FINAL EVALUATION
ENVIRONMENTALLY SOUND LIVESTOCK FARMING PROJECT (ELF)

Submitted to

CARE International in Georgia
Baku-Tbilisi-Ceyhan Pipeline Company
South Caucasus Pipeline Company, Limited

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EVALUATION PROFILE SHEET

Country program sites:	**Borjomi, Akhaltsikhe, Adigeni**
Name of principle partner:	**CARE Georgia**
Duration of Grant:	**Jan 01, 2005- Dec. 31, 2006**
Beneficiary Population:	**2,580 farm families**
Grant financing	**$400,000**
Planned/Disbursed: **As of Nov. 30, 2006**	**$339,931**
Date first approved:	**Jan. 6, 2005**
Date project modified:	**Dec, 2005**
Evaluation start date:	**Dec. 3, 2006**
Evaluation end date:	**Dec. 22, 2006**

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

ELF has shown itself a well conceived, holistic project. Activities and services were a good mix and complementary to one another, with accomplishments as follows.

- Artificial Insemination resulted in the birth of 16 calves, 48% of 33 pregnancies. The concept of artificial insemination as a method of herd improvement has spread in many project villages, and several interested groups have been equipped to continue this activity for the foreseeable future.

- While there are strengths and weaknesses in the project's demonstration farm model, it has undeniably introduced new pasture and forage improvement crops to a large number of farmers throughout the project area. Crop demonstrations have shown hundreds, perhaps thousands, of project farmers that pasture and fodder yields can be substantially improved.

- Several fodder crops with good nutritional content, barley and maize in non-irrigated conditions, show positive production potential. One crop, mangle beet under irrigation, shows enormous potential.

- Though not in the original project design, widespread, late-project seed sale will likely enable hundreds more farmers to benefit from the project.

- The project choice of a somewhat cost-intensive design for improved manure storage likely limits the diffusion of this otherwise completely appropriate technology.

- The project has not become involved in agricultural credit, an appropriate decision.

- ’06 demo farmers have received significantly less benefit than ’05 farmers, and little if any ’06 “demonstration” seems to have taken place.

- It is also clear that adoption of any project innovation faces not only demonstration issues but also diffusion issues; not thinking through how farmers can replicate with less than 100% subsidy is to miss a key element in the process. Even more then, the importance of the late-project seed distribution.

- ELF’s ’06 push toward farmer group registration has not allowed the groups to coalesce at “an organic pace,” raising some questions of long-term group viability.

- Project technical advice has been of high quality and highly appreciated by farmers. Management of the project has been effective at modest cost.

Regarding Sustainability and Impact, the project has had demonstrable early success in expanding farmers’ environmental awareness while at the same time addressing their need to feed their families in the here-and-now. Consolidation of these gains would require a Second Stage to the project that is presently not contemplated.

RECOMMENDATIONS

The ELF project is having early impact on natural resources conservation and should continue. CARE should prepare a new multi-year proposal, for BTC or for another donor. The new project can be thought of as Stage Two, an expansion phase, moving into new communities while increasing the number of participants where ELF is already well established. The project can be structured more *strategically agile* in several ways.

All current project elements should be retained while one or two new ideas can be added such as National Park rangers using ELF access to farmer groups to promote biodiversity and conservation more actively.

CARE can re-think its demonstration farm model. For instance, no demo farmer should receive subsidy for more than two years within ELF, while the size of demonstration plots should be increased giving more importance to “visual impact.” Consideration should be given to working on communal land. The project should begin promoting seed selection and preservation from one year to the next.

Other minor project adjustments can be considered: reduced manure storage subsidies by requiring more local materials; Artificial Insemination services promoted through groups currently offering the service; fuel and tractor subsidies rethought; and the push toward association formation reduced.

TABLE OF CONTENTS

ACRONYMS

A.I.	Artificial Insemination
BTC	Baku Tbilisi Ceyhan Company
CBO	Community Based Organization
CIP	Community Investment Programme
ELF	Environmentally Sound Livestock Farming Project
Gel/GEL	Georgian *Lari* (in Dec, 2006 @ !.72 = US $1.00)
Ha.	Hectare
HH	Household families
Kg.	Kilogram
MT	Metric tons
SOW	Scope of Work

ACKNOWLEDGEMENTS

The evaluator wishes to express his appreciation to the men and women of CARE Georgia who gave willingly of their time and energy, as well as their trust in sharing their opinions and reflections during the evaluation. The quality of this document is in large part a tribute to their work.

Special thanks are offered to Ksenia Kardelaki, Keti Terdzishvili and Misha Naskidashvili who accompanied the evaluator tirelessly and with great good humor through the many cold days of this evaluation. Their dedication is a tribute to them and to CARE.

As usual, the opinions expressed in this document are the responsibility of the evaluator, and do not necessarily reflect those of CARE Georgia, the BTC Company or the South Caucasus Pipeline Company.

FINAL EVALUATION
Environmentally Sound Livestock Farming Project (ELF)

1.0 INTRODUCTION

1.1 Origins of the project

The **E**nvironmentally Sound **L**ivestock **F**arming (ELF) project grew out of BTC's interest to address issues of environmental impact more directly than was possible in the Community Investment Programme (CIP) being implemented by CARE and another organization. By January 2004, BTC and CARE had already signed several add-on projects to CIP, one being the Environmental Education Project, working primarily with school children in sensitizing them to environmental issues. In addition, there was a mutual desire between BTC and CARE to work directly with farmers in environmental protection. Separate funding was available for this purpose.

In the latter days of 2003, a project concept paper was prepared identifying livestock development as a key variable in the economic and agricultural lives of many communities adjacent to the Borjomi-Kharagauli National Park. The main issues identified in the concept paper were the following:

- The agricultural sector provides income and household food security for the majority of the population of Borjomi, Akhaltsikhe and Adigeni, districts adjacent to the Borjomi-Kharagauli National Park, absorbing 75-80% of the labor force in Akhaltsikhe and Adigeni and 45-50% in Borjomi.
- Livestock contributes about 45% of the value of total agricultural production in the area, with cattle production dominant. While the area has considerable pasture resources, a significant proportion of pasture and hay land is located the National Park. Despite a number of park protection measures in recent years, farmers living around the park continue to use the park for feeding their livestock, thus reducing biodiversity, degrading wildlife habitat, and increasing soil erosion.
- This "traditional extensive" agriculture in which Georgian farmers use additional land to increase farm output is a result of their lack of cash to invest in "intensive" production, as well as inadequate farming skills and poor awareness of negative impacts of human economic activities on the natural environment.
- Although farmers generally understand that local livestock breeds are genetically inferior and have poor feed utilization capacity, little has been done to improve breed quality, as the supply of artificial insemination services in the area is insufficient. Only two vaccinations against specific diseases are offered by the state, and the quality of even these services is mediocre due to scarce financial support.
- The exclusive use of traditional grazing techniques reduces meat and milk production due to the limited nutritional value of natural pasture, as well as increases in the time (and animal energy) required to move livestock to pasture lands. Farmers are unaware of, or unable to access, alternative livestock farming methods which will reduce or eliminate the need for traditional grazing.

ELF is one of six CARE Georgia projects, and one of four focused specifically on agricultural/environmental activities.

The ELF concept paper was accepted by BTC and a two-year, $400,000 grant was signed in January, 2004. This document is the Final Evaluation of that two-year grant.

1.2 Program structure

The purpose of the project was *to reduce negative impact on biodiversity in Borjomi-Kharagauli National Park and its support zone*. The project proposed two Intermediate Results:

> **IR 1**: Farmers develop **improved awareness and knowledge** of responsibility to protect biodiversity, demonstrated by increased awareness of medium- and long-term impact of "extensive" farming on the environment, and increased willingness to shift to environmentally sound livestock farming practices.
>
> **IR 2:** Farmers **reduce reliance on public lands** for feeding animals, demonstrated by adoption of environmentally sound livestock farming practices and improved access to support services.

Project activities involve the promotion of improved livestock practices: improved livestock genotypes, increased productivity and quality of pasture and hay land, improved livestock nutrition regimes and weaning practices, and improved utilization of manure as organic fertilizer. Five related project services are: artificial insemination, cattle vaccination, technical advice, input supply, and credit. These topics will be addressed in detail in Chapter Two.

The project specifically offered the following caveat:

"CARE does not expect a significant behavioral change to be realistically achieved by the end of a two-year project, as farmers need repetitive demonstrations of benefits of new practices in order to be convinced to invest their resources and assume all associated risks," a topic which will be addressed.

1.3 Scope of Work (full document attached as Appendix A)

As defined in the Scope of Work, the purpose of the study was: to capitalize on lessons learnt by producing recommendations for future approaches and interventions in the area and sector. It mandated the following objectives:

- To evaluate progress towards project goals in terms of outputs and impact; the soundness of project design, (checking assumptions and internal logic); the management of the project; and its cost effectiveness and efficiency.
- To evaluate the project approach of using farmer associations as a sustainable instrument for development in the targeted communities. And,
- To provide recommendations for future actions to support development of the area and sector.

1.4 Timing, Methodology, and Evaluator qualifications

The evaluation took place during three weeks of December, 2006, the last month of the original project. After three days of document review and key informant interviews, a

random sample of the twenty-nine project communities was conducted sufficient to visit a 20% sample frame of project farmers (18 interviews of 91 demonstration farmer participants in 11 project villages.) These farmers were interviewed during six days of field travel from Dec. 7-14. A draft report was presented to management on Dec. 20. Comments were incorporated over the next two days, and the Final text was presented on Dec. 22.

The evaluator has a Master's degree in International Agricultural Development from Cornell University, twenty years overseas experience in line management (with CARE), and more recently ten years of independent consulting to international organizations in agricultural project design and evaluation. He has had a long-term consulting relationship with CARE Georgia on the CIP project. As evidenced by the terms of the SOW, his leading this evaluation was a conscious effort on CARE Georgia's part to maximize Lessons Learned, above and beyond topics related exclusively to ELF.

1.5 Structure of the report

The document is structured in 5 chapters. Chapter 1, Background, has now concluded. Chapter 2 discusses Findings. Chapter 3 discusses management of the project. Chapter 4 discusses Conclusions and Chapter 5, Lessons Learned and Recommendations.

2.0 FINDINGS[1]

2.1 Description of the Evaluation Sample

As summarized above, a random sample of the 29 villages in which ELF works was conducted by the evaluator at the start of the study. Eleven villages were identified sufficient to reach a 20% sample size; this relatively large sample percentage was a function of the small universe of demonstration farmers, 91. Thirty farmers were identified as potential interviewees, 18 of whom were found in the village at the time of the unannounced visits. (Interviewing the 18 did reach the desired 20% sample.) In several instances, a knowledgeable farmer's wife was interviewed in lieu of a discussion with the absent demo farmer.

A 45-60 minute semi-structured interview was conducted with each of the 18 interviewees (see Appendix C for the interview format), translation services being offered by the ELF Administrative Assistant. The original intent was to conduct this interview in the farmer's field, however December being the depth of Winter, this was not always possible. The first few days also showed there was not a lot to be learned in the fields themselves since they are all frozen over and most are unplanted.

The following chart demonstrates the sample universe and selected characteristics of the random sample.

Table One: Selected Characteristics of Random Sample Villages

Village	Total demo farmers	Demofarmers interviewed	Worst park influence	Manure storage	2005 group	2006 group	Only 1 demo farmer	Art. Insemin. In village
Kvabiskhevi	4	2	√	2	√			9
Dviri	4	2	√	1	√			4
Sviri	3	2	√	1	√			
Klde	7	3		2	√			3
Akhaldaba	2	1		1		√		
Rveli	1	1				√	√	
Ivlita	3	2	√	1	√			1
Benara	3	2		1		√		
Sagrdze	1	1		1		√	√	
Kharjami	1	1	√		√		√	
Tsakhantskaro	1	1		1		√	√	
Subtotal	30	18	5	11	6	5	4	17
Tskruti (Assn)	7		√	5	√			3
Of project total	91		14	27	19	10	5	41

[1] The evaluator normally attempts to formulate Findings as objectively as possible, with the aim to present —however partially accomplished—value-free observations of what was found in document review, interviews, and field travel. In the Conclusions and Recommendations sections (Chapters 4 and 5), the evaluator extrapolates from Finding, and more subjectivity comes into play.

Detailed note-taking was done of these interviews and forms the basis of this chapter. Transcription of those interviews was not judged a useful exercise.

In order to accomplish Task #2 of the SOW, to evaluate the project approach toward farmer associations, one additional community was visited—thus not randomly selected, Tskruti — in order to report on a majority (three) of village groups rather than only on the two that fell within the original random sample.

2.2 Project components

The project has four principal components: improved livestock genotypes brought about by artificial insemination; increased productivity and quality of pasture and hay land, brought about by distribution and cultivation of improved pasture seed; improved livestock nutritional regimes and weaning practices, brought about by technical assistance and promotion; and improved utilization of manure as organic fertilizer, brought about through the construction of manure storage structures.

Project 'mix'

During the key informant interviews, a question was put whether this is the right project "mix" and the response from the two knowledgeable experts was "yes, exactly." Amplifying these responses, in order to reduce environmental pressure on the parkland, it is necessary to generate additional farmer income: environmental protection comes about through farmers' economic decisions taken today, not ten years from now. Key to improved income for those whose livelihoods depend on cattle is increased meat and milk production, and key to those increases is a multi-faceted campaign directed to better genetic composition of the herd, better animal nutrition, and better animal health. According to these informants, one of them a livestock expert in the Department of Agriculture, the ELF overall program mix was exactly right.

Artificial insemination

In CY05 the project conducted a number of talks on artificial insemination (A.I.) throughout the project: as reported in the First Annual Report, 28 training sessions for 615 demo and client farmers. Thirty-three cows were artificially inseminated in ten villages. Of those, 16 calves were born, an effectiveness ratio of 48%. While this effectiveness ratio is less than what project staff may have hoped, it does not seem a poor performance for the first year of an experimental program under rural Georgian

conditions. Eight more cows have been inseminated since last year's report and 13 cows are currently pregnant. Total: 41 A.I.'s to date, 16 births, 13 cows pregnant.[2]

The photo amply demonstrates the potential of A.I. The calf in the foreground is an improved breed six-month yearling. The two animals behind are nine- month-old local breeds. The first is demonstrably bigger and stronger. All demo farmers in A.I. villages of the evaluation were aware of the potential for A.I. and interested. Some had been unable to artificially inseminate the previous year because their cows were already pregnant. All spoke of a plan to have one or more cows given A.I. in '07.

The project has recently provided A.I. equipment to five ELF-promoted farmer groups: 50 liter canisters of liquid nitrogen to preserve the semen indefinitely, enough semen for three or four hundred inseminations, gloves and other tools to carry out the inseminations, and other small supplies. Total value of this one-off delivery of equipment averaged almost $4,000 per group. In detailed discussions with two of the three groups, it appears that A.I. is ready to take off as ELF comes to an end. One group plans (it appears somewhat ambitiously) to inseminate 100 cows in the early Spring of '07; the other group, somewhat more cautiously, speaks about reaching about 70.

Improved animal vaccinations were provided as part of the demo farmer 'package' in '05 and '06 (as well as an ad-hoc vaccination response for 1,380 cows against an emergent cattle skin disease in '06). Project recipients believe these vaccinations were superior to those available from local market services (either government or private) because they were more environmentally friendly and biodegraded immediately, because they only had to be administered once every 12 months instead of the local vaccines which have to be administered every 6, and (of course) because they were provided by the project free of charge.

In sum, it is perhaps valid to assess the A.I. component with a "B-" for the somewhat limited number of A.I.s carried out (recognizing this is a long-term promotion effort and needs to be co-implemented with an improved pasture campaign,) and because of the 50% success rate; offset by a "B +" for widespread farmer training and conscientization in A.I., and recent equipment purchase that suggest real potential for long term sustainability. Overall: "B."[3]

Demo farm models

ELF reports producing seven demo farm models, each prepared under three headings: required agricultural inputs; labor, fuel and other costs; and anticipated production. In fact, the chart below shows 21 models were produced, far more than seems necessary or useful.

[2] By happenstance, in the last five minutes of the entire interview schedule the evaluator stumbled upon a project-pregnant cow—which was being housed in absolutely deplorable conditions, a dark, noxious, ammonia-saturated cellar holding half a dozen animals, one of them lying in its own feces. It is not possible to extrapolate from this one-off incident to determine whether animal care in Winter should be a topic of future project promotion, but it is certainly one that should be investigated.

[3] In the U.S. framework where "A's" describe excellent performance, "B's" describe good performance, "C's" equal mediocre performance, and "D's" equal poor performance.

Table Two: ELF Demo farm models

		Ha.	Modification	Comment
Model	1a		1 a modified	
Crop package	Sainfoin/barley	0.1	0.1	
	Sainfoin/oats	0.1	0.1	
	Mangel beet	0.1	0.05	
	Maize *kashwana*	0.1	0.15	
Inputs + Labor	Gel 411 + 266		Gel 355 + 210	
Model	1b		1 b modified	
Crop package	Sainfoin/barley	0.1	0	
	Maize *kashwana*	0.1	0.1	
	Mangel beet	0.1	0	
Inputs + Labor	Gel 223 + 189		Gel 38 + 56	
Model	2a		2 a modified	
Crop package	Sainfoin/barley	0.1	0.15	
	Maize *kashwana*	0.1	0.15	
	Mangel beet	0.15	0.05	
	Sudan grass	0.05	0.05	
Inputs + Labor	Gel 447 + 328		Gel 416 + 328	
Model	2b		2 b modified	
Crop package	Sainfoin/barley	0.1	0.1	Surprising price difference due to a big line item for herbicides
	Maize *kashwana*	0.1	0.1 (hybrid)	
	Mangel beet	0.05	0.05	
	Sudan grass	0.05	0.05	
Inputs + Labor	Gel 314 + 245		Gel 244 + 138	
Model	3		3 modified	
Crop package	Sainfoin/barley	0.15	0.15	Same as # 1 but 50% more Small difference in maize
	Sainfoin/oats	0.15	0.15	
	Mangel beet	0.15	0.15	
	Maize *kashwana*	0.15	0.05	
Inputs + Labor	Gel 586 + 399		Gel 549 + 374	
Model	4 a		4 a modified	
Crop package	Sainfoin/barley	0.15	0.15	
	Maize *hybrid*	0.25	0.1	
	Mangel beet	0.05	0.15	
Inputs + Labor	Gel 391 + 239		Gel 273 + 147	
Model	4 b		4 b modified	
Crop package	Sainfoin/oats	0.1	0.1	
	Maize *hybrid*	0.1	0.1 *Kashuana*	
	Mangel beet	0.1	0.1	
Inputs + Labor	Gel 280 + 147		Gel 273 + 147	
Model	5 a		5 a modified	
Crop package	Turnip instead of millet	0.1	0.15	
	Oat & Grass brome	0.1	0.15Rye/Grassbr.	
Inputs + Labor	Gel 110 + 56		Gel 110+ 70	
Model	5 b		5 b modified	
Crop package	Winter barley/maize	0.1	0.15	
Inputs + Labor	Gel 69 + 70		Gel 84 + 84	
Model	6 a		6 a modified	
Crop package	Winter wheat/maize w/ sunflower	0.1	0.1 Winter barley/maize	6a modified is same as 5b original
Inputs + Labor	Gel 75 + 70		Gel 69 + 70	
Model	6 b			
Crop	Winter barley/maize	0.1		
Inputs + Labor	Gel 78 + 78			
Model	7			
Crop package	Winter wheat	0.1		
	Turnip/Maize	0.1		
Inputs + Labor	Gel 85 + 70			

Sainfoin: *Onobrychis viciaefolia* Mangel beet: *Beta vulgaris*
Local maize: *Zea "kashuana"* Hybrid maize: *Zea mays*
Sudan grass: *Sorghum sudanense* Grass brome: *Bromus intermis leyss*

Observations that come to mind are the following:

- While the idea behind preparing the models was excellent, evidence suggests implementation became carried away with itself. Are 21 different packages really necessary in relatively homogeneous geographical areas? What, after all, is the additional "demonstration" value gained by giving one farmer seed for 0.10 Ha. of maize compared to giving another seed for 0.15 Ha.?
- Staff reports these figures were prepared by a project consultant, and that many of the production estimates are not valid in the project area. This suggests more time was spent on the inputs section rather than the other two.
- It is also unclear what reality-check took place based on the models. When the evaluator asked whether individual farmer results were compared to the planned production figures, the answer was unclear. The Annual Report has a brief paragraph which indicates that net profit margins were calculated,[4] but it is not clear whether these figures are based on anticipated production or actual harvest; in any case, the narrative is quite compressed for such an important topic and no back-up is provided by appendix for the figures.
- From the chart above, it is clear that some farmers benefited far more than others. Note the demo farmer of Model # 1b who was given a mere 3 kg. of maize seed for his demo plot. Or, in fact, any of the farmers implementing Models # 5, 6 and 7.
- Indeed, it appears Models 5, 6 and 7 were implemented in Year Two. Much of Year Two work started in the Autumn of '05 and involved small quantities of seeds planted over the Winter. Was there something going on in the project in Year Two that caused the project to offer so much less assistance to Year Two demo farmers than to Year One farmers?
- Finally, with these various models detailed out to the last penny, one can ask the larger "forest and trees" question: how much "demonstration" is anyone going to see on plots that are as small as 1/10th or 1/20th of a hectare? Did the idea of an effective "demonstration" get overtaken by cost-conscious penny-pinching?
- In fact, the issue is more problematic than even these figures suggest. Evaluation interviews show clearly that a number of demo farmers split their demonstration plots into two or three parcels. Thus, a number of demonstrations took place in some cases on 3/100^{ths} of a hectare, virtually postage stamp-sized plots.

<u>Demo farm "package"</u>

Having questioned the usefulness of so many "packages," the validity and appropriateness of the package bears re-mention. As noted above, the idea of having the demo farmers plant a variety of new crops is an excellent one. This serves at least three important purposes. Not only does it give farmers and the project an opportunity to see which crops do better compared to one another under varying soil conditions—on individual plots as well as throughout the project area—and to compare yields in side-by-side plots, it also significantly expands the farmers' world view of which new crops have potential. A number of interviewees said that one or other of the crops were new to them:

- mangel beet, sudan grass, and grass brome were new crops to nearly everyone;

[4] "Profitabilty margin increased for all 57-demo farms where seven different models [sic] of fodder production piloted… The lowest (186%) increase occurred in demo-farms, which implemented model # 4a, and the highest (695%) occurred with ones, which implemented model # 3." Annual Report, p. 8

- sainfoin was a new crop to many farmers;
- winter wheat and barley was a new technology for many;
- the importance of fertilizer on pasture crops was new for many;
- the *concept* of pasture improvement was new for many;
- maize as cattle fodder was a new crop to some farmers;
- the value of soil tests was new for some.

This package of different crops was an excellent program idea, and based on farmer interviews and recall it can be judged a substantial project accomplishment.

Demo plot selection

A total of 24 demonstration plots were visited or observed during the travel. Even in the absence of crops, some seemed ideal for the purpose of "demonstration" while the selection of others seemed questionable. When the evaluator attempted to think through why some plots seemed less suitable, he came up with the following list: easily visited, with potential to be visually impacting (including of sufficient size), near a larger, non-demonstration field, demonstrating a replicable technology, with a presumption of being agronomically suitable. All of these criteria are found in CARE Georgia's recently developed demo plot manual.

Using these criteria, seven of the plots fulfilled all criteria (29%), and three scored substantially less than the rest, (12%). Generalizing from these observations, demo plots *within the household compound* did not seem a suitable choice. Other criteria compensated one for the other.

Working with one demo farmer per village

Six of the eleven villages visited during the evaluation had multiple demonstration plots, five only one. An evaluator impression is that the project runs a substantial risk when it only relies on one demo farmer in a given village. If something goes poorly with that one plot, the project will take a long time to recover. This comment suggests the project should think seriously about not undertaking activities in a given village where it can only work with one farmer: the risks of non-accomplishment seem quite high.

A related issue should be noted. Four of the one-plot villages were also FY06 villages. In these cases, not only was the visibility of the project compromised by only one site, but also the time the project had to work in these areas seems to preclude much project impact. Indeed, in none of the four does the evaluator think that much of anything will have been "demonstrated."

Reported crop results

With the questions above about the design of the models, how did the crops actually perform?

Sainfoin

Sainfoin (*Onobrychis viciaefolia*) is a deep-rooted, drought-resistant pasture improvement crop grown in Europe and Asia for hundreds of years. In Georgia, it is not harvested until the year following planting, but then can be harvested successfully for four or five years more. It does not require irrigation though it does better when it has it. The project distributed a total of 564 kg. to demo farmers (at a planting rate of 100 kg./Ha.) who planted approximately 5.5 Ha. Almost without exception, evaluation interviewees (N = 6) were highly pleased with sainfoin. Production figures reported by interviewees varied from "poor" (one farmer), and then 3.5, 5, 6, 8 and 10 MT per hectare (though, of course, actual demo farmer production—in this crop and in the rest to be reported—is only a tenth of that.) For many farmers, this was the first time they ever planted sainfoin, or the first time in a generation. Farmers now know that it makes quite good fodder for cattle, are aware of the perennial nature of the crop, and are confident next year's production will be even better. Demand for sainfoin in '07 is reported high in client farmers and other villagers.

Barley

In Georgia barley is a well known and well appreciated crop for cattle fodder. Though its production it not especially high, it does not require irrigation (or, indeed, much care) and has a high protein content. Many farmers grow barely for cattle, but the quality of generally available seed is not high. ELF delivered a total of 1,020 kg. improved seed to demo farmers (at a hand-sowing planting rate of 250 kg./Ha.) who planted approximately 4 Ha. Most demo farmers (N = 8) reported grain production in the 2-4 MT range; one reported 8 MT/Ha., one other 15 (!), while some also reported hay production in the 2.5-

to-7.5 MT ton range. Almost every respondent reported being satisfied with the results. Demand for barley for the ’07 planting season is over 20 MT, high throughout the project area.

Maize (both domestic and hybrid)

Maize is similar to barley in Georgia: well known and well appreciated for cattle fodder. It does not require irrigation and has an acceptable protein content. Many farmers grow maize for cattle, but the quality of seed is not high. ELF delivered a total of 245 kg. to demo farmers (at a hand-sowing planting rate of 30 kg./Ha.) who planted approximately 8 Ha. Production reported (N = 11) varied from a low one MT to 10 MT/Ha. of grain, with up to 16 MT of hay also reported. All ’05 respondents were quite pleased with their results; ’06 respondents indicated poor rainfall and to all intents a failed crop. Demand for maize for the ’07 planting season is 5.1 MT, high throughout the project area.[5]

Mangel beet

Mangel beet (*Beta vulgaris)* is not well known in American agriculture but has a long and successful history in European farming. In most key aspects, it is akin to sugar beets, its botanical cousin. Mangel beet is a wonderful cattle fodder because it is quite high in various vitamins and minerals. One disadvantage to mangel beet is that it draws a great deal of nutrients from the ground, and fields planted with mangel one year must be rotated with another crop the following year. Mangel beet

[5] The issue of hybrid vs. local pure line seed is contentious. Some experts are violent in their opposition to fertilizer used with local varieties as a waste of money, citing lack of genetic potential in the crop. Others are adamant hybrids’ requirement to be replaced with new seed each year is an obstacle to farmer self-sufficiency and to rural development in general. This document takes no position either way, since production figures as reported by demo farmers seem to be about the same for both—at least at this writing.

also requires substantial fertilization and irrigation, the latter, a key constraint in project areas. ELF delivered a total of 183 kg. to demo farmers (at a rate of 30 kg./Ha.) who planted approximately 6 Ha. Production results have been little short of spectacular. One farmer reported production of 7-8 MT/Ha. The others (N=7) reported from 10 to 100 MT/Ha; one farmer was reported as harvesting at the rate of 120MT/Ha.; another reported to the evaluator he harvested at the rate of 160 MT/Ha.[6] Beyond these *huge* production figures, farmers universally report that mangel beet provides good nutrition for cattle and produces noticeably more milk in cows. One clever demo farmer was deliberately storing her mangel harvest until the milking season for this reason. The picture gives a graphic image. To the evaluator, mangel beet seems a big success in ELF. Farmer demand is lower than one might hope because irrigated land suitable for mangel beet is in short supply; nevertheless, one hopes the news of mangel's potential has spread throughout the project area, and that any one who can grow mangel will be doing so in years to come.

There is a small downside in this otherwise great success. Most demo farmers reported that no mangel beet was grown in '06 because they had fed all the '05 production to their cattle and because no new seed was available. It is a little hard to figure out why the project would have let this "supply chain break" happen unless the terrific results of mangel beet production were not yet known when ELF '06 seeds were being purchased — likely the case. Also mangel beet is apparently not yet a key crop for Georgian seed suppliers and is in relatively short supply. As will be noted below (widespread seed distribution), the project is in the throes of distributing 150 kg. of mangel beet seed for the '07 season sufficient to plant five hectares of mangel (with an estimated production, can one dream?, of 300-400 MT or more.) Hopefully this will be enough to vault mangel beet to the forefront of both farmer and seed supplier attention.

Grasses

Among the various pasture grasses ELF promoted, three are reported by several farmers to have had good success, Sudan grass (*Sorghum sudanese*, pictured), Grass Brome (*Bromus intermis leyss*), and alfalfa. Quantities of seed distributed for these crops are as follows:

- Sudan grass, 40.5 kg.
- Grass brome, 473 kg.
- Alfalfa, 149 kg.

Though production figures are hard to report on with assurance, most interviewees indicated satisfaction with crop results as a long-term way to improve pastures.

[6] Even if this report seems unlikely, it is a proxy indicator how well the farmer has interiorized the potential of mangel beet.

Less successful crops

Several other crops were promoted by ELF but, by farmer comments, apparently with less success. The lack of any farmer comments on oats suggest this follow-on crop did not achieve much success. Winter wheat (and winter barley?), planted in the Autumn and harvested in the Spring, was reported by two demo farmers as doing well, though the follow-on crop called for in the model could not be planted because of lack of rain. Winter rye was reported by one demo farmer as time consuming and not worth the effort. Sunflower and turnip seemed to have been planted in only a few places.

Widespread seed distribution

In the very last days of the project, a small budget surplus was detected, and a decision was taken to purchase 35 MT of improved pasture seed sufficient to plant about 315 Ha. to be sold through village groups to a wide audience of project farmers. Though a bit serendipity, this last-minute action will have the effect of giving a large number of farmers the opportunity to enjoy the benefits of the learning curve traversed by ELF over the last two year. Though ideally one would prefer to carry out some supervision of the distribution of this seed and to evaluate its results, the widespread diffusion of these seeds ends the project on a high note.

In sum, one assesses the pasture demonstration component with a "A-:" widespread success in experimenting with a number of pasture improvement crops, widespread diffusion of the *concept* of pasture improvement, high farmer satisfaction with a number of the crops being newly introduced, some spectacular gains in this or that crop. If these gains are yet mostly limited to demo farmers, the large seed sales about to take place will diffuse the success substantially.

Improved pastures/ improved livestock nutrition

The project reports 19 pasture demonstrations directed to improved livestock nutrition, and the target of 28.15 Ha. of improved pasture 90% accomplished. It will be recalled a number of farmers who talked about mangel beet did so with the clear recognition that improved cattle nutrition had come about as a result of growing this crop —as well as other pasture improvement crops. In addition, a number of demo farmers were either recognized veterinary technicians or highly conscious of the need for improved animal nutrition, thus one is comfortable concluding the project has had real impact in this area. As will be noted in the management section, ELF has been exceedingly fortunate that one of its field workers is a well-experienced, knowledgeable Georgian veterinarian, and this in-house, day-to-day technical expertise clearly has paid enormous benefits.

Improved utilization of manure

The fourth project component was to improve the utilization of organic fertilizer through the construction of manure storage structures. The project provided free cement, posts, and sheeting to construct 27 open-air manure storage structures for demo farmers. The purpose of the shed is to keep the manure protected from the elements thus lessening nitrogen loss to evaporation, and produce a nitrogen-enhanced 'slurry' to be applied as rich organic fertilizer. Eight were observed during the field travel and are well designed

and well constructed. Most of the eight were not yet functioning—in fact one of them had only finished being constructed the week before—but those few demo farmers who had been using the slurry for several months were enthusiastic about its effectiveness both as garden fertilizer (which one would expect) but also with potential for field crop fertilization. Others who had not yet put the structure to work were similarly enthusiastic about the technology's potential.

One drawback was the cost of the structure, one demo farmer saying he was delighted with the results but never would have been able to build it without the ELF subsidy. Nevertheless in another village, it was gratifying to hear of one manure storage being built by farmer initiative alone—that is, with local materials without the ELF donation.

Project offered technical advice

In addition to input supply, a complementary ELF activity involves the promotion of improved crops and technologies. The project has gone about this in various ways:

- Through offering structured and non-structured events on many topics. The First Annual Report mentions 3 formal trainings, 231 non formal training events, and 186 "practical consultancies" directed to nearly 5,500 participants. Additional Year Two activities would need to be added. Of course, there is substantial multiple counting in these figures, but the widespread diffusion of project messages cannot be doubted. All but one interviewee said that s/he had participated in one or more of these events. Almost all were enthusiastic about what they learned. Said one interviewee, tellingly: "Before the course, I thought I knew a lot about my cattle… and I do. But I also found out how much I have yet to learn."
- Through hosting a large number of cross-visits among farmers. The Annual Report says 195 farm families (again, with multiple counting) participated in cross visits, and surely that number has increased in Year Two. Most interviewees mentioned that they had personally participated in one or another. One said humorously: "I've been to them all!"
- Through publishing a number of small brochures and reference material on various topics, among them: cattle physiology and spread of diseases, methods of livestock breeding, recommended Spring and Winter crops, natural pastures and hay lands, fertilizer utilization, and others.
- And through the day-to-day interaction between project extensionists and various farmers and farmer groups. Some have thought the project was "staff intensive[7]," a reflection of this hands-on relationship.

There is no discrete indicator to tell whether project technical advice has been effective but valid inferences can be made. Project staff is familiar with every demo farmer by name, knows the location of every one of the hundreds of demo plots, knows the names of spouses, knows the economic conditions of each family, and more; joked one: "even the names of their dogs." Trust, confidence, and respect given the ELF staff are palpable. This does not happen overnight or without reason. Based on demo farmer interaction with ELF staff during the field travel, the evaluator is confident in asserting that ELF technical advice has been of high quality, as has been the efficacy of project promotion.

[7] (a topic to which we will return in the management section.)

Project credit

According to the concept paper, credit was also supposed to be included in the package offered to demo farmers. This has not taken place in any way managed by ELF. (The Annual Report mentions that farmer groups may have given seed on credit, but there was no discussion of this during the field travel.) For a number of reasons: multiplicity of project activities even without credit, CARE's lack of expertise in the sector, and the complexity of agricultural credit itself, ELF's having no involvement with credit was a completely sound decision.

'05 vs. '06 demonstrations

This topic has already been mentioned earlier in passing but may need a little more discussion. In '05, 56 demo farmers were selected and worked with; and, as noted in Table Two, the package of benefits offered them was in the GEL 500-900 range (US $300-525). Average demo plot size in '05 (N = 54) was **0.37 Ha**.

The project began working with some of the 35 '06 demo farmers in the Autumn of '05 but the value of inputs offered to this group was far less than the previous year, as in Table Two, in the GEL 100-200 range (US $58-115). Average demo plot size in '06 (N = 30) was **0.11 Ha**.[8] Evaluation interviews also suggest the package of winter planted crops was significantly less successful than those planted in the Spring of that year.

Thus '06 demo farmers have been hit with a triple whammy: far fewer project resources on substantially less land, less successful technologies/crops, and less than a year of project technical assistance. Field travel suggests, in fact, the visual and promotional impact of '06 demonstration farms does not begin to match that of the '05.

Project groups

The proposal called for the formation of five village associations, and project records show these groups sold 4,000 kg. of fodder seed and 1,400 kg. of grass seed in '06. Proceeds from these sales were GEL 7,388, US $4,300. Quarterly Reports make clear that much work was done to push these farmer groups toward official registration. (In fact, might another reason '06 demo farmers seem less successful is that project staff spent so much time working with the five groups that there was less time to devote to '06 farmers?) This is another excellent project concept: creation of a village structure to continue ELF's provision of agricultural services, artificial insemination, vaccination, seed supply, etc. The three groups—it seems premature to call them "associations," (though they have recently received official papers)— interviewed during the field travel show a great deal of progress has taken place: well maintained records of sales are on hand; books of accounts seem up to date; bank deposits have been made; pre-numbered receipts are in use; etc. This is all quite good work.

However, the cohesion of these groups and their future viability are yet debatable. One of the groups has such ambitious plans that the evaluator had to recommend that "it learn to walk before it tries to run." Another group has more realistic plans but is composed of

[8] The issue of too-small demo plots has recently been recognized within CARE Georgia, but not in time to influence ELF's '06 demo farmer selection.

exactly the same members as the Community-Based Organization with which CIP has been working for three years (and, indeed, is one of the strongest CBOs in the entire CIP project.) Naturally this gives this group's plans much more credibility, but makes ELF's experience with it unrepresentative of the other four. Membership is another potential red flag. One group has three members, three groups five, one seven. Based on focus group discussions, it was quite clear this small circle of men was composed of the most forward-thinking, and also better-off members of the village. In spite of considerable project success in moving these groups along in '06, it is inevitable their continued functioning will involve some rough patches.

Summarizing this array of topics is difficult. As the briefest thumbnail assessment:

- Improved livestock nutrition: "B+" for good, small-scale impact and good demonstration.
- Improved utilization of manure: "B+" for good, small-scale impact and good demonstration.
- Project Technical Advice: "A" for all 'round good quality.
- Efficacy of '06 demonstrations: "C-" for questionable impact.
- Project groups: "B+" for good early results.[9]

2.3 Program model and approach

CARE Georgia uses the "demonstration farmer" model for almost all its agricultural programming. Discussion of this model has consciously been left until after a description of results so as not to overshadow project accomplishments because it is a quite complex subject—indeed, one the organization has been struggling with— with no easy answers. Among the (many) elements that make the topic so complex are at least the following:

- Throughout the development world, it is the more affluent farmers who can afford to take risks associated with adapting new and untried crops. Subsistence farmers are simply too close to the brink of economic disaster to run the risk of crop failure due to trying something they don't know. In classic economic terms, the poor are well documented as "risk averse" rather than "profit maximizers."
- However, the externally led Mid-term and Final Evaluations of the CIP project suggested in quite strong terms that CARE should move more towards business development rather than social service provision. Business development per force is directed to those with better business skills and market savvy. Indeed, the successor project to the CIP-W, now beginning implementation, is directed to business development to a far smaller number of project participants than the predecessor project.
- Yet by institutional mandate and by deliberate choice, one of the over-riding principles of CARE Georgia's Long Range Strategic Plan is directed to "pro-poor" policies. How can pro-poor policies be squared with risk-taking?
- The ELF project paper clearly articulated a pro-poor focus in the following:

> Participants will be drawn from all different categories of farmers with the principal focus on the middle and poor households. They will comprise at least 70% of participants. The very poor households, while included, are constrained in

[9] Also see Appendix B for a summary chart of these various thumbnail assessments.

> their potential to adopt new practices both by their subsistence perspective with its concentration, for obvious reasons, on home consumption and by their limited resources i.e., one or two cows and little or no arable land. At the other end of the spectrum, the better off farming households are more receptive to innovations as they have more possibilities to access resources for investment in their farms. They are often more likely to be willing to take risks, being more cushioned in the event of failure. For all these reasons the project will not reject the inclusion of either poor or wealthier farming households, provided the former has the motivation and the latter does not exceed 30% of participants. (Concept paper, Ch. IV.)

The first-year Annual Report says the following: "Among the selected 91 farming households, 26 were considered poor, 38 medium and 27 wealthier. Project kept its principal focus on the middle and poor HHs. Middle and poor HHs comprised 70% from total targeted demo-farmers. The rate of wealthier farming HH was 30%."[10] (Annual Report, p.3)

The random sample did not corroborate these statements. Findings encountered during the evaluation interviews are the following:

- Ten of 18 demo farmers, 55%, owned more than five cows, the project's criterion of a wealthy farmer.
- If other evaluator personal knowledge and educated guesses were factored in, this percentage would be even higher.
- One demo farmer (who used to work for BP) increased his herd in '05 from 12 to 23 cows (!), purchasing seven of them (!). He is also a trained veterinary technician.
- Another demo farmer owns 17 cattle (!) and has been a demo farmer in several CARE projects since 1998 (!).
- Group members, clearly articulate and forward thinking, are known to own dozens of cattle, personal automobiles, agricultural machinery, and empty warehouses for rent.
- A number of demo farmers are trained veterinarians, thus not only with a source of income and an education level that is not "poor," but also able to use his/her skills on family animals that others have to pay for.

Is this the clientele to whom a project should offer free improved seed, free fertilizer, free herbicides, free improved animal vaccinations, and free tractor plowing? Is the organization contributing, albeit inadvertently, to the enrichment of the already well-to-do?

Yet weight must also be given to project staff's assertion that a project is compelled to work with some better-off to have impact. It is simply not possible to achieve any village-wide learning, impact, or 'going to scale' working with a hundred farmers each of whom only owns one cow, staff will contend. Indeed, is it worth a one-cow family's time to invest the dozens (hundreds?) of hours of time attending project training, cross-visiting other project sites, experimenting with his/her one asset? Is it realistic to expect a one, two or three-cow family NOT to pasture on Park land with limited hectares they have devoted subsistence potato production?

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[10] The paragraph concludes by summarizing nicely the dilemma being discussed: "The further work with the farmers has shown that farmers of middle and wealthier categories are more receptive to innovations as they have more capability to access resources for invest in their farms."

Another conundrum is the issue of multi-year subsidies. If one can (somehow) legitimate the subsidy to a wealthy farmer in Year One because of the demonstration potential, should the project continue that subsidy in Year Two? When should the project begin channeling its resources, technical assistance, and financial subsidy to the non-rich? These are difficult questions.

Part of the project response would be to emphasize the importance of the client farmer, those supposedly twenty or more farmers who "learn" alongside the demo farmer. The First Year Annual report alludes to the fact that many client farmers learned one or more new technologies from the project (but does not specify a number.) This evaluation did not spend meaningful time talking to client farmers, but credible evidence suggests a large number of non-demo farmers have, indeed, learned important things as a result of the project. Nevertheless, one judges the fact that demo farms success does not always lead to widespread adoption is under-recognized in CARE Georgia. In this sense,

> ***demo farmers' free seed, free fertilizer, free herbicides and free plowing may overestimate the potential for widespread adoption when non-demo farmers will not receive the same 100% subsidy demo farmers do. Good "demonstration" needs to address diffusion issues too.***

CARE Georgia has recently produced a manual on the selection of demo farmers which says: "demonstration plots need to promote extension messages suitable for poor farmers" (p. 11), and demo farmer selection criteria are included (among others) as an appendix:

- Has fertile demo and control plots located side by side, or close to each other.
- Farmer's yields and performance should be average for the area.
- Farmer has adequate (water, machinery, equipment, labor) to manage the plot.
- Must commit to include 3 marginalized farmers or a village minority among his/her client farmers (names to be recorded separately by staff.)
- At least thirty percent of demo farmers will be women.
- No demo farmer will be selected who as more than 5 Ha. of land, is any relative of District authority, or who owns a tractor.

Even if these criteria had been available at the time of ELF demo farmer selection, the (mis-) selection of these farmers would not necessarily have been addressed. The result appears to be a project that had the best of intentions but was unable to follow through on them. Several recommendations on this difficult subject will be offered.

2.4 Project sustainability and impact on the park

It now is incumbent to ask the quite difficult question: how much of ELF's efforts will result in sustainable change?

It will be recalled the purpose of the project is to reduce negative impact on biodiversity in Borjomi-Kharagauli National Park and its support zone. Given that "CARE does not expect a significant behavioral change to be realistically achieved by the end of a two-year project," when all is said and done, how successful has the project been in working toward that goal?

Half a dozen of the demo farmers interviewed during the evaluation indicated that in '06 they did not pasture their cattle in the National Park, directly as a result of project promotion. Some said it was because their fodder needs had been sufficiently improved by project activities they didn't have to; others said it was because the project had convinced them it was bad to do so; others because of some mixture of more work at home, and more recognition of drawbacks to pasturing in the park.

But the responses showed no pattern. One of the wealthiest demo farmers said he continues to take his herd to the park because nowhere else would he find sufficient pasture for his large herd. A three-cow family had a similar response (though on a far different scale): "We don't have land; where else could we go to feed our [few] cows?" Many recognize the drawbacks to being away from their farms for several months; others talk about disadvantages other than distance, cows occasionally being eaten by bears.

An apparent digression is in order. When a key informants was asked when it was realistic to see behavioral change in Georgian farmers as a result of such a project, the response was immediate: "At least ten years," and this observation is fully consonant with environmental literature. Thus, it is unfortunate, but realistic, not to expect to see any substantial behavior changes for some time—even in a large, well funded project. In a small pilot project like ELF, change would be even harder to detect in a short period of time.

The purpose of the comment is to suggest that perhaps ELF can be thought of as "Stage One" of a longer-term effort (recognizing there is no donor identified for such an effort at this point.) Stage One would be a pilot phase—experimenting with new concepts, introducing new ideas, discovering what works and what doesn't work. A hypothetical Stage Two would likely be an Expansion Phase, taking the lessons of the pilot to a wider number of communities (not only half of those bordering the park, as ELF has done) and expanding the outreach of the project's technologies and crops to more farmers in each village. Stage Three—the last three years of a ten year project?—could be a consolidation phase: locking in farmer gains in income and changed farmer behavior.

In sum then, the evaluator reaches the finding that, strengths and weaknesses taken into account, the ELF project has had demonstrable early (pilot) success in expanding farmers' environmental awareness: beginning the process of conscientization in a number of farmers of their role in influencing biodiversity in the national park, while at the same time addressing farmers' needs to feed their families in the here-and-now.

Regarding the question how much of current project accomplishments will continue after the project closes, with the serendipity last-minute purchase of improved seed and the wide-spread sale of this seed to project villagers, one is confident in predicting that ELF will have some sustained impact on improved livestock over the next three to five years. The lessons learned by farmers of why and how to improve livestock nutrition will not disappear overnight, and groups' becoming involved in the provision of artificial insemination (and perhaps other) livestock services over the near and mid-term will not only slowly improve the genetic base of the current herd but also keep fresh ELF concepts of improved cattle nutrition.

One also reaches the conclusion that for these gains to be sustained, some form of follow-on project is essential.

2.5 Proposal Outputs, Goals and Accomplishments

The following tables show Outputs and Goals as proposed in the project concept paper, with the second column being the evaluator's assessment of their accomplishment.

Table Three: Proposal Outputs and Accomplishments

Outputs	Achievement
Training curriculums prepared, training materials printed, demonstration schemes / models designed.	Fully accomplished.
At least 84 on-farm demonstrations of environmentally sound livestock husbandry practices established and functioning.	91 accomplished, 56 of them more successful. Ongoing "functioning" is likely only in a smaller number.
At least 40% farmers in the project area have participated in training sessions and visited demonstrations to observe environmentally sound livestock husbandry practices.	Likely largely accomplished.
At least 36 farmer cross-visit to share experiences in environmentally sound livestock farming conducted.	Fully accomplished.
At least 25% farmers in the project area aware of key environmental issues / principles of bio-diversity conservation.	Likely largely accomplished.
At least 24 manure storage facilities established and functioning.	27 built; about half currently functioning.
At least 5 AI / veterinary cooperatives / associations established and functioning.	Accomplished.

Table Four: Proposal Goals and Accomplishments

IR. 1. Improved awareness / knowledge of responsibility to protect biodiversity.	Accomplished.
By end of project, at least 25% farmers in target villages have increased awareness of biodiversity issues. By end of project, at least 40% farmers [2,580 farmers] in target villages are willing to shift their farms towards environmentally sound livestock farming.	Accomplished. Overly ambitious for a two-year pilot; not accomplished.
IR. 2. Farmers' reduced reliance on public lands for feeding animals.	A few early stirrings of accomplishment.
By end of project, 90% demonstration farmers <u>eliminate use</u> of public land for grazing. By end of project, 20% of client farmers start replication of project technologies and are reducing use of public land. By end of project, at least 20% farmers applied for and received services from pertinent government and private support services.	Changed to <u>"reduce use"</u>; likely about half-accomplished. 20% client farmers replicating project technologies: likely accomplishment. Reducing use of public land: unlikely. Unlikely.

2.6 Findings summary

ELF has proven to be a comprehensive, ambitious, innovative livestock and pasture improvement pilot project successfully implemented over a short time period.

A wide variety of activities have been carried out: breed improvement, pasture improvement, and better animal and crop husbandry. Many of the crops introduced produced satisfactory yields; several show potential for expanded production and improved pasture; mangel beet appears to have spectacular potential in contributing to improved livestock nutrition.

The demonstration farmer model likely has some larger-issue equity questions, but has proven substantially successful in spreading project messages.

Project technical assistance has been of high quality. A large number of formal and informal training events have taken place, widely spreading the news of project innovations.

The formation of farmer groups has taken much time in the second year, but has important potential for project sustainability—assuming the groups can hang together and equity considerations do not get out of hand.

Impact in terms of *improved awareness* of the need to protect biodiversity has surely been accomplished in some early adaptors.

Consolidation of these gains would require a Second Stage that is presently not contemplated.

3.0 PROGRAM MANAGEMENT

Another of the SOW tasks was to assess CARE's management of ELF. In the compressed evaluation schedule, there was not a great deal of time to address this issue, but the following topics can be mentioned: the general management approach, financial management including cost structure, "distractions," monitoring and evaluation, the information system, and final steps.

3.1 CARE's management approach

Like other Georgia projects, CARE's overall management approach to ELF is based on recognized strengths in project planning and organization, good administrative back-up, strong field presence, regular supervision, and good reporting. Observed during document review and field travel were the following:

- Concise, well-conceptualized project proposal
- Thoughtful criteria for village selection
- Good hiring of local consultants to improve staff technical skills
- Quite comprehensive, lucid, informative Quarterly reports
- Good file set up organized by community and demo farmer; good record keeping in general
- Good development of formal training curricula for farmers on technical topics
- Generally timely delivery of project inputs
- Good (flexible) response to an emergent cattle infection in Year Two
- Good external relations with other NGOs: Elkana, ACDI-VOCA, CHF
- Good flexibility in responding to MoA initiative for cattle registration
- Comprehensive demo farm models (but overly numerous, as described)
- Comprehensive, lucid, informative Annual Report
- Good end-of-year meetings held with 14 project villages
- Good documentation of technical literature
- Good follow-up regarding official registration of farmer groups
- Good all 'round project management
- Well qualified field staff; strong field presence; modest levels of staffing.

Adequate but less successful accomplishment, one thinks, of the following appears likely:

- Adequate contact with local Georgian government officials
- Adequate selection of demo farmers (with the limitations discussed)
- (See discussion of Baseline and Midterm survey discussion below)

One potential area of under-performance may have been cross-sharing between ELF and the two other CARE projects sitting in the office 10 meters from one another but knowing little about what one another were doing. (This "tubularity" is not particular to CARE Georgia but a recognized issue in CARE worldwide.) Anecdotal accounts some months ago suggested that villagers where the three project overlapped knew more about what each project was doing than did staff. With the arrival of a new CIP manager, this situation appears to have improved in recent days.

In ’06 the number of field extensionists was reduced from three to two. In September ‘06 the competent ELF manager resigned to take another position. Given the little time left in the project, an appropriate decision was taken not to fill the position for such a short time. ELF was quite fortunate that one capable field staff was able to step into the vacancy. Also in September, one of the two remaining extensionists was transferred to another project. The cumulative effect of these personnel changes had the project thinly staffed for all of ’06, and significantly under-staffed in the last quarter of its implementation.

3.2 Financial supervision

Though no detailed review of documents was conducted, financial supervision of the project appears to have been fully adequate. This is usually a CARE strength worldwide. The last comprehensive financial report (Sept., ’06) showed the following with 87% of the grant period elapsed:

- Personnel costs expensed at 82%
- Operational costs expenses at 84%
- Training costs expensed at 46%
- Materials and supplies expenses at 86%
- Total direct costs expensed to date at 80%.

The savings of approximately $24,000 late in the project being applied to seed purchase seems another indication of good financial management.

3.3 Cost structure

In light of an informal observation from an outside commentator that the project seems “staff intensive,” it is worth commenting that the budget structure for ELF in comparison to many other projects evaluated by this author is relatively modest.

- Total personnel costs compared to overall budget is 34%. This is reasonably “economical” compared to similar projects that provide this level of technical assistance (where the salary line item can frequently exceed 50%.) For most of the life of the project, ELF had one project manager, two field extensionists and one administrative assistant. This is quite lean.
- Total operational costs are 18%; this, too, is on the frugal side.
- Material costs at 25% are a relatively healthy line item of direct inputs to project beneficiaries.
- Overall, the comment the project is “staff intensive” may reflect a different philosophy of agricultural development. It should not be taken to suggest the percentage of resources devoted to staff salaries in ELF was excessive, which was not the case.

3.4 Program “distractions?”

The word “distractions” is being used, but the idea could also be expressed as “getting lost in the trees.” It appears that ELF got involved in several ideas that were peripheral to its essential project vision. Whether this is because the project was going so well that new things could be added, or through relative inexperience and lack of technical expertise of the project manager (which seems more likely), the appropriateness of the following activities seems —at the very least—debatable:

- Beekeeping in Daba Abastumuni is an expert-recommended activity because Daba Abastumani has no agricultural land on which pasture improvement could be effected. But surely beekeeping is a distraction from pasture and livestock improvement.
- The visit of the Project Manager and an extensionist to Serbia "to study producer cooperative formation" seems a long way from the fledgling status of the five ELF groups.
- Coursework planned on Strategic Planning for these five groups seems an idea considerably premature.

It is not that these ideas are "wrong" but rather somewhat tangential, taking time and energy away from activities that are more closely directed to goal achievement.

3.5 Monitoring and Evaluation

Mention has been made that ELF has been characterized by quite good reporting, particularly the Quarterlies and the Annual Report. There is one anomaly. Baseline data and Mid term questionnaires are available in the office, neatly filed and available for study. The Baseline Report and Midterm Report, however, cannot be found—and, in fact, were never submitted to BTC. In a project characterized by strong reporting, this is odd in the extreme. Even the external consultant who wrote these reports did not keep a copy for his own records. How strange!

Fortunately, the information is not irretrievably lost. ELF has hired the same consultant to conduct the Final Survey (currently underway) who wrote the previous two studies. Hopefully as he writes the Final Survey report, he will be able to refer back to the data set of the Baseline and the Midterm. Certainly his task will be much more difficult without the previous reports to refer to.

As evidenced by the comprehensiveness of the Quarterly and Annual Reports, the ELF information system is fully adequate.

3.6 Close-out steps

It bears mention the list of pending activities described in Third Quarter '06 report, as follows, with one or two additions:

- Publishing brochures for "Manure Storage Facility and Norms and Methods of Manure Utilization" and delivering of these materials to target farmers
- Publishing illustrated farmer's Book "Livestock Farming and Planting"
- Conducting the Final Survey and writing the report
- Preparation of the Final Report
- Purchase of seed and delivery to five farmer groups
- As much as possible, set up clear, simple systems so that sale of this seed can take place without further ELF involvement.

4.0 CONCLUSIONS

ELF was a well conceived project directed to a well defined need. It was designed to develop improved farmer awareness and responsibility for maintaining biodiversity, and to reduce farmer reliance on pubic lands through livestock improvement, with a notably modest—realistic—recognition that major behavior change would not be achievable within the lifespan of the project. Activities and services were a well designed "mix":

- Artificial insemination was successfully carried out on 48% of 33 cows (with 13 more currently pregnant.) The concept of artificial insemination as a method of herd improvement has spread widely in project villages—likely for the first time in a generation—and several interested groups have emerged to continue this activity at least for the next several years.
- There are strengths and weaknesses in the project's demonstration farm model. What is undeniable is that the model has introduced a number of new pasture and forage improvement crops to a large number of farmers throughout the project area.
- Crop results from these demonstration plots have varied. In broad terms, it is accurate to say that hundreds, perhaps thousands, of project farmers have learned that pasture and fodder crops *can* be substantially improved, and they have learned a number of different crops with which to do so.
- Several crops with improved nutritional content, non-irrigated barley and maize, show potential. If reliable "demand-driven" seed suppliers can be identified, one crop, irrigated mangle beet, shows phenomenal potential to improve cattle nutrition on a scale never before imagined in Western Georgia.
- Widespread seed distribution and sale in the last days of the project—though not in the original project design—may be the project's "crowning touch," enabling extra hundreds of farmers to take advantage of project benefits
- Improved manure storage is a viable technology that selected farmers will certainly benefit from. The project chose a somewhat cost-intensive design for the structure, likely limiting the diffusion of this otherwise completely appropriate technology.
- Project technical advice has been of high quality, and highly appreciated by farmers.
- The project has not become involved in agricultural credit, an appropriate decision.
- '06 demo farmers received significantly less benefit from ELF than '05 farmers.
- The success of free seed, free fertilizer, free herbicides and free plowing to demo farmers may overestimate the potential for widespread adoption because non-demo farmers will not receive the same 100% subsidy demo farmers do. Good "demonstration" needs to address diffusion issues too. Thus, even more the importance of widespread seed sale.
- ELF's hard push toward farmer group registration has been implemented against the prevailing wisdom of allowing village groups to coalesce at "an organic pace." In one case, there is hope experienced group leadership will pull it through. In the case of the others, the jury is still out.
- CARE's management of the project has been effective at modest cost.

Regarding the key questions of sustainability and impact on the national park, the project has demonstrated early (pilot) success in expanding farmers' environmental awareness while at the same time addressing their need to feed their families in the here-and-now. Consolidation of these gains would require a Second Stage to the project that is presently not contemplated.

5.0 LESSONS LEARNED and RECOMMENDATIONS

5.1 Develop a follow-on project

The clear lesson learned from this evaluation is that ELF has been a successful Stage One pilot project and should continue. Recognizing there currently are no funds for this, BTC authorities should be encouraged to take this document further up the hierarchy in the search for new funds. ELF *is having* impact on natural resources conservation and needs to be extended.

CARE should actively prepare a new multi-year proposal, whether written for BTC or for another donor. There is too much solid early learning to be lost because of the absence of an immediately obvious donor.

Naturally project designers will have time to think through the conceptualization of the new project, however early ideas can be offered:

- The project can be thought of as Stage Two of, say, a 10-year project and can be/should be written in those terms.
- It can be thought of as the "Expansion Phase," moving from 27 communities (approximately half those that border the park) into more, while actively increasing the number of project participants in villages where ELF is already well established.
- The project should become more *strategically agile.* If mangel beet is a winner, promote mangel beet widely. If irrigation is the limiting factor in mangel beet, finance (small) irrigation pumps as part of the project design. If barley and wheat are a good admixture in improved fodder, finance (small) village-based mills. If sainfoin and sudan grass have important long term pasture improvement benefits, offer this seed free of charge. Create project-subsidized "Seed Fair Days" where farmers can sell to one another and where they can choose which crops to plant among a menu of choices.

5.2 Maintain current project elements; add a few new ones

Current project elements should be retained because they have shown their appropriateness and synergism as well as their impact on farmers lives: artificial insemination, pasture improvement, vaccinations, livestock nutrition, improved manure utilization.

Several other concepts can be added (but only a few so as not to make the new project too complicated.) For instance, one would like to see linkages strengthened between ELF and the National Park, both at the institutional level and at the village level.

- This would suggest, perhaps, the new ELF project could run out of the National park office. This would have the effect of making the project more responsive to park goals, and deepening park officials' understanding of village perspectives.
- It would also seem highly useful that park rangers begin a publicity/motivational campaign in ELF villages using ELF's access to farmer groups to promote the issues of biodiversity and conservation in a more active fashion than ELF staff (engaged in many other activities) have been able to.

- It could also be appropriate for the project to finance farmer study tours: 1) to other parts of the park much like cross-visits ELF has carried out; 2) or to other national parks in Georgia; 3) or even to national parks in nearby countries.

5.3 Rethink the demo farmer model

It seems important for CARE to continue to re-think and retool its demonstration farm model. This idea has several parts.

- No demo farmer should receive project subsidy for more than two years within the new ELF (or in other CARE projects!) ELF subsidy should stop after a specific period of time, at the same time requiring the farmer to continue with the innovation.
- Equity considerations need to be emphasized. The new ELF project needs to move away from working with a significant number of the villages' richest farmers. A more effective way must be found to work with the middle farmers than heretofore, even at the cost of slowing the "demonstration" effect.
- Paradoxically, the size of demonstration plots should be increased. The project needs to think more about "visual impact" than it has in the past to achieve the "Wow effect."
- Consideration should be given to working on communal land, granting full subsidy to a community that will work collectively on a (large-ish) demonstration plot somewhere near the center of the village.
- The project should begin promoting seed selection/preservation from one year to the next so that farmers do not have to go to the seed sellers each year for their seed needs (hybrid seed, of course, being the exception.)
- As part of the expansion idea, the project needs to figure out how to get a large number of villagers planting these crops: think 30 farmers per village instead of "one or two." In this regard, the project's assertion that each demo farmer supposedly works with 20 (or more) "client farmers" appears overly facile. At the least, the new project should develop lists of client farmers and talk to them regularly or—preferably—structure the project to deliver inputs and technical advice directly to this wider circle of project participants.
- Another idea might be establish widespread seed subsidies on a gradually declining ratio: say, 75% subsidy in Year One, 50% subsidy in Year Two, 25% subsidy in Year Three.
- Other projects have had success with demo farmers being required to share their harvest with others: for instance, if ELF gives 10 kg. of seed, the farmer must give some multiple of 10 kg. of good seed to his neighbors from the harvest.

5.4 Effect minor project adjustments

Other small project adjustments can be considered. A few that come to mind are:

- Reduce manure storage subsidies by requiring more local materials (thereby simplifying the structure and making it more replicable.)
- Promote wide-spread Artificial Insemination services *through* the groups currently offering the services—not through competing (free) project-run services.
- Think through fuel and tractor subsidies more carefully. One demo farmer said the only reason he was able to plant was because the project provided tractor plowing, and

that "99% of the village does not plant on these lands because they can't plow." Good benefit for this gentleman, but bad development. The project needs to think more clearly about the efficacy of a "demonstration" if the technology is beyond anyone's ability to replicate it.

- Similar to the previous comment, rethink subsidies for imported (i.e., locally unavailable) vaccines and cattle medicine. There is questionable usefulness in promoting a state-of-the-art European medicine as a one-off intervention if farmers have no way to buy the medicine themselves.
- Slow down the push toward forming an association. Evaluate carefully how viable and representative the group is on the basis of successful *group-initiated* activities. Elaborate some contractual agreement so that the huge financial windfall that accrues to a group through the sale of project-provided inputs does not benefit only a few already well-to-do men.
- Finally, it appears the project should continue to emphasize working with local vendors, not only in seed supply (which one judges the project has done pretty well) but also with local vaccines and livestock medicine vendors. Most—indeed, if not all—project purchases should be placed through local vendors.

APPENDIX A
Scope of Work

I. Background

CARE Georgia is implementing the "Environmentally Sound Livestock Farming Project" (ELF) which was initiated and funded by BP and its partners in BTC Co. and SCP Co. Ltd. as a part of Environmental Investment Programme (EIP).

The overall goal of the ELF Project is to reduce negative impact on biodiversity in Borjomi-Kharagauli National Park (BKNP) and its support zone through the adoption of environmentally sustainable livestock management practices in 24 villages in Borjomi, Akhaltsikhe and Adigeni districts.

As it is articulated in ELF project proposal, the overall project goal will be achieved through improving farmers' understanding of environmentally sound livestock farming practices and enhancing farmers' access to support services for further extension and adoption of project promoted livestock farming practices by farmers.

II. Purpose of the consultancy:

CARE Georgia is completing implementation of ELF in December, 2006, intends to undertake a final evaluation of the project and capitalize on lessons learnt by producing recommendations for future approaches and interventions in the area and sector.

III. Objectives of the Consultancy

The objectives of the consultancy are:

1.To design and manage a process of evaluation of ELF, which provides clear coverage of:

- Progress of the project towards its stated goals in terms of outputs and impact.
- Soundness of the design of the project, (checking the assumptions and internal logic)
- Management of the project
- Cost effectiveness / efficiency of the project

2. To evaluate the project approach of using farmer associations as a sustainable instrument for development in the targeted communities.

3. Given current funding and operational realities, provide recommendations for future actions, to support development of the area and sector.

Outputs from the consultancy

1. A detailed and clear report in English and Georgian, which describes the evaluation of the project as stated in the objectives above (a draft contents page of the report is attached).
2. A presentation to CARE staff and beneficiaries, of the draft report
3. A presentation to CARE staff and external stakeholders of the final report
4. Recommendations for future CARE actions regarding farmer associations as an instrument for development.
5. Recommendations to BP for future support under their environmental objectives.
6. A description of the 5 targeted farmer association visions and strategies for their own future.

IV Methodology

The Evaluator will use the following methodologies to assess project:

- Interviews with project staff, beneficiaries and partners, local government officials and BKNP authorities to solicit their feedback
- Beneficiary group evaluation exercises
- Review of project progress reports
- Field verification visits
- Farmers Groups' visioning exercise

V. Proposed Timeline:

- 3 days of planning, preparation and background reading.
- 6 days field visit plus travel time.
- 5 days report writing.
- 1 day debriefing of draft results with CARE staff and other stakeholders (beneficiaries, other project staff, national park officials, Department of veterinary service officials, etc.)
- 1 day finalization of evaluation report based upon feedback.
- 1 day debriefing of final evaluation results with CARE and external staff (other projects, BP, Government officials etc.

VI. Key Contacts

The consultant shall report to CARE Operations Manager. CARE will provide accommodation, transport, translation, administrative, logistical and communications support.

APPENDIX B
Matrix and Results Status Table

Project Activities and Services Accomplishment

Activity/Service	Evaluator Assessment
Artificial Insemination overall	B
Number of A.I.s carried out & 48% effectiveness	B-
Widespread conscientization of the concept of A.I. and possible long-term sustainatibity	B+
Pasture Demonstrations	A-
Improved livestock nutrition	B+
Improved utilization of manure	B+
Project technical advice	A
Effectiveness of ’05 demonstrations	B+
Effectiveness of ’06 demonstrations	C-
Project group formation	B+

Proposal Outputs and Accomplishments

Outputs	Achievement
Training curriculums prepared, training materials printed, demonstration schemes / models designed.	Fully accomplished.
At least 84 on-farm demonstrations of environmentally sound livestock husbandry practices established and functioning.	91 accomplished, 56 of them more successful than the others. Ongoing “functioning” is likely only in a smaller number.
At least 40% farmers in the project area have participated in training sessions and visited demonstrations to observe environmentally sound livestock husbandry practices.	Baseline numbers not available. Likely: largely accomplished.
At least 36 farmer cross-visit to share experiences in environmentally sound livestock farming conducted.	Fully accomplished.
At least 25% farmers in the project area aware of key environmental issues / principles of bio-diversity conservation.	Likely: largely accomplished.
At least 24 manure storage facilities established and functioning.	27 built; about half currently functioning.
At least 5 AI / veterinary cooperatives / associations established and functioning.	Accomplished.

Proposal Goals and Accomplishments

IR. 1. Improved awareness / knowledge of responsibility to protect biodiversity.	Accomplished.
By end of project, at least 25% farmers in target villages have increased awareness of biodiversity issues. By end of project, at least 40% farmers in target villages are willing to shift their farms towards environmentally	Accomplished. Overly ambitious for a two-year pilot; not accomplished.

sound livestock farming.	
IR. 2. Farmers' reduced reliance on public lands for feeding animals.	Early beginnings of accomplishment.
By end of project, 90% demonstration farmers eliminate use of public land for grazing. By end of project, 20% of client farmers start replication of project technologies and are reducing use of public land. By end of project, at least 20% farmers applied for and received services from pertinent government and private support services.	Changed to "*reduce use*"; likely about half-accomplished. 20% client farmers replicating project technologies: likely accomplishment. Reducing use of public land: unlikely. Unlikely.

APPENDIX C
Interview and Focus Group questionnaires

DEMO FARMER QUESTIONNAIRE

1. PROJECT ACTIVITIES FOR DEMO FARMERS

What has ELF done in (this)/(your) village? What has ELF done on this demo plot?

What are THE BEST things ELF has done? Why do you say this thing is the "best?"

2. PROJECT ACTIVITIES FOR CLIENT FARMERS

What did the client farmers learn from this demo plot? How do you know they learned?

Did you or any of the client farmers participate in cross visits? Which? Were they interesting?

3. CHANGES due to the project?

Will you or your neighbors do anything differently next season as a result of ELF? What?

What else is different as a result of ELF?

GROUP FARMER QUESTIONNNAIRE

1. ELF ACTIVITIES FOR ASSOCIATION FARMERS

What are the most important "improved agricultural technologies" that ELF promoted?
Which is the most important? Why do you think so?
Is your group going to become involved with any of these technologies?

Which?
Why?
How?

2. CHANGES due to the project?

Does the group becoming involved in this provision of services change anything else? What? How?

Will you or your neighbors do anything differently next season as a result of ELF?

What?What else is different as a result of ELF?

APPENDIX D
Schedule

Dec. 3	Arrival
Dec. 4	Document Review
Dec. 5	Document Review
Dec. 6	Key informant interviews; travel to Akhaltsikhe
Dec. 7	Key informant interview; visit Khavbiskhevi
Dec. 8	Visit Klde and Sviri
Dec. 9-10	Rest
Dec. 11	Visit Ivlita, Akhaldaba, Dviri
Dec. 12	Visit Ivlita, Benara
Dec. 13	Visit Sagrdze, Tsakhanskaro, Kharjami
Dec. 14	Visit Benara, Tskruti
Dec. 15	Writing
Dec. 16-17	Writing
Dec. 18	Writing
Dec. 19	Writing
Dec. 20	Presentation of first draft to CARE
Dec. 21	Meeting CARE: clarifications and corrections; finalization of text
Dec. 22	Presentation of Final Evaluation
Dec. 23	Departure

APPENDIX E
Interviewees

Eteri Masuradze	Demo farmer- Kaviskhebi
Vaso Khachapuridze	Demo farmer- Kaviskhebi
Vapra Maishradze	Demo farmer- Kaviskhebi
Mamuka Talajadze	Demo farmer- Sviri
Bichiko Nozadze	Demo farmer- Sviri
Malkhas Bluashvili	Demo farmer- Klde
Archil Natanadze	Demo farmer- Klde
Galaktion Kurtanidze	Demo farmer- Klde
Dugo Kapanadze	Demo farmer- Akhaldaba
Nazi Gurgenedze	Demo farmer's wife- Rveli
Omar Chalizaraschili	Demo farmer- Ivlita
Rezo Vardidze	Demo farmer- Ivlita
Roland Bibiluri	Demo farmer- Dviri
Idrieli Gorgodze	Client farmer- Benara
Iuri Endeladze	Association member-Benara
Maia Mskhvilidze	Demo farmer's wife – Benara
Nino Mekoshvili	Demo farmer's wife- Sagrdze
Gogi Kalardadze	Demo farmer- Kharjami
Jora Kokhvadze	Demo farmer- Tsatshanskaro
Association leaders of	Benara
	Tskruti
Jambul Maglakelidze	Department of Veterinary Affairs, Ministry of Agriculture
Maria Morgan	BTC Program Director
Zviad Gotsiridze	Director, Borjomi –Kharagauli National Park

ATTACHMENT F
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