1	60,000 (0,00)			4	12,625 (6,492)	18	9,772 (3,358)
Leaves for wrapping food	2	1,850 (1,650)	12	9,548 (4,257)	5	18,700 (7,247)	16	4,525 (1,615)	35	8,119 (2,038)
Vegetables	112	23,866 (14,506)	63	7,760 (2,820)	11	17,600 (7,557)	60	2,493 (516)	246	14,248 (6,663)
Corn	61	16,921 (3,213)	64	47,092 (13,652)	11	35,573 (11,256)	68	14,074 (2,109)	204	26,443 (4,577)
Cassava	1	5,000 (0,00)	54	97,407 (44,120)	15	78,700 (29,280)	34	22,967 (6,247)	104	69,484 (23,500)
Cowpea	3	34,800 (25,242)	10	25,375 (9,219)	-	-	19	14,955 (4,562)	32	20,072 (4,429)
Fish	22	60,983 (19,834)	17	22,688 (8,318)	66	55,945 (6,740)	2	16,000 (14,000)	107	50,951 (6,054)
Rice	6	22,267 (11,729)	14	145,186 (63,866)	-	-	19	29,479 (12,546)	39	69,905 (24,974)
Vetiver	3	47,267 (17,462)	1	15,000 (0,00)	-	-	2	4,750 (3,250)	6	39,200 (14,749)
Vine, alcohol	1	10,000 (0,00)	22	64,659 (24,676)	2	80,000 (40,000)	9	16,311 (7,369)	34	51,156 (16,534)
Poultry	9	1,583 (235)	16	5,591 (978)	4	7,875 (3,631)	11	3,100 (715)	40	5,906 (1,247)
Total/average	259	24,872 (6,733)	332	48,423 (8,595)	123	47,989 (5,493)	323	20,523 (2,389)	1,000	33,953 (3,431)

(*) The numbers in parentheses are the standard deviation values.

We asked surveyed households « what is the amount of production that have produced that was sold in the last six months », reasoning that the last six months corresponds well to the most recent harvest and sales of produce in the last growing season prior to the end of project survey.

From this data we show that the average income generated by household was 33,953 FC which is equal to $81 using the same exchange rate of 420 FC/1$. The actual income per product in order of importance over that contribute to this average figure are: rice 69.905 FC ($166); cassava 69,484 FC ($165); livestock 55,092 FC ($131); gathering 53,730 FC ($128); alcohol 51,156 FC ($121); fish 50,591 FC ($121); vetiver 39,200 FC ($93); peanut 38,009 FC ($90) and so on.

The average income that was the highest is along the Mbandaka-Bikoro axis with 48,423 FC ($115), followed by the Mbandaka-Ngombe-Bobangi axis with 47,989 FC ($114), followed by the Kikwit-Idiofa axis with 24,872 FC ($59) and lastly by the Gemena-Akula axis where the average income was 20,523 FC ($49).

It is important to note that these figures are for a six-month period, so they must be doubled to obtain a yearly estimate. Even so the incomes are still very low considering that the extreme poverty level defined world wide is $1/day of income and none of the households come close to $360 of annual income generation. It is also obvious that most families still do not have sufficient income to cover certain expenses such as those for health care and education for their children.

4.3.3 Living conditions for surveyed households

Table 19: Material from which house is fabricated

| Home construction material | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka-Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Metallic roofs and cement bricks	13	20.31	25	32.89	9	13.64	6	9.67	53	19.8
Metallic roofs with adobe bricks	2	3.13	3	3.95	3	4.54	5	8.06	13	4.9
Straw roofs with adobe bricks	20	31.25	20	26.32	15	22.72	15	24.19	70	26.1
Straw roofs with wattle mud	18	28.13	10	13.16	15	22.72	20	32.25	63	23.5
Straw roofs wooden stick walls	10	15.63	16	21.05	22	33.33	15	24.19	63	23.5
Straw roofs with mud and pebble walls	1	1.56	2	2.63	2	3.03	1	1.61	6	2.2
Total	64	100	76	100	66	100	62	100	268	100

From this table we see that 26.1% of households surveyed have homes with straw roofs and adobe brick walls, 23.5% are homes with straw roofs and mud wattle walls, the same proportion 23.5% have straw roofs and only wooden stick walls (no wattle). Only 19.8% live in durable homes that have metallic roofs.

Along the Mbandaka-Bikoro axis we see the most households with metallic roofs (32.89%). This is probably due to the activities of Habitat for Humanity that is operational along this axis and is also a function of increased income generation as well.

When we look at the Kikwit-Idiofa, Mbandaka-Ngombe-Bogangi and Gemena-Akula axes, one sees that most households have straw roofs. The absence of markets and stores selling construction materials is probably the major reason why these households do not have more durable metallic roofs.

Table 20: How many rooms per house

| Number of rooms | Bandundu | Equateur | | Gemena-Akula | Average |
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka Ngombe-Bobangi		
Average	2	2	2	2	2
Minimum	1	2	1	1	1
Maximum	3	3	2	3	3

The average number of rooms in the households across all axes is two. The type of house is a function of the availability of construction material and the number of persons living in it. Given this information, and given that the average family size is 9, the number of rooms is not sufficient to satisfy the minimal needs of each family.

Table 21: Number of meals per day

Average number of meals	Bandundu	Equateur			Average
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka Ngombe-Bobangi	Gemena-Akula	
Average	2	2	2	2	2
Minimum	2	2	2	2	2
Maximum	2	3	2	2	2

The average number of meals is 2 per day per household along all the axes. This is sufficient if the meals contain a satisfactory amount of foods with adequate nutritional value.

4.3.4 Increase in agricultural productivity: Intermediate Result 1

In addition to estimates of agricultural productivity required by the PMP, we also collected information concerning the household's point of view concerning the new varieties of crops introduced by the project. They also indicated which growing season that just went through (main or minor) and reasons why they either increased the number of fields cultivated and/or the land area under cultivation.

4.3.4.1. New crop varieties introduced by the project

Households were asked whether or not the project helped to introduce to them new crop varieties and to cite them as well as any new fruit trees species introduced.

Table 22: The number of households in which new crop varieties and or fruit tree species were introduced

	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Yes	41	64.06	65	85.52	43	65.15	59	95.16	208	77.61
No	23	35.94	11	14.48	23	34.85	3	4.84	60	22.39
Total	64	100	76	100	66	100	62	100	268	100

Of the 268 households surveyed, 77.61% indicated that the CLIFS project introduced new crop varieties to them and were used in their fields. The results for each axis are: Gemena-Akula 95.16%, Mbandaka-Bikoro 85.52%, Mbandaka-Ngombe-Bobangi 65.15% and for Kikwit-Idiofa 64.04. These results indicate that the great majority of households along the project axes used new crop varieties as introduced over the life of the project.

Table 23: What are the new varieties received by households

| Crop varieties | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi | | Gemena-Akula | | Total | |
	#	%	#	%	#	%	#	%	#	%
Corn Samaru	12	18.75	42	55	26	39	1	1.61	81	30
Cowpea Vita 7	2	3.13	5	6.58	2	3			9	3
Soybean Afya	3	4.69	1	1.32					4	1
Peanut JL 24	2	3.13	3	3.95			47	75.8	52	19
Peanut Red Beauty	-		2	2.63					2	0.8
Rice IRAT 112	4	6.25	1	1.32					5	2
Cassava F85	-		-		11	16.66	1	1.6	12	4.4
Oil palm Tenera	1	1.56	-				1	1.6	2	0.8
Avocado	-		-							
Orange	18	28.13	2	2.63					20	7.4
N.A	22	34.38	20	26.3	27	41	12	19.4	81	30
Total	64	100	76	100	66	100	62	100	268	100

Over 70% of all households indicated that they received at least one new crop varieties and/or fruit tree seedlings introduced by CLIFS personnel. Specifically, 30% received Samaru corn seed followed by 19% who received the peanut variety JL 24. 7.4% said they received orange tree seedlings, 4.4% said they received the cassava variety F85, 3% for the cowpea variety Vita 7, 2% for the rice variety IRAT 112 and 1% for the soybean variety Afya.

Breaking down the data by axis, the results vary quite a bit. Along the Kikwit-Idiofa axis, 28.13% of households got orange seedlings and 18.75% got the corn variety Samaru. Along the Mbandaka-Bikoro and the Mbandaka-Ngombe-Bobangi axes, the households said they got more Samaru corn seed than other varieties. On the other hand, along the Gemena-Akula axis, it was the peanut variety JL 24 that was on top.

Diffusing a new crop variety or new fruit tree seedlings depends on many factors that include how much seed can be multiplied (rate of multiplication thus availability), how many seasons are needed to multiply sufficient quantities of seed to satisfy demand, what interest households have in growing fruit tree species and indeed the quantity of seedlings that is available from fruit tree nurseries.

4.3.4.2. The growing season and harvest during the period just prior to the end of project survey

Table 24: Which growing season occurred just prior to the end of project survey

Season	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka Ngombe-Bobangi-		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Season A	64	100	4	5.26	37	56.06	4	6.45	109	40
Season B	0	0	72	94.74	14	21.21	53	85.48	139	52
Season C/D	0	0	-	-	1	1.51	5	8.06		2
No response	0	0	-	-	14	21.21	-	-	14	6
Total	64	100	76	100	66	100	62	100	268	100

For 52% of all households, the last season prior to the survey was the B season. For 40% it was the A season. The A season is the principal season and the B season is the secondary season (mainly based upon the length of the growing season). Only 2% cultivated anything during the C/D season that is the short dry season in which mainly short cycle vegetables are grown.

Along the Kikwit-Idiofa axis it was entirely the A season just prior to the survey. Along the Mbandaka-Ngombe-Bobangi axis, 56.06 % of households had just finished the A season. Because of different agro-ecologies, le A season in Kikwit-Idiofa and for Mbandaka-Bikoro corresponds to the B season along the Gemena-Akula axis as well as a part of the Mbandaka-Ngombe-Bobangi axis.

Different cultural practices occur based upon which season it is. For example most farmers plant something in their fields during the A season along the Kikwit-Idiofa season but do not during the B season. Some however do try to get a crop in during the shorter B season but it is more risky as rains may quit prior to crop maturity thus reducing yields significantly. This kind of risk aversion, i.e., not planting during the B season has significant impacts on income generation over a 12-month period. It also points to a need for early maturing varieties that could be of use during the shorter B season to generate more income. The lack of a national seed multiplication program is a major constraint to furnishing seed of known early maturing varieties as a means to take advantage of the short B season.

4.3.4.3. Increase in the number of fields cultivated

Table 25: Quantity of households that have either increased or not increased the number of fields planted during the last growing season

	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Yes	24	37.5	60	78.9	14	21	28	45.2	126	47
No	35	54.6	13	17.1	45	68	34	54.8	139	47
N.A	5	7.8	3	4	7	11	0	0	15	6
Total	64	100	76	100	66	100	62	100	268	100

For all households surveyed it was an equal split, 47% said yes they did increase the number of fields cultivated and 47% said no they did not increase the number of fields cultivated. Along three of the axes,

the majority said they did not increase the number of fields cultivated whereas along the Mbandaka-Bikoro 78.9% said they did increase the number of fields cultivated.

To increase the number of fields, households need supplemental labor. For most households, imagining being able to afford additional labor over and above what family members can provide would be irrational given their meager financial capital assets. However, it can be surmised that along the Mbandaka-Bikoro axis, increased income generation has resulted in the increased capacity of households to hire additional labor and thus increase the amount of land under cultivation that in turn generates more income. Indeed this process becomes self-perpetuating over time with a constant increase in income at the household level.

4.3.4.4. Reasons why households increase the number of fields cultivated

Table 26: Reasons why households were able to increase the number of fields planted

| Reasons | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka-Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Training and access to seed	38	60	35	46	37	56	32	52	142	53
Knowledge obtained from other groups	15	23	2	3	10	15	15	24	42	16
Increased household income	6	9.3	39	51	4	6	2	3	51	19
Other	5	7,8			15	23	13	21	33	12
Total	64	100	76	100	66	100	62	100	268	100

Of the surveyed households, 53% said that they increased the number of fields planted because they received training and seed from the CLIFS project. About 19% said that the increase in the number of fields was due to an increase in disposable income. At the same time 16% said they were persuaded to increase the number of fields due to the presence of other NGOs working with them. Certainly our emphasis on community seed multiplication resulted in increased production due to the ability to increase the number of fields planted thus generating more income. The promise of more income is one of the factors that will insure that seed multiplication activities at the community level will continue well past the end of the project. However it is too soon to say that community seed multiplication will continue well into future years all by itself.

4.3.4.5. Increase in the land area of fields during the preceding growing season

Table 27: Quantity of households that have either increased or not increased the land area of fields planted during the last growing season

| | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka-Ngombe Bobangi | | Gemena-Akula | | Total | |
	#	%	#	%	#	%	#	%	#	%
Yes	24	37	60	79	14	21	28	45	126	47
No	35	55	13	17	45	68	34	55	126	47
N.A	5	8	3	4	7	11	0	0	16	6
Total	64	100	76	100	66	100	62	100	268	100

Of the 238 households surveyed, 126 (47%) said that they has increased the land area of their fields and 126 (47%) said that they did not increase their land area under cultivation. The 16, who did not respond, did not have planted fields in the preceding growing season.

It follows that those who added fields obviously increased their surface area cultivated. For households on the Mbandaka-Bikoro axis, there were a high percentage of households able to increase their surface area, most likely due to the reduction in minor corruption as well as those factors cited above why new fields were added.

4.3.4.6. Average yields per hectare for selected crops

Table 28: Average yields (t/ha) and the increase in average yields per hectare

Axes (name)	Crop	Average yield for the province (t/ha)*	Average yield for the district (t/ha)*	Average yield for farmers working with CLIFS project technicians (t/ha)	Average yield for farmers not working with CLIFS project technicians (t/ha)	Increase in yield for farmers working with CLIFS when compared to the provincial average** (%)	Increase in yield for farmers working with CLIFS when compared to the district average (%)	Increase in yield for farmers not working with the CLIFS project compared with the provincial average (%)	Increase in yield for farmers not working with the CLIFS project compared with the district average (%)	Increase in average yields for farmers working with CLIFS personnel versus the average yields for farmers who did not work with CLIFS personnel (%)
Kikwit-Idiofa	Corn	0.74	0.71	1.93	0.95	160.00	29.57	28.37	33.80	103.15
	Rice	0.81	0.76	1.33	0.53	64.19	75.00	-34.56	-30.26	150.94
	Peanut	0.87	0.87	0.93	0.84	6.89	6.89	-3.44	- 3.44	10.71
	Cowpea	0.26	0.23	0.67	0.63	157.69	191.30	142.30	173.91	6.34
	Soybean	NA	NA	0.65	0.30	-	-	-	-	116.66
Gemena-Akula	Corn	0.74	0.76	1.50		102.70	100.00			
	Rice	0.84	0.68	1.95		132.14	186.76			
	Peanut	0.71	0.70	0.99		39.43	41.42			
	Cowpea	0.50	0.50	0.52		4.00	4.00			
	Soybean	0.78	0.80	0.49		-37.17	-38.75			

* Source ICC CLIFS baseline survey Table 25, page 36.
** = Required by PMP (Indicator 1.2) % increase in yield per hectare for selected crops
NA = not available

We can see productivity increases per hectare for corn, rice, peanuts and cowpeas along both the Kikwit-Idiofa and Gemena-Akula axes. Among the factors that have contributed to these increases, we would cite improved cultural practices, the introduction of new varieties, the presence of CLIFS agricultural extension staff (as well as the staff of other projects operating in the same zone), good climatic conditions, the reduction of farm to market barriers and control posts, the rehabilitation of farm to market feeder roads especially on the Kikwit-Idiofa axis and the noted increase in the market price for agricultural commodities.

Specifically, we note that the increases for corn are due to improved varieties, however, for rice we saw low productivity gains for farmers not working with CLIFS due to the lack of farmers being in their fields at critical times such as post seeding and post flowering when it is necessary to take measures against bird damage.

One notes that soybean seed germination was particularly low for non CLIFS farmers along the Kikwit-Idiofa axis due to poor storage conditions (too much humidity and the presence of mold and fungus). Whereas along the Gemena-Akula axis there is little market demand for soybeans so farmers are not really motivated to carefully follow soybean fields. The weak increase for cowpeas along the Gemena-Akula axis was due to high insect infestation and due to the fact that Vita 7 is not completely adapted to humid forest landscapes.

However overall, yields increased significantly CLIFS farmers growing corn, almost tripling along the Kikwit-Idiofa axis and doubling on the Gemena-Akula axis. With yield increases of such high magnitude, the incentives to continue with this activity in the post project period are very high. The same thing can be said for rice where yields almost tripled on the Gemena-Akula axis and doubled on the Kikwit-Idiofa axis.

4.3.5 Agricultural technologies adopted during the life of the project.

Our approach was based around determining from the various technologies introduced by the project the ones that were assimilated the most and the ones that continue to be used now that the project has ended. We also were interested in looking at the spread effect of technologies from project stakeholders to their neighbors both in the same village and in neighboring villages.

Some examples of agricultural technologies introduced are: air laying and grafting for fruit trees propagation, stem rooting, and seed germination; use of multiple cropping patterns within an agroforestry setting such as alley cropping, intercropping, crop rotation as well as the use of legume crops that are incorporated into the soil for increasing soil fertility. We consider community seed multiplication as a new technology as well however this will be considered more in detail in a later section.

4.3.5.1. Technologies that have had the most success in being assimilated at the village level

Table 29: Technologies that have been most easily incorporated at the household level

Technologies	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Air layering	10	16	16	21	4	6.1	1	2	31	12
Grafting			1	1	1	2			2	0.8
Stem rooting	9	14	2	3	31	47	3	5	45	17
Seeding	7	10.9	8	11	5	8	55	89	75	28

propagation									
Green manures			1	1	3	4			4	2
Intercropping with legumes	6	10	1	1	8	12			15	6
N.A	32	50	47	62	14	21	3	4.84	96	36
Total	64	100	76	100	66	100	62	100	268	100

* N.A: not applicable

Among the households surveyed, the technologies that were the most easily assimilated were in order of importance: seedling propagation (28%), stem rooting (cuttings – 17%), and air layering (a from of grafting – 12%).

Looking at the same question from a location point of view, the technologies that best assimilated along the Kikwit-Idiofa axis were air layering (16%), following by stem rooting-cutting (14%), seedling propagation (10.9%) and intercropping with legumes (10%). On the Mbandaka-Bikoro axis, air layering was in first position at 21% followed by seedling propagation.

On the Mbandaka-Ngombe-Bobangi axis, stem rooting was the most assimilated at 47% followed by intercropping (12%). Finally along the Gemena-Akula axis, 89% of households assimilated seedling propagation.

Grafting and green manures were the least adopted by households and the use of multistory agroforestry technology (integrating fruit trees inside annual crop fields or with cassava was not adopted in an significant quantities.

4.3.5.2. Agricultural technologies being used

Table 30: What do households think about the agricultural technologies they are currently using

Technologies	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Air layering	7	10.9	9	11.8	3	4.6	1	1.6	20	7.5
Grafting	1	1.6	2	2.6					3	1.1
Stem rooting	5	7.8	1	1.3	25	37.9	5	8	36	13.4
Seedling propagation	10	15.6	9	11.8	4	6.1	52	83.8	75	28
Green manures	-	-	1	1.32	2	3	-	-	3	1.1
Intercropping with legumes	7	10.9	7	9.21	11	16.7	-	-	25	9.3
NA	34	53.3	47	61.8	21	31.8	4	6.4	106	39.6
Total	64	100	76	100	66	100	62	100	268	100

This table shows that among the technologies introduced and assimilated, 28% of households surveyed are actually using seedling propagation, stem rooting (13.4%), intercropping with legumes (9.3%) and air layering (7.5%). As with the technologies that were assimilated case above, most households do not practice the use of green manures and grafting.

From a general point of view, households do not adopt new technologies easily because most require several seasons of trial and error before judgments can be made concerning their adoption over the long run. Several of these technologies are indeed long term in nature and it will be several years into the future before we can state with any certainty the long-term rate of adoption. In such a fragile economic state, risk aversion is still a constraint to the introduction and application of new technologies. With only 2 or 3 growing seasons of data and experience it is premature to declare that all stakeholders will be benefiting from the entire range of technologies offered by the project.

For example, traditionally, households do not incorporate crop residues back into the soil to increase soil organic matter thus increasing soil fertility especially for annual crops such as corn and peanuts because they find the task too labor intensive, they simply prefer to burn the field instead thus volatilizing most of the organic material needed by the soil for good crop growth. You also have to know what kind of organic material is best incorporated for desired results, when and the amount to add. In most cases this information is simply unknown to traditional farmers.

Another example concerns grafting that has always been considered too sophisticated and delicate and thus only agricultural technicians could do it successfully. We have strived to break-down this myth and show how simple it is to do and succeed at it. Crop diversification and the use of intercropped multi-story agroforestry technology aimed at increasing the availability of nutritional resources will only happen when the households see that consuming fruits for example have a direct impact on family member health and income when fruit trees begin to actually bear fruit in the 3-5 year horizon.

4.3.6 Agricultural training for farmers not implicated directly in our programs but who were given information by households that were directly trained by the project – the spread effect

Table 31: Agricultural training for farmers not implicated directly in our programs but who were given information by households that were directly trained by the project – the spread effect

| Responses | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka-Ngombe Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Yes	35	55	49	64	52	79	47	76	159	68.4
No	8	13	9	12	11	16	12	19	30	14.9
NA	21	32	18	24	3	5	3	5	79	16.7
Total	64	100	76	100	66	100	62	100	268	100

In Table 31 we see that more than two-thirds of CLIFS stakeholder households train other households and only 14.9% did not make an effort to help other non-CLIFS households. The same thing can be said when looking across axes, 79% trained other households along the Mbandaka-Ngombe-Bobangi axis, 76% along the Gemena-Akula axis and 55% along the Kikwit-Idiofa axis. We examine in the next table the magnitude of this extension effect.

Table 32: Number of other households that have been trained by households under the CLIFS project

| Other households and villages trained | | Bandundu | Equateur | | | Ave. # |
		Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Households	Ave. #	11.87	21.43	15.17	7.76	13.44
Villages	Ave. #	1.57	2.74	2.30	2.88	2.32

Overall, a given household was able to train 13 other households and work in two other villages. This is a very large extension effect given the resources available to the CLIFS project.

Along the various axes, households along the Mbandaka-Bikoro axis had the most spread effect almost twice that of the Kikwit-Idiofa axis. The spread effort for Gemena-Akula was the least at 7.7 additional households benefiting from the spread effect.

Having farmers train other farmers is a recognized and acceptable form of agricultural extension and in the absence of Ministry of Agricultural personnel in the field is in many ways the most effective way to diffuse information to the widest number of stakeholders. There is more trust among farmers who teach other farmers and it increases the speed with which technologies can be spread. A final advantage is that households who do this kind of thing are not paid to do so and so the cost of this type of agricultural extension is very low and thus very cost effective.

4.3.7 Organizations created, reorganized or assisted

This section consists of identifying the organizations (associations) created, reorganized and/or assisted by the CLIFS project as well as determining those that have become operational. This information comes mainly from the various quarterly reports that IRM submitted to USAID over the life of the project.

Table 33: Number of managerial organizations created or reorganized by the project

| Types of organizations | Bandundu | | | Equateur | | | Total |
	Kikwit Idiofa	Mushi Bokoni	Mushi Kiri	Mbandaka Bikoro	Mbandaka Ngombe Bobangi	Gemena Akula	
Road maintenance committees (CLERs/CLEPs)	2			2			4
Savings and loan associations	1			1			2
Input supply facility management committees	4			3		1	8
Flour mill and grinding equipment committees	3			2			5
Chocolate planters associations*				3			3
Regional fishery management platforms		2	6	1	7		16
Local fishery management committees		17	77	28	81		203
Total	10	19	83	40	88	1	241

* The chocolate growers associations were reorganized not newly created.

The local road maintenance committees (CLER-Bandundu) and the local road maintenance committees (CLEP-Equateur) were organized by CLIFS to maintain roads that were rehabilitated by CLIFS and that had vetiver grass hedges to protect road cuts and drains. These committees were created along the Kikwit-Idiofa axis (CLER) and along the Mbandaka-Bikoro axis. For Bandundu, the two CLERs were integrated into the existing system of road maintenance committees under the Ministry of Public Works,

Direction for Rural Agricultural Roads (DVDA). Along the Mbandaka-Bikoro axis, the two CLEPs were used by the National Roads Office another agency within the Ministry of Public Works.

The two savings and loan associations were created by the CLIFS project, one headquartered in Mbandaka and one headquartered in Kikwit. The input supply facility management committees were also created to insure that these commercial facilities functioned properly and had viable accounting. FOLECO provided training courses for these committees in each of the 8 sites. Where ever we placed a cassava flour mill or rice huller, a management committee was also created to insure that the equipment provided was well maintained and funds properly managed.

The chocolate growers association was reorganized instead of being newly created. We provided training with respect to plantation maintenance and post harvest operations. We also provided drying tarps and appropriate storage sacks. The reorganization was needed to re-establish market relationships that had lapsed over time due to poor communications and low quality product being offered for sale. In addition we also provided information to the association with respect to the world market situation and how to monitor it.

The fishery management and information platforms as well as the local fishery management committees were created by CLIFS with the objective of creating the structure needed to insure sustainable freshwater resources over time and result from work by IRM that began under the USAID-funded CREDP project implemented by IRM that ended in December 2003. Each platform contained a given number of local fishery management committees that were more village oriented. These organizations all received extensive training on sustainable fishing practices, how to resolve conflicts over fishing rights and how to interpret the newly proposed ministerial decree on freshwater fishery management.

Table 34: Number of agricultural-fishing organizations assisted by the project

Agricultural and fishing associations assisted	Bandundu			Equateur			Total
	Kikwit-Idiofa	Mushi-Bokoni	Mushi-Kiri	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Community seed multiplication associations	54			91	3	51	199
Fruit tree producer associations	29			9	1		39
Vetiver nursery associations	53			42			95
Fish processing associations		18		18	26		62
Fishing associations		18		24	27		69
Total	136	36		184	57	51	464

The community seed multiplication associations were created and trained by seed multiplication technicians, as well as being supplied with initial seed of improved varieties from INERA for both annual crops and vegetables.

Fruit tree producer associations (nurseries) were created and trained with respect to how to establish and manage a fruit tree nursery especially with respect to the various technologies needed to grow a wide

range of fruit trees. Initial seeds and seedlings were provided and large numbers of dwarf oil palm seedlings (Tenera variety) were generated.

Vetiver nursery associations (at the village level) were created and trained on how to plant and maintain vetiver grass nurseries. Also training was provided with respect to marketing and the creation of five year business plans. Tools and the initial planting material were provided by the project.

Table 35: Number of producer-fishing organizations created or reorganized by the project that have become operational

Type of organizations	Bandundu			Equateur			Total
	Kikwit-Idiofa	Mushi-Bokoni	Mushi-Kiri	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Road maintenance committees (CLERs/CLEPs)	2			2			4
Savings and loan associations	1			1			2
Input supply facility management committees	4			3		1	8
Flour mill and grinding equipment committees	3			2			5
Chocolate planters associations				3			3
Regional fishery management platforms		2	6	1	7		16
Local fishery management committees		17	77	28	81		203
Total	10	19	83	40	88	1	241

All the various organizations that the project created were operational at the end of the project.

Table 36: Number of associations assisted that have become operational

Associations	Bandundu	Equateur			Total
	Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Community seed multiplication associations	40	65	3	41	149
Fruit tree producer associations	20	8	1		29
Vetiver nursery associations	53	42			95
Total	113	115	4	41	273

A total of 50 community seed multiplication associations ceased to function by the end of the project (25%) and 10 fruit tree nurseries out of the original 39 ceased to function as well. The lack of demand is the principal reason for this situation. All vetiver nurseries remain operational.

4.3.8 Improving market access along selected axes: Intermediary Result 2

4.3.8.1. Increase in sales for selected food products

Table 37: Have CLIFS actions permitted or not permitted households to increase their sales revenue

| Response | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi- | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Yes	27	42.19	54	71.05	16	24.24	35	56.45	132	49.25
No	17	26.56	10	13.15	43	65.15	20	32.26	90	33.58
NA	20	31.25	12	15.78	7	10.61	7	11.29	46	17.16
Total	64	100	76	100	66	100	62	100	268	100

Over 49% of surveyed households said that their household sales revenue increased as a result of CLIFS activities. A third of those surveyed households indicated that they were not able to increase household revenues. The remaining households indicated that the question was not applicable to them as they did not work with CLIFS activities or had never heard of the CLIFS at all.

Taken geographically, 71% of families along the Mbandaka-Bikoro axis increased sales revenue, whereas along the Mbandaka-Ngombe-Bobangi axis 65% of surveyed households said that they had no increased sales revenues due to CLIFS activities.

Increases or reductions in sales revenues are caused by many economic and social factors beyond the control of the project. These may include availability of something to sell, smaller than normal harvests or yields, price fluxuation, the absence or presence of intermediary buyers, passable access physically to the market place, the influence of market access barriers that force to producer to pay illegal taxes. It is certain that CLIFS had positive impacts on productivity therefore an increase in products that were sold, and also the positive impact of reducing corruption (thus a reduction in market access barriers) which was the focus of the USAID-funded IRM-implemented Relance Economique project.

Table 38: What do households think about price levels?

| Price levels | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka Ngombe-Bobangi- | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Better	4	6	38	50	2	3	1	2	45	17
Worse	2	3	23	30	4	6	13	21	42	16
No change	33	52	15	20	19	29	46	74	113	42
NA	25	39	0	0	41	62	2	3	68	26
Total	64	100	76	100	66	100	62	100	268	100

Overall, 42% of surveyed households indicated that sales prices remained unchanged, whereas 17% said they went up and 16% said they went down. A significant number (26%) had no opinion or did not want to say.

On a geographical basis, 50% of surveyed households along the Mbandaka-Bikoro axis indicated that sales prices had increased over the life of the project (to their benefit), while along the Kikwit-Idiofa and the Gemena-Akula axis sales prices did not change for the majority of households.

Again this is a subjective question with subjective responses. Price awareness by the household depends a lot on what the producer (household) feels is the appropriate sales prices vis-à-vis past growing seasons. In any case, prices could have gone up but volumes sold went down so overall the household obtained lower revenues. It is very difficult to obtain revenue figures from households that are quantitatively viable.

4.3.8.2. Reduction in the payment of illegally collected taxes due to corruption and market barriers

Corruption and the collection of illegal taxes have a negative effect on household revenues and their livelihoods as well as their food security. It is often difficult to quantify the actual level of impact on livelihoods due to corruption. Therefore, we first determined if such practices actually exist along the various axes. We asked households if such barriers where money was illegally collected from them exist between their production fields and the market, how many were there and to estimate the level of insecurity and the corresponding level of corruption.

Table 39: Existence of barriers along trade corridors (farm to market)

| Responses | Bandundu | | Equateur | | | | | | Total | |
| | Kikwit-Idiofa | | Mbandaka-Bikoro | | Mbandaka-Ngombe-Bobangi | | Gemena-Akula | | | |
	#	%	#	%	#	%	#	%	#	%
Yes	00	0.0	10	13	28	42	49	79	87	32
No	64	100	66	87	38	58	13	21	181	68
Total	64	100	76	100	66	100	62	100	268	100

Overall 68% of survey households said that there were no barriers between their production fields and the market which meant that they were much freer to move their products to market than before the project started. Along the Kikwit-Idiofa axis all barriers had disappeared while along the other three barriers continue to exist and farmers still have to pay off those that run the barriers in order to get to market. It is likely that the presence of armed militia in Equateur province is the principal reason why barriers still exist there as it is the only way unpaid militia can obtain money.

Table 40: Number of villages and barriers that must be crossed to go to the nearest important market

| Number | | Bandundu | Equateur | | | Average |
		Kikwit-Idiofa	Mbandaka-Bikoro	Mbandaka-Ngombe-Bobangi	Gemena-Akula	
Villages	Average #	0.56	8.96	2.58	3.85	3.98
	Minimum	0	0	0	0	0
	Maximum	3	37	30	13	37
Barriers	Average #	0	0.42	0.91	1.45	0.68
	Minimum	0	0	0	0	0
	Maximum	0	6	5	4	6

This table shows that across all the axes, people have to go through on average 4 villages and at least one barrier to get to market. In some cases, the maximum number of barriers was 6. From a geographical basis, it was along the Mbandaka-Bikoro axis that fewer markets existed therefore people had to go through more villages (an average of 8) to get to market. Again there was only on average 1 barrier along this axis and along the Gemena-Akula axis. This is a much improved situation that when the project started where there were as many as 30 barriers to cross to get to market in Equateur province.

Table 41: Presence of insecurity along project axes

Opinion of households	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Yes	0	0	9	12	23	35	44	71	76	28
No	64	100	67	88	43	65	18	29	192	72
Total	64	100	76	100	66	100	62	100	268	100

For all axes combined, almost three-quarters (72%) of surveyed households indicated that there are no longer any farm to market barriers that in the past had created economic insecurity for them as they tried to get their produce from their farms to the market place.

It is in Equateur province that insecurity still exists due to the presence of armed militia manning barriers to take bribes from farmers trying to get to market thus creating a certain level of insecurity for local populations. This is especially the case along the Gemena-Akula axis where the armed camps are more numerous and unpaid 'combatants' are still plentiful.

Table 42: Level of petty corruption

Opinion of households	Bandundu		Equateur						Total	
	Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe-Bobangi		Gemena-Akula			
	#	%	#	%	#	%	#	%	#	%
Yes	63	98	75	99	54	82	25	40	217	81
No	1	2	1	1	12	18	37	60	51	19
Total	64	100	76	100	66	100	62	100	268	100

Overall, the majority of households (81%) declared that petty corruption has declined significantly. This is the case along all the axes except for the Gemena-Akula axis where petty corruption is still rampant. A majority of households along this latter axis (60%) still are subjected to barriers and bribes thus a reduction in net revenues from production taken to market for sale.

We believe that there has been an overall reduction in petty corruption in areas where we work. Assuming all other factors are somewhat equal, we would declare that the presence of IRM supported anti-corruption committees (CLATS) have had a significant impact on reducing petty corruption though dialogue, analysis and persuasive arguments that petty corruption hurts everyone and should be stopped. The CLAT successes can be attributed to the support they have received from the Relance Economique project. Because CLIFS project activities were implemented in the same regions as the Relance

Economique project activities, it has become evident to us that the synergies between these two projects has brought increased prosperity to households by increased revenues due to decreased bribes taken at barriers and increased productivity for agricultural-fishing activities.

This fact is reinforced by the data collected in that petty corruption still exists along the Gemena-Akula axis (more barriers) because the Relance Economique project has only recently within the last six months begun activities (creation of CLATs) there. Obviously there are many other contributing factors such as the end of armed conflict, the reunification of the country following a period of civil war, the disarmament of combatants, the implementation of the electoral process along democratic lines that all have reduced the level of corruption in addition to IRM actions in this region of western DRC.

4.3.9 Increase in access to financial services (credit): Intermediary Result 3

Increased access to financial services is one of the PMP indicators followed by the CLIFS project. The PMP indicators are: percent change in the use of financial services; the rate of loan reimbursement; the number of loans given to men and to women clients; and the amount of the loans given to men and women. We present two of these indicators as examples: the number of loans given to men and to women among households surveyed; and the change in access to financial services.

It is important to note that the project created two savings and loan associations, one in Mbandaka called MUCREMBA (Mutuelle de Crédit et d'Epargne de Mbandaka), and one in Kikwit called MUCREFEKI (Mutuelle de Crédit et des Femmes de Kikwit). The data for the following tables are taken from these two associations monthly reports.

4.3.9.1. Increase in the use of credit along the project axes

Table 43: Percentage of financial services use

Axis	Number of households with access to credit at the beginning of the project	Number of households having access to credit (actually having taken out a loan and or created a savings account)	Amount of increase in access to financial services
Kikwit-Idiofa	8	799	100 fold increase
Gemena-Akula*	13	-	
Mbandaka Bikoro	7	325	46 fold increase
Ngombe Bobangi*	3	-	
Mushi-Kiri*	0	-	
Total	31	1124	

* these axes did not participate in the micro credit program under CLIFS

The two savings and loan associations provided services to members who joined these two associations, paid their entry fees and were able to access loans offered by the association. Only two associations were created in Mbandaka and in Kikwit where CLIFS had regional offices and where there was sufficient numbers of households who could participate and make the associations viable. The Kikwit association also had a regional antenna in Idiofa and at the end of the project the Mbandaka association was beginning to look at expanding either to Bikoro or to Gemena however, security issues dealing with money transfers were still significant and the final decision on expansion has yet to be made.

It is obvious from this table that there was no access to financial services at the beginning of the project and by the end of the project there was significant access for those households that become members of

the two savings and loan associations. This is a major change in these two areas and demonstrates that micro-credit can be developed, that the demand is very high, however the administration and funds management must be carefully monitored on a continual basis. It is to be noted that for the two associations the entire management staff are women trained by SOCODEVI, a CLIFS partner.

4.3.9.2. Number of loans given to men and to women

Table 44: Proportion of loans by sex along two of the CLIFS axes

Axes	# of loans to men	# of loans to women	Total number of loans given	% loans to men	% loans to women
Kikwit Idiofa	232	785	1017	23.11	77.19
Mbandaka Bikoro	65	202	267	24.34	75.66
Total	297	987	1284	23.13	76.42

The access to a loan under CLIFS required membership in one of the two savings and loan associations. The membership within each association was predominately women (~75%) so as to insure that women could gain access to credit (due to the past history of credit in the region where most women were excluded). As a result seen in this table 76.42% of all loans went to women. More detailed results of these two savings and loan associations can be found in the final CLIFS report that provide all the data required by the USAID PMP indicator dataset.

5. Before -and-after comparisons for selected project elements

5.1. Activity – principal source of household revenue

From the baseline survey at the beginning of the CLIFS project, it was found that there are two principal sources of household revenue, agricultural activities (38%) and fishing (17%). Households with salaried members or ones with some kind of government pension made up only 10%. In the end of project survey 70% of households relied on agriculture as their principal source of income, followed by 11% for fishing. Salaried government employees represented only 5% of the total. Sources of income have not changed dramatically over the life of the project, households remain primarily agricultural in nature. Since the same households were not used in each survey, it is impossible to make any kind of determination that any given household changed its source of income. Most villages however were the same so we can say that in the project zone, perhaps more households were able to make a living fom agriculture due to the presence of agricultural services and training being provided by the project. We can also see a fewer number of households with members being paid a salary by the government due to the economic crisis in the DRC.

5.2. Household assets

- **Tools (mainly for agricultural production or fishing)**

At the beginning of the project an average household had only 2 machetes, 2 hoes, 1 ax, no canoes and no rakes. At the end of the project an average household had 3 machetes, 3 hoes, 1 ax, 1 canoe, 1 shovel, and 1 rake. This is a dramatic increase in the quantity of tools available to a given household and a critical element in increasing agricultural output, the principal element for increasing household revenue. The assumption is that over the life of the project, increased agricultural production permitted households to purchase more tools to enable them to increase their output.

- **Household assets**

At the beginning of the project, more than 30% of households did not even have beds to sleep on. Almost 45% of these households did not have a table or any chairs. There was not one household with a vehicle (car or motorcycle), 76% did not have even a bicycle, 66% did not have a radio and 99% did not own a TV. At the end of the project, 85% of surveyed households had at least one bed, 72% had tables and chairs, 1% had a car, 2% had motorcycles, 35% had bicycles, 57% had radios and 2% had TVs.

There was a strong net improvement over the life of the project with respect to household assets. With more disposable income, families could purchase more basic commodities that increased their quality of life. Having a bed to sleep on versus sleeping on the ground significantly changes one's frame of mind the next day. Having a table to eat on and a chair to sit on also has significant impacts on not only the quality of life, but sanitation and health as well. This is just one more set of indicators reflecting the improvement in livelihoods among CLIFS project beneficiaries. It can also be said that this situation has also been influenced by a reduced amount of insecurity and reduced petty corruption.

5.3. Household income

At the beginning of the project, average annual household income was $107 within the project sphere of influence. At the end of the project it was estimated to be $162, (we measured income for the previous six months prior to the end of project survey to be $81). This increase is very significant, indeed an average increase of more than 50%. Having that kind of increase over two years is a result of the sum of the positive impacts the various project activities had on household revenue and range from having seed to plant when there was little or none before, having more tools, the ability to expand land and yields, crop diversification and the reduction of barriers on market access roads. We present in the following table another way to look at revenue at the beginning and at the end of the project, comparisons of average monthly income by axis which is more reflective of the relative level of effort made on each axis as well as the complicated factors that conflict still has on household revenue.

Table 45: Average monthly revenue before and after the project

Bandundu		Equateur					
Kikwit-Idiofa		Mbandaka-Bikoro		Mbandaka-Ngombe - Bobangi		Gemena-Akula	
Before	After	Before	After	Before	After	Before	After
3.00	9.83	5.83	19.16	23.08	19.00	12.50	4.08

Along the Kikwit-Idiofa and Mbandaka-Bikoro axes, we see a tripling of monthly income. A 300% increase in income is highly significant and demonstrates just how far livelihood improvement can go in a short period of time despite the all the externalities and constraints found in the DRC.

However, along the Gemena-Akula axis we see a major reduction in household income. IRM and the CLIFS project did not have many activities along this axis, mainly community seed production. This axis also has a significant number of fighters belonging to various factions still in conflict. The principal road linking these two market towns has also been degrading rapidly during the life of the project due to the lack of interest on the part of the government to invest in its rehabilitation, thus reducing severely the ability of farmers to sell their agricultural products.

Along the Mbandaka-Ngombe-Bobangi axis we also see a reduction in household revenue for families that rely mainly on fishing. Unsustainable fishing practices have reduced the biodiversity and the overall stocks of fish species along the Congo River and its tributaries and this trend can only be slowed down

over a longer period of time than what was allotted to the CLIFS project. Our program to a create sustainable fishing management program for selected villages only began in 2005 and is on going at the end of the project. Therefore there is hope that this downward tendency for income generation can be reversed over time if this system is widespread within this river basin area.

5.4. Average yields for crops per hectare

Table 46: Before and after average yields (t/ha) comparisons for annual crops along two project axes versus average yields for the provinces as a whole

Axes	Corn		Rice		Peanut		Cowpea		Sorghum	
	Before	After	Before	After	Before	After	Before	After	Before	After
Bandundu prov.	0.74	ND	0.81	ND	0.87	ND	0.26	ND	ND	ND
Kikwit-Idiofa	0.71	1.93	0.76	1.33	0.87	0.93	0.23	0.67	ND	0.65
Equateur prov.	0.74	ND	0.84	ND	0.71	ND	0.50	ND	0.78	ND
Gemena-Akula	0.76	1.50	0.68	1.95	0.70	0.99	0.50	0.52	0.80	0.49
Yield increase margin by axis										
Kikwit-Idiofa		**2.7**		**1.8**		**1.1**		**2.9**		ND
Gemena-Akula		**2.0**		**2.9**		**1.4**		**1.0**		**0.6**

ND: no data available

Over the life of the project yields (tons/hectare) in surveyed households increased dramatically. One sees doubling and tripling of yields along these two axes. The exception is for sorghum along the Gemena-Akula axis due to the lack any market for sorghum and thus fields were not maintained and weeds were allowed to take over the fields. It is very rare to see such dramatic changes in such a short period of time. The major question of obvious concern is whether or not this kind of performance can be maintained in the post CLIFS period. Changing agricultural habits is not easy and there needs to be a constant presence of technical assistance over more than two years to insure that habits do change and farmers are convinced to follow new practices, plant new varieties, maintain adequate seed stocks, weed on time and store production adequately to prevent major post harvest losses.

What we can definitely say is that agricultural productivity increases are possible thus livelihood improvement for predominantly agricultural households is also possible. We have proved this over the short duration of this project. The lack of any continuation of the CLIFS activities will have some negative impact on some of the original project beneficiaries, however, some of the project households will indeed continue to use new technologies, new varieties, and new information and will continue to prosper in a part of the DRC that has some of the worlds worst poverty levels.

5.5. Barriers on farm to market roads

At the beginning of the project there was an average of 3 barriers between the household production sites and the principal market. By the end of the project there were **no** barriers (with only one of two examples of one barrier over the entire survey sample).

5.6. Access to financial services (micro-credit)

At the beginning of the project there was no micro-credit available for the vast majority of households along the project axes and certainly no formal system for savings. At the end of the project this changed dramatically due to the establishment of two savings and loan associations managed by women, and at the end of the project were continuing to increase their membership and the number of loans and savings accounts. Also this component focused on women clients who were shown to be very diligent about taking credit seriously and paying back on time all loans taken. From the time of the issuance of the first

loan in September 2004 until April 2006, a period of only 18 months, more than 1284 loans had been issued with almost a 100% repayment rate.

6. Highlighted results

The results of the end of project survey compared to the baseline survey has permitted us to conclude that the quality of live at the household level in the area where the CLIFS project operated has significantly improved. This improvement was measured by:

1. Increase in household assets
   a. Tools: At the beginning of the project an average household had only 2 machetes, 2 hoes, 1 ax, no canoes and no rakes. At the end of the project an average household had 3 machetes, 3 hoes, 1 ax, 1 canoe, 1 shovel, and 1 rake.
   b. Other assets: At the beginning of the project, more than 30% of households did not even have beds to sleep on. Almost 45% of these households did not have a table or any chairs. There was not one household with a vehicle (car or motorcycle), 76% did not have even a bicycle, 66% did not have a radio and 99% did not own a TV. At the end of the project, 85% of surveyed households had at least one bed, 72% had tables and chairs, 1% had a car, 2% had motorcycles, 35% had bicycles, 57% had radios and 2% had TVs.
2. Increase in agricultural productivity and adoption of new technologies
   a. The average yield per hectare for all crops we worked with increased, some very significantly such as a tripling of corn yields.
   b. The majority of households adopted one or more new technologies that were used to increase household revenue such as community seed production and crop diversification.
3. The extension multiplier effect
   a. The multiplier effect from direct beneficiaries to secondary beneficiaries was over 13, i.e., for each household that directly participated in CLIFS activities, the information was transmitted to 13 more households not directly participating in CLIFS activities. On the village scale, one village transmitted information to at least two other villages.
4. Increased access to markets along selected axes
   a. There was a great reduction in barriers between farms and the market place allowing a free flow of farm products from producers to buyers in both minor and major markets
   b. There was also a significant reduction in petty corruption that households had to deal with in CLIFS areas of intervention due to the interaction of the CLIFS project with the Relance Economique project that created community platforms (CLATS) to reduce the levels of corruption previously known.
5. Improved access to credit
   a. At the beginning of the project there were no functioning savings and loan associations providing financial services. At the end of the project two substantial saving and loan associations has been established, were functional and were expanding their financial service delivery in the form of loans and the provision of secured savings accounts. The memberships of these associations continue to grow and the rate of repayment remains above 95%. The majority of members are women and both associations are completely managed by women. At total of 1294 loans had been provided and a significant revolving fund to provide capital for loans in the future was securely in place.
6. Increase in household revenue
   a. For the Kikwit-Idiofa axis, monthly household revenue at the beginning of the project was $3.00, and at the end of the project it was $9.83, more than tripled. For the Mbandaka-Bikoro axis, monthly household revenue at the beginning of the project was $9.83, and at the end of the project it was $19.16, more than doubled.

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