

FINAL EVALUATION OF THE VIDA I PROJECT

A. INTRODUCTION

The final evaluation of CARE's Viable Initiatives in the Development of Agriculture (VIDA) Project, 1996 – 2001, was undertaken by three external consultants (Mark Langworthy, Bill Messiter, and Domingos Diogo) between August 31 and September 29, 2001. The purpose of the evaluation was to assess the achievements of the project, the impacts of project activities, and review project activities to identify lessons learned and make recommendations for the second phase of the VIDA project. Appendix 1 provides the scope of work for the final evaluation.

The evaluation team spent one week in Maputo reviewing project documents and interviewing representatives from collaborating partners in the government, and private sector at the national level. The team traveled to Nampula and met with project staff. A consultant hired by CARE, Diego Rose, presented findings from the final surveys, including results from the INCPROX, NUTRIPROX models, and stunting indicator measurements.

During the time in Nampula, the team visited six of the project districts, met with local project staff, government officials, associations, and women's groups. In Nampula City, provincial government officials in Agriculture, Health, Commerce and Industry, and Public Works were interviewed, along with representatives from private firms and NGOs who have collaborated on project activities. Appendixes 4 and 5 provide details on the persons and documents consulted to obtain information about project activities. Appendix 6 shows a map of Nampula province and the districts where the project operates.

The following Section B provides information about the achievement of the project's intermediate and final development targets over the five-year life of the project. Section C describes findings about project activities, draws lessons learned and makes program implementation recommendations for the new VIDA project. The final Section D summarizes all of the recommendations that have been offered under this evaluation report.

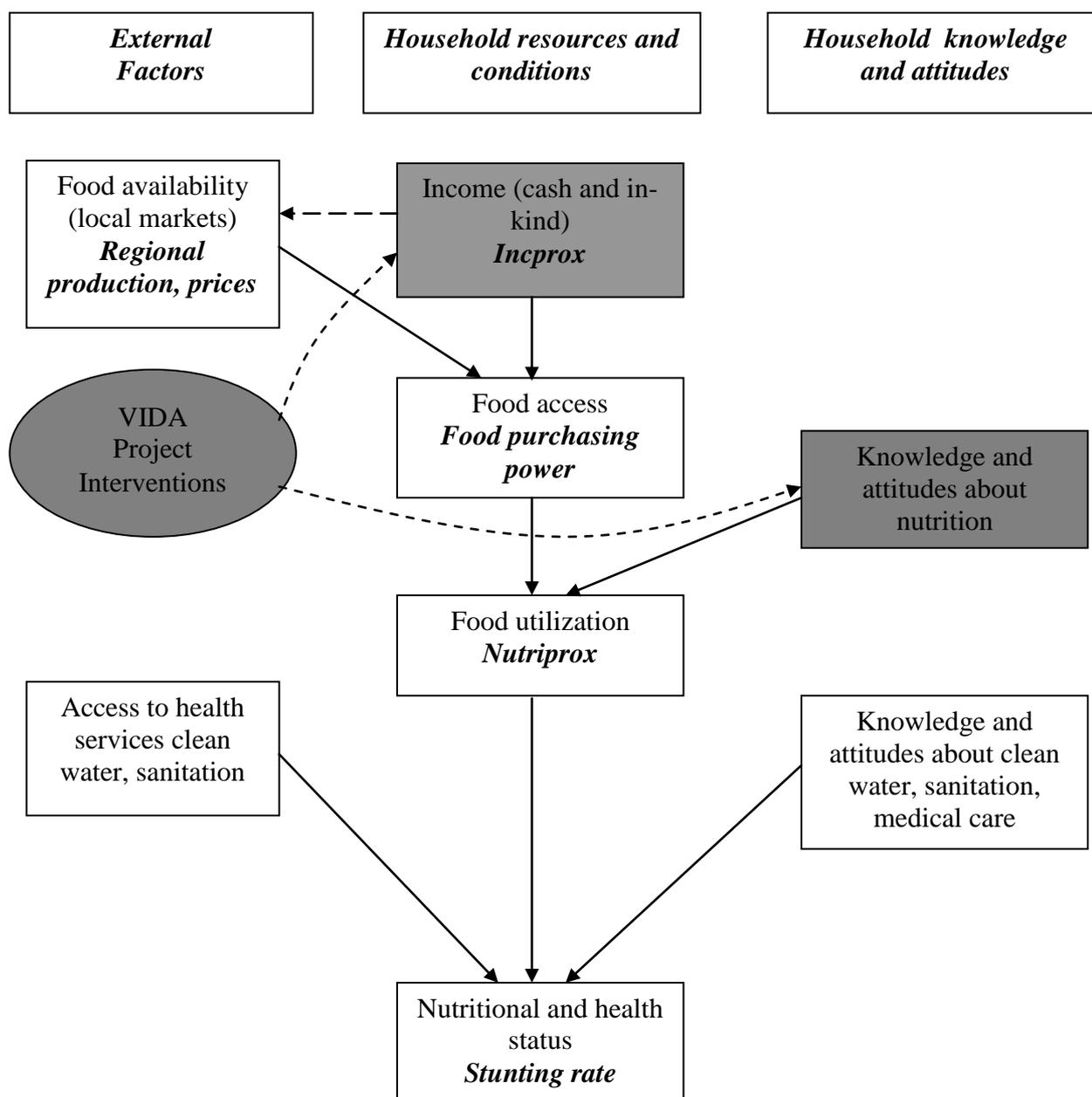
B. ACHIEVEMENT OF PROJECT TARGETS

The VIDA Development Activity Proposal (DAP) identifies as the overall goal of the project "to improve, in a sustainable manner, the food security of vulnerable populations...". The DAP describes three aspects of food security that the project intends to address: food availability, food access, and food utilization. Food availability refers to the overall amount of food that is available within a large geographical region (e.g. the province of Nampula). Food access refers to the capacity of individual households to acquire sufficient food, either through direct production or purchase, to meet their requirements. Food utilization refers to actual food consumption patterns by household members.

Food utilization is usually measured in terms of nutritional status, and therefore includes not only food intake, but also care, access to clean water, appropriate sanitation practices, access to medical care. For analytical purposes, it is useful to

identify food utilization as relating only to food intake patterns of household members, and nutrition and health status as the interaction of food intake, and all the other factors that affect the health of household members. The following Figure 1 shows schematically the relation between these different dimensions of food security. The figure is split into three components: factors external to the household, household resources, and knowledge and attitudes that influence how households manage and utilize their available resources. Project impact indicators that measure food availability, access, utilization, and nutritional and health status are affected by project activities and other factors external to the households.

Figure 1. Food Security Model for VIDA Impact Assessment



B.1. PROJECT INTERMEDIATE OBJECTIVE INDICATORS

In order to achieve the overall development objective to improve food security of vulnerable households, the project supported a number of activities that fall into the following three general categories:

- Increasing the agricultural production and marketing capacities of family sector farmers, through agricultural extension and support of formation of farmers' associations.
- Supporting private sector merchants and manufactures to provide reliable access to markets and products to family sector farmers.
- Increasing awareness of importance of enriched weaning foods using crops supported by the project.

Overall, the project was extremely successful in achieving the goals set for each of these activities. In the first place, the number of households that have benefited from project activities has far surpassed the target of 25,000 households established in the original DAP. Over the course of the project, the target level has been increased to 45,000, and project records indicate that this higher target will be surpassed by the end of the project. For example, the estimated number of households that have integrated at least one new crop or variety for the market into their farming system is over 65,000 in 2001 (see Appendix 2).

The most dramatic successes have been the successful promotion of agricultural production for marketing by smallholder farmers sales of agricultural crops by participating households of crops supported by the project increased by tenfold, from \$331,000 in FY 1998 to over \$3 million in FY 2001. Approximately half of the value of total sales in FY 2001 is from sesame. White sesame has been promoted in OPEN, the pilot project that preceded VIDA, as well as in VIDA itself. It is important to note that the crop was initially promoted as a raw material to supply ram presses, but the level of production in Nampula and Zambezia provinces reached such a high level that large merchants began to purchase seeds for export. The opening up of the export market for sesame, while not the original intent of the project, has dramatically increased the opportunities for farmers to sell this crop. CARE was instrumental in promoting the initial production of sesame, and this has stimulated sesame traders to undertake smallholder promotion activities of their own.

Paprika portends to be another important success of the VIDA project. The first harvest was only in this year, but there are strong indications that farmers will have continuing market opportunities for this very profitable crop. Cheetah Paprika, a private company, has established buying operations in Nampula, as a direct result of support from the project, and has plans to build processing facilities that will have a capacity to handle 1,000 tons.

Appendix 2 provides information on achievement of the effect level indicators associated with the intermediate objectives in the project logframe. **Overall, the targets for these indicators have been met or exceeded.** With the exceptions of the quantity of crushing seed sold, access to regular market information, and purchase of improved variety seeds produced locally by multipliers, all of the effect level targets have been surpassed, in many instances by very large percentages.

The low level of production of crushing seed (sunflower) reflects the fact that ram press owners continue to pay a price for sunflower that is much lower than the current price of sesame, thereby reducing farmers' incentives to grow this crop. This problem is discussed in more detail in section C.3.1 below.

The shortfall in the target for purchases of seeds from local multipliers reflects the change in the project strategy toward relying on commercial multipliers (with the exception of sesame). The evaluation team considers that this has been the appropriate strategy to pursue for seed production and, accordingly, the indicator is not appropriate for the project seed promotion strategy.

B.2. PROJECT DEVELOPMENT OBJECTIVE IMPACT INDICATORS

Appendix 2 provides information about the achievement of targets identified in the amended project logframe. Over the life of the project information has been collected and analyzed to determine the levels of the development objective indicators: the levels of household access (household incomes – INCPROX, increase in household productive assets), utilization (NUTRIPROX results, length of hunger period) , and nutritional and health status (stunting rates). This information has been collected in three household surveys, two stunting surveys, and models that calculate household incomes (INCPROX) and food intake measures (NUTRIPROX). The results from these exercises are reviewed below.

B.2.1. Household Impact Assessment Surveys

Three rounds of household surveys were executed, in 1997 (baseline), in 1999 (mid-term), and in 2001 (final). These surveys collected a large amount of information about household conditions – demographic information, household assets, agricultural resources and production, crop storage and sales activities over the previous year, diet and food consumption patterns, especially oil consumption and feeding practices for children. The baseline and mid-term were conducted with assistance of consultants. A consultant was contacted to carry out the final survey, but at the last minute was unable to take on the job. As a result, the project staff conducted the fieldwork and hired another consultant to analyze household incomes using the INCPROX model.

The baseline survey conducted in 1997 had a sample of 638 households in 7 districts. The report of this survey provided only limited presentation and analysis of data that were collected. Many of the quantitative findings were presented in graphical form only. One important purpose of baseline survey is to provide detailed information about socioeconomic characteristics of households within the project area, agricultural, and nutritional practices that form the benchmark values for project output, effect and impact indicators. Quantitative information about these characteristics was not presented in the baseline report. No analysis on household incomes was carried out in the baseline report, but the information was sent to the MSU project for use in developing the INCPROX model (described below).

The mid-term survey provided a much more thorough presentation of results and a detailed analysis of project impacts. The survey was conducted in communities where the project operates, and households were identified as being participants or non-

participants in the project. In addition, households were interviewed in communities where the project does not intervene. This sampling strategy allowed comparison of participation household activities and characteristics with regard to sets of control groups. The strategy also allowed the possibility of tracking the diffusion of project impacts to households not receiving direct contact with the project. However, these comparisons were not fully analyzed in the report. In addition, results with the mid-term survey were not compared with those of the baseline.

The final survey combined measuring project indicators, INCPROX, and measurement of children to estimate stunting rates. This created a serious problem for the stunting survey, since the number of children measured was too small to provide a statistically reliable measure of stunting. With exception of stunting rates, INCPROX and NUTRIPROX calculation, described below, no further analyses of the final survey results were conducted at the time of the final project evaluation.

B.2.2. INCPROX Results

The project has adopted the INCPROX model developed by MSU to estimate household incomes. This model predicts household income from a number of proxy variables that are related to ten sources of household income. The quantitative model relates proxy variables to household income and is based on a statistical analysis of the correlations among the components of household income and their proxy variables from data collected in 1997.

The prediction models are estimated for distinct zones throughout the country. For the VIDA project, the relevant zones are Zone 3 (which includes Malema, Ribaue, Murrupula, Nampula), and Zone 4 (including Mogovolas, Meconta, Erati, Mecuburi). Table 1 provides estimated household and per capita incomes for these two zones in the 1997, the year when the baseline survey was conducted, and 2001, the final project survey. Incomes are reported in 1998 US dollars. The table shows the per-capita incomes calculated by INCPROX increased substantially from baseline to mid-term, by 45% in zone 3 and 74% in zone 4. Increases decreased from the mid-term to the final survey. Comparing the final with baseline values, calculated per-capita incomes decreased by 17% in zone 3, and increased by 9% in zone 4.

Table 1. Per Capita Household Income Calculated by INCPROX model in Baseline (1997) and Final (2001) Surveys, 1998 USD per Household Member

	Zone 3	Zone 4
Baseline	61.00	51.00
Mid-term	88.52	88.52
% Change ¹	+45%	+74%
Final	50.60	55.34
% Change ²	-17%	+9%

Zone 3: Nampula, Ribaue Malema Zone 4: Meconta, Erati, Mogovolas, Mecuburi
¹Percent change from baseline to mid-term. ²Percent change from baseline to final.

Comparing between participant and non-participant households in the final survey (Table 2), incomes of participant households were almost 100% higher than non-participant households, while in zone 4, per capita incomes of participant households were 16% higher than those of non-participant households. However, without

knowing the income levels of these households prior to project interventions, it is impossible to know if the participating households' increased relative to non-participating households as a result of the support they received from the project, or if they had higher incomes even before participating with the project.

Table 2. Per Capita Household Income Calculated by INCPROX from Final (2001) Survey, for Participant and Non 1998 USD per Household Member

	Zone 3	Zone 4
Project Participant HH	56.14	56.81
Non-Participant HH	28.21	48.73
% Difference (Part./Non-part)	+99%	+17%

In order to understand better the relationships between project interventions and changes in household incomes, Table 3 provides a breakdown of the household income changes. This table shows that household incomes from food crop production fell in zones zone 3 from the baseline to the final survey, while in zone 4, incomes increased slightly from the baseline. In Zone 3, the difference between participating and non-participating household in 2001 is extremely large – participating households incomes are over 90% higher than non-participating households. By contrast, in zone 4, the income from food crop production is slightly higher for non-participating households than non-participating households. These results do not seem credible. There is no obvious reason why the difference should be so great in zone 3 and negligible in zone 4. These differences can not easily be attributed to project impacts.

The next income category, “other field crop production”, includes sunflower and sesame, crops that have been strongly supported by the project. While incomes from “other field crop” increased from the baseline to the final survey in zone 3, they decreased in zone 4. Income from “other field crops” is over 20% higher for project participants than non-participants in zone 4, the difference is only 11 percent in zone 4. Income from vegetable production shows a pattern of change that could indicate impacts of CARE’s Rural Enterprise and Agri-Service Promotion (REAP) project interventions in horticultural crops. In both cases, the vegetable incomes increased only slightly from the baseline for non-participating households, while the participating households exhibited substantial increases from the baseline. In general, however, it is difficult to conclude that the patterns of change in the components of household income can be attributed to project interventions.

The high level of achievement of all the of the project’s effect level indicators raises serious doubts about the validity of the INCPROX indicators. These indicators point to very substantial positive impacts of the project on household incomes. Most dramatic is the tenfold increase in the sales by participating households of crops supported by the project from \$331,000 in FY 1998 to over \$3 million in FY 2001. Yields of major crops supported by the project increased from 12% to over 40% from FY 1997. These changes, attributable to project activities, have had significant positive impacts on household incomes over the project life.

Table 3. Calculated Components of Household Income from INCPROX Model, Baseline and Final Surveys

	Zone 3			Zone 4		
	Baseline	Final		Baseline	Final	
		Participating	Non-Participating		Participating	Non-Participating
Food crop production	66.38	55.64	29.15	78.22	61.18	65.04
Other field crop prodn.	16.58	27.41	24.63	55.92	44.08	36.56
Fresh production	16.04	20.48	12.48	24.53	24.14	22.28
Vegetable production	9.48	31.18	9.01	2.71	10.72	7.34
Fruit production	16.23	25.07	9.25	15.45	29.02	15.61
Cashew production	10.32	12.24	4.29	18.57	24.24	19.71
Fishing	2.74	3.81	-0.6	1.02	4.82	0.45
Livestock	45.66	28.74	17.71	77.98	31.69	23.71
Wage labor	17.83	29.38	11.31	22.24	19.13	28.61
Micro-enterprise	26.59	14.73	7.76	17.77	24.80	15.55
Total HH income	227.85	248.68	124.99	314.41	273.82	234.86
Per capita income	50.60	56.14	28.21	63.82	56.81	48.73

There are a number of limitations in using the INCPROX model to accurately measure the project impacts on household incomes:

- The outputs from the INCPROX models are not very transparent. It is not easy to relate income changes to specific project interventions, or indeed to understand what factors explain changes in incomes over time or across household categories.
- The projection model is based on correlations between incomes and the proxy variables as observed in 1997. These do not necessarily reflect structural relations, but may simply be statistical artifacts. For example the prediction model identifies a negative relationship between the value of “other field crops” (cotton, sweet potato, tobacco, sunflower, sesame, sugar cane, pineapple) and the amount of household labor. In other words, the model predicts that, all else equal, a household with more adults (a larger workforce) will have less income from “other field crops”. Since labor is a critical input into agricultural production, the structural relation between these variables should be positive. Similarly, an increase in the number of “other field crops” grown by a household causes a decrease in the predicted value of “other field crops.” Again, there is no clear reason that explains this inverse relationship.
- The fact that the model is based on correlations measured at a given point in time does not permit for structural changes in the relationships over time. Since the goal of the project is to change structural relations between agricultural inputs and outputs and the mix of crops grown by farmers, a model that does not incorporate these changes will not be able to fully measure project impacts. Paprika provides an extreme example. In 1997, no farmers were producing paprika, so this crop could not even be included in the model. If paprika becomes an important source of income to a large number of farmers (a result of project interventions) the prediction model based on the correlations measured in 1997 will not capture this important change.
- A number of crops that the project supports are not included in the projection model. For example, groundnuts and pigeon peas are not included in the model. There is no way that the predicted household income can reflect increases in production of these crops.
- The model does not include commodity prices as explanatory variables. Therefore, price effects on household incomes cannot be captured. For example the dramatic increase in the price of sesame over the past four years has no impact on calculated household incomes.
- Project staff is not fully trained in the application of the results of the INCPROX model. Project staff are not able to interpret or analyze the results of the INCPROX model. This is a very complicated model, and a clear understanding of all the underlying assumption of the model, and the structure of the data base are needed to be able to use the model.

The INCPROX surveys collect almost all the necessary information to estimate agricultural income directly. The only additional variables that would need to be collected are prices of the crops and costs of purchased inputs to get net farm revenue, an appropriate measure of income for the purposes of this project. (Alternatively average prices for crops and average costs of inputs per crop per hectare could be obtained from smaller surveys.) With this additional information agricultural incomes could be calculated directly and be directly related to project interventions.

B.2.3. NUTRIPROX Results

The NUTRIPROX model developed by MSU calculates nutrient intake ratios (actual intake divided by recommended intake) for energy, protein, vitamin A and iron, and an overall diet quality index that is a composite of specific nutrients. When a household consumes less than 75 percent of the recommended level, the intake is considered too low. The intake ratios are calculated from data on the number of times different foods were consumed in the previous 24 hours and information about household composition. These data were collected in the last 2001 household survey.

Overall diet quality was better among participants than non-participants. In the 11 districts where the project operates, 40 percent of non-participating households had a low diet quality, while 32 percent of households were low in this measure (see Table 4). The general pattern is similar for the percentages of households with low intake rates of specific nutrients. Note that the share of households with insufficient Vitamin A intake is very high, both for participant and non-participant households. **This emphasizes the importance of promotion of orange sweet potato as a means to increase consumption of vitamin A.**

Table 4. Predicted Frequency of Low Nutrient Intakes by Participation in VIDA Project, 11 Project Districts.

Household participation	% Households predicted to have low intakes ¹				
	Overall diet quality	Energy	Protein	Vitamin A	Iron
Participant	40.5	26.8	28.6	86.9	23.2
Non-participant	30.6	17.8	18.0	88.1	16.8
All households	32.5	19.6	20.0	87.9	18.1

¹Low intake defined as less than 75 percent of the recommended intake. For overall diet quality, low refers to a score of less than 7.5 on a scale of 1 to 10.

Additional detail is provided on the diet quality measure in Table 5. About 69 percent of participating households have an acceptable diet quality versus 60 percent of non-participants. Most of the differences between the two household categories can be seen at the low end of diet quality. The percentage of households with a very low diet quality was over twice as high among non-participants (15 percent) as among the VIDA participating households (7 percent).

Table 5. Predicted Classification of Households into Diet Quality Groups by Participation in VIDA Project, 11 Project Districts.

Household participation	% HH Predicted in each diet quality Group		
	Acceptable	Low	Very Low
Participant	59.5	25.6	14.9
Non-participant	69.4	23.3	7.2
All households	67.5	23.8	8.7

B.2.4. Stunting Surveys

Stunting surveys were carried out in 1997 and 2001. These surveys measured heights of children between 24 and 59 months of age. Stunting, measured as height for age of children, provides an indication of chronic undernutrition. In the 1997 survey, a total

of 709 children were measured, but 22 cases (3.1%) were excluded for having extreme height for age measures. In the sample used for analysis of 687 children, 29.5% exhibited severe stunting (height for age < -2 SD from reference population mean), and 24.6% exhibited moderate stunting (height for age ≥ -3 SD and < -2 SD from reference population mean), to give a total of 54.1% of the sampled children exhibiting some level of stunting.

The final impact survey conducted in 2001 also collected information on heights of children 24 to 59 months of age. This survey was done in conjunction with the final household survey. The sample of children in this survey was much smaller, with only 187 children. In addition, 50 cases (27%) were flagged for having extreme (either too high or too low) height for age measurements. After removing the cases with extreme values and cases where age was not recorded, the sample of children included only 94 cases. **This sample size is too low to be statistically representative within the usual norms of precision and risk of error.** The fact that such a large number of cases were flagged as out of range suggests that measurement errors were quite frequent in the field. Therefore the findings can only be taken as indicative. In this reduced sample, 26.6% exhibited severe stunting, 16.0% exhibited moderate stunting, to give an overall stunting rate of 42.6%. The measured stunting rate decreased by 21.3% in relation to the baseline survey. However, this finding can only be taken as indicative, given the low level of confidence in statistics from such a small sample.

Information from the Provincial Directorate of Health of Nampula on low birth rates and children with low growth rates from health centers in the province show a gradual improvement in these nutritional indicators from 1997 to 2001 (see Table 6). The figures for 2001 are for the first semester of the year only. From 1997 to 2000 the percentage of babies with low birthweight declined by 7%, while the percentage of children recording low growth rates 8%.

Table 6. Percentage of babies with Low Birth Weight and Children with Low Growth Rates in Nampula Province, 1997 – 2001.

Year	% Babies with low birthweight	% Children with low growth rate
1997	14.0	10.0
1998	13.0	9.0
1999	23.5	10.0
2000	13.0	9.2
2001 ¹	12.0	8.7

Source: Nampula Provincial Directorate of Health. ¹ First semester of 2001.

It should be emphasized that even if these estimates do actually measure undernutrition rates in the underlying populations, the changes cannot be attributed only to project impacts. While the project activities are intended to improve nutritional status of households by improving access (household incomes) and utilization (nutrition training), a number of other factors, including water availability and quality, sanitation practices, exposure to pathogens and disease vectors, access to health services. Measured changes in stunting reflect the simultaneous changes in all of these factors.

B.3. TARGETING ISSUES

The project goal identifies vulnerable households as the target population. To what extent are the more vulnerable households participating in project activities? As demonstrated above, project participant households have higher incomes than non-participant household, but in order to address the previous question it is necessary to know whether they also had higher incomes before receiving support from the project.

To shed some light on this issue, Table 7 provides information about the percentage of households owning a number of different assets that were tracked in the three rounds of the household surveys. In the baseline, households identified as project participants were those that participated in the OPEN project, the pilot project that preceded VIDA. These numbers show that there is not a great difference in ownership of household assets between project participant and non-participant households over the years of the project. These figures should be taken as very approximate indicators of household socio-economic status and income level.

The project has begun to work through associations. These groups are self-forming, and the field observations of the assessment team are that the members of the associations tend to have higher economic status within their communities. As a result, providing services to self-forming associations will tend to target the less vulnerable households. However, it should be emphasized in rural Nampula essentially all households in the family sector are quite vulnerable.

Women are identified as a particular target population for several reasons. Female-headed households tend to be more vulnerable, and women in general tend to be more vulnerable within the households. In addition, women are responsible for childcare and are actively involved in many agricultural activities, although generally not sales. For these reasons the project was intended to target women. Generally, the overall target of having 30% participation by women in project extension and association activities has not been achieved. Participation of women in these activities is approximately 25 percent. Getting women to participate actively in mixed groups appears to be very difficult in the social context that the project operates. The evaluation team observed that the level of participation of women in mixed groups is generally very passive and men tend to dominate all discussions. The project has worked very hard to get women to join in with men.

In summary, the project strategy of trying to include women with men in agricultural product marketing associations has not been very effective. The women in these associations only actively participate in separate women's organizations established within the larger associations. Strong social pressures seem to limit the degree to which women can effectively participate in mixed groups.

Table 7. Percent of Households Owning Selected Assets, Baseline, Mid-term, Final Household Surveys, by Project Participation

% Families owning:	C. Baseline		Mid-term		Final	
	Non-CARE	CARE ¹	Non-CARE	CARE	Non-CARE	CARE
- Zinc roofs	1.6	2.8	1.7	2.0	4.7	4.7
- Wooden doors	73.4	61.1	58.5	57.6	56.8	51.1
- Sewing machines	7.4	8.3	5.6	7.6	5.3	5.7
- Wooden tables	17.8	19.4	21.9	26.2	25.4	19.3
- Wooden beds	28.1	13.9	45.1	36.0	35.1	39.5
- Bicycles	23.4	29.7	30.8	33.1	44.4	40.1
- Radios	n.a	n.a	41.4	48.7	52.1	61.3
N	309	36	286	344	169	700

¹In the baseline, participants are households are those that participated in the OPEN project, pilot project previous to VIDA.

On the other hand, groups made up of only women were observed to be much more active. One general strategy that women in associations have adopted has been to form their own women's organizations within the larger associations. Some of these women's organizations are quite active. One women's organization has become involved in baking bread as an income-generating activity. The women's groups formed for participation in nutrition training also exhibited a high degree of participation by all the members, and these groups were observed to include members of different economic status within the communities. Therefore, the new project should work to establish and support women-only groups. In this way women can be more effectively targeted and they will be more likely to actively participate

C. PROGRAM ASSESSMENT

This section describes and presents findings related to the major areas of activity of the project: extension, support to associations, support to the private sector, administration of umbrella grants, collaboration with government, and project management issues. Achievement of output targets is reviewed, and lessons learned and recommendations are presented for each of these program areas.

C.1. EXTENSION

Extension forms the core of VIDA's activities. The bullets below itemize indicators that measure the project's objectives.

- 45,000 farmers who have integrated at least one new crop or variety into their farming system.
- 15,000 farmers applying methods to decrease post-harvest losses.
- 15% increase in the yield and productivity of selected crops.
- 50% increase in revenue from marketing agricultural products.
- 20,000 farmers apply one of three improved farming practices of intercropping, crop rotation and incorporation of organic material.
- 10,000 have reduced post-harvest losses over the first four months of storage.
- Increase of farm gate value of crops sold from zero to \$496,500.
- 75% of farmers in project area receive regular and updated market information during marketing periods.

VIDA's monitoring system produced the following data related to extension services.

Table 8. Extension Data: FY 2001

Total Number Persons Received Extension Services: CARE	44124
Percent Women	26
Total Number Received Extension: Umbrella Grants	18469
Percent Women	21
Total No. HH's Received Extension with VIDA Funding	62593
Percent of Extension Directed to Association Members Only	14

VIDA has surpassed most of its original indicator targets. Many of the targets were revised upwards at the time of the mid-term evaluation and these too have been surpassed. There have been major project successes that have developed

during the course of the project for which there are no indicators. These are (1) the large market for sesame seed and (2) the introduction of paprika into the project area.

Because extension is such a broad topic, this section will be subdivided as follows:

- Effectiveness of the extension system and its messages
- Extension through farmer associations vs. extension through the Farmer Leader System
- Beneficiary targeting (women & social classes)
- Post Harvest Storage Techniques
- Environmental mitigation activities
- Project Management

C.1.1. Effectiveness of the extension system and its messages

Currently, the extension teams in each district are identical. These are:

- Two, First Season extensionists who work with basic food crops and paprika.
- Two second-season extensionists who work with sunflower and sesame.
- One Farmer Association Trainers
- One Marketing Officer

One of the extensionists is also the Supervisor and one of the extension team (usually a woman) is responsible for the extension program. In Murrupula there is a full time nutrition extensionist on the team.

Extension messages include:

- Composting vs. burning
- Improved post harvest storage techniques
- Rotation farming
- Farming techniques for sunflower and sesame
- Paprika production techniques
- Seed selection
- Intercropping
- Planting in line to increase plant population
- Land Fallowing
- Ground nut production

The data from 2000 states that the value of the crops produced by participating farmers was estimated at \$1,997,800. This was more than the total expenditure by the project in that year (\$1,869,144).

Six crops were introduced to farmers via VIDA's extension. These were sunflower, white sesame, medium cycle pigeon pea, paprika, improved maize and groundnuts. Of these, sesame has far outstripped the others in value and increase in production. Paprika was introduced only in the cycle of 2000/2001. Results have been excellent and farmers throughout the project mentioned paprika as a priority crop for the future. Pigeon pea has had a spotty marketing record and has not become exceptionally

popular among the smallholder farmers. Sunflower has not increased in price since 1995 while oil has doubled in cost and the Metical has declined in value in relation to the dollar. Farmers state that they are happy with the new varieties of maize and groundnuts.

Production of paprika is at 35 tons in year one and will climb in the coming years. Sesame seed has grown exponentially. Sunflower seed peaked at its highest production level (3000 tons) in the 99/00 season and has decreased since then.

CARE staff interviewed by the evaluation team emphasized that importance of extension for food crops as well as cash crops. With the exception of paprika, all of the crops promoted by VIDA can be consumed directly by the households (although sunflower must be processed locally by ram presses). Sesame was seen in an association store being sold to the community for consumption. VIDA multiplied a rosette resistant groundnut for selling in the 2001/2002 season. A well-liked local onion variety was also multiplied for seeds. A seed company based in Nampula City is marketing this seed.

The market for maize this year was exceptionally good. Competition for available maize was stiff and the price being paid to farmers was the highest in memory. This will ensure the continued production of this staple. VIDA's focus on food as well as on cash crops is reflective of the philosophy of diversification in the farming system.

Recommendations for Extension Messages

(1) VIDA should discontinue extension in sunflower and sesame husbandry in all areas except for new communities that may not have experience with these crops. The second season extensionists should reinforce the first season extensionists. This seems to be happening in any event as the periods for planting and early husbandry of sunflower and sesame do not overlap with those of the other crops being promoted.

(2) Paprika should be promoted heavily by the project in coordination with Cheetah Paprika. There is a great demand in all areas of the project and results from the first season indicate that it can do well in all districts.

(3) Project staff should meet with CIMPAN (a large maize flourmill under new management) to coordinate with them on their efforts to distribute the maize variety they prefer. This is a guaranteed market. More is said about this topic in the "Recommendations" section of this document.

(4) The project should consider including cashew husbandry in the extension program.

C.1.2. Comparison of alternative extension systems

Two distinct systems of extension outreach were employed by VIDA when it had two separate components known as SOEC (focus on oilseeds) and SOC (focus on food crops and other cash crops). SOEC employed the Farmer Leader System and SOC did extension through farmers associations. A brief description of each follows:

Farmer Leader Extension Methodology:

In this system, an extensionist works with Farmer Leaders (FL). The primary role of the extensionist is to (1) Provide “just in time” training to a FL and (2) Supervise FL activities.

The FL is identified by a local leader such as a *regulo* or other traditional leader or by the local government administration. Leaders use bicycles. The FL is trained in extension methods relevant to the agricultural practice appropriate to the time in the cycle (“just in time” training). This may correct spacing and plant population during planting, thinning, harvest techniques, etc..

The farmer leader conducts extension by:

- Forming four groups in the community. Each group has 15-20 members. Monday to Friday the FL works with one group early in the morning at planting time (5 am to – 7 am).
- Individual Visits: After providing training to the group for the day, the FL works with individual farmers in his or her area.
- S/he will also plant a demonstration plot in the four areas where the groups are located.
- Friday is reserved for training by the CARE extensionist.

The FL’s were paid one million Meticaï per month for seven months of the year. Many used this salary to buy bicycles and some also purchased ram presses.

Training through Association Methodology:

The primary role of the extensionist here is to directly provide extension message. An animator facilitates the process.

In this methodology, extension services are provided through formal farmer associations. Each association has a “animator” who forms two groups each. This person identifies the group, usually members of the association. He or she acts as a conduit for information from the extension system. The animator calls the groups together on the day of the training by the extensionist. The evaluation team was told that individual visits to nonmembers were also common.

Clearly each technique has advantages and disadvantages. The advantages are:

Advantages of Farmer Leader System

- Reaches a larger number of families.
- Reaches all income levels in the community.
- Reduces time lost in “rounding up” farmers for extension.
- Does not rely on volunteerism. A minimum salary is paid.
- Get basic messages out effectively and cheaply.

Advantages of Extension through Associations

- Potentially more sustainable as it is hoped that associations are permanent institutions. (However, the extension animators are not currently paid. This may be a future issue.)

- More likely to show economic benefits more quickly and therefore serve as a model for others in the community to replicate.
- Quality may be better as uses formally trained extensionists.

The Farmer Leader system is more effective in reaching large numbers of people while doing extension though associations is better able to transmit more complex message. The table here shows the minimum number of persons that each methodology should reach. The number of leaders in the FL system that each extensionist can reach can be expanded as it is possible to supervise two FL's per day. This would double the number of persons reached to more than 600.

Table 9. Level of Participation by Extension Methodology

Methodology	No Groups	Members / group	Total Persons Reached
Farmer Leader System	16	20	320
Extension Through Associations	8	20	160

Recommendation for Extension System

VIDA should adopt a flexible system that allows a supervisor in a given district to select the type or a mix of the two methodologies. This process made be facilitated by the elimination of the distinction between First and Second Season Extensionists (see Recommendation in "Effectiveness of Extension" above) In areas where associations are new or have not become sophisticated in their organization, where communities are isolated and have poor marketing access, the FL system may be applied. In those areas where associations have become sophisticated (bank accounts, savings and loan associations, experience in several marketing seasons, etc.), the extension-through-associations may be more appropriate.

The decision will need to be made based on local knowledge of the communities in the area. Therefore, the District Supervisor should be key. The Extension Supervisor may have input in the decision. The decision will have budget and staffing impacts. FL's are normally paid the minimum wage and will require a bicycle. An extensionist position could be eliminated if necessary to offset the expense.

C.1.3. Beneficiary Targeting of Extension Activities

Some concern was expressed in the mid term evaluation about VIDA's possible targeting, by self- selection, of higher income families within the project communities. A passage from the Mid- Term Evaluation is sited here.

- "There appear to be a number of differences between the types of HHs which have elected to participate as compared to those which have not. CARE HHs are slightly larger, and more likely to have more than one self employed member. They are also more likely to own animals and fruit trees. These differences are unlikely to be effects of CARE's involvement. The other key difference is that CARE HHs cultivate more plots. This could pre-date the project and relate to access to land and/or availability of labor, or it could be a project effect if support for diversification has led farmers to open up more plots."

The document goes onto say: “These differences in diversity of assets/productive activities raise two concerns.

1. Project Targeting.
 - Are participating families better off?
 - Is it possible to work with the poorest families?
 - Can some components of the project be tailored to the needs of HHs with less land, labor, or other resources?
2. Interpretation of differences in participants and non-participants in crop production and sales. These differences could reflect the impact of CARE’s work, or they could reflect differences in capacity that pre-date the project.”

It was indeed the observation of the evaluation team that members of associations seem to be more affluent than their neighbors. The current extension methodology works primarily with association members. Members of extension groups are selected by the association.

The Farmer Leader Methodology can be more effective in reaching the poorest families. The previous recommendation that suggests a mix of FL Methodologies and Association Methodologies may address this question.

Women are under represented in the extension system. Overall, women represent 24% of the persons receiving extension services. Within farmer associations, they represent 26% of the membership. Given that gender equality is a difficult objective to reach within the cultural context of the project, special emphasis and strategies needs to be placed on the issue.

Women’s groups within associations have already spontaneously formed. In one association, the women have formed a separate group and are baking bread to sell in the community. This is an opportunity for VIDA to support this initiative and use it as an example for other associations. Many different types of income generation projects for women’s groups can be identified. These groups may be the leverage the project needs to get many other women involved in this type of activity as well as extension groups.

The effect of increased income from cash crops such as sesame, sunflower, and paprika may not have the effect desired by CARE as men tend to control the financial resources, especially cash, of the household.

Strategies to reach out to women in production messages should be developed. Education of men on issues of household finance and food security can be attempted.

Recommendations for Targeting Extension Activities

- (1) FL Methodology may be employed to reach those members of a given community which have access to fewer economic resources such as land, labor, trees, and other assets.

- (2) VIDA can work through nutrition groups to form women's extension groups then provided services by the agricultural extensionists. It is easier for a woman to express herself and ask questions in a group composed exclusively of women.
- (3) Food security issues related to gender divisions (such as control of financial resources) should be clearly defined and addressed through extension meetings by the field staff. The field staff may need some training on how to approach this issue.

C.1.4. Improved Post Harvest Storage Techniques

Project monitoring data indicate that more than 30,000 farmers have applied methods to decrease post-harvest crops. The indicator target was for adoption by 15,000 farmers.

The post harvest storage technologies that were viewed by the evaluation team were intended for the storage of planting seed for the following season rather than for food grain. The silos took several forms. Some involved seed suspended from a post and the post protected around the diameter by tin or aluminum cut from cans. Others were clay pots and yet others raised "houses" enclosed in clay. All were made from locally available materials.

During field visits by the evaluation team, many of these storage techniques were seen. In an interview with the 25 September Association in Meconta District, the association reported that about half of their 54 members have improved silos. The association itself has a warehouse with a tin roof where products are stored before sale.

Associations were the site of improved silo demonstrations. Acceptance by association membership seemed high and several non-member households were observed using the technologies as well.

Recommendation for Improved Post Harvest Storage Techniques

- (1) Identify improved, larger capacity silos for food storage as well as seed storage.

C.1.5. Environmental Mitigation Techniques

The number of farmers adopting improved farming practices to mitigate environmental degradation was 42,000. The target was 20,000.

The evaluation team did not have many opportunities to witness improved techniques first hand due to the time in the agricultural cycle. On two occasions during the fieldwork, farmers were asked if they used composting. They said they did and they described the process. These farmers also said they used "controlled" burning, or localized burning. It is difficult to say if this is actually happening. There is plenty of evidence all over province that burning is widespread and uncontrolled. Crop rotation was something that most persons interviewed had at least some knowledge. It was one

of the items sited in association meetings as an improvement that VIDA had made to their lives.

C.1.6. Project Management of Extension

Prior to FY 2000 the project was divided into two components: SAC and SOEC. SOEC focused specifically on oilseed promotion (sesame and sunflower) and the establishment and support of ram press businesses. SAC was a more traditional agricultural extension which promoted six crops of both food and sale value. VIDA had three expatriate positions; a Coordinator, Manager of SAC and SOEC Manager.

In 2000, the project was merged into one single management unit with one expatriate as Project Manager. An associations and a marketing element was added to the project, with both Nampula management staff and field staff at each of the eleven field offices.

Clearly this change in project structure had positive results including

- Streamlining of management
- Single strategy in the field
- Defusing competition for project resources between components and a more rational use of resources such as vehicles and fuel.

There were also some negative results of the merger. The most obvious was a loss of focus in the sunflower sector. The dramatic decrease in the health of manual press businesses was not immediately perceived by project monitoring staff. Business advice (such as recommending an increase in the price of sunflower to producers) appears to have been totally withdrawn. The monitoring system also declined in quality. This is apparently due to reduced monitoring of press activities and a shift in focus towards monitoring of associations exclusively. See the section “Monitoring and Evaluation Systems” for further detail.

Recommendation for Project Management of Extension

- (1) The project may consider either eliminating either the Association or the Marketing Officer position or to have two persons working under the same group of responsibilities. This recommendation is based on two facts: the marketing responsibilities are only conducted 3 to four months of the year and once groups are formed and trained, little additional intensive support is need.

C.2. ASSOCIATIONS

During the course of the evaluation period, the team interviewed seven of the 189 that CARE assisted associations. VIDA’s indicators which measure progress on associations are:

- At least 50 farmers’ associations are able to self manage.
- 125 associations can negotiate contracts with formal traders.
- At least 50 are able to negotiate contracts with traders each year.
- At least 70% of contracts were fulfilled.

Table 10. Information about Project Associations

Total Number Associations	189
Total Membership: No Persons	6178
Average No. Persons: Associations	33
Percent Women	24
Bank Account over Mts 5 Million	3
Bank Account over Mts 3 Million	6
Percent Accts over Mts 3 Million	5
Percent with Warehouses	100
Percent Negotiated Contract without CARE Assistance	12
Percent CARE Negotiated contracts for Associations	22
Percent Marketed Products with Contract	27

The project has met or surpassed all of the targets related to associations. It is noted that the number of associations negotiating their own contracts has declined from FY 2000 to FY 2001. This may be a result of a change in definition or an error in data collection by VIDA's Monitoring System. VIDA's staff reported that all contracts signed with buyers were fulfilled.

Table 11. Summary of Products and Values Sold by Associations

PRODUCT	PRICE/KG	QUANTITIES	VALUE IN USD
Maize	\$0.07	514821	\$34,165
Nhemba	\$0.07	47609	\$3,317
Sesame	\$0.23	2739966	\$622,720
Sunflower	\$0.09	91455	\$8,314
Paprika	\$0.82	35000	\$28,636
Gd. Nuts	\$0.22	11227	\$2,505
Cashew	\$0.23	95400	\$21,682
Pigeon Peas	\$0.09	25000	\$2,273
TOTAL			\$723,613

Beginning in 1998, the VIDA project began to work in collaboration with CLUSA to support farmer associations. The basis for the collaboration is to draw on the relative strengths of the two organizations. CLUSA's area of expertise is in association formation and strengthening. CLUSA provides the training and institutional support for farmers to form associations and provides the associations with support to develop the capacities to market crops. The VIDA project, drawing on CARE's expertise in rural extension, provides associations with technical training on agricultural production techniques, oriented toward crops that can be marketed by associations. In 1998, CARE brought a CLUSA trainer to Mozambique to train its own staff in association formation and operation. With this training, the project now follows the CLUSA strategies for support to associations.

The collaboration with CLUSA has been very successful, providing VIDA with a useful mechanism for providing extension support in rural communities. As a result of this success CLUSA and CARE developed a proposal for a joint project to promote farmer associations and provide them with training in agricultural production and marketing skills. The project, called Sustainable Agriculture Program for Associations in Nampula (PASANA), has received funding from the European Union

and operates in the three western districts of Nampula Province (Lalaua, Ribaue, and Malema). The activities of this project supported by CARE are essentially identical to those of VIDA. PASANA focuses on both food crops and cash crops. Paprika was heavily promoted in 2001.

Farmer associations supported by the VIDA project exhibit a range of stages of development. Some have been in existence since 1997, while others were organized in 2000. Some of the associations function as purchasing agents for traders while others are negotiating their own contracts, have established women's income generation schemes, opened small stores, have bank accounts, buy their neighbors products for resale, and provided food for the "hunger months."

Farmer associations range in size from 10 to 50 members. The average number of members is 30-35. They tend to have two to three times as many men members as they do women members. They also appear to appeal to the relatively wealthier families in the community. Overall, VIDA has been successful in its work in association formation. Smallholder communities, even non-members have benefited from their marketing activities. There are many requests from communities for further association training.

Association membership covers only small segments of the communities visited. In Erati, the association visited had about 20 members in a community of 500 families. In Mogincual the association had a membership of 20 in a community of 400 households. One of the associations visited in Mecuburi District had 12 members.

All of the associations have the minimum function of marketing products. They also market the products of nonmembers. In one case, the association purchased groundnuts from nonmembers in the community with its own cash and then resold to a trader. In another case an association approached a trader with an estimate of production in its area and requested money to purchase the crop for the trader for a commission. One of the associations had negotiated with three potential buyers before selling this year. **A critical element that needs to be developed in the next phase of VIDA is a better marketing (price) information system.**

The range of sophistication among the associations visited by the evaluation team is striking. There is some correlation with the remoteness of the village. The team visited one association in a remote area that had only the marketing function and a crude warehouse but had been in existence from the start. They reported no sales at all in 2000 and having marketed a half-ton of maize and 1.4 tons of nhemba beans in 2001. The president did not know the name of the traders who bought their crops.

At the other end of the range, two associations stood out. Services offered by these associations include:

- Savings and loan program
- Bread baking as an income generation activity for women
- Association bank account
- Rural stores for basic items (9 associations have started up stores)
- Contact with CARE extensionists on a regular basis. (See section about extension.)

- Improved warehouses (tin roof)
- Access to animal traction
- Storage of basic food for times of hunger. An association purchased cassava from neighbors and stocked it in its warehouse for the lean months. It will resell the cassava to any buyers (not just association members).

These services were not offered by both of the farmer associations. This is a list of services that one or the other offered its membership. It shows what benefits that associations can bring to a community.

When asked what activities or services VIDA should offer in the future, some of the responses were:

- Water
- Credit
- New food seed varieties
- New cash crops (paprika and tobacco were mentioned)
- Health services
- Access to processing equipment (maize mills, rice dehullers, etc)

Recommendations for Support to Associations

- (1) CARE should conduct an assessment of the state of the associations in each district. Strategies and activities can then be designed as appropriate for the level of development of each of the associations.
- (2) VIDA should extend the range of products with which it works with associations. For example, it does not work with Caju in Mogincual or Mogovolas Districts where that crop is the highest income earner for the family sector.
- (3) VIDA should seek out the support of CLUSA and partner with that organization wherever possible. This is what was planned for the second phase of VIDA but CLUSA did not receive the funding it required to expand to most of the areas where CARE will be working. Close collaboration should be continued with CLUSA as this is their area of expertise. An appropriate model for collaboration needs to be designed which will consider CLUSA's limited resources, the level of support need of associations. Two possible strategies include the PASANA model where CLUSA has a full field staff and a more limited CLUSA presence where one CLUSA staff member is integrated into the CARE staff at the district level.
- (4) A price information system should be considered which will provide daily information on prices during the marketing season. This information could be broadcast over the radio and disseminated by CARE extension agents.

C.3. PRIVATE SECTOR

The private sector shall be defined as (a) project activities such as seed supply, some extension services, marketing activities, and oil press supply being taken up by private

companies as a for profit activity and, therefore, self sustaining (b) strengthening of businesses established as a result of the project.

Business to be considered in this section include:

- Manual Oil Press Businesses
- Ram Press Manufacturers and Distributors
- Seed Supply Businesses
- A paprika buyer and processor
- Sesame Exporters

While farmer associations can also be classified as private sector businesses, this document will classify them as a separate category due to their importance and relationship to the core of VIDA's activities. The private sector appears to have made significant impact on food security of households due to income generated. The value of the sesame seed sold to eight to twelve traders was worth more than \$1.5 Million USD in 2001. This provided more than 33,000 households with an average income of more than \$45. Overall, associations recorded sales of \$3.3 million.

One of the project's major successes has been the integration of a private paprika company, Cheetah Paprika, into the province. Cheetah clearly stated that they could not have started up without the help of CARE's extension system. The help provided included promotion, seed distribution, technical assistance, and marketing information. Cheetah Paprika bought 35 tons of product from smallholders in this first year of operations. Approximately 1000 HH's participated and made an average of \$30 USD each. Expansion in number of families and area per family will certainly take place in subsequent years. Cheetah will begin building a processing plant in Nampula in April, 2002. The capacity of the plant will be 1,000 tons per year.

Another area where VIDA has been successful has been the hand over of all oil press sales and distribution to the private sector. Agro Alfa manufacturer oil presses in Maputo and has sales offices in Nampula and Quelimane. They supply district stores directly without any subsidies from CARE except for information provided by extensionists about where to buy presses.

The support to the manual oil press businesses during VIDA has been minimal. Oil press businesses are suffering from a lack of crushing seed in many areas of the project. This is due to the fact that the price the oil press owners are paying for seed has not changed since the early days of the OPEN project (1995) while the price of oil has increased dramatically. The other factor in the decline of the ram press businesses has been a dramatic increase in the price of sesame seed for export. The next phase of the project should include business training on this issue to oil press owners. The evaluation team believes that the ram press businesses can afford to pay more for their raw materials and still realize a profit.

Other areas of private sector activities still have CARE's direct involvement. The seed sector is still partially subsidized with VIDA support. This will have to continue for some time to come in some if not most areas, especially outside of the district capitals. Association formation and training is an area where there is great variation in the progress made toward self-sustaining enterprises. Some are operating largely

without support from CARE, while others are in a rudimentary stage and will require VIDA and CLUSA's support during the second phase.

C.3.1. Oil Press Businesses

VIDA did not fulfill most of the output indicators related to ram press businesses. This may be the result of two trends. (1) The merging of the project from its two components; SOEC and SAC, into one overall project. SOEC focused exclusively on oilseed and oilseed businesses. Once the project eliminated the SOEC component, the focus on the sector was also eliminated. (2) Sesame seed has a farm gate price far more attractive than that of sunflower. Farmers therefore choose to plant sesame instead of sunflower. Sesame seed is currently too expensive to crush it for oil. Ram press businesses can still be viable if ram press owners can be shown that they can pay more for sunflower seed and still make a profit.

The price of sesame seed increased largely due to VIDA's activities. This is one of the project's major successes. The existence of oil presses stimulated sesame production to the point where quantities were attractive to export buyers. The price of sesame seed rose from 1000 Meticaïs a kilo in the early days of OPEN (1995-1996) to up to as much as 6,000 Meticaïs a kilo in the 2001 season. The average price in 2001 paid for sesame was 5,000 Meticaïs. Meanwhile, the price of sunflower seed is still the same as it was in 1995 (2,000 Meticaïs/Kilo). In the same period the price of oil increased to 20,000 – 30,000 Meticaïs from 12,000.

The result of this phenomenon is that many, if not most, of the ram press business are suffering from a lack of raw material. The project should take an inventory of the oil press businesses to determine the extent of this situation. The evaluation team visited three oil press businesses, all of which were severely suffering from a lack of seed to operate. All three presses the evaluation team visited were functioning primarily by providing "service pressing". In this system, a farmer brings his/her seed to the press owner and then the resulting oil is split. This is an inefficient system in terms of profitability and one which brings crushing seed to the press in a sporadic manner. The primary objective of the ram presses from the project's point of view is to provide a market for smallholder farmers and to encourage crop diversity.

A proposed solution to this problem would be to increase the price that press owners pay to the farmers for the crushing seed. This will require training for both press owners and farmers who have become disillusioned with the crop due to the stagnant prices. Press owners need to see that if they continue to pay the same price for crushing seed while the price of oil is increased dramatically, they are not serving their own good.

The projections below show two views of the problem; from the press owner's perspective and that of the seed producer. One sees that if the price of sunflower seed were to be increased to 3,000 Meticaïs per kilo, the press owner continues to make a profit while the income from sunflower seed sales approaches that derived from sesame. Although sesame still would earn more income per hectare, it is a crop that requires significantly more labor than sunflower.

Table 12. Estimated Incomes per Hectare, by Crop

Crop	Yield Per Ha	Current Price	Total Income/Ha	USD
Sunflower	500	2000	1000000	\$45.45
Sesame	350	5000	1750000	\$79.55
Projected Sun Price	500	3000	1500000	\$68.18

It is not possible for the evaluation team to conduct a survey of a large sample of press businesses. However, the project should do so. Ram press businesses are not monitored on a regular basis by the project. The monitoring system collects oil production data indirectly twice a year. This is insufficient and the quality of the information is doubtful. Based on this information, the monitoring staff projects the production of sunflower seed. This produces a yield that does not seem credible given observations and discussions in the field.

A projection from the ram press owner's perspective is shown in the table below. One can see that a profit can still be realized while paying 3,000 Meticaïs/Kilo. If the assumptions incorporated in the table prove to be correct (number of kilos per liter required and the cost of labor), it is recommended that training be conducted with ram press businesses to attempt to re-stimulate the production of sunflower.

Table 13. Estimated Profits per Liter for Ram Press Owners, Alternative Prices of Raw Material.

Price of sunflower seed	Cost Seed: 4 Kgs.	Labor	Cost Producer/ltr	Selling Price	Profit Liter
Current: 2000 Mts/kg	8000	1000	9000	18000	9000
Projected: 3000 Mts/Kg	12000	1000	13000	18000	5000

The table below projects production and profits for a theoretical ram press business. The first projection represents a business which has little raw materials due to low prices paid for raw materials and the second shows the same projected data for a press that operates closer to its crushing capacity (with a sufficient supply of raw materials).

Table 14. Estimated Total Profits for Ram Press Owners, Alternative Prices of Raw Material.

Scarce Vs Plentiful Raw Material	Raw Mat	Profit	Raw Material	Output L.	Annual Profit	USD
Business One: Scarce Raw Mat.	9000	9000	500	125	1125000	\$51
Business Two: Plentiful Raw Mat.	13000	5000	5000	1250	6250000	\$284

The lesson that it is better to make 5,000 Meticaïs per liter from 500 liters rather than 9,000 Meticaïs per liter from 50 liters would not be difficult to teach press owners.

One of the project indicators is the quantity of seed cake (1000 tons) being used as fertilizer or animal feed. This indicator has not been met and the use of seed cake continues to be a problem without a solution. Seed cake has a market in South Africa but this market is viable only in large quantities. When motorized press businesses begin operations at full capacity in 2002, this problem should be revisited.

Recommendations for Oil Press Businesses

- (1) The project should take inventory of the raw material supply to ram press businesses in the entire project area.
- (2) The project should conduct trainings, informal or formal, with ram press owners in an attempt to show them they can pay more per kilo to farmers in their areas and make more profit.
- (3) Assuming that recommendation two is accepted by ram press businesses, extension messages should be incorporated into the system to demonstrate to farmers that they can make almost as much money from sunflower as sesame with less labor input.
- (4) VIDA should consider a credit system for working capital for ram press businesses. This would greatly help solve the problem of farmers having to store their own seed, as this results in frustration with the market and losses due to rats, insects, and moisture.

Diversity and risk reduction should be considered in approaching this situation. Currently world prices for sesame allow traders to purchase the product at the farm gate for a relatively good price. It is possible that this will change with fluctuations in the market although prices currently being paid are 50% of the low end of the world sesame market.

It should be mentioned here that this trend may change as a result of motorized oil-pressing businesses starting up in the project area. Three presses, each with a crushing capacity of 150 tons per year, have been financed by a Mozambican financial institution (Gabinete para Apoio a Pequena Industria). In addition, a larger factory with a capacity of 3,000 tons per annum may be in the market in the 2001/2002 agricultural season.

C.3.2. Oil Press Manufacturers and Distributors

This project activity has been largely, if not entirely, successful from a privatization viewpoint.

VIDA's predecessor, OPEN (Oil Press Enterprises in Nampula) imported two types of oil presses from Zimbabwe. Oil presses were then sold directly to individuals in the countryside. An evolution has taken place over the six years since OPEN's inception and the situation today shows that:

- Agro Alfa, a private company based in Maputo, is manufacturing oil presses in country. This has resulted in a decrease in retail price from \$230 to \$170.
- Agro Alfa has opened two branches. One in Nampula City and another in Quelimane.
- Agro Alfa is not subsidized by CARE in the distribution of its presses to the 12 rural stores where the press is sold on consignment. The machines and spares are transported by Agro Alfa's two vehicles located in Nampula and one in Quelimane.
- Agro Alfa sold 100 presses in the CY 2001.
- A second company, Intermetal, also markets oil presses in Nampula City. This company has sold 45 presses since 1998.

The evaluation team was not able to learn about sales levels at outlets in the rural areas. One store visited that carried the presses had not sold any in 2001. This may be due to a decrease in sunflower production as discussed above. However, the owner of the store stated that the reason was there was no credit available. She stated that she had three potential buyers but the buyers did not have enough money.

C.3.3. Seed Businesses

The supply of seed to households in the project area is still being subsidized by VIDA. The subsidies lie primarily in seed distribution systems. Subsidies in distribution should continue in some areas as there is no viable alternative. However, many aspects of the seed business have been taken up by the private sector. This section will explore the relationship between private seed companies and VIDA.

There are two businesses that supply almost all of the seed to the family sector in Nampula Province; SEMOC and Agro Alfa. SEMOC used to be controlled by the Mozambican Government with a Swedish partner. Today, it is jointly owned by Seed Company of Zimbabwe and the Mozambican Government (who own the minority shares). Agro Alfa is 100% private and has been involved in the seed business for two years.

Agro Alfa's co-owner, Jose Alves, clearly and emphatically stated that if CARE was responsible for the success of his business in both press manufacturing and seed supply. Agro Alfa sold \$33,300 in seed in 2001 to date. These figures are for Nampula Province alone. Sales will increase as the food crop season begins in October/November. Agro Alfa is the Nampula representative for Pannar Seeds, a South Africa seed company.

SEMOC also supplies seed to households in the project area. SEMOC has proven itself to be unreliable in the past through late deliveries, poor germination rates, and mixed seed but they remain one of two suppliers in the region.

Seed Multiplication and Distribution Systems:

Food crop seed such as maize, ground nuts, beans and the like are either brought into Mozambique by Pannar (Agro Alfa) or SEMOC (Seed Co). In some cases, as in maize, basic seed is supplied by breeders in South Africa or Zimbabwe and then multiplied in Nampula or Manica Provinces.

SEMOC and Agro Alfa are contracting with 14 commercial farmers for the multiplication of family sector planting seed. This seed is inspected by SNS (Servico Nacional de Sementes) inspectors three to four times during the season and then purchased and cleaned, treated, and bagged in facilities in Namialo and Nampula.

Sunflower and sesame seed are produced via a different system. Sunflower "basic" seed was brought to Nampula Province by CARE in 1997. This seed has been turned over to INIA (Instituto Nacional de Investigacao Agronomica) and to the Catholic University of Cuamba in Niassa Province. CARE pays INIA's costs to multiply this basic seed for seed multipliers. SEMOC then contacts commercial farmers to

multiply the seed on contract. SNS inspects the fields and certifies the seed. Seed is then cleaned, treated and bagged by SEMOC. In the case of sunflower, SEMOC pays the multipliers directly. In the case of sesame, CARE is still providing logistical support, promotion, and warehousing at the district level.

Distribution of the seed to some rural stores and associations is done by the seed companies. However, in most cases CARE brings the seed from Agro Alfa and SEMOC warehouse to the districts capitals (sedes) and then further out to the communities, associations, and administrative posts for sale. At this point in time, neither of the seed companies has the logistical capacity to bring seed to its final consumers. It is probably not economically viable to do so given the poor condition of the roads and long distances involved.

Sesame seed production is done differently. CARE is working with 8 farmer associations in a traditional sesame producing area to provide it with 50 tons of seed in 2001. Because oil content does not vary greatly between varieties in sesame seed, this plant is easier to multiply successfully without losing quality.

Farmer associations who multiply seed receive close supervision from CARE agronomists. Rouging is completed on each field (taking out plants with unwanted qualities before the plants pollinate). Seed is purchased by CARE at a premium (6,500 Meticaï per kilo) and transported to the CARE warehouse at its field office in Namapa. Agro Alfa then sends a truck to bring it to Nampula where it is cleaned, treated, bagged and stored for re-distribution. SEMOC purchased 8 tons of sesame seed from Agro Alfa for re-sale in the south of the country.

CARE has also produced three tons of rosette resistant groundnut seed in 2001. CARE also produced a local variety onion seed that is preferred by farmers and consumers in the province.

Seed Quality

Questions about the quality of sunflower have been raised by at least one of the partners under the umbrella grants in Zambezia Province. Other sunflower processors in Manica Province have also suggested that Black Record, the open pollinated seed being used by CARE and its umbrella partners, may be degenerating. If this is so, new basic seed needs to be brought in from a reliable source outside of Mozambique. Another alternative that is being used by processors in Manica is to use hybrid seed. This has the disadvantage of the need to replace the seed each year. It also runs the risk of farmers retaining hybrid output and using it for the next year's planting, risking low output and quality.

CARE staff claim that the seed is not degenerating. They maintain that the basic seed maintenance being done by INIA in Nampula is sufficient. The evaluation team was told that an oil content test was done on the seed in 2000 and that it showed a 45% oil content (good results). The evaluation team recommends that a policy of seed quality testing be done with the results of INIA's basic seed production each year.

Recommendations for Seed Businesses

- (1) CARE should hand over the purchase of seed from multipliers directly to Agro Alfa in 2002. SEMOC is already doing so.
- (2) CARE should only transport seed from district centers to outlying rural communities, with the intention of phasing this activity out over the life of the next project.
- (3) CARE needs to continue to distribute seeds in most areas outside of district capitals.
- (4) A laboratory test should be conducted each year on the basic seed produced by INIA in Nampula by an independent laboratory.
- (5) CARE should work closely with the three new oil processors located in Ribaue, Angoche, and Nampula Districts to encourage them to pay a sufficient price for sunflower that will keep the crop viable among smallholders.
- (6) CARE may help the three processors mentioned in item 5 to establish outgrower production systems.
- (7) Costs for maintenance of basic seed via INIA and transportation of seed to administrative posts should be turned over to the seed companies.

C.3.4. Paprika Business

As previously stated, the introduction of sesame seed has been very successful and it is due entirely to the initiative of the VIDA project. VIDA's project manager, Dieter Ficher, had contact with Cheetah Paprika while working in Zambia. Mr. Ficher made contact with Cheetah who agreed to provide seed and training to the CARE staff. The first season has just concluded with positive results. All the farmers with whom the evaluation team spoke about paprika were very satisfied. Farmers in areas where paprika was not propagated this year knew about paprika and requested to be included in the future.

The company is planning a processing plant which will process 1000 tons/year. The value of the crop at full capacity for the smallholder community is more than \$800,000 USD. The 2001 crop is valued at \$30,000. The average per kilo price paid for paprika in 2001 was \$0.80 USD¹.

The potential for income for small holder households is shown below:

Table 15. Paprika Income Potential.

Average price Kg	18000	Mts
Value USD	\$0.82	USD
Minimum Area per HH	0.20	Hectare
Output per Ha	400	Kilos
Out per .2 Ha	80	Kilos
Income on .2 Ha	\$65.45	USD

¹ Four grades of paprika are defined by the company: Prices: A=\$1.00, B=80 cents, C= 60 cents, D=40 cents.

Production per hectare here is based on experience from Nampula 2001. Cheetah Paprika's smallholder farmers in Zambia and Malawi are getting up to 1,200 kilos per hectare with chemical inputs.

Recommendation for Paprika Business

(1) VIDA should continue and expand its collaboration with Cheetah Paprika. Farmers in all districts that the evaluation team visited are anxious to participate in this program.

C.3.5. Sesame Trading Businesses

Sesame is certainly one of the projects major successes. The crop has gone from a minor food crop to one of the best income earners for thousands of smallholder farmers in the province. The success of sesame as a cash crop has also spread to northern Zambezia Province (where CARE umbrella partners and World Vision have promoted the crop) and to Sofala and Manica Provinces where Food for the Hungry and Africare have also promoted the crop.

Sesame is native to Africa. The crop was raised in small quantities in Erati and Mecuburi Districts before the inception of OPEN in 1995. There was a small market for the crop in colonial times when the "loja system" would buy small amounts from farmers and resell it to traders. Two companies in Nampula were exporting 100 to 200 tons of seed in 1993 and 1994.

The impact of the project was to greatly increase the production for sale to ram press businesses. Ram presses require only 3 kilos of sesame seed to produce a liter of oil while four kilos of sunflower seed are needed. Sunflower seed prices to smallholders started out at 2,000 Meticais/Kilo. Sesame sold for 1,000 Meticais/Kg in 1995. Presses consumed most of the production and sesame began to be produced in many districts of the Nampula as a result. The increase in availability of sesame seed was noted by traders who fueled further production and higher prices. World prices for sesame seed range from \$450 ton². Traders are paying \$220 per ton at the farmgate in 2001, there is clearly a margin. Sesame is sold almost exclusively to traders as the ram press owners view it as too expensive to make a profit by crushing it into oil.

The price for sesame seed in 1994 and 1995 was 1000 Meticais per kilo (\$1 USD=10,000). Today the average price for a kilo of sesame is 5,000 Mts/Kilo (\$1 USD = 22,000). The increase in price is due to the fact that a large number of traders are buying up the crop and exporting it³. The evaluation team verified in Erati District that at least eight buyers operated in that district in the 2001 season. Multiple buyers were reported in all districts producing sesame. The same is reported by CARE's umbrella partners in Zambezia Province.

Other businesses benefited by the increase in sesame production are S.A.I.N. that has a cleaning and bagging factory in Pemba. S.A.I.N. also is producing sesame oil. Its markets are in Europe. The company worked with CARE in the 2000 and 2001

² The quality of Mozambique sesame is low on the world market and it fetches the \$450 ton price at this time.

³ Most of the seed is sold to the Japanese market for crushing into oil.

seasons to promote sesame in Erati and bring the grain to Pemba for processing. S.A.I.N. purchased 8 tons of planting seed for the 2001 season from Agro Alfa. CARE extensionists worked with SAIN staff to distribute the seed to smallholder farmers in the district. This company also purchased sesame in Mecuburi District in 2000.

Two cotton companies, Canam and Sanam are now promoting sesame among the smallholders in their cotton areas. Both purchased seed from Agro Alfa and used their own extension systems in the promotion and purchase of the harvest.

Recommendations for Sesame Trading Businesses

(1) Future directions for sesame may include the introduction of an improved seed variety or varieties. CARE should consider working with private companies who are interested in increasing the value of Mozambique's sesame crop by introducing seed which yields a whiter and larger grain size. This coupled with mechanical cleaning and appropriate packaging could allow Mozambique to enter the market for confectionary quality sesame seed that fetches prices up to four times as much as the crushing quality seed. This benefit in price should be passed to the smallholder producers. This has been done in Guatemala over the last ten years and could be replicated in Mozambique. TechnoServe has done work on this idea and it may be of interest to CARE's VIDA project.

C.4. UMBRELLA PROGRAM

CARE provided sub grants to three NGOs: Action Aid, Conselho Cristao de Mocambique, (a national NGO) and Movimundo, for oilseed production and processing programs. The main activities were directed to provide extension messages to farmers, developing a locally based sustainable system for quality seed supplies and developing marketing opportunities and capacity for smallholder farmers to access them. As in Nampula Province, another focus of the program in Zambezia was the development of rural based oil micro enterprises through the sale of oil presses and provision of training to interested entrepreneurs and promotion of oilseed production by farmers.

Zambezia province was selected because of lack of vegetable oil in the diet, the potential of the area for oilseed production, as well the expressed interest on the part of potential partners. Under the Umbrella Program, Action Aid worked in Ile and South Namarroi district, Movimundo in Lugela, and CCM in North Namarroi and Milange districts.

The overall goal of the three sub grants was to provide assistance to 22 500 farmers growing sunflower and white sesame by the end of project. In 1999, a total of 15 449 participated in sunflower and sesame cultivation, representing about 69 % the initial project targets. By the end of the project the total number of participating farmers was 18 469 (82% of the target), of which 21% were women..

After three years working with oilseed program farmers are now able to continue with oilseed cultivation with very little support to get access to high quality seed. The

results achieved in terms of farmers participating in project activities are shown in Table 16 below.

Table 16. Number of Farmers Cultivating Oilseed crops by NGO

NGO	Total Farmers	Number of women	% women
Action aid	6413	1013	16
CCM	5920	1776	30
Movimundo	6136	1159	19
Total	18469	3948	21

Table 17 provides information about press owners:

Table 17. Oil Press Ownership by NGO and Sex of Owner.

NGO	No. press owners		
	M	F	Total
Action Aid	64	3	67
CCM	53	11	70
Movomondo	41	6	47
Total	158	20	184

A total of 339 presses were sold, but 155 were bought by Malawian citizens. There are 184 oil presses in Zambezia and 155 of them are operating, representing about 82 % of the total .

Table 18. Presses Sold and Operating, 2001.

NGO	Presses Sold	Number of operating presses
Action Aid	67	52
CCM	70	61
Movomondo	47	42
Total	184	155

According to available information from 2001 sunflower production was 327 MT in Zambezia Province, representing 81 750 lt of processed oil from 155 oil presses. At a price of 20,000 Meticaish per liter (22,000Mts/\$), this means that on average each oil press owner received or will receive 479 USD in 2001. This result seems too high in the estimation of the evaluation team.

Lessons Learned:

- In general, the umbrella grant initiative was successful.
- Oil from ram presses was produced for the first time in Northern Zambezia. It was found that this oil was competitive with oil imported from Malawi. Farmers and press owners expressed interest in continuing with the crop and production of oil.

- The umbrella grant recipients (Conselho Cristao de Mocambique, Movimundo, Action Aid) all expressed interest in continuing to work in the sector. Movimundo's strategy is to seek local entrepreneurs who are interested in starting up motorized oil expressing businesses. Conselho Cristao is planning to extend the oilseed project into new geographical areas (Gurue).
- The staffs of all three organizations have been trained in techniques of working in the oilseed sector and now have 3 years of experience in doing so.
- All three organizations have experienced problems with the decline of seed quality (lower oil content, low germination rates). This problem should be monitored and alternative sources of seed may be sought (other than SEMOC).
- The private sector is weaker in Zambezia than in Nampula. There is a relative lack of enterprises conducting business in Zambezia. NGO's should promote marketing activities by producing and disseminating information on availability of products such as sunflower and sesame to potential buyers as well information on prices.

C.5. COLLABORATION WITH GOVERNMENT DEPARTMENTS

C.5.1. Agricultural Extension

Over the course of VIDA, CARE has had a useful and widely recognized cooperation with government agencies in the area of agriculture, especially in extension and research. Collaboration included exchanges of information, collaboration in training, participation in Provincial Directorate of Agriculture and Rural Development (DPADER) events (*Dias de Campo* and *Dias de Productor*) and crop estimation efforts. This complementary cooperation contributed to sustainability of agricultural development efforts by the government.

Collaboration between CARE and government entities in agricultural extension is important for sustainability reasons. Although CARE and the government extension services are organized differently and have different focuses, collaboration between them will better serve the needs of food security and rationalize the use of resources.

The government recognizes that partners such as NGO's and the private sector are important in its fight against poverty in the country. The government recognizes that CARE and the VIDA project have been important in Nampula Province in its efforts to reach its goals. CARE has established a strong base for cooperation with the government, especially in the areas of agricultural extension and investigation. The VIDA project has provided training, along with its own staff, in extension and in paprika, sunflower, and sesame production. Other forms of collaboration have included "field days" during which visits to producers are made jointly by CARE staff and the DPADER staff.

In the field of extension, CARE and government staff has participated in joint planning sessions at both the district and the provincial levels. This has occurred on a regular basis. During these sessions the districts were geographically divided to insure maximum coverage by the CARE and DPADER extension staffs. This occurred in order to avoid overlapping and to achieve the complementarily.

CARE regularly provides the District Departments of Agriculture (DDA) with its quarterly reports. The staffs of both entities know and collaborate with each other. During visits made to the government offices in the districts, government officials expressed satisfaction with the collaboration of CARE. Officials specifically mentioned CARE's leadership in the oilseed sector as well as in farmer association formation and marketing activities. Good cooperation with CLUSA was also discussed.

In the area of agricultural research cooperation between the project and the National Agricultural Research Institute (INIA)) produced positive results although they have not been well documented. This cooperation was formalized in March 2000 through a memorandum of understanding (see Appendix 2). This document formalized the cooperation between CARE and INIA to produce planting seeds for sunflower and sesame and to maintain the quality of basic sunflower seed. This seed is then distributed to seed multipliers for bulking up. The seed is then sold to smallholder farmers in the districts. CARE has also worked closely with ICRISAT on groundnut and pigeon pea research.

CARE finances INIA for the seed maintenance. CARE paid for fuel for irrigation, labor, and the fee and expenses for seed inspectors from the national seed service (SNS). This collaboration was compromised recently by the departure of key INIA agronomists. However, INIA has already taken steps to solve this problem.

CARE has included DPA staff in trainings conducted in Nampula City and other locations in the province. It also sent three DPA extension supervisors to Malawi with the CARE staff to be trained in paprika husbandry. CARE organized farmer days jointly with DPA and paid for part of the expenses for these activities. The project has also participated in field visits made by the Minister of Agriculture.

The PROAGRI strategy for decentralization and financial independence of the research stations plus the installation of a new research team in Nampula afford opportunities for new cooperation in research. Both CARE and the new Director of the INIA station have expressed interest in continued cooperation. However, the plan of activities for INIA-Nampula for 2002 does not include seed multiplication of sunflower and sesame. VIDA established links with ICRISAT and INIA on field trials of new groundnut variety and pigeon pea varieties. VIDA has also done research on paprika production to determine yields in various climatic zones.

C.5.2. Nutrition

The nutrition component of the program does not appear to have the same level of formal collaboration with the Provincial Health Directorate Provincial Health Services as the extension program has achieved with DPADER. The operational collaboration between project staff and health officers at the district level was observed to be weaker than the collaboration with the district agricultural officers. This is likely a result of the fact that the project nutrition program began midway through the VIDA project, as an add-on set of activities, while the agricultural extension activities have been closely coordinated with DPADER since the inception of the project. At the district level, implementation of the nutrition component is

usually the assigned to a project extensionist with a primary responsibility in agricultural extension. is integrated into the agricultural extension program.

C.5.3. Agricultural Marketing

Contacts made at all governmental levels (national, provincial, and district) demonstrate that ties to the private sector are not discussed or considered by the government. CARE and government agricultural institutions do not share the same vision. While CARE is focusing on enhancing the ability of smallholder farmers to take advantage of marketing opportunities, the government focuses on increasing production of food crops, with little concern for providing farmers with the capacity to identify and take advantage of market opportunities.

Meetings at the Provincial Department of Commerce and Industry showed that these government departments are not fully aware of VIDA's activities or results in the areas of agricultural marketing or in the support for several hundred oil press enterprises in the province. This is in spite of the fact that the Commerce and Industry Department has a plan to encourage micro industry in rural areas

Recently the national government developed a national plan for marketing agricultural goods. The strategy was developed at the ministerial level and involves Commerce and Industry, Planning and Finance, Transport and Communications, and Public Works. A team composed of government ministers and technical staff will direct the strategy. A similar group will be formed at the provincial level. The national level team will report to the Minister of Commerce and Industry and the provincial team will report to the governor. The teams will establish communication lines with key elements in the private sector.

Foundations for Future Cooperation

Meetings at all levels of government showed that there is a need to continue cooperation and collaboration with CARE and other NGO's. This is reflected in the strategic planning of MADER as shown in the PROAGRI program. Previous cooperation and activities conducted by CARE were given a positive evaluation by the government. The government sees CARE as a partner in its rural development program. Bases for collaboration include:

- Common objectives: Raising the standard of living and incomes of the rural population, diversification in agricultural production, promotion of the development of rural markets and agro industry are all objectives held in common between the government and CARE.
- Rural Extension: Both CARE and DPADER are conducting activities to develop a sustainable agricultural system while safeguarding the environment. PROAGRI is in the process of developing a decentralized extension system with a better-qualified staff. Another basis for collaboration lies in the fact that the government has included a staff member at the provincial level who is responsible for the development of farmer associations.
- DPADER plans to hire three senior agronomists to be placed in each of the three agro-ecological zones of the province, and an anthropologist to be responsible for supporting farmers' organizations. These officers should be

made fully aware of project strategies and activities, and efforts to coordinate project and government activities should be pursued with these new officers.

- The plan also envisions the expansion of the public extension service into the districts of Moma, Mogovolas, and Mogincual. Specific areas for potential collaboration include:
 - Training in monitoring and evaluation
 - Coordination of extension services, with public research services and partners in the agricultural development activities
 - Annual planning of extension activities for the agricultural seasons
 - Dissemination of results of districts RRAs
 - Prepare a technology package for paprika
 - Establish on-farm demonstration plots in the districts
 - Demonstration of post-harvest storage techniques
 - Training to extension agents in various technology packages
 - Training in gender awareness
 - Improve delivery of extension messages through alternative means of communication (radio)
 - Out-sourcing of extension services in Murrapula District.
 - Promotion of farmer associations

Recommendations for Institutional Collaboration

- (1) Materials and procedures developed in CARE's oilseed promotion program, production manuals for sunflower, sesame, and paprika and manual for ram press operation and maintenance can also be taken over by the government extension service.
- (2) CARE's work with CLUSA to develop skills in forming associations and promoting marketing of family sector products can be transferred to the government.
- (3) Continue and strengthen cooperation with government agencies. Particularly in programming of activities for analyzing extension results, training in the areas of technology promotion and monitoring and evaluation. CARE can continue to strengthen the governments services capacities in association building, working with women and market development.
- (4) Modalities of cooperation should be reviewed and new memorandum of understanding with government organizations should be developed.
- (5) Considering the reorganization of the regional extension services into the agro-ecological zones, CARE should consider using the agro-ecological zones as a basis for organizing project activities to conform to the reorganization of extension and INIA.
- (6) In the area of research continued cooperation with INIA in seed multiplication (on station and on farm) providing necessary resources to INIA to continue to provide quality seed.
- (7) CARE should work to promote the concepts and strategies developed in VIDA, particularly the importance of market oriented development strategies directed toward the family sector to the relevant government agencies.
- (8) Support of market oriented strategies, which include market information system (working with SIMA) and working with new government inter-sectoral group coordinated by Provincial Directorate of Commerce and industry addressed to promote agricultural marketing.

- (9) Strengthen cooperation with DPS in the area of nutrition to ensure consistency in messages and approaches. Exchange of information with DPS and DDS.
- (10) In collaboration with government agencies disseminate important findings to the public through the extension bulletin (*Novo Rebento and Alerta*), radio and other means. VIDA currently produces a weekly market bulletin, which contains information on prices and buyers. This is distributed to DPA and farmer associations.

C.6. PROJECT MANAGEMENT ISSUES

C.6.1. Project Monitoring and Evaluation System

The mid-term evaluation of the project in 1999 concluded that the monitoring system was trying to satisfy too many needs and was too complex. The evaluation also considered that the Livelihood Monitoring System (LMS) was considered to “demand complex measurements of correlations. In the absence of consistent historical data over a significant period of time such measurements and correlations involve risk of inaccuracy or generalization.” In February 2000 a consultant was hired to review and recommend ways to improve and streamline the project M&E system. Among the general findings of this study are:

1. A large number of (sometimes confused) indicators demanded by the logical framework.
2. Additional (and changing from year to year) data required by the main donor (USAID) to satisfy their reporting needs (SO1 and environmental regulations).
3. Excess data was being collected, some of which was entered for historical reasons that should be dropped.
4. Agreement with the mid-term evaluation about the LMS.
5. Household surveys: The baseline did not achieve a replicable or random sampling method, a lot of information was collected that was not analyzed. The mid-term survey used a different sampling technique, but it was difficult to attribute causality to project participation – “do households participate in the project because they are better off, or are they better off because they participate?” It is not clear whether the INCPROX calculations based on the model estimated in 1997 will be valid in 2001.
6. The existing M&E system did not adequately measure the impact of the project on the length of the hungry season
7. The existing system did not adequately measure the indirect impacts of the project on the wider community, those that did not participate directly with the project, and whether those participating are actually very vulnerable.
8. The existing system did not adequately measure progress toward sustainability – with responsibilities progressively handed over to contract farmers, associations, the private sector, government, and other stakeholders.

At the time of the evaluation, it was decided to not make any changes in the logframe, since this had just been renegotiated with USAID in 1999. As a result, the new M&E plan had to address all the information needs in the existing logframe. Table 19 shows most of the information needs at the project impact and results monitoring levels that the project reporting system requires.

Table 19. M&E plan indicators in Revised M&E System

A. Impact monitoring level	
Number of indicator sets ^a	17
For USAID or logframe only	15
B. Results monitoring level	
Number of indicator sets	21
For USAID or logframe only	20
C. Activities	
Number of indicator sets	8
For USAID or logframe only	2
D. Research	
Number of indicator sets	8
For USAID or logframe only	1
E. Total	
Number of indicator sets	54
For USAID or logframe only	38

From: Martin Whiteside and Joao Marcos, February 2001.

^aThe second column of Table 2(a) in the M&E Review report, labeled as “purpose of information” actually identifies indicators or sets of several indicators.

Because these reporting requirements could not be changed, the revised M&E system needed to continue to address the external reporting needs. This limited the extent to which the M&E system could be streamlined. The project monitoring system remains extremely complex, although the proposed modifications have reduced the amount of time spent in the field and on filling forms.

The M&E staff does not have the capacity to effectively manage the data bases to be able to quickly and effectively provide summaries or analyses of the available information. A number of the output indicators that were provided to the evaluation team do not seem credible in the context of other sources of information about agricultural production in the region. There is a lack of clear definition of some of the variables that are being measured. For example, there is not a clear definition of how a press is operationally identified as being in operation for 9 months. This raises questions as to how to accurately project activities and effects are being measured.

Since the merging of SAC and SOEC, there appears to have been a reduction in monitoring efforts on oil press owners, and an increased emphasis on information from associations and less information on project participants that are not in associations. In fact, the majority of project participants are not in associations.

As described in Section B.2. above, the project has relied very heavily on outside technical assistance for measuring project impact indicators – for design and analysis of the stunting surveys, the household surveys, and the use of the INCPROX and NUTRIPROX models developed by the MSU project. The external technical

assistance for these activities has not been consistent over the course of the project, so the results of the different surveys are not easily comparable, and the proxy models do not provide results that can be directly related to project activities.

Recommendations for Project Monitoring and Evaluation System

(1) The new project should review the logframe of the new DAP with USAID to see if the indicators for impact, results, and outputs can be streamlined. Once the minimum set of indicators necessary for reporting purposes and for project management needs are identified, the M&E system can be designed to collect the necessary information. The M&E system must have the flexibility to incorporate new project activities (e.g. new crops introduced) into the system. This includes making sure that impact evaluation procedures are established – identifying appropriate indicators and collecting baseline data to serve as benchmarks.

(2) The new project needs to greatly increase the in-house capacity to design, implement and execute complex, statistically representative surveys (One benefit of this strategy is that the M&E officer could work to improve capacity to analyze impacts in DPA). Outside technical assistance may be contracted to provide continuous support over the life of the project, to design an integrated impact evaluation scheme that can be applied for the baseline, mid-term, and final surveys, and to provide the necessary analysis that integrates the results from all the surveys as they become available. It is essential to maintain continuity in the technical oversight and analysis over the entire cycle of impact evaluations from baselines to final surveys.

(3) The impact evaluation system has to be flexible in design to be able to incorporate the impacts of new project interventions as they come onstream.

(4) The impact evaluation system needs to be designed to be able to identify changes in household incomes that are due to project intervention. Appropriate methodologies must be applied and the necessary information to control for non-project effects indicators and estimate changes that can be directly tied to project interventions.

(5) The impact evaluation system should incorporate qualitative indicators of project impacts – based on beneficiaries’ assessments of what impacts have had for them.

(6) Findings from impact evaluations should be relevant for ongoing project management as well as reporting to the donor.

(7) The new project should have a reduced number of impact indicators to simplify tracking.

(8) Stunting surveys should be conducted independently of household surveys. The project should contract a consultant specialized in this type of survey to produce statistically valid results.

C.6.2. Recommendations for Use of Revolving Fund

The evaluation team was requested to make suggestions for the use of the revolving fund that grew out of press sales by VIDA. The following three recommendations

were identified by the evaluation team on the basis of discussions with project participant households and collaborating partners about existing constraints to improved food security of vulnerable households.

- **Seed money to develop economic activities of women's groups.** Participation of women in the project associations is presently quite limited and passive, at least in the main commercial activities of the associations. However, the evaluation team observed that women's groups do have the capacity to undertake certain kinds of economic activities. One use of the revolving funds could be to commission studies or finance pilot activities to identify possible income-generating activities that women's groups could undertake.
- **Development of water points.** Interviews with women's groups in project communities highlighted difficulties in access to water, especially in the dry season. This is a health problem, as well as a production problem, as women need to spend large amounts of time fetching water. Improving access to clean water supplies can greatly improve household food security conditions. If this strategy is to be pursued, the project must ensure that sustainable management and maintenance systems are put into place to keep the water points in operation. The evaluation team recommends that water points be established in collaboration with strong associations. The associations would operate the water point as a business, charging fees for the water to cover operational and maintenance costs. The associations could be required to pay back the investment cost of the water point, to maintain the revolving funds.
- **Working capital fund for ram press businesses.** A lack of working capital for buying crushing seed is the major constraint for ram press businesses. The capacity of a ram press is ten tons. At 3,000 Mts/kilo this amount of seed will cost \$1,300. Press entrepreneurs who have shown themselves to be active and who have paid debts should be selected for this program. This should be a revolving fund with loan terms no longer than 10 months.

C.6.3. Recommendations for Placement of Staff in DPADER

The evaluation team was asked to make recommendations for placement of a project staff member to work within the DPADER. One of the observations made by the evaluation team regarding the DPADER was a weakness of this institution in the area of monitoring and evaluation of extension activities. This point was raised in interviews with the Deputy Director of Rural Extension, Mr. Custodio Mucavele, and with the Chief of Extension Services, Estevao Kanhandula (DPADER), Mr. Victorino Xavier, former director of DPADER Nampula and with district agricultural directors.

Given the lack of resources for the provincial and district level extension services to implement extension programs directly, a number of different organizations, both NGOs and private companies, are providing extension services. These different organizations have different objectives, target groups, and follow different extension models. In this situation, an important role of DPADER is to monitor and evaluate the different extension activities. CARE has wide experience in establishing M&E systems for extension programs.

The evaluation team considers that the new project could very usefully provide technical support to the DPADER in monitoring and evaluation of extension programs as a way to develop sustainable institutional capacity within the government. However, it is not clear that the best strategy is necessarily to place a project staff member permanently within the DPADER. In particular, it is not clear that placing a project staff member in the directorate would develop permanent technical capacity within the government. An alternative strategy would be to have project M&E staff provide training to appropriate counterparts at the provincial and district levels in a series of workshops. These activities would form part of the job descriptions of the project descriptions of the M&E staff, and formal agreement would need to be reached for participation on the part of government staff.

D. LESSONS LEARNED AND RECOMMENDATIONS

This section provides a summary of all the lessons learned and recommendations that were identified in the final evaluation of the VIDA project. These recommendations should inform the design of the program design and management strategies of the second phase of VIDA.

Strategic directions for the new DAP.

1. Reasons for Continuing with market focus for smallholder agriculture.

- Successes of sesame, paprika
- New market opportunities, e.g. CIMPAN, SA market for groundnuts, castor beans
- Opening up of marketing infrastructures – improved roads
- Consistent with new government initiative
- Need for continued support to develop understanding of commercial principles in government extension service, farmers, small businesses

Implications for programming:

- Importance of risk – promote strategies to manage risk: diversification, improve storage facilities, market information, contract farming, etc
- Importance of quality—need to orient production toward demands of markets. Production extension should reflect market demands/opportunities
- Importance of associations as marketing agents for small farmers (collaboration with CLUSA)

2. Extension strategy

- For some export-oriented cash crops (crops with very large buyers) the strategy for the project should be to provide extension and marketing support in the first years, but that the ultimate goal should be for the private sector to take over these functions.
- Extension for food crops and crops going to local markets is an ongoing public service, cannot be expected to be taken over by the private sector. Sustainability means providing government agencies with information and lessons learned from project extension activities, improving institutional and

technical capacity (to assess impacts of different extension strategies), emphasizing importance of market orientation to DPADER, DDA.

- Alternative extension models – working with associations, working through contact farmers. Choice of model should depend on local conditions within the districts.
- Working with women's groups (separate women's groups/associations, women's groups within existing associations) Able to reach important target group that is underrepresented in the current project.

3. Seed Supply

- The evaluation team observed that seed supply infrastructure is still inadequate, unable to make seeds available outside district capitals, threat that seed quality (sunflower) may decline. Opportunities to provide improved quality seeds (sesame, maize, pigeon pea, orange sweet potato)
- Project should encourage seed companies and INIA to replenish basic seeds on a regular basis, work with private seed companies to provide high quality seed by showing that they can receive a premium for quality seed.

4. Collaboration

- Collaboration should be based on shared interests. Should work to avoid overlap of effort, promote sustainability, identify complementary strengths (example of CLUSA & CARE)
- Collaboration with government – CARE should promote market orientation strategy to support family sector
- Collaboration with private sector – strategy should be for the project to act as an intermediary for a limited period of time
- Collaboration with other CARE project and other NGOs – collaborate to develop messages, and message delivery

Project Activities in the New DAP

This section provides detailed and specific recommendations for project activities that are designed to be practical guides to the strategic strategies described above.

Recommendations are grouped into categories (Oilseed, Seed Production, Extension Services, Nutrition, Institutional Collaboration)

Extension Services

1. Project should help buyers (including ram press owners, medium scale presses) to establish effective outgrower schemes. Outgrower schemes are effective and appropriate in Nampula's environment. They reduce risk to the farmer and to the buyer. Outgrower schemes are used by cotton and tobacco companies. Two medium scale oil presses businesses located in Angoche and Ribaue Districts used this contractual system in 2001. CIMPAN, a maize miller located in Nampula, may be interested with working with farmers using this system. The project should continue and extend this system with private companies wherever possible.

2. Training to farmers and ram press owners on risk management strategies.

Attitudes of fixed prices, as practiced in the centrally planned economy, have not been dispelled. Farmers expect to have a guaranteed market with fixed prices before producing a crop. This is an idea foreign to the market place. Farmers will need to accept a level of risk to participate in the market economy. Training will need to be provided in farm budget and risk management to better enable them to take advantage of economic opportunities.

3. Paprika, continue and expand participation with Cheetah, with phase out plan. Paprika was quite successful in its first year and promises to be a continued market into the future. Cheetah Paprika will build a processing plant with a 1000-ton capacity in 2002 to be located in Nampula. The harvest for 1000 farmers with .2 Ha each was 35 tons in 2001. Farmers in all areas visited by the evaluation team expressed enthusiasm for paprika and want to participate. The capacity of the future processing plant would accommodate the production of almost 30,000 farmers with an output of 35 kilos each.

4. Farmer leader extension model should be used to target more vulnerable households. The evaluation team determined that providing extension primarily through farmer associations limits the outreach of the extension network in terms of numbers of HH's reached, gender, and social strata. Therefore, the evaluation team is recommending that the contact farmer (Farmer Leader) system be used in areas where associations are not well organized and areas where large numbers of farmers are not reached by extension through associations. To some degree, this is done by "group extension" but it is limited by the fact that the VIDA extensionist provides extension services directly to groups rather than training a Contact Farmer and then supervising several Contact Farmers each week. A mix of both of the extension models should be used and the district supervisor should determine where each of them is most effective.

5. Association and marketing officers combined into one job description. Currently, each district has both an Association Extensionist and a Marketing Officer. There is a large area of overlap in the duties of each. In addition, the Marketing Officer primary duties are necessary only for about four months of the year. If needed, both of the individuals could be retained but simply work under the same job description. In some areas it may be determined that both individuals are not required. This would be the Project Coordinator's decision.

6. Identify larger capacity silos for food storage as well as seed storage, promote them with associations. The evaluation team found that improved storage silos had been generally accepted. Most of the improved silos were adequate only for storage of seed (as opposed to grain for food). The project should investigate the possibility of introducing silos large enough to store food as well as seed.

7. At beginning of project make assessment of association capacities and design appropriate extension interventions. The project management

should assess the state of development of all the associations in each district. There is a great variation in the level of sophistication between associations visited. Appropriate extension and other forms of support can be determined according to the level of organization and experience of each of the associations.

8. Develop network to disseminate price information to farmers by radio on a daily basis during marketing campaign. Associations and farmer groups require price and buyer information on a day to day basis during the marketing season in order to make a good decision and when and where to buy. This information should be broadcast over the radio and disseminated by the extension network in each district.

9. Extend marketing support activities to include other important crops e.g. cashew. The evaluation team noticed that in Mogincual and Mogovolas districts the largest income source for smallholder farmers is caju. Caju is a crop not included in VIDA's universe of extension messages. Given its importance, perhaps this crop and other's not covered by extension but important to farmer's incomes, should be included. This would include technical assistance and marketing linkages.

Oilseed Sector

- 1. Care should provide technical support to ram press owners to increase awareness of commercial principles.** Focus was lost after the SAC and SOEC components were placed under one management structure. Presses were monitored on a far less frequent basis therefore weakening the project's ability to locate and solve problems in this sector. VIDA created a "Commercialization Officer" position in Nampula and one at each district. This staff focuses entirely on marketing. These positions should be re-titled "Private Sector Officials". Duties would include support to ram press businesses as well as support (marketing assistance and linkages) other private sector initiatives such as paprika, caju, sesame, pigeon pea and others.

The price that ram press owners pays farmers for grain has not changed since 1995 (2,000 Meticais a kilo) while the price of oil in the same period has risen from 12,000 Mts/Liter to 20,000 and in more remote areas, to 25,000 Mts/Liter. Concurrently the farmgate price for sesame seed has risen from 1,000 Mts/Kilo to an average price of 5,000 Mt/Kg. These two facts have resulted in a sharp decrease in the production of sunflower seed. All of the presses visited by the evaluation team were only doing "service pressing".

Service pressing earns far less revenue for press owners. The presses are operational on an occasional basis rather than full time as seed trickles in as families bring their seed when they need oil. In this system, oil is split between the press owner and the seed producer. It is inefficient.

Therefore, CARE should provide business training to ram press businesses showing them that they can pay higher prices for sunflower and have higher revenues than if they continue to pay low prices for their raw material.

Concurrently, farmers should receive training to demonstrate to them that if they receive 3,000 Mts/Kg, the income will be about equivalent to that realized from sesame. This is due to the fact that the yield from sunflower is more than 40% higher.

TIME FRAME: This activity needs to be implemented as farmers are planning their crop mix for 2002. Therefore, messages should be transmitted no later than November 2001.

2. **Discontinue extension in oilseed husbandry except in new areas.**

Technical assistance in sunflower and sesame seed is no longer required. All farmers interviewed knew the crop well. There are currently two "Second Season Extensionists" in each district. This staff can be used more effectively working on other crops and activities. All project staff interviewed (save one) also agreed with this recommendation.

TIME FRAME: Immediately.

Seed Sector

1. Continued logistic support for seed sales in first year of project but with phase out plan to turn delivery of seeds to final sales points over to private sector. Seed production seems to be largely in the hands of the private sector (SEMOC and Agro Alfa). Seed transportation is not. Neither of the seed companies have the capacity to transport seed beyond district capitals (sedes). Distances are large and roads are poor. VIDA staff should continue to transport seed to more remote villages. Another suggestion is that associations can pool their resources and make trips to the district capitals for seed purchasers. This excludes members of the communities who are not members of associations.

2. Project should finance independent lab tests of basic seed (sunflower) to determine quality (from INIA or other source) with phase out plan to private sector. There are some indicators that the seed quality of the Black Record seed brought to Nampula Province by CARE in 1997 may be declining. The decline in quality would mean a lower oil content of the seed and thus more seed per liter for oil processors.

INIA has been maintaining the basic seed at its station in Nampula. It should become normal practice that basic seed delivered to seed multipliers by SEMOC is tested for oil content. The same is true for certified seed produced by seed multipliers for SEMOC and/or Agro Alfa. This function should quickly be handed over to SEMOC itself. For the moment, SEMOC has shown itself to be dubious in terms of quality. This will need to be monitored.

3. Identify and promote marketing of high quality seeds (e.g. sesame) possibly from international sources. This point is related to that above (No. 2). It may be necessary to import pre-basic seed (sunflower in particular) from plant breeders in countries outside of Mozambique. The project should conduct tests of the "pre-basic" seed currently being maintained by INIA-Nampula.

4. Applied research to test new seed varieties coming from other countries. The market-oriented strategy recommended in this document implies that seed for new products or new varieties be brought to Mozambique for production. These may include commercially attractive ground nuts, castor seeds, improved sesame seed and other which are yet to be identified. These seeds will require on station and on farm tests. This is a role that VIDA may conduct internally or may coordinate with INIA and other Mozambican institutions.

Nutrition

1. Promote and support women's groups for nutrition, health, economic activities. Women are largely marginalized when integrated into groups composed of both genders. For this reason, the recommendation is made to form extension groups composed only of women; both in those formed through associations and those in Contact Farmer extension.

Support for economic activities should also be contemplated. One association in Mogincual had already started a bakery that supplied bread to the community and profits to the women's group producing it. Other ideas for income generation among women's groups include:

1. fruit preserves/jams
2. peanut butter
3. water management and sales
4. oil production
5. animal banks
6. low tech cashew processing
7. retail businesses (lojas)
8. marketing of orange flesh sweet potato
9. produce foods for sale such as sesame sweets, bean cakes, etc.

Women's groups to can be given support to mobilize savings and get access to external credit sources, drawing on the experience of the *Ophavela* project.

TIME FRAME FOR IMPLEMENTATION: Expanded health messages can begin soon. Materials are available through the Department of Health. Income generation activities can begin once a source of funds for seed money is identified (internal within associations and/or through the revolving fund derived from oil press sales).

Institutional Collaboration

1. Continue and strengthen collaboration with government agencies

- Support DPADER in the areas of program planning, data analysis, training in areas of technology promotion, and monitoring and evaluation.

- Strengthen government capacities in association building, working with women, and market orientation.
- Establish new MOUs with government institutions to formalize collaboration to establish responsibilities of all parties and form basis for evaluation of collaboration.
- Promote market strategies to support family sector to appropriate government institutions, including role of the market information system.
- Provide advice to inter-sectoral forum for marketing under ministry of commerce.
- Strengthen cooperation with DPS, DDS in area of nutrition to ensure consistency in messages and approaches.
- Disseminate information to public about project activities, strategies in publications.

2. Continue collaboration with CLUSA, Technoserve. These other NGOs provide technical capacities that are complementary to CARE's experience in providing extension to rural communities, and they share the same overall goal of increasing the economic opportunities of smallholder farmers through developing marketing opportunities.

Project Management Issues

1. Project Monitoring and Evaluation System.

- The project logframe and donor reporting requirements should be reviewed to establish a minimal set of project output, effect, and impact indicators to be monitored.
- The project impact evaluation system should be designed with the flexibility to measure the impacts of new project interventions as they come onstream over the life of the project. Qualitative indicators should be included in the system.
- Increase project capacity to design, implement, and execute complex, statistically representative surveys. This should include training provided to project staff as well as contracting with external consultants that can provide technical support to the M&E system over the life of the project.
- Stunting surveys should be conducted independently of household surveys. The project should contract a consultant specialized in this type of survey.

2. Possible Uses For Revolving Fund. The evaluation team was requested to make suggestions for the use of the revolving fund that grew out of press sales by VIDA. Below are some suggestions:

- **Seed money to develop economic activities of women's groups.**
- **Development of water points.** Water is a serious problem in most areas of the project in the dry season. This is a health problem and a production problem as women need to spend large amounts of time fetching water.

- **Working capital fund for ram press businesses.** A lack of working capital for buying crushing seed is the major constraint for ram press businesses. The capacity of a ram press is ten tons. At 3,000 Mts/kilo this amount of seed will cost \$1,300. Press entrepreneurs who have shown themselves to be active and who have paid debts should be selected for this program. This should be a revolving fund with loan terms no longer than 10 months.
- 3. Placement of project Staff in DPADER.** The project should provide technical support to the DPADER in monitoring and evaluation of extension programs as a way to develop sustainable institutional capacity within the government. The evaluation team recommends that the project does not need to place a staff member permanently DPADER to undertake this task, but rather project staff can provide training and technical support on periodic basis over the course of the project.

Terms of Reference**APPENDIX I**

Following the completion of the stunting, Incoprox, Nutriprox and final survey, CARE will undertake a final evaluation of the VIDA project. Data from the surveys will inform the work of the consultants conducting the evaluation. The consultant preparing the report on the final surveys (Diego Rose), will be available during the first week of the evaluation to explain the survey results.

In addition, the evaluators will interview beneficiaries, partners and other stakeholders to get a well-rounded view of the project's results. This should include private companies, NGOs, Government, farmers' associations, individual farmers and the various Government institutions that collaborated with VIDA. CARE has proposed a new phase of VIDA. Since, in many cases, activities under the current DAP will continue, the consultants should make recommendations that will assist the new Project Manager. Topics which should be covered in the evaluation include:

Impact on food security

The VIDA project adopted a methodology of improving food security through the introduction of new crops and varieties with dual-uses (crops that can be sold or eaten). How successful was this strategy in relation to the three components of food security -- access, availability and utilization? Which crops and interventions (such as crop storage) were most successful in improving food security. How can improvements in food security be documented from existing impact data?

In the last year of the project paprika was introduced as a cash crop, with no real food use. What are the real and potential impacts of this intervention? VIDA is also introducing orange fleshed sweet potato. Although this is currently a food crop, what are the implications if it becomes a cash crop? How should it be promoted?

Capacity building in the private sector

Creating a sustainable network of enterprises for planting seed production and agro-processing was one of the major activities of VIDA. VIDA has worked with many businesses in these sectors including manual oil press owners, medium sized oil expellers, large-scale oil mills (Irmaos Semedo and CIM), planting seed multipliers, planting seed producers, retail outlets, the ram press manufacturer (Agro-Alfa), input dealers, agricultural traders and farmers' associations engaged in business. Issues to be examined include impact on food security from private sector activities, sustainability of these initiatives, level of subsidy still existing. The evaluators should also make recommendations about which activities should continue in the next DAP.

Impact on nutrition, both before and after initiation of nutrition component

VIDA began its nutrition program in 2000. Prior to that, there were only activities indirectly linked to nutrition, such as encouraging oil production at village level and monitoring oil consumption. What nutrition results were achieved from these activities in terms of improved diet or improved ability to purchase food.

In 2000, VIDA began a wide range of activities related to enriched weaning food. These included airing a radio drama, training extensionists and providing them with materials, forming nutrition groups and holding trainings for project staff and others. Some activities were done on a pilot basis in a limited number of districts, while others were provincial in scope. The evaluators should examine the effectiveness of these interventions and recommend which should be expanded in the future. The evaluators should also look at the results of the stunting survey and attempt to explain these results in light of VIDA's activities.

Collaboration with Government institutions

VIDA has worked closely with several Government institutions including MADER, SNS, INIA, SPER and Eduardo Mondalane University. The former and current Provincial Director should be interviewed. What were the results of this collaboration? Was the capacity of the Government increased? CARE has proposed placing a staff member within the provincial Ministry of Agriculture. Based on the experiences in the current DAP, what should be the roles and responsibilities of this person? How should CARE work with SETSAN, especially now that Amilcar Lucas (now leaving CARE), will be heading up SETSAN in Nampula?

Impact of the umbrella program

CARE provided subgrants to three NGOs in Zambezia province for oilseed production and processing programs. In addition, CARE worked closely with CLUSA in Zambezia. What were the results of these interventions? Has this funding developed the capacity of these organizations and enabled them to begin oilseed activities with other donors? What are the lessons learned from this experience from technical and administrative viewpoints, since we may be continuing this type of activity with SCF in the future.

Effectiveness of extension network and extension messages

The main activity of VIDA has been to provide extension services to farmers. In general, two systems were used – extension through associations (the SAC model) and extension through contact leaders to groups (the SOEC model). Compare and contrast these methods and their effectiveness. How logistical issues affect the delivery of extension messages, for example motorcycle breakdowns, fuel delivery and communication difficulties? Provide recommendations for improving logistics in the next DAP.

What messages were extended? What was the effectiveness of these messages in terms of adoption by farmers and in terms of improvements to food security? What extension materials were produced? Comment on the utility and quality of these materials.

A portion of USAID's resources come from the Global Climate Change bureau. Because of this, USAID is interested in the impact of extension messages on environment. Comment on the effectiveness of VIDA's extension messages related to the environment, such as controlling burning, preventing erosion and improving soil fertility.

Beneficiary targeting

Estimate the percentage of the population in Nampula and Zambezia that benefited directly and indirectly (through associations or other intermediaries) from project interventions. Comment on the size and composition of this beneficiary population. Since this population was essentially self-selected, comment the relation between project design and beneficiary population. Assuming the beneficiary population is generally better off than average, how did the project affect people in lower socio-economic groups?

A key component of the beneficiary targeting issue is gender. What were VIDA's impacts on women? Comment on how VIDA tracked women's participation. Comment on the quality and quantity of women's participation, especially in light of the general strategy of cash crop promotion and private sector emphasis. Comment on the pilot program for the formation of nutrition groups within the associations. Have these groups succeeded in economic activities? How should this program be scaled up in the next DAP.

Building farmers' associations

The SAC component adopted the CLUSA methodology for training farmers' associations and approximately 150 associations were trained. This process continued after the merger of SAC and SOEC in the former SOEC districts. What has been the result of this activity? How do CARE and CLUSA associations compare? What are the lessons learned from PASANA for the new collaboration between CARE and CLUSA. What are the prospects for the farmers associations to provide extension services?

Monitoring and evaluation system

Comment on the VIDA M&E system, both in its original form and the after revision that was carried out as part of the merger between SAC and SOEC. The M&E system includes monthly reporting by supervisors, reporting by TA sections (association building, nutrition and private sector), HLS surveys, crop cutting and the mid-term and final surveys. How effective was the system? How accurate? Which indicators were useful and which were not? What changes should be made in the next DAP?

Project management

The original design of VIDA had three expatriate positions – A Project Coordinator and two Project Managers. The Project Coordinator left in 1998 and was not replaced until early 2000. One Project Manager (for SAC) left in 1999 and was replaced by his Mozambican Deputy. The other Project Manager left in 2000 and was not replaced. How did these changes effect project implementation? What was the impact of having two components (SAC and SOEC), and then merging them? How has VIDA done with national staff advancement and training?

Logistics and schedule

Steps include to complete the evaluation include:

1. Review questionnaires before survey work begins and provide comments
2. Review Incoprox, Nutriprox, stunting and final survey results
3. Conduct field interviews in Nampula and Zambezia
4. Prepare evaluation
5. Distribute for comments and incorporate comments

Mark Langworthy (team leader) will work from August 31 to September 29. Working 6 days per week, this equals 24 days. Mark will also work for two days before arriving to review the final questionnaire, project documents, and prepare fieldwork, for a total of 26 days.

Bill Messiter will work from September 14 to September 29 . Working 6 days per week, this equals 14 days.

Domingus Diogo to work from September 10 to September 29, for a total of 18 days.

Outputs

The evaluators should produce an integrated report covering the topics described above, as well as any other information they deem important. The report should contain annexes with all the information from the final surveys. The consultants should also provide their program of visits and meetings, as well as a list of people contacted.

INDICATOR PERFORMANCE TRACKING TABLES

APPENDIX 2

Indicator	Baseline	FY 1998 Target	FY 1998 Achieved	FY 1998 Target Vs. Achieved	FY 1999 Target	FY 1999 Achieved	FY 1999 Target Vs. Achieved	FY 2000 Target	FY 2000 Achieved	FY 2000 Target Vs. Achieved	FY 2001 Target	FY 2001 Achieved	FY 2001 Target Vs. Achieved
Development objective: Improved household food security for 45,000 rural households.													
Positive change in income proxies by project end	Southern Nampula: \$61 Cotton belt: \$51	N/A	N/A	N/A	Southern Nampula \$68.00 Cotton belt \$60	Cotton Belt \$88.52 Southern Nampula \$88.52	148 % 130 %	N/A	N/A	N/A	Southern Nampula \$75 Cotton belt \$66	Zone 3 \$50.60 Zone 4 \$55.34	See report
Measurable decrease in stunting of 2-5 year olds members of participating households.	54% stuntees	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		38%	See report
Measurable increase in the households' productive assets of 45,000 target households	<i>Households possessing key productive assets:</i> Hoes 65% Machetes 56% Axes 39%	N/A	N/A	N/A	20 % increase of average value per household	Hoes 99% Machetes 90% Axes 65%	100%	N/A	N/A	N/A	50% increase of average value per household	Hoes 98% Machetes 89% Axes 64%	Achieved
Measurable decrease in the length of the hunger period for 45,000 target households	4 months <i>December, January, February March</i>	N/A	N/A	N/A	N/A	3 months <i>January, February March</i> <i>(from PRA)</i>	N/A	N/A	N/A	N/A		2 months <i>January February</i> <i>(from PRA)</i>	Achieved

Indicator and Intermediate objective	Baseline	FY 1997 Achieved	FY 1998 Target	FY 1998 Achieved	FY 1998 Target Vs. Achieved	FY 1999 Target	FY 1999 Achieved	FY 1999 Target Vs. Achieved	FY 2000 Target	FY 2000 Achieved	FY 2000 Target Vs. Achieved	FY 2001 Target	FY 2001 Achieved	FY 2001 Target Vs. Achieved
Related to Intermediate objective 3 By the EOP at least 60% of oil press owners (of whom 30% are women) sell oil in the local market during at least 8 months in the year	0	N/A	100	80	80%	200	160	80 %	N/A	Final Evaluation	N/A	500		
Increase by 20% of the number of families consuming vegetable oil at least once a month by EOP	56% consume oil	N/A	N/A	N/A	N/A	62%	82% consume oil	132 %	N/A	N/A	N/A		24% consumed oil the previous day	Achieved
Increase by 20% of number of families feeding oil to children under two years at least three times a week EOP.		N/A	N/A	N/A	N/A	N/A	11% feed oil to children 3 times per week	N/A		Final Evaluation	N/A	13 % feed oil to children 3 times per week	18% fed oil to children 3 times per week	Achieved
By EOP at least 45,000 farmers buy improved variety of seeds produced locally by multipliers	0	15,000	20,000	18,500	93%	30,000	37,904	126%	30,000	28,596	95%	45,000	32,713	73%
From year 3 onwards at least 60 MT of packed and certified sunflower and sesame seeds stored by the end of October	0	Local demand satisfied	30 MT	50 MT	160%	45MT	Sunflower 30.4 MT Sesame 31.2 MT Total 61.6 MT	136%	60MT	Sunflower 83.3 MT Sesame 49.4 MT Total 132.7 MT	221%	60MT	Sunflower 113 MT Sesame 76 MT Total 189 MT	315%
45,000 of the participating farmers grow one new crop or one new variety for two consecutive years by year 4.	0	20,000	20,000	19,499	95%	30,000	45,346	151 %	35,000	45,346	142%	45,000	47,019	104%

Persons Contacted**APPENDIX 4****A. Government institutions**

1. Victorino Xavier, Former Director of Agriculture, DPADER Nampula
2. Calisto Bias, Director INIA
3. Custodio Mucavele, Deputy Director, Rural extension
4. Estevao Kanhandula, Chief, extension services DPADER Nampula
5. Hortencio Pedro Comissal, Chief, Agricultural research Post, Nampula
6. Sr Mela, Agricultural research Post, Nampula
7. Henriques Joao, DDA, Mecuburi
8. Chief, Livestock sector, DDA Monjincual
9. Teofilo Manuel, Departament Chief, Obras publicas
10. Pedro Arlindo, Economist, SIMA,DPADER- Nampula
11. Sr. Alves, Chief , Department of industry
12. Sr Amisse, Chief, Department of commerce
13. Eduardo Joao Metaculo, Assistant District Administator
14. Saide Joaquim Malico, District Officer for registration

B. USAID

1. Melissa Knight
2. Richard Frankel
3. Sydney Bliss

C. CARE Staff

1. Marc De Lamotte, Country Director
2. Mark Wentling, Assistant Country Director/Programs
3. Jean-Francois Dussaud, Assistant Country Director/Program Support
4. Italia Sousa, Program Assistant
5. Tim Russell, Project Coordinator VIDA II.
6. Joao Lameiras, Deputy project Manager
7. Julio Simao, Deputy project Manager, agronomist
8. Teresa Munguambe, Nutrition officer
9. Bernadino Binda, Association officer
10. Jose da Silva, Marketing Assistant
11. Joao Marcos, Monitoring and evaluation officer
12. Julio Confero, Sales promotion officer
13. Fatima Bernardo Jaime, Extension Supervisor, Mecuburi
14. Zita Clara Paulo Roque, Extension Supervisor, Murupula
15. Estevao Armando, PASANA project Manager
16. Antonio dos Santos Momade, Extension Supervisor, Monjincual
17. Jose Mario Junior, Extension Supervisor, Angoche
18. Amilcar Santos, Deputy project Manager
19. Extension Supervisor, Mogovolas
20. Extension Supervisor, Monapo

Other NGO's

1. Lou Miller, Consultant, former country Director, CLUSA
2. Johnny Colon, Country Director, CLUSA
3. Chissunge Haje Antonio, Operation Director, OLIPA-ODES
4. Eliezer G. Camargo, Senior agronomist, WORLD VISION
5. Richard Dixon, CONCERN
6. Steve Gutz, World Relief
7. Karen Johnson, ActionAid
8. João Eduardo Costa, Food Security Project Manager, ActionAid
9. João Paulo, Project Officer, CCM
10. João Baptista Naife, Project Officer Oilseeds Project, CCM

D. Farmer associations

1. Members of Associacao Mucheliua Valessa, Mecuburi
2. Members of association Vida Nova, Mecuburi
3. Members of association 1 de Maio, Murrupula
4. Members of association Kuvire, Monjincual
5. Members of association Namachepa, Mogovolas
6. Members of association 25 de Setembro, Meconta

E. Private Sector

1. Issuf Nurmamade, CANAM
2. Paulino Semedo, Irmaos Semedo Company
3. José Alves, AgroAlfa
4. Neville Slade, Cheetah Paprika
5. Waldemar Dias, TecnoMetal
6. Sr. Bila SEMOC
7. Celestino Joao Mulussa "Arao", Oil Press owner, Mecuburi
8. Dona Rachida, Local trader, Mecuburi
9. Nahua Saute, Oil Press owner, Mogovolas

Documents Consulted**APPENDIX 5**

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