



Support to an Association of Women's Groups in Bubanza Province, Burundi

Phase I and II

Award Number: AOT-G-00-98-00138-00

Final Narrative and Financial Report
1 September 1998 to 30 June 2000
(including extension periods)

Submitted to:
US Agency for International Development
Office of the U.S. Foreign Disaster Assistance

Submitted by:
Children's Aid Direct



Children's Aid Direct
ten years on

Mission Statement

To make an immediate and lasting improvement to the lives of children and their carers who are affected by conflict, poverty, and disaster.

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List of Acronyms

CAD:	Children's Aid Direct
DPAE:	Department Provincial de l'Agriculture et de l'Elevage
FAO:	Food and Agriculture Organisation
IDPs:	Internally Displaced Persons
SFC:	Supplementary Feeding Centre
WFP:	World Food Programme
FfW	Food for Work
FDN:	Foyer de Demonstration Nutritonnelle (Nutrition workshops)
Dufungure Neza:	The name of the umbrella association formed by participants of Children's Aid Direct's food security programme, meaning "Eat Well" in Kirundi.

I. Executive Summary

Final Report

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Programme Title: Support to an Association of Women's Groups in Bubanza Province

Co-operative Agreement/Grant No.: AOT-G-00-98-00138-00

Country (ies)/Region(s): Burundi – Bubanza Province

Disaster/Hazard: Civil conflict

Time period covered in this report: 1 September 1998 to 30 June 2000

CAD received funding from OFDA to establish and manage a food security project in two phases as detailed below:

Phase I

AOT-G-0098-00138-00	Project dates	1 Sept 1998 – 31 May 1999
	No-cost extension	1 June 1999 – 31 July 1999

Phase II

AOT-G-0098-00138-00	Project dates	1 Aug 1999 – 31 May 2000
	No cost extension	1 June 2000 – 30 June 2000

Project Outline

During phase I of the project, the programme assisted 6 women's groups to obtain access to communal agricultural land from the authorities, tools, seeds and fertiliser from CAD and FAO, and nutrition and health advice through nutritional workshops. The Dufungure Neza Association was also provided with income-generating activities, which included four grinding mills and four poultry units for egg production. Training for the management of these enterprises was initially provided by AFRICARE and then by CAD who continue to provide managerial and organisational support.

With phase II, CAD worked with three new groups whilst still providing support to the six established groups. CAD has assisted all these groups with the expansion of their livestock production, which included establishing livestock units managed by sub-groups of women. Three community tree nurseries were also set up and technical advice and training on sustainable land use techniques provided. Nutrition training through the Foyer de Demonstration Nutritionnelle (FDN) continued to be provided.

Each of the nine groups contains between 100 and 180 members. The women work part-time for the Association and all produce and profits from harvests and income-generating activities are divided between the women in the groups.

History of the Disaster/hazard and justification for project activities

Bubanza, in the north-west of Burundi is one of the provinces that has been most affected by the country's civil war, (which began in 1993), and the nation's subsequent economic problems.

It is a fertile province, which before the crisis was one of the 'granaries' or 'breadbaskets' of Burundi. Since then, production has decreased by at least 40% due to insecurity and the scarcity of agricultural

inputs. Overuse of land has led to denudation resulting in a lower level of production. The population of small livestock has decreased by up to 90% and larger livestock by 37%, which has resulted in a large loss of manure, traditionally one of the main sources of fertiliser. Reduced access to farmland, and lower yields have resulted in reduced fallow periods and more intense use of accessible land, leading to land degradation.

Problem Analysis

Background

For the past four years the population of Bubanza has had the largest number of internally displaced people (IDPs) in the country, with approximately 154,000 people living in IDP camps.

The subsequent period of insecurity prohibited this population from returning to their homes, and the large numbers of IDPs led to limited availability of fields around the camps. As a result, over the past several years there has been insufficient land for cultivation.

In addition to the crisis caused by civil unrest Burundi is also facing other more long-term problems caused by the following factors:

- Burundi has one of the highest population densities in Africa. With 85% of the active population employed in agriculture and a population growth of approximately 2.7% a year, there is increasing pressure on the available agricultural land and natural resources such as fuel-wood.
- The country's poor economic situation means that agricultural research and extension is limited. Inputs, including fertilisers and pesticides are prohibitively expensive for subsistence farmers, or unavailable. This, coupled with lack of organic manure caused by a decrease in livestock numbers, has led to reduced productivity and increased exploitation of accessible land resulting in land degradation.

CAD began working in Bubanza province in 1997 with the establishment of six supplementary feeding centres. This was in response to the provincial global malnutrition rate of 19.5% in the population of children under five years and a severe acute malnutrition rate of 9.2%. It was evident that there was a high level of readmission in to the centres, and in response to this CAD started to address the underlying problem causing malnutrition. These were identified as lack of access to food caused by the following problems:

- lack of access to land (80% women at the time had fields between 0.01 – 0.03 Ha)
- lack of inputs (50Kg fertiliser presently costs \$40, three times the price in neighbouring countries)
- lack of income to purchase food (mean family income in 3000 Fbu/month (\$6.70) while price of the staple food, cassava flour, is 240Fbu/Kg).

These needs were addressed by phase I of the project, which started in September 1998 with the aim of assisting the mothers of malnourished children to obtain land and acquire the necessary inputs for crop production. CAD also started income generating activities.

Results from the project over the two years have demonstrated that increasing food and economic security can help prevent malnutrition. Figures from surveys show relapse figures of 4.5 % for children whose mothers are in the association compared to 25% – 40% for children whose mothers are not in the association.

Children's Aid Direct continues to monitor the province's nutritional status by regularly carrying out anthropometric surveys. The most recent, conducted in February 2000, showed a global malnutrition rate of 8.62% amongst children under five and a severe malnutrition rate of 0.78%. Adult (19-49yrs) malnutrition rates were 11.43% and 3.27% respectively. In addition Children's Aid Direct and the Department Provincial de l'Agriculture et de l'Elevage (DPAE), Bubanza, carry out yearly Food Security surveys in February. For the last two years the harvest for the A season have been poor to mediocre in many areas, mainly due to lack of rainfall early in the season. This, combined with a significant lack of small livestock, means there are great difficulties in improving the yields and in securing livelihoods at a pre-crisis level for the majority of the population.

Gender issues

The project chose to target women because of the following:

- Raw data from results of informal questionnaires conducted with three of the women's groups in Bubanza in December 1999 showed that 30% of the households are headed solely by women
- Traditionally, it is women who are responsible for family nutrition and food security. This includes food processing and marketing garden produce. The project therefore targeted women because they were perceived as having the greatest impact on household food security.

Spouses and the children of the women will benefit directly through improved nutrition. The spouses will also benefit indirectly as some will also be employed in the project activities that are traditionally reserved for men, such as working the milling machines and construction.

Criteria for participation in the programme

The participants in this programme were women who, at the time the groups are formed, had a child or children receiving supplementary rations in a CAD feeding centre.

Preference for participation was also given to women who had the least access to land. Further criteria included that each woman must be available and willing to undertake group tasks, such as fieldwork and meetings and be participating voluntarily.

The process was designed to select the 100 most vulnerable families at each site.

II. Programme Overview

A. Overall Program Goal

To improve the food security of 1,100 IDP families with currently or previously malnourished children living in the province of Bubanza, Burundi, in a sustainable manner.

Table 1. Summary of objectives for project phases I and II

Goal: To increase the food security for 600 families with malnourished children living in the province of Bubanza, Burundi.				
Phase I				
	Objective 1	Objective 2	Objective 3	
Objective	To increase food production by 20%	To increase household income by 30%	To increase nutritional knowledge	
Activities	Provision of land, agricultural inputs and technical expertise	Installation of 4 flour mills and creation of 4 poultry farms.	Nutritional workshops/Foyer de demonstration Nutritionelle (FDN)	
Indicators	Food produced by the women's groups increases by 20%	Household income of members of women's groups increases by 30%	Increase nutritional knowledge and improve the use of food for 100% of the target group	
Target population	600 families	600 families	600 families (with up to 3,000 secondary beneficiaries)	
Goal: To improve the food security of 1,100 internally displaced persons (IDP) families with currently or previously malnourished children living in the province of Bubanza, Burundi.				
Phase II				
	Increased access to food commodities Objective 1		NEW Objective	
	Objective 1 A	Objective 1 B	Objective 2	Objective 3
Objective	To increase income by 30% in new groups and 10% in groups established in 1998	To increase domestic food production by 20% in new groups and 5% in groups established in 1998	Promotion of sustainable land use techniques	To increase nutritional knowledge amongst 100% of members of newly formed groups and 500 women in the SFP
Activities	Support to poultry units, and mills. Crop sales Livestock breeding	Crop production	Establish 5 tree nurseries Provision of fruit tree seedlings	FDN in Association groups and SFP beneficiaries
Indicators	Increase in income by 30% in new groups and 10% in groups established in 1998	Increase food production by 20% in new groups and 5% in groups established in 1998	Increase in number of women adopting practices	Increase in nutritional knowledge by 100% of members of new groups and 500 women in the SFP
Target population	>900 families	>900 families	>900 families	>300 families

B. Profile of the targeted population and the critical needs identified in the proposal

The target population consisted of internally displaced persons living in IDP camps. Owing to the factors of having little or no access to land for cultivation, negligible employment opportunities and high costs of foodstuffs these families remain highly food insecure and vulnerable to malnutrition¹.

¹ CAD anthropometric surveys of children <49 months: August 1999 - chronic malnutrition rate of 12.87% and a severe malnutrition rate of 4.44%. February 2000 - chronic malnutrition rate of 8.62% and severe malnutrition rate of 0.78%.

In order to address this situation, this project aimed to improve the target populations access to land and to provide agricultural advice. This was to enable them to enhance their domestic food production, establish enterprises to enhance their income generation potential, allow purchase of food. The project also sought to provide nutritional training to enable people to improve the nutritional status of their families.

Family income for the project target group, and the population of the region as a whole, was still extremely low, with an average income of around 4000 Fbu/month (\$6.70/month). Most income is gained from labouring which is waged at 300 – 350 Fbu/day (\$0.58) or the equivalent in food for work. The average market price for a kilo of cassava flour (the staple food) is 240 Fbu. These factors meant that daily family food intake for the target group was at a minimum level and what food is consumed is lacking in protein and other micro-nutrients. Family income was also still too low to provide capital to purchase livestock.

Many farmers in the region (including the project target group) have experienced difficulty in the past with producing sufficient harvests to satisfy their food requirements and/or have insufficient to keep as seed for planting the following season. This problem is therefore both acute and chronic. There is heavy reliance on food aid and seed distributions, and there are 11 Supplementary Feeding Centres (SFCs) for adults and children in the province.

C. Geographic locations of all major programme activities

Country:	Burundi
First Admin. Unit:	Bubanza Province
Second Admin. Unit:	Mpanda – mill, poultry unit, agriculture, nutrition education Bubanza – mill, poultry unit, agriculture, nutrition education Musigati – agriculture, nutrition education Ninga – mill, poultry unit, agriculture, nutrition education Gihanga – poultry unit, agriculture, nutrition education Ruyange – mill, agriculture, nutrition education Ntamba – agriculture, nutrition education Ngara – agriculture, nutrition education Muyebe – agriculture, nutrition education
Latitude:	3° 10'
Longitude:	29° 25'

See Annex 1 for map of region and project area

III. Programme Performance

- **Objective: To increase domestic food production**
(Objective 1 in Phase I and 1B in Phase II)

Crop Production

Land Availability

Whilst nearly all the households own land, because of the poor security situation much of the land remains inaccessible for long periods of time, leading to crops being poorly maintained or abandoned. There are also other factors that prevent available land being cultivated, such as lack of seeds and tools 80% of women questioned in the project groups had access to only 1 – 3 Are (this equates to 0.01 of a hectare or 100 square metres) of land².

The project has addressed this problem by providing access to communal land near to the IDP camps, allowing the groups the chance to work in relatively secure surroundings.

Table 2. Land used by the association, represented as area per member

	Area of land used by the groups Are*	Are/member	% increase per member compared to before CAD's intervention†
A 1999 short wet season	870	1.05	+ 35%
B 1999 long wet season	595	0.72	+ 24%
C 1999 dry season	No record kept	----	----
A 2000	2080	1.93	+ 64%
B 2000	3020	2.81	+ 94%
C 2000	801	0.74	+ 25%

* 100 Are = 1 Ha

† 80% of women in the six IDP sites surveyed in 1997 have access to 1 – 3 Are land during the A season before they joined the project, therefore percentage increase per member is calculated from 3 Are. This figure was used for all seasons as the situation in the IDP camps remained unstable during the project period and therefore land access would have changed little over the same period.

Table 3. Area of communal land available to each group per phase and comparison between two phases.

Group	Phase I Are*	Phase II Are	% difference
Musigati	365	805	120%
Ruyange	350	875	150%
Bubanza	260	710	173%
Mpanda	350	980	180%
Ninga	40	620	1450%
Gihanga	100	420	320%
Ngara	----	835	N/A
Ntamba	----	376	N/A
Muyebe	----	280	N/A

*100 Are = 1 Ha

The groups were provided with agricultural land from the Department of Agriculture (DPAE) and the local administration for a limited period of time free of charge - normally two growing seasons. On occasions it has been for one season. After this time, the groups are normally able to pay the cost of the rent from the sale of agricultural produce from the previous season. Land rent is between 7,000 – 20,000 Fbu (\$10 - \$30) per hectare depending on the quality of the land.

No record was kept of communal land available in the dry season (C 1999). This may be because many of the groups were unable to find communal land for this season and used their own fields for planting

² Survey in the nutritional centres in IDP sites of Bubanza Province: Perspectives on the work of an association Evaluation made in December 1997 by CAD, Burundi

communal seeds. In the C season cultivatable land is only available in the marais (swampy) areas in the base of the valleys and, as this is the prime agricultural land, it is expensive to rent or already intensively farmed.

Seeds and Tools

The project has distributed 1,134 hoes and mixed seeds (soya, maize, haricot, peanut and vegetables) to the Association and provided training and advice on crop production. See Annexes 2 – 7 for tables of seeds supplied and harvests for association crops

Seeds supplied by CAD have either been purchased from a reputable supplier in Bujumbura or donated from FAO who import the seeds from neighbouring countries.

Of the harvests produced, generally 85% of the production was consumed, 10% sold and 5% kept as seed for the next season.

The groups still have problems obtaining commercial fertilizers, which are expensive and not readily available. CAD continues to provide this until the animal units are well enough established for manure to be collected.

Problems encountered and action taken:

• **Production Level**

There was a low level of harvest in many of the groups in relation to the land area planted and quantity of seed supplied. See Annexes 2 – 7 detailing seeds supplied and related harvest.

This could be due to several reasons. If land was not available for the community fields, the women distribute the seeds amongst themselves for planting on their own land and this is not monitored by CAD staff, making it difficult to verify the quantity planted. Also, seeds are sown as a mixed plot, normally containing maize, haricot bean, soya, sweet potato and peanut. It is therefore difficult to estimate the exact area per crop and the yield per area. Vegetables are normally sown as a monoculture so yield per area for these crops can be more reliably estimated.

There are also various other factors affecting harvest, including the quality of the land loaned by the administration. This has sometimes been poor, as is the case at Bubanza, and has led to a lower than expected harvests. There was also lower than expected rainfall throughout the region in Season A 1998 and 1999, which severely reduced harvests especially in the plain areas of Gihanga and Ninga.

Where harvests are recorded but no seeds have been supplied, the group has used its own seed. CAD has been trying to encourage the groups to reserve seed for the following planting season. Some groups have been able to do this, others not. The ability to do this depends on quantity harvested and whether the group feels there is sufficient surplus to save as seed above the demand for food or income from the sale of seed.

As well as physical factors affecting crop production, there are also issues associated with the groups themselves. Working on community land does not give the responsibility for the field maintenance to any particular individual and since no particular person benefits from the harvest the incentive to increase production is low. Also, if security is reasonably good and the women have sufficient access to their own land to allow them to grow crops, the incentive to work together and increase production on community land is decreased.

Indicator and measure for Objective 1 (Phase I) and 1B (Phase II)

- **Phase I - Increase food production by 20%**

Results: Objective partially met.

The level of food production at the start of the project was considered low enough to fail to supply the nutritional needs of the groups as indicated by the high levels of malnutrition. This malnutrition can be caused by several reasons, the most prominent being the lack of land availability. 80% of the women had access to between 1 – 3 ares of land. Information on harvests from these small plots is limited to

the main crop - haricot, the harvest of which was on average 50 Kg for each of season A and B (see footnote 2). Harvests of other crops was considered negligible. With a view to combating the high level of malnutrition the project aimed to increase the production of high protein grain crops such as haricot, soya, maize and peanut, and also vegetables by providing communal land.

Harvest from project supplied crops are shown in Table 4. However, this does not include production of vegetables, which took place on much of the communal land in all three seasons. If vegetables and C season harvest is included then the increase in quantity of food produced over the project period is higher, as shown in Table 5.

Table 4. Harvest for A and B season and difference over project phase I

Group (No. beneficiaries)	Total harvest for project groups for season A and B		% increase over 100 Kg (harvest before project)*
	Harvest Kg (haricot, maize, peanut and soya)	Harvest (Kg) per member	
Musigati (180)	2,300	12.8	+ 12.8%
Ruyange (100)	1,860	18.6	+ 18.6%
Bubanza (100)	1,308	13.1	+ 13.1%
Mpanda (100)	300	3.0	+ 3.0%
Ninga (178)	970	9.7	+ 9.7%
Gihanga (170)	750	7.5	+ 7.5%

A and B season harvests are combined

** harvest of haricot was 50Kg per season from family plots Harvest of soya, maize and peanut was considered negligible.*

Table 5. Harvests for all crops harvested on communal land over project phase I.

Group (No. beneficiaries)	Total harvest for project groups for season A, B and C		No comparable estimations of total harvest (including vegetables) made before project started.
	Harvest Kg (all crops supported by project)	Harvest (Kg) per member	
Musigati (180)	2,550	14.2	
Ruyange (100)	3,720	37.2	
Bubanza (100)	1,708	17.1	
Mpanda (100)	500	5.0	
Ninga (178)	2,070	11.6	
Gihanga (170)	2,050	12.1	

This low percentage increase may be explained by the discussion under '*problems encountered and action taken*', as above.

The lack of detailed harvest data at the start of the project does not allow an accurate increase in production to be calculated. However, when the increase in area of land per family is considered as in Table 3, it is also likely that crop production would increase in proportion to the increase in land area per beneficiary.

- **Phase II - Increase domestic food production by 20% in the new groups and by 5% in the established groups**

Results: Objective partially met.

A survey³ carried out to assess the food security situation in the three new groups (Ntamba, Ngara and Muyebe) at the start of phase II found that the average harvest of haricot was 45Kg per season A and B. However, this bore no correlation to the quantity of land the members said they had access to. Therefore, the results of the survey are considered unreliable.

Although the groups say they have access to family land this access is mostly restricted, particularly at Muyebe because of poor security. Even without access to definitive harvest data it is still possible to

³ Survey by CAD staff with random sample of 56 new group members in Muyebe, Ntamba and Ngara

conclude that the food security situation in the three new sites was precarious enough to mean that all group members had a child receiving rations in a SFCs. Also, the survey results showed that 98% of adults at the three sites and 75% of children under 12 years at two of the sites consumed only one meal per day. At Muyebe all the children in the families questioned consumed only one meal a day.

Using the base harvest figure of 45Kg haricot per season from family plots it is possible to say that the harvest in the three new groups increased and the percentages are shown in the Table 6. As explained above this may not be a true representation of the actual harvest.

The six established groups were also able to harvest during certain periods, but three of the groups showed a decrease in yield compared to that in phase I. This was not due to lack of available land however. As Table 3 shows, the area of land available to each of the groups increased over the same period. The region was, however, hit by erratic or low rainfall in season A 2000 and harvests for some of the groups were low, or even non-existent at this time if they had no access to irrigation.

Table 6. Quantity of harvest for all types of crops considered in the project per group over phase II.

	Total harvest Kg	Kg per member	% difference from Phase I
Musigati (186)	4210	22.6	+ 5.6%
Ruyange (100)	4000	40.0	+ 52.6%
Bubanza (100)	1030	10.3	-66.2%
Mpanda (100)	3580	35.8	+ 75.4%
Ninga (168)	1560	9.3	-52.3%
Gihanga (123)	1940	15.8	-52.5%
			% increase over Phase II
Ngara (100)	2740	27.4	+ 60.8%
Ntamba (100)	2580	25.8	+ 57.3%
Muyebe (100)	2820	28.2	+ 62.7%

Details of the harvests are shown in Annexes 2 - 7.

- **Objective: To increase income**
(Objective 2 in Phase I and Objective 1A in phase II)

Table 7. Income generating and field activities carried out and date established

Site	Date Activities Established				
	Poultry units (50 chickens)	Mill	Crop cultivation	Work started on livestock units*	Sustainable land use
Bubanza	Feb 1999	Dec 1998	Sept 1998	Oct 1999	Sept 1999
Mpanda	Feb 1999	Dec 1998	Sept 1998	Feb 2000	Sept 1999
Ruyange	-----	Dec 1998	Sept 1998	Oct 1999	Sept 1999
Gihanga	Feb 1999	-----	Sept 1998	Oct 1999	Sept 1999
Ninga	Feb 1999	Dec 1998	Sept 1998	Oct 1999	Sept 1999
Musigati	-----	-----	Sept 1998	Feb 2000	Sept 1999
Ngara	-----	-----	Sept 1999	Feb 2000	Sept 1999
Ntamba	-----	-----	Sept 1999	Feb 2000	Sept 1999
Muyebe	-----	-----	Sept 1999	Feb 2000	Sept 1999

*Livestock units consist of 5 goats, 3 pig and 30 chickens per 10 women.

Poultry Units

The poultry units were managed well and were very productive reaching an egg laying percentage of 80%⁴ of full capacity production. Each unit was supplied with 50 cross-bred laying hens purchased from a supplier/importer in Bujumbura.

⁴ This means that in one day, 80% of the birds laid an egg. This level of production is very satisfactory especially when considering that this was the first time the women had managed a semi-intensive poultry unit.

Advice was provided to all groups on good management practices and vaccinations provided. As a result, only eight chickens were lost to disease over the whole project.

At the end of December 1999, the groups decided to begin the sale of the hens in order to buy replacement laying stock. Most of the hens were purchased by members of the groups for approximately 2,000 Fbu.

Figure 1. Number of eggs laid per month

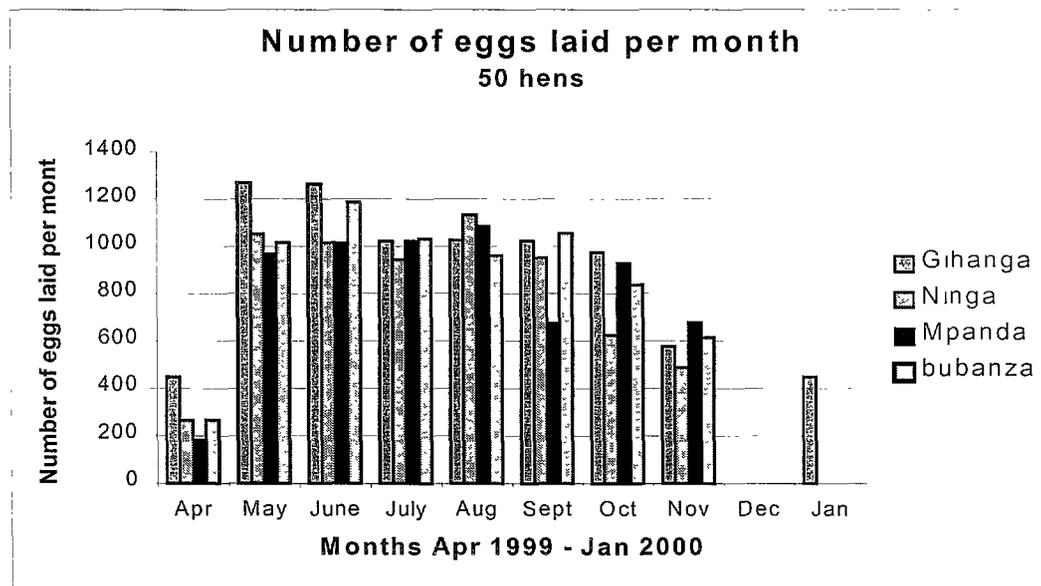


Table 8. Mean monthly figures for poultry units over the number of months they functioned

Association	No. months	Mean per month			Income from sale Fbu
		No. eggs laid	No. eggs per hen	No. eggs sold	
Bubanza	9	871	18	821	50,942
Mpanda	8	819	17	702	40,095
Gihanga	8	894	19	821	49,233
Ninga	8	809	17	735	44,093

Table 9 Income from egg units taking into account running costs

Site and no. of groups members	Month egg production started	Mean monthly revenue (Fbu)	Mean monthly costs feed and salary (Fbu)	Actual net profit/unit/month (Fbu)	Income/member/month (Fbu)
Bubanza (100)	April 1999	50,942	34,833	16,109	161
Ninga (167)	April 1999	44,093	34,833	9,260	92
Mpanda (100)	April 1999	40,095	34,833	5,262	52
Gihanga (123)	April 1999	49,233	34,833	14,400	117

Problems encountered and action taken:

- **Feed**

Commercially prepared feed was only available in Bujumbura and this was relatively expensive. Buying the feed in Bujumbura was a logistical problem for the women and CAD had to take responsibility for this. This was however not a sustainable solution. The women were advised on how to prepare the poultry feed for themselves as this seemed the best alternative. However, none of the groups were able to carry out this activity either because they lacked the necessary materials or did not have sufficient interest. The sustainable solution will be for the groups to produce their own feed, but in the present circumstances most of the products needed, such as maize, is prioritised for human consumption.

The quality of feed also varied occasionally and this was the reason the women gave for low egg production, which sometimes occurred.

- **Building repairs**

The units were constructed with metal sheet roofs tied onto the wooden structure below. CAD was willing to pay for damaged metal sheeting to be replaced if without it the livestock were at risk.

However as a result the temptation to steal the roofing materials increased. Therefore it was decided to use plastic sheeting as roofing material for all the animal units in phase II. This material is relatively cheap, easily replaced and available locally.

- **.Sustainability**

In order to start the units up again the group would have had to take a loan from CAD to allow them to purchase more animals. These hens would need a supply of feed for the first five months before they began egg-laying. The total amount of capital required to restart the enterprise was 53,700 Fbu before it would generate an income. This initial outlay was more than the groups wished to make and the egg units have been closed since December.

CAD had thought of assisting the groups to start up this activity again, but poor management of the group enterprises including theft of local chicken stock by some group members meant we were reluctant to invest further in some of the groups until they were able to improve their management. CAD has been working closely with all groups to discuss problems and try to find solutions. One solution may be to keep a local chicken breed both for egg and broiler production. But this would have to be carefully managed to prevent disease outbreaks and to maintain sufficient funds within the group to purchase feed supplements and replacement stock.

The women still have an interest in the units and it is hoped that when the groups have sufficient income from the other activities they will be willing to invest in the egg units once again.

CAD has also looked into the possibility of supplying local hens as a replacement but at the time we were unable to find a supplier with sufficient number of healthy birds, since many local chickens were falling prey to Newcastle disease.

Mills

Table 10. Mean monthly revenue from mills

	Opening date	Mean gross monthly revenue (Fbu)	Mean monthly running cost (Fbu) (See table below)	Actual net profit/mill/month (Fbu)	Income/member/month (Fbu)
Bubanza* (100)	27 Jan 1999	26,732	15,637	11,095	111
Ruyange* (100)	14 Jan 1999	94,366	59,500	34,866	349
Mpanda** (100)	15 April 1999	100,300	54,000	46,300	463
Ninga* (167)	22 Jan 1999	25,427	13,777	11,650	69.8

* 18 months ** 15 months

Mean monthly income is calculated for the months starting when the mill opened, not per month from the start of the project. The mills grind both dried cassava and dried maize depending on the season. The milling price is 15 – 20 Fbu per Kg maize and 5 Fbu per Kg cassava.

A loan of 100,000 Fbu was made to the group at Bubanza and Ninga to purchase cassava during a lean period. This loan was paid back in full.

Where the mills are well placed near to the centres of the communities as in Ruyange and Mpanda they also act as a community gathering point. Women's group meetings are frequently held at the mills.

Figure 2. Gross monthly revenue per mill.

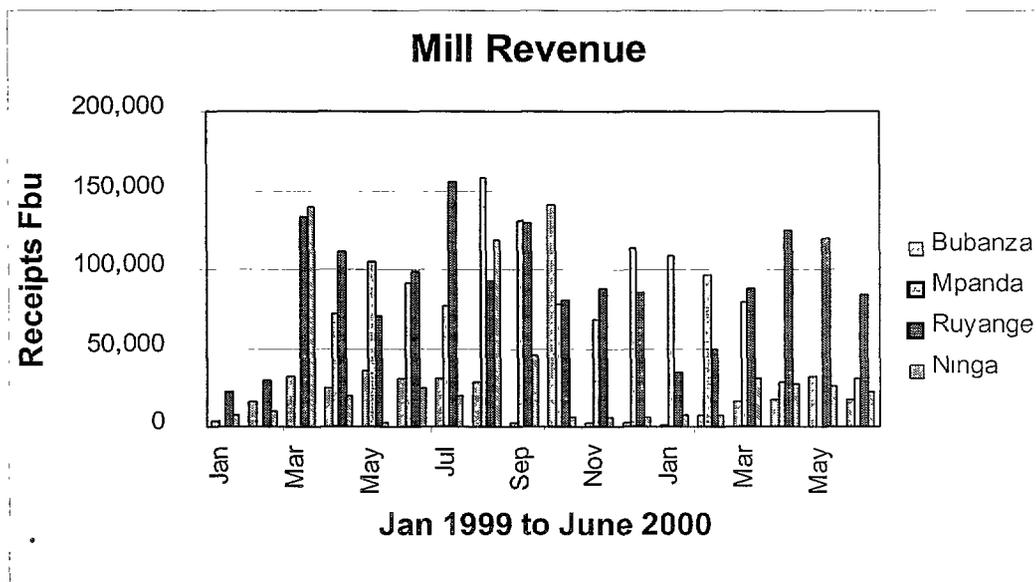


Table 11. Expenditure for mill operations

	Mill costs - Monthly means (Fbu)				
	Salary miller/ watchman	Electricity	Maintenance	Meal for workers	Total
Ninga	5,000	7,777	No record	No record	13,777
Bubanza	3,000 5,000	7,637	No record	No record	15,637
Mpanda	10,000 8,000	31,000	5,000	No Record	54,000
Ruyange	10,000 8,000	17,500	4,000	20,000	59,500

Expenditure varied with each mill. The decision to pay the daily workers with food was taken by the group. This is a common practice in Burundi.

If depreciation is included then none of the mills are presently making a profit. As CAD paid for the construction and no repayment is expected then the mills are making a small profit.

When the revenue falls below a certain level, the groups decide that it is not viable keeping the mill open. However, closing the mills obviously further reduces the chance of making the mills viable.

Problems encountered and action taken

- **Management**

Management of the mills at Bubanza and Ninga has been problematic. Until recently the mill and the poultry unit were the only two income enterprises in Bubanza and Ninga and income has therefore been limited and low when divided between 100 and 167 members respectively. Lack of income has led to mistrust between members and the committee who are responsible for book-keeping. Mistrust of the committee and the women handling the books has led to the committee members being changed at regular intervals.

Frequent mechanical problems have meant the mill at Bubanza has been closed for weeks at a time, further reducing income generation.

The low level of available cash has also meant the women have had problems purchasing spare parts and mill repairs. This was made even more difficult as there was little trust in the accountant and the necessity for several members of group to give permission each time money is released has delayed providing cash for urgent repairs.

- **Location**

The main factor limiting the number of clients at the Bubanza mill is likely to be the poor location—being 15 min walk from the local market. There is little that can be done to resolve this problem as the mill buildings are solid brick constructions with a mains electricity supply which will make it costly to re-locate elsewhere. The land was provided by the administration.

As this enterprise has already required a great deal of investment in time and money it seems worth trying to pursue alternative or dual functions for the premises in the future. The fact that there is a good power supply is a bonus. This will be discussed with the group to see if a viable enterprise can be identified.

The mill at Ninga is particularly affected by seasonal reductions in availability of produce, hence the reduction in clients. At such times the women feel it is uneconomical to open the mill and employ someone to work if there are unlikely to be clients. CAD has previously offered loans to the group to enable them to buy relatively cheaper cassava at the market in Bujumbura for transporting to Ninga for milling and selling. This intervention is not viable in the long term. Again, as with the mill at Bubanza, an alternative/dual enterprise making the use of the building and the electric supply may be the best option for keeping the mill open.

- **Record-keeping**

Ideally, daily records of quantity of produce ground, receipts and electric consumption should be kept. Groups vary in their interest and ability to do this. There are many reasons: some members of the groups are unable to read or write and therefore are not able to take note of weight and receipts. It is essential that one of the two people appointed to the daily work rota are literate and numerate.

The mill record book is kept locked away to prevent it from being used for other purposes and as only a handful of people have access to the key this sometimes means that it is not readily available to the person currently attending the mill. This very small problem is causing a disproportionate amount of trouble and is proving very difficult to resolve. This is likely to be indicative of a wider problem of transparency and accountability.

Combined Income from mill and poultry unit

Table 12. Income* from milling and egg sales since project began

Site	Phase I				Phase II			
	Mill	Full months open	Egg sales	Full months open	Mill	Full months open	Egg sales	Full months open
Bubanza	286	Feb – Jul	502	Apr – Jul	245	Aug – Jun	516	Aug – Nov
Mpanda	859	May – Jul	351	Apr – Jul	809	Aug – Jun	451	Aug – Nov
Ruyange	998	Feb – Jul			887	Aug – Jun		
Gihanga			326	Apr – Jul			360	Aug – Jan
Ninga	203	Feb – Jul	244	Apr – Jul	166	Aug – Jun	268	Aug – Nov

*Fbu

Mill revenue is per month (whole months only) since the mills began functioning and egg sale is per month since the units began producing eggs.

Small group livestock units

In the second phase of the project, sub groups were established within each group and were provided with livestock.

All animals were purchased locally from local suppliers. Price estimations were sought from several suppliers and visits were made to see the quality of the stock available. Before each purchase, a contract was drawn up between CAD and each selected supplier to ensure animals would be available on time and would be in good health. At the time of purchase the CAD vet visited the relevant supplier to select individual animals.

Prices were roughly the same as estimations in the project proposal. These are detailed in the following table:

Table 13. Livestock prices

Local livestock	Age Months	Price \$ Budget	Price \$ Actual
Goats			
Female	4	32	26
Male	5	32	26
Pigs			
Female	2	24	20
Male	4	24	26
Chickens			
Female	2 +	2	2
Male	2 +	2	2

The following table details the number of animals purchased and given to the groups. The ratio of male to female animals purchased is approximately as follows: Goats 1:17, pigs 1:8 and chickens 1:9.

Table 14. Total Number of animals owned by the groups at end of project

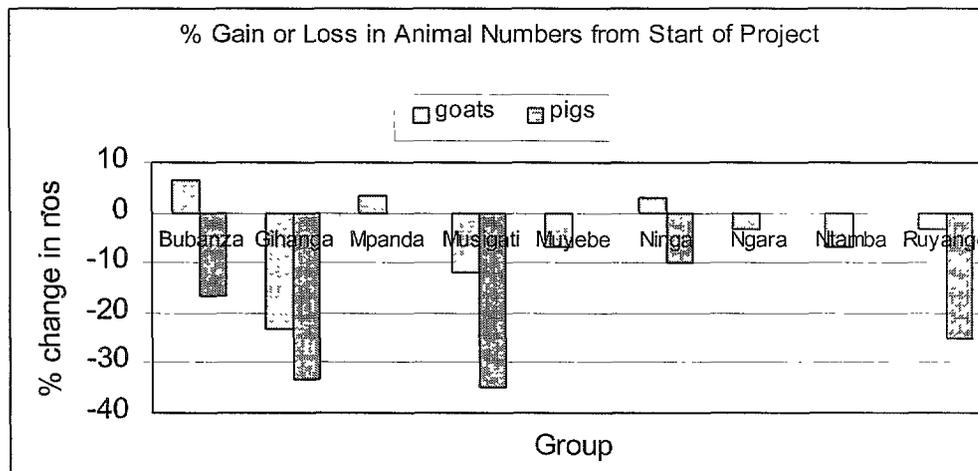
Group site	Animal	No units	Total No. animals given (male & female)	No. births to date	Mortality and thefts	No. animals remaining to date (June)
Bubanza	Goats	4	30	3	1	32
	Pigs	3	12		2	10
	Chickens	3	140		74	66
Gihanga	Goats	4	30		7	23
	Pigs	4	15		5	10
	Chickens	4	120		94	26
Mpanda	Goats	4	30	2	1	31
	Pigs	3	12		0	12
	Chickens	3	A/P			
Musigati	Goats	6	50		6	44
	Pigs	5	20		7	13
	Chickens	5	A/P			
Muyebe	Goats	4	30		2	28
	Pigs	3	12		0	12
	Chickens	3	A/P			
Ninga	Goats	4	32	2	1	33
	Pigs	5	20		2	18
	Chickens	4	170		108	62
Ngara	Goats	4	30		1	29
	Pigs	3	12		0	12
	Chickens	3	A/P			
Ntamba	Goats	4	30		2	28
	Pigs	3	12		0	12
	Chickens	3	A/P			
Ruyange	Goats	4	32	5	6	31
	Pigs	3	12		3	9
	Chickens	3	90			

A/P Awaiting Purchase This is either because the supplier was unable to provide sufficient quantity of healthy animals or there was a threat of disease and CAD were unwilling to accept delivery of procured livestock at the time.

The main consideration with construction of these units was the need to distribute the number of units fairly between the sub-groups to prevent disagreements. It was also agreed by the project staff that in order to spread risk of loss due to illness each group should receive a mixture of animals.

No animals were lost during distribution. As far as possible all animals were transported in open top vehicles to prevent overheating and young pigs were covered to prevent sunburn. The groups were alerted in advance and all had prepared fodder and water for the animals.

Figure 3. Percentage gain or pigs and goats to date



Two successive outbreaks of *peste porcine* killed a great number of pigs in the region. The pigs belonging to the groups are kept in pens to reduce their physical contact with other animals that may carry the disease but this was insufficient to prevent a high number of deaths. The same disease was responsible for killing pigs throughout the country.

The loss of goats due to theft was high in Gihanga, an area that is widely known for this type of crime. The groups have employed guards or kept the goats very close to their houses to try and reduce this. However, many of the thefts were thought to be from within the group and the groups are seeking assistance from the authorities on the matter. The animals have also not had sufficient time to breed as many were purchased at a young age, so there are a limited number of additions.

Pig feed has been supplied to each group at a rate of at 0.5 Kg concentrate/animal/day for a total of four months. This concentrate was purchased in Bujumbura and stored in the CAD store in Bubanza for distribution in monthly batches to the groups.

Problems encountered and action taken

After discussions with food security staff it was decided that work on the livestock units would take place in two phases. The first being the construction and stocking of units at Gihanga, Ninga, Ruyange and Bubanza which are closest to Bujumbura. These were to be followed by sites further away from Bujumbura including Ngara, Ntamba, Musigati, Muyebe and Mpanda.

This decision was taken for several reasons. The main one being the uncertain security situation in September/October 1999 which prohibited regular access to many of the more distant sites. As this situation was unlikely to change in the near future it was thought safer to keep the travelling time of CAD staff and time spent in the field to a minimum. Also, better access to the nearby sites meant that CAD was able to supervise the construction and stocking, and monitor progress closely. Proceeding in two phases meant that we were also able to learn from problems encountered the first time round.

- **Cost of constructions**

Plans for each type of animal unit were discussed with the women, the CAD vet and logistician. The units were made using locally available materials, so enabling them to be easily repaired by the groups if required.

As we felt inequality in the number of units would cause friction between sub groups, we decided to build a reduced number of units that were larger in size, allowing for one unit per group of ten women. This meant we were within budget and also had sufficiently large units to allow extra stock to be purchased to compensate for the reduction in the overall number of units.

All the materials were purchased locally around Bubanza town. Labour for construction was supplied by the women and their families.

- **Location of units**

Sites for the construction of the livestock units were selected by the women's groups with the help of the Food Security vet and the local Administration at each of the sites. Each of the groups of ten women have chose a location that they felt was safe and near to their homes. This, however, meant that some of the units were scattered within a radius of 3 Km around the main sites. At places where the women felt security was an issue they are constructing their units all together in the area of the IDP camp. This will allow one guardian to be posted to look after all the units. The problem associated with this is that if the camps are closed and the women return home they will have to dismantle the units and relocate them to a site nearer to their homes.

In June and July 2000 many of the IDP sites began to be dismantled. The decision of what to do with the units was left to the groups. Some felt the security situation was good enough to allow them take their animals with them. At other camps, such as Muyebe the women decided to leave their livestock units on the old IDP site. They feel that the security situation is precarious and that they might return to the site in the near future. They will decide what the next step is in August.

Access to water is a problem at several sites with women walking one up to 90 minutes each day. To help alleviate this situation, water storage barrels have been purchased for the animal units in the mountainous sites. The woman can then keep these barrels stocked up to provide a ready supply of water for the livestock.

- **Security**

Security has been a major issue affecting livestock ownership by the groups. The groups were fearful that having animals makes them a target for banditry, and in Bubanza Province this has been the case for some households.

The women therefore employ guards for the units during the night. This has been paid for in a variety of ways: either directly, if the groups has sufficient cash funds, or in the form of a young animal at a later date. The women have worked with the local administrator to write a contract for the guards. This is a good example of the use of initiative by the groups.

Disputes within the groups have lead to members taking stock in lieu of income or payment for work they feel they are owed. This has often been the case if they feel money has been withheld by treasurer/committee.

Many of the IDP camps are now being closed and it has been noted that some members of the groups are taking livestock home with them before this has been agreed by the group as a whole. Preparations are being made to ensure that the livestock is split fairly between groups that return to their respective villages of origin, but this is obviously taking some time to organise. Also, in some areas the majority of the members want to leave their stock in one place while others want to take their animals with them when they relocate. The main issue is security. Some members feel that the animals are safer left together in one site while others members prefer to guard the animals near their homes. The situation is still being discussed.

- **Livestock Health**

Since 1993 there has been very little money invested in the agricultural sector in Burundi. Although extension agents and Ministry of Agriculture vets exist, they have few resources and limited mobility. Beyond the main villages, such as Gihanga, there is practically no veterinary assistance available to small farmers.

Outbreaks of preventable poultry diseases, such as Newcastle disease and Fowl Typhus, are very common, with up to 100% mortality in some local flocks, including association animals. Vaccinations are available at a very cheap price but local suppliers do not vaccinate their stock and therefore purchase of healthy stock is not assured. Once vaccinated, all animals have to be isolated until the vaccine is effective. This has been very difficult to implement with the level of supervision we have been able to provide to the groups.

Recent outbreaks of an unidentified swine fever have also occurred on two separate occasions in the same locality with mortality rates of 10 – 20%. This has badly affected project activities with the project being unable to purchase pigs from February to May 2000.

Availability of veterinary drugs is sporadic in Bujumbura. When available however they are from registered manufactures and of good quality.

The veterinary nurse ran short training courses for the women's groups in basic management of chickens, goats and pigs. These courses lasted for two hours per group of approximately 20 women and covered nutrition, health and hygiene of the animals.

Table 15. Main diseases affecting association animals

Animal	Main health problems
Goats	Contageous ecthyma Conjunctavitis Theilerose Intestinal worms Bronchopneumonia
Pigs	Peste porcine Salmonellose Dermatitis Injuries Intestinal worms
Chickens	Typhose Newcastle disease Coccidiose Respiratory infections

- **Livestock Suppliers**

There is no supplier of local chicks able to provide the numbers required by the project and this has meant purchasing small numbers of about 50 at a time. These are normally unvaccinated at the time of purchase and vaccination is carried out as soon as possible after. However, many of these chicks have succumbed to disease before they have had time to build up sufficient immunity. This has lead to loss of 60% of some flocks within the first month from disease such as Newcastle's.

There are several ways to reduce this risk including keeping animals inside the shelter for the first month. Although this has been suggested to the groups it has not been followed. This can be for several reasons: the women may not fully understand the reason they need to isolate the animals. Also, if the animals are kept in pens they will need to have feed delivered to them, and this is either time consuming for the women or too expensive, depending on the type of food supplied. Project staff endeavoured to make the number of visits to provide all the support and encouragement necessary.

- **Provision of fodder**

The groups are organised so that each group of ten women work in rotation to provide fodder for all the animals. This seems to be a workable solution in most cases but in one group the women are reluctant to carry out their groups tasks and the livestock suffers as a consequence. In these cases CAD has recommended splitting the groups into smaller units to give each of the small groups proportionally more responsibility for their own livestock.

Indicator and measure for Objective 2 (Phase I) and Objective 1A (phase II)

Income from the groups was received from a variety of sources. These are detailed in Table 16.

Table 16. Total gross revenue from enterprises for each phase.

Site	Phase I				Phase II			
	Mill	Egg sales	Crop sales	Total	Mill	Egg sales	Crop sales	Total
Bubanza	176,000	50,253		226,253	269,130	51,630	110,000	430,760
Mpanda	343,738	35,115		378,853	890,397	45,075	195,000	1,130,472
Ruyange	621,330		120,000	741,330	976,105			976,105
Gihanga		55,410	130,000	185,410		44,292		44,292
Ninga	224,125	43,350	117,500	384,975	304,830	44,835		349,665
Musigati							235,000	235,000
Ngara							325,000	325,000
Muyebe							180,000	180,000
Ntamba							135,000	135,000

For the mills and poultry units this mean is calculated from the number of months starting with the first month the unit functioned (this is after the start of the project due to the time needed to build the units and start production) N.B. maintenance costs have not been taken from these amounts

Groups with no crop sales either did not have access to suitable land or were affected by lack of rainfall over one or several growing seasons.

Table 17 shows the income per group in terms of income per member and in achievement of objective

Table 17. Gross income per month during time of project activities.

Groups and no. members (phase I and II)	Phase I 11 months			Phase II 11 months		
	Total gross revenue per group	Gross income/ month/ member	% increase above 3000 Fbu	Total Gross revenue per group	Total gross income/ month/ member	% increase above previous phase
Bubanza (100)	226,253	205	6.8%	430,760	391	12 2%*
Mpanda (100)	378,853	344	11 5%	1,130,472	1027	30 7%*
Ruyange (100)	741,330	673	22.4%	976,105	887	24 1%*
Gihanga (170) (123)	185,410	99	3.3%	44,292	32	1 0%*
Ninga (178) (168)	384,975	196	6.5%	349,665	190	5 9%*
Musigati (180) (186)			0%	235,000	114	3 8%
						%increase above 3,000 Fbu
Ngara (100)				325,000	295	9.8%
Muyebe (100)				180,000	163	5 4%
Ntamba (100)				135,000	122	4 1%

* % increase in monthly gross income from phase I.

Target in Phase I is 30% increase for all groups. Target in Phase II is 30 % increase for the 3 new groups and 10% increase on the income in Phase I for the established groups.

- **Phase I – Increase income per family by 30%**

Results: Objective not met

Mean monthly gross income per person per group would need to reach 3,900 Fbu to meet the objective. All the groups in phase I received an increase in gross income but not sufficient to realise the objective. There may be several reasons: Many of the groups in Phase I were very large and although the income from their activities was satisfactory, when this income is divided between the large number of group

members the proportion per member is relatively low. However, even if the income were to be divided between the minimum number of members, which is 100, it would still be below the target percentage. There are also many other factors, which are discussed below.

Mills

Milling is the enterprise that has contributed the most in terms of revenue to the groups. However, through the time of the project the most profitable mill at Ruyange has been grinding approximately 430 Kg of cassava and maize per day when fully operational. The mills have a mechanical capacity to grind up to 400 Kg cassava per hour. It is apparent that the mills are not reaching their full potential. There are many reasons for this, which have been discussed under *problems encountered and action taken* for mills.

Crop sales

Revenue from crop sales is another important contribution to individual income (see table 16) and most of the vegetables such as onions, tomatoes and aubergines produced by the groups are sold. This valuable source of income is highly dependent on land availability particularly in the C season, which is the main vegetable growing period in marais (valley base) or irrigated land. This land is generally more expensive to rent and relatively difficult to obtain.

Income from the groups has in the past been divided between the members. All the women questioned in the final assessment were disappointed with the level of income generated and were quick to blame the committees for hoarding this money. In cases where money was available the groups decided to provide loans to selected members. The recovery rate for these has been on average 60%. CAD was not involved in this activity as it was the women's decision to use their income as they wished.

Poultry units

Income from these units made the lowest contribution to the individual income. This is mainly because of the high price of feed needed to maintain high egg production and the length of time inputs are required before egg production starts.

- **Phase II - Increase income by 30% in the new groups and 10% in the established groups**

Results: Objective partially met

Three of the established groups realised the objective of a 10% increase in income over the previous year, but as the income in phase I was low this 10% does not indicate a great improvement in actual income. For the three new groups in Phase II increase in income is well below the expected 30%. The objective in this case was not met.

Crop sales

Income for the three new groups at Ngara, Ntamba and Muyebe, was generated from crop sales only, and again, when divided between the number of members represents only a small increase in individual income. CAD also provided the majority of initial inputs to this enterprise (also for phase I groups) including seeds, fertilisers and provision of hoes. This input is not sustainable and in the future the groups will have to provide these inputs themselves, which will reduce income.

Livestock

Livestock units were established as an income generating activity from the sale of young. The income expected during the course of the project will be low as many of the animals are still under reproductive age, as is the case with all the pigs. Some of the goats were purchased at reproductive age and have already produced young. However, these are still too young to be sold and it will several months before the groups are in a position to sell livestock. It is thought that most of the groups will decide to keep livestock to allow time for them to provide at least one animal per group member. The groups may decide to sell only when there are surplus animals.

The livestock provided to the groups represents a high value commodity as shown per member below:

Table 18. Number of animals provided to each group shown as number of animals per member and monetary value.

Groups (No. members, phase II)	No. animals provided	No. of animals per member	Value of animals per member
Bubanza (100)	182*	1.80	\$14.1
Mpanda (100)	42	0.42	\$10.9
Ruyange (100)	132	1.32	\$13.5
Gihanga (123)	165*	1.34	\$11.6
Ninga (168)	222*	1.32	\$10.2
Musigati (186)	70	0.38	\$9.7
Ngara (100)	42	0.42	\$10.9
Muyebe (100)	42	0.42	\$10.8
Ntamba (100)	42	0.42	\$10.8

All groups received goats and pigs

* including chickens

The breeding rate for goats of five young over two years will mean that each member will have one goat within one year if all the animals stay healthy.

- **Objective - Promotion of sustainable land use techniques**
(Objective 2 Phase II only)

Tree nurseries were set up at three sites on the plain to produce tree seedlings for distribution to the Association and to provide training in nursery management for the women at each of these sites. Tree seedlings produced at the nurseries were given free and transported to other groups in the project. None of the receiving groups were willing to, or were in a position to buy the seedlings.

Training materials have been produced for the demonstration of techniques to control erosion, the beneficial uses of different trees and construction of home tree nurseries.

Problems encountered and actions taken

- **Land**

The tree nurseries were planned to be in place in July, but the project did not start fully until August. There were also unforeseen difficulties in securing suitable land near to the sites for the nurseries, this is mainly because they needed to be near to a ready supply of water and such sites are of high value and in demand. The progress of this objective was therefore slower than expected.

- **Time**

The need to set up the nurseries before the rainy season was paramount. If this was delayed then any seedlings produced would be at a very vulnerable stage in six months time and unable to tolerate the following dry season.

Initially the enterprise was envisaged as being full-time with a regular production of tree seedlings for sale to the surrounding communities. It quickly became apparent that this was not going to be sustainable at the time. This was for several reasons: Community and Department of Forestry projects already exist in the region and have been producing trees either for local re-forestation projects (on a small scale) or for sale. A community group based in Musigati had approached CAD to ask if we would be willing to purchase tree seedlings, which they had been unable to sell to anyone else. This particular community project had set up a nursery to produce several hundred thousand seedlings. The women were bitter that they had put a lot of effort into the project with no results. As CAD had planned a similar enterprise it would be difficult to continue knowing that the market did not exist.

- **Interest**

There was overall very little enthusiasm for this part of the project. This was probably due to the chronic emergency situation in the region that does not provide the opportunity for people to plan for the future. There are still people living in IDP camps and understandably they are not willing to invest time and effort in activities which reap no immediate benefit. Although many people are aware of the

problems of deforestation and erosion on a practical level they are unable to do anything to improve the situation.

The work on the nurseries was both very labour intensive and time consuming and the women could see no immediate benefit for their families. However, many women participated for some of the time and now have the practical knowledge and skills to enable them to repeat this activity for themselves in the future.

- **Material**

We were unable to buy root-stock as recommended, and as well as this we would have needed a source of good quality cuttings for grafting onto the roots. Fruit tree production also requires a large amount of careful labour, which would have been based on good training. Due to the delay in implementing the project and finding suitable land this would have been difficult to provide in time.

Avocado seedlings were donated by the Department of Forestry and Water. However, these plants were only root stock and were in need of grafting at a later date, which is unlikely to happen unless the project activities continue.

It was still felt necessary to fulfil our promise to provide fruit trees to increase the nutritional base of the groups in the project, so it was decided to purchase grafted citrus which would be old enough to be planted directly into the beneficiaries land. Funds were therefore transferred between lines to enable this purchase to take place.

After discussions with the project nutritionist and taking into consideration local preferences and availability of fruit seedlings we decided to purchase the following: passion fruit, lemon, orange and papaya.

- **Transport**

Transportation was also a problem. The receiving groups were often long distances from the supplying groups and given the reduction in field time due to security together with the poor state of the roads during the wet season, many of the journeys had to be split over two days. This led to some losses as the seedlings were at a delicate age. Also, during this period a local fuel shortage meant limiting the number of vehicles used/journeys carried out, which restricted the supply further.

The fruit trees were transported to the site where they were unloaded at a collection point to await the individual women to collect them. Only progress of the citrus trees were followed from this time.

- **Pests**

Many of the young trees suffered from citrus pests, with caterpillars being the most common. Control methods were discussed, including collecting the larvae by hand on the few trees in each household or using a wash composed of detergent and nicotine (from soaking cigarettes). Commercial insecticides are available but difficult to obtain and expensive. Also we did not want to display a reliance on commercial chemicals which the women would not be able to afford in the future. Demonstrations on these control methods were shown to a large proportion of the groups in an informal manner. No follow-up was done on this activity as other work was taking priority at the time.

- **Knowledge**

A questionnaire was presented to assess the understanding of members of the groups concerning issues such as use of beneficial trees, techniques for controlling erosion and so on. This questionnaire was presented to 9 women in total chosen at random during a meeting. The results indicate that the women are already well aware of the uses of many trees (fuel, shade), the causes of erosion and how it can be controlled. For example, by planting contouring vegetation bands of a forage grass *Tripsacum sp*. This activity has been carried out in the past but is no longer practised due to long periods of field abandonment since 1993. Also, the vegetation is a forage grass which is normally collected to supply to livestock and as livestock is currently scarce this practice has declined.

- **Training**

Training material in the form of pictures was produced to assist with training on nursery construction and control of erosion. This method of training is designed to stimulate discussion within groups.

This training activity was carried out with small groups at all sites. However, because of pressure of other activities at the time, including other training courses for livestock management, FDN and construction work for the animal units, no formal schedule could be arranged for the groups. This activity therefore suffered.

- **Seedling survival**

Table 19. Tree production germination rates in nurseries.

Site	Tree type	Percentage germination
Gihanga	Leucena	86%
	Calliandra	57%
	Cedrela	65%
	Grevillea	31%
Ninga	Leucena	89%
	Cedrela	58%
Ruyange	Leucena	Approximately 31%
	Calliandra	
	Cedrela	
	Grevillea	

Indicator and measure for Objective 2 (Phase II only)

- **Phase II - Five established and functioning tree nurseries after 1 year**

Result: objective partially met

Small tree nurseries from between 7,500 to 16,250 sachets were established at three sites. Because of the late start with implementing this part of the project it has not been possible to establish five nurseries as planned.

The project has purchased and distributed fruit tree seedlings in the following quantities to selected groups.

Table 20. Fruit seedlings purchased and distributed.

Site	Passion fruit	Lemon	Orange	Papaya
Ninga (65)	130	130		
Gihanga (100)	200	200		
Mpanda	200	164	100	
Ruyange	200		200	200
Total	730	494	300	200

There has been no evidence that the women who have returned home or who have had access to their own land have implemented any of the activities recommended to control erosion. This may be due to the simple fact that they have many other tasks to complete that take priority.

Many of the fruit trees supplies to the members were planted on their own land and are maintained.

- **Objective - To increase nutritional knowledge**
(Objective 3 Phase I and Phase II)

The training has been well attended and has functioned successfully. See summary table in Annex 8.

Problems encountered and action taken:

There have been no major problems with this activity.

The course structure allows for interaction between the CAD trainers and the participants, leading to lively discussions and good transfer of knowledge, as indicated by the difference in pre and post-training test scores (Annex 8).

However, the other aspect of the training, which was to work with a member of the group to train her as trainer and a source of information for the other members, does not seem to have been very successful. The selected women, many of whom have had very little formal training, find it difficult to become teachers themselves over a period of only ten days, and having been involved in the same course as the other women have basically the same knowledge level. A way of improving this may be to provide the selected women with more intense training and then to help them improve their training skills by involving them to a limited extent in the preparation and training given to the following group. This will be attempted in the following project.

Insecurity at several sites has delayed activities but only for short periods.

The project nutritionist took three-months unpaid study-leave from May to August 2000. In her absence the two trainers continued successfully with the project activities.

Indicator and measure for Objective 3 Phase I and Phase II

- **Increase nutritional knowledge and improve use of food for 100% of the newly formed groups and a further 500 further women participating in the supplementary feeding programme**

Result: objective partially met

The table in Annex 8 shows the number of women who have attended the training since it began. The project has been successful in this respect with high numbers attending, a mean of 92%, despite other commitments. On occasions the number of days training per week was reduced to three to allow the women to participate in other activities. The training therefore continues for a longer period of time.

Only 106 SCF beneficiaries were able to receive the training before the end of the project and this was below the number programmed. The reason for this was lack of time remaining at the end of the project to carry out this activity.

Post three-month evaluations show that nutritional knowledge is being retained by the group members.

Table 21. Number of children in the Dufungera Neza groups and their nutritional state

Site	Total no. of children in group	Percentage weight/height		
		<70% or Oedema	71% – 80%	>80% (normal)
<i>Bubanza</i>	100	0	0	100
<i>Gihanga</i>	137	0	0	137
<i>Mpanda</i>	104	0	0	104
<i>Musigati</i>	210	0	0	210
<i>Muyebe</i>	118	0	38	80
<i>Ninga</i>	171	0	0	171
<i>Ngara</i>	110	0	5	105
<i>Ntamba</i>	113	0	4	109
<i>Ruyange</i>	103	0	0	103
Total	1166	0	47	1119
		0%	4.03%	95.96%

Weight/height ratios <70% and/or oedema indicate severe malnutrition, between 70 – 80% indicates a situation of moderate malnutrition and a ratio of over 80% is perceived as being within the norm.

Table 22. Nutritional state of the children whose mothers are members of a Dufungure Neza group.

Site	Percentage malnourished	
	Situation at start of project	Present situation (22/6/00)
<i>Bubanza</i>	100%	0%
<i>Gihanga</i>	100%	0%
<i>Mpanda</i>	100%	0%
<i>Musigati</i>	100%	0%
<i>Muyebe</i>	100%	32.2%
<i>Ninga</i>	100%	0%
<i>Ngara</i>	100%	4.54%
<i>Ntamba</i>	100%	3.53%
<i>Ruyange</i>	100%	0%

Percentages are recorded as children who at the time of the questionnaire on 22 June 2000 were receiving supplementary food rations from a CAD feeding centre.

The three newly established groups have the higher rates of malnutrition, as expected. Muyebe though has a relatively high number which may be explained by several factors including the more serious security situation at this site, which has had limited land access for a considerable length of time. Muyebe is also relatively isolated making access to markets difficult. There is no health centre at this site and therefore no treatment for illnesses associated with malnutrition.

After each training session the cooking utensils and mats were donated to the group helpers.

There needs to be a greater emphasis on training a selection of the mothers to act as trainers themselves. This can be achieved by encouraging them to take a more active role in the training – perhaps by themselves giving one training session to the following group.

General Project Activities

Women's Association

- **Food for work**

Initially the women were paid for their fieldwork in food for work through WFP (World Food Programme). A request was made at the start of phase II for the same assistance but was declined due to other priorities for WFP.

- **Training**

Training for committee members in each group is normally provided by AFRICARE who administer and fund training in group management and organisation. However, due to the present security situation AFRICARE is no longer operating out of Bujumbura and are unable to provide training to the three new groups. The food security team has therefore provided this training themselves.

Training material in the form of a 'boite des images' (box of pictures) has been produced for the agro-forestry project. The project has also purchased a number of training books for local staff on veterinary, agro-forestry, nutrition and general agricultural subjects.

The greatest problems encountered with providing training was the women's lack of availability and the high number of training courses run by the different parts of the project. At one point we were trying to hold sessions on nutrition, livestock management and sustainable land management as well as holding group meetings on the income generating activities and the problem solving within the groups. It was obvious that the women were reaching training/meeting "saturation". Generally, participation in these activities is good (particularly with the new groups) and the women seem to have a genuine interest and desire to learn more and be active in the group work. However, it is understandable that some areas, such as sustainable land management feature very low on the women's priorities and training related to this was poorly attended.

Training held during project

- **Nutrition training** 10 days nutrition and food preparation as well as hygiene, infant food preparation and family planning for every women in all groups
- **Livestock management** Written course on general health, nutrition and welfare of goats, pigs and chickens.
- **Management of income generating activities**
- **Sustainable land use:** stages of tree nurseries, uses of various trees and land management techniques.

Miscellaneous activities

The project has monitored market prices for food products in Bubanza market every week since the project 1998. These can be compared with prices for the same items gathered by FAO in Bujumbura central market. Changes in the prices of produce over time helps assess the availability of locally produced food over the seasons and calculate the price of a family food basket.

CAD also works with WFP and FAO to carry out distribution of emergency seed and seed protection rations. The general food security situation and areas of specific need are identified through food security surveys carried out once a year by CAD in collaboration with the DPAE. WFP also carry out regional surveys each season and collaborate with CAD and the DPAE to identify areas which have localised problems such as crop loss caused by drought, and in the other extreme, crop damage caused by hail at higher altitudes.

IV. Resource Use / Expenditures

Please see attached Financial Status Report.

The Financial Status report shows an underspend on this programme. This is largely as a result of the prevailing security situation, particularly at the start of the programme, which prevented CAD gaining access to some sites. Therefore, aspects of the programme, such as construction of the livestock units, had to be adapted to address this.

The depreciation of the Burundian Franc over the duration of the project has also contributed to this underspend particularly in terms of salary payments.

Also, the fact that it was not possible to buy all the chickens planned due to outbreaks of disease meant that as a result less chicken feed was needed. In addition, savings were made when CAD received a donation of some plastic sheeting.

Conclusion

General problems and solutions with emphasis on future project planning and implementation

Group structure

The success of the groups in terms of their management and level of output appears to be dependent on a range of factors:

Strong leadership in the form of a dynamic president or committee seems to be a major factor in determining the initial success of the groups. In some cases this could be seen as the committee taking control - leading to elite capture as other members become discouraged from participating. However, in many cases, as long as the committee remains transparent and there is trust in the president, the groups have worked extremely well with good turn out to meetings and rapid progress with activities. This was particularly true of the three new groups established in phase II and with the group at Ruyange. For them their dynamism may also be due to the initial relatively high level of support provided by CAD. This has included from the outset, building materials for livestock units, a large number of small livestock, seeds, tools, access to large areas of communal land and training in nutrition. The groups have been able to gain an immediate benefit of the association and from the fact that the field teams

were more experienced in the programme activities. Indeed, the second group was also likely to have had a clearer idea of what they wanted from their group having observed the groups formed during phase I.

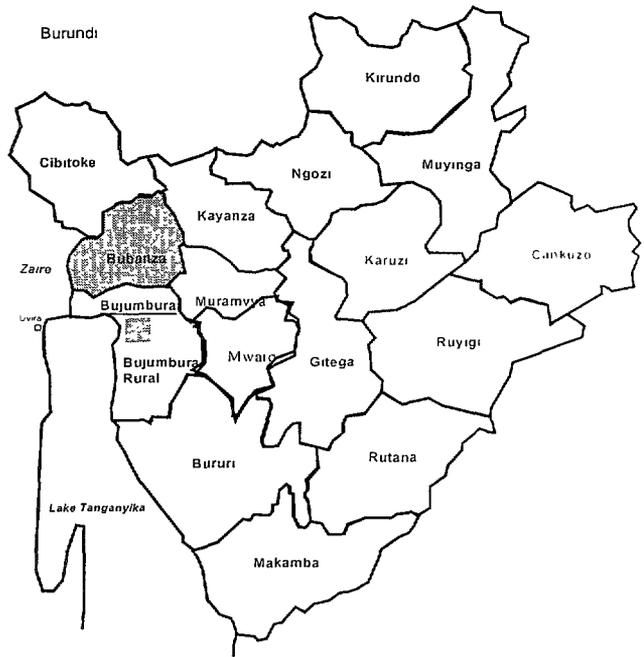
However, there are many examples where the large group size seems to have created numerous problems, in particular at Ninga and Gihanga. Informal surveys carried out with the groups unanimously state that members do not have confidence in their committees. This is particularly apparent when the group's income is relatively low, leading members to suspect that the committee is hiding income. This may, or may not, be the case in some groups. In response to this CAD has tried to change the project design to focus more on smaller groups and to this end has assisted the groups to sub-divide into smaller more manageable units each of 10 – 20 members for agricultural activities. This will allow the benefits of the project to be distributed more equitably between participants involved in managing specific enterprises. In the case of large enterprises such as the mills the sub-groups must still find a way of working together to generate income for all members of the group.

As well as working with the sub-groups, CAD has continued to work with the larger Dufungure Neza structure because of the belief that the Association has a future as a provincial body able to represent its membership, comprising of disadvantaged women and children.

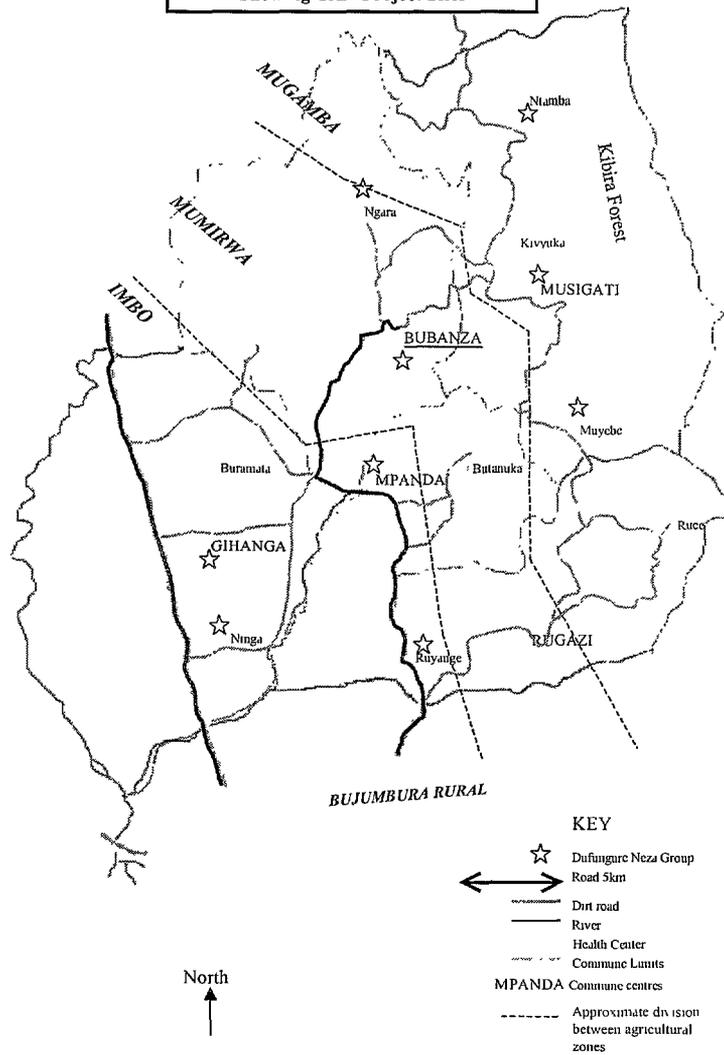
Impact and future

The greatest impact of the project has been the primary goal of reducing the number of re-admissions into the feeding centres. Re-admissions into a SFC is 4.5% for children whose mother's are in the Dufungure Neza Association compared to 25 – 40 % for children whose mothers are not involved in the association. This may be for several reasons, including mutual assistance between members. In questionnaires conducted with the members this was cited as one of the main benefits of the groups, particularly with reference to financial assistance in the form of loans provided from the group's income. These loans have been used to pay medical bills or assist families who are considered the most vulnerable. These loans may provide important cover for certain vulnerable members during periods of hardship.

BURUNDI
Showing Provinces



Bubanza Province - North-west Burundi
Showing CAD Project Sites



Annex 2

Summary of harvests from Association fields

Site/Group	Phase I Seasons and Harvests					Phase II Seasons and Harvests					
	A 1999		B 1999		C 1999	Total Kg	A 2000		B 2000		Total Kg
	Other crops* Kg	Vegetables Kg	Other crops Kg	Vegetables Kg	Vegetables Kg		Other crops Kg	Vegetables Kg	Other crops Kg	Vegetables Kg	
Mpanda	300	200	0		0	500	1,100		2,480		3,580
Ninga			970		1,100	2,070	0		460		460
Bubanza	500	400	808		0	1,708	330		700		1,030
Gihanga			750		1,300	2,050	0		640		640
Ruyange	1,120	350	750		1,500	3,720	1,300		1,200		2,500
Musigati	1,950	250	350		0	2,550	1,600	1,000	1,610		4,210
Ngara							1,900		840		2,740
Ntamba							1,450		1,130		2,580
Muyebe							380	900	1,540		2,820

Seasons A season Sept – Feb
 B season Feb – June
 C season June – August/September

*Other crops includes: soya, maize, haricot beans, peanut, rice, sorghum

Vegetables include: tomato, onion, aubergine, cabbage, lenga lenga (local spinach)

Donations and harvests for season A 1999 (Sept 1998 - Feb 1999) for association fields

Annex 3
A 1999

Site	Musigati				Ruyange				Bubanza				Mpanda				Ninga				Gihanga			
	Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area	
	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha
Haricot	50	1500	1	1500	50	210	0.5	420																
Maize						250	0.5	500					60	300	1.5	200								
Peanut	120	450	1.3	346.2	60	600	0.5	1200	60	500	1.2	416.7					120				60			
Soya	60				60	60	0.4	150	60				60				60				60			
Rice																								
Sorghum																								
Totals	230	1950	2.3		170	1120	1.9		120	500	1.2		120	300	1.5		180	0	0		120	0	0	
tomato																								
lenga lenga																								
aubergine																								
onion																								
cabbage																								
Legumes mixed	0.5	250	0.5	500	1	350	0.2	1750	1	400	0.6	666.7	1	200	0.5	400	1.8				1.4			
totals	0.5	250	0.5		1	350	0.2		1	400	0.6		1	200	0.5		1.8				1.4			
totals	230.5	2200	2.8		171	1470	2.1		121	900	1.8		121	500	2		181.8	0	0		121.4	0	0	

Donations and harvests for season B 1999 (Feb - May/June) for association fields

Annex 4
B 1999

Site	Musigati				Ruyange				Bubanza				Mpanda				Ninga				Gihanga			
	Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area	
	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha
Haricot	50	150	0.25	600	1a	200	0.4	500	50	100	0.3													
Maize						300	0.5	600	30															
Peanut						250	0.5	500										70	0.4					
Soya		200	0.6	333.3																		150	1	
Rice													100		1.5			900				600		
Sorghum																								
Sweet potato									2a	708	0.5													
Total	50	350	0.85		0	750	1.4		80	808	0.8		100	0	1.5			970	0.4			750	1	
tomato																								
lenga lenga																								
aubergine																								
onion																								
cabbage																								
Legumes mix	1.6																					1.4		
totals	1.6																					1.4		
totals	51.6	350	0.85		0	750	1.4		80	808	0.8		100	0	1.5			970	0.4			750	1	

Notes

1a Seeds used were those saved from harvest of A season crops

2a Sweet potato seed were purchased locally by the group

Harvests are generally poor due to low rainfall.

Harvests for soya are poor - thought to be a result of poor quality seed.

Gihanga was not able to make a harvest this season because of crop failure due to lack of rain.

Donations and harvests for season C 1999 (June - Sept) for association fields

Annex 5
C 1999

Site	Musigati				Ruyange				Bubanza				Mpanda				Ninga				Gihanga			
	Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area		Don	harv	area	
	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha
Haricot																								
Maize																								
Peanut																								
Soya																								
Rice																								
Sorgum																								
Sweet potato																								
Total																								
tomato																	0.5	500					0.6	600
lenga lenga																								
aubergine					1	1,000																		
onion					0.5	500											0.6	600					0.7	700
cabbage																								
Legumes mix																								
totals					1.5	1500											1.1	1100					1.3	1300
Totals					1.5	1500											1.1	1100					1.3	1300

Donations and harvests for Season A 2000 (Sept 1999 - Feb 2000) for association fields

A 2000

Annex 6

A 2000

Site	Ngara				Ntamba				Muyebe				Musigati				Ruyange				Bubanza				Mpanda			
	Don't	harv	area		Don't	harv	area		Don't	harv	area		Don't	harv	area		Don't	harv	area		Don't	harv	area		Don't	harv	area	
	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha	Kg	Kg	Ha	Kg/Ha
Haricot	70	250	0.7	357	70	250	0.6	417	0				70	400	1	400	60	150	0.8	188	60	60	0.4	150	60	300	0.8	375
Maize	30	350	1	350	30	500	1	500	0				30	350	0.7	500	30	500	1	500	30	120	0.5	240	30	350	0.6	583
Peanut	60	800	1	800	60	400	1	400	0				60	500	1	500	60	250	0.7	357	60	150	0.5	300	60	250	1	250
Soya	50	500	0.8	625	50	300	0.7	429	50	380	0.9	422	50	350	0.5	700	50	400	0.8	500	50				50	200	0.5	400
Total	210	1900	3.5		210	1450	3.3		50	380	0.9		210	1600	3.2		200	1300	3.3		200	330	1.4		200	1100	2.9	
Onion										400	0.5	800		400	0.5	800												
Cabbage										500	0.6	833		600	0.7	857												
Total										900	1.1			1000	1.2													
Totals Kg	210	1900	3.5		210	1450	3.3		50	1280	2		210	2600	4.4		200	1300	3.3		200	330	1.4		200	1100	2.9	

Donations and harvests for association fields for season B 2000 (Feb - May/June 2000)

**Annex 7
B 2000**

Site	Ngara				Ntamba				Muyebe				Musigati				Ruyange				Bubanza			
	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha
Haricot	0	180	0.8	225	60	400	1	400	0	430	1	430	0	400	1	400	0	140	0.7	200	60	150	0.7	214.3
Maize	0	150	0.5	300	35	380	0.8	475	35	510	1	510	0	460	1	460	30	300	0.7	428.6	60	200	0.5	400
Peanut	60	260	1	260	60	350	1	350	60	300	1	300	0	350	1	350	60	160	1	160	0	190	1	190
Soya	0	250	1	250	50		1	0	50	300	1	300	0	400	1	400					50	160	0.6	266.7
Rice	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	600	0.5	1200	0	0	0	
Sorghum																								
Total	60	840	3.3		205	1130	3.8		145	1540	4		0	1610	4		90	1200	2.9		170	700	2.8	
tomato	0.06	*			0.05				0.05				0				0				0.05			
lenga lenga	0.03				0.05				0.03				0				0.03				0.03			
aubergine	0.03				0.03				0.05				0.03				0.05				0.05			
onion	0.05				0.05				0.05				0.05				0.05				0.05			
cabbage	0				0				0.05				0.05				0				0			
totals	0.17				0.18				0.23				0.13				0.13				0.18			
totals	60.2	840	3.3		205.2	1130	3.8		145.2	1540	4.0		0.1	1610	4.0		90.1	1200	2.9		170.2	700	2.8	

Site	Mpanda				Ninga				Gihanga			
	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha	Don Kg	harv Kg	area Ha	Kg/Ha
Haricot	60	150	1	150	0	0	0		0	0	0	
Maize	40	180	0.6	300	40	120	0.5	240	40	140	0.5	280
Peanut	0	150	1	150	120	160	1	160	120	120	1	120
Soya	50	0	0		50	180	1	180	50	200	0.8	250
Rice	50	2000	1.5	1333	0	0	0		0	0	0	
Sorghum					2					180	0.5	360
Total	200	2480	4.1		212	460	2.5		210	640	2.8	
tomato	0				0.05				0.05			
lenga lenga	0.03				0.03				0.03			
aubergine	0.03				0.03				0.03			
onion	0.05				0.05				0.05			
cabbage	0				0				0			
totals	0.11				0.16				0.16			
totals	200.1	2480	4.1		212.2	460	2.5		210.2	640	2.8	

Harvest for B 2000 made in June

* There was no association harvest of vegetables as the groups were unable to locate sufficient land

The seeds were therefore divided between the members

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Annex 8.

Summary of Activities of the FDN (Foyer de Demonstration Nutritionnelle)

Group/site	Number of women in group	Period of training	No. of women attending	% attending	Evaluation (scores out of ten) Scores pre/post training	Result of evaluation Three months after training
Mpanda	100	Jan – Apr 1999	92	92%	Pre 3.5 Post 8.5	8
Ninga	167	Jan – May 1999	155	93%	Pre 3.3 Post 9.6	9.8
Bubanza	100	April – June 1999	91	91%	Pre 4 Post 8.5	8.8
Gihanga	123	May – Aug 1999	100	81%	Pre 3.4 Post 9	9
Ruyange	100	July – Oct 1999	91	91	Pre 4.4 Post 8.9	9
Musigati	186	June – Nov 1999	164	88%	Pre 4.9 Post 9.7	9.2
Ngara	100	Nov – Jan 2000	100	100%	Pre 3.7 Post 9.4	10
Ntamba	100	Jan – March 2000	73	89%	Pre 3.5 Post 9.3	8.8
Muyebe	100	April – July 2000*	100	100%	Pre 3.6 Post 9.4	
SFC* beneficiaries Musigati	106	June – July 2000	106	N/A		

*Supplementary feeding centres beneficiaries were selected at the on the day of a distribution. The same women returned twice a week for three weeks to receive nutrition training.