



Rural Economic Development (RED) Project *Formerly Jordan Small Ruminants Project*

A PROGRAM SUMMARY

SUBMITTED TO:

Her Excellency Mrs. Suhair Al-Ali
Minister

Ministry of Planning and International Cooperation
The Hashemite Kingdom of Jordan

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November 21, 2008

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Submitted via e-mail to mop@mop.gov.jo

Dear HE Mrs. Al-Ali:

ACDI/VOCA is pleased to formally submit the findings from our assessment of the small ruminants sector in the Badia, conducted earlier this year. As a result of the constraints identified during that assessment, we are also outlining in this program summary many of the opportunities for growth and development that we feel can be addressed through a program such as our Rural Economic Development (RED) project. In close partnership with key local and international organizational partners, the RED project would contribute to reduce poverty, enhance food security and increase incomes through the development of a more efficient and productive small ruminant sector.

Our approach will engage a broad range of stakeholders to support the development of Jordan's small ruminant dairy and meat sectors in target regions of the Badia. Using a methodology firmly rooted in the value chain approach, the RED project will stimulate rural growth and sustainable progress by increasing the productivity, product quality and profitability of producers and dairies; increasing access to critical sector support and input supply services (finance, veterinary, forage); strengthening sector associations/cooperatives; and increasing public awareness of the nutritional value of hygienic milk.

ACDI/VOCA will draw on the core institutional competencies of itself and RED's partners to implement this project, if selected for funding. We join the Hashemite Kingdom of Jordan in recognizing the great potential of the Badia – despite the real challenges that exist—and look forward to the opportunity to move forward with this important project.

Thank you in advance for your consideration.

Sincerely,

Carl H. Leonard
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LIST OF ACRONYMS

AGLINK	Agribusiness Linkages for Egypt
ASAIL	Action for Sustainable Agro-Industry in Lebanon
BRDC	Badia Research and Development Center
GOJ	Government of Jordan
JOHUD	Jordan Hashemite Fund for Human Development
JOPS	Jordanian Osteoporosis Prevention Society
LOL	Land of Lakes
RED	Rural Economic Development
SR	Small Ruminants

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Executive Summary

"Realizing food security is a top priority. Thus, we seek to care for farmers and animal breeders and to direct subsidies of animal feed to those who qualify. In parallel, the government will promptly implement the natural grazing fields' project...within the comprehensive program to develop the Jordanian badia..."

- His Majesty King Abdullah II, Opening of the 15th Parliament's Second Ordinary Session

Agriculture, and its critical role in addressing food security issues, is one of the top areas of the economy targeted by the Government of the Hashemite Kingdom of Jordan for investment and expansion. This is supported by increased consumer demand, growing private-sector expansion and improved government policies and programs for rural regions that primarily depend on herding sheep and goats. In July 2008, ACDI/VOCA conducted a rapid field assessment of the small ruminants sector in throughout the Badia region to determine the feasibility of implementing a project in Jordan that would build on the successes of ACDI/VOCA's Action for Sustainable Agro-Industry in Lebanon (ASAIL) project in Lebanon. The ASAIL project used a value chain approach to develop two sub sectors: niche Lebanese foodstuffs and small ruminant (goat and sheep) dairy products. ASAIL's success and positive impact in Lebanon led to requests by NGOs, donors and producers for ACDI/VOCA to assess potential in the Kingdom for further development of the small ruminants (SR) sector. The Kingdom has many similarities with Lebanon—which is in fact one of the main fodder exporters to Jordan. This project summary is the result of the needs and opportunities for growth identified in that assessment.

ACDI/VOCA proposes a high impact and industry-wide five-year project to strengthen the small ruminant dairy and meat sectors throughout Jordan. The proposed **Rural Economic Development project (RED)**, to begin in February 2009, will use a value chain approach to achieve its goal of reducing poverty, enhancing food security and increasing incomes through the development of a more efficient and productive small ruminant sector. This will be achieved through the sustainable delivery of technical assistance, training, business development and marketing services for producers, processors and other value chain actors in the southern and north-eastern areas of the Badia.

The key objectives of the proposed RED project are to:

1. Increase productivity, product quality and profitability of small ruminant producers
2. Increase productivity, product quality and profitability of dairy sector enterprises
3. Increase access to critical sector support and input supply services, including finance, veterinary services and quality forage
4. Strengthen capacity associations/cooperatives in the small ruminants sector
5. Increase awareness of nutritional value of hygienic milk leading to increased demand

The RED project will collaborate with and complement the efforts of organizations and initiatives already supporting the Jordanian dairy and meat sectors to realize maximum impact, drawing upon and leveraging their technical expertise, historical knowledge and physical infrastructure.

ACDI/VOCA has already identified several major local organizations with which it intends to engage, including the Badia Research and Development Center, the Hashemite Fund for Development and the Jordan River Foundation. Additionally, ACDI/VOCA will engage members of a consortium of organizations and institutions participating in the *Middle East and North Africa Farmer-to-Farmer Leader with Associations Award* as needed, including Land of Lakes International, Winrock International, Lincoln University, and the nine-member International Arid Lands Consortium (of which New Mexico State University is a member).

ACDI/VOCA designed the RED project with a strong belief that vibrant and expanding small ruminant dairy and meat sectors should be led by consumers and driven by a free market. This sector can only be strengthened by increasing the profitability of input, production, collection, processing and marketing businesses and strengthening the linkages between them. Our approach engages stakeholders at all levels of the value chain and involves an in-depth understanding of market requirements, leading to increased rural income, food security and linkages to markets.

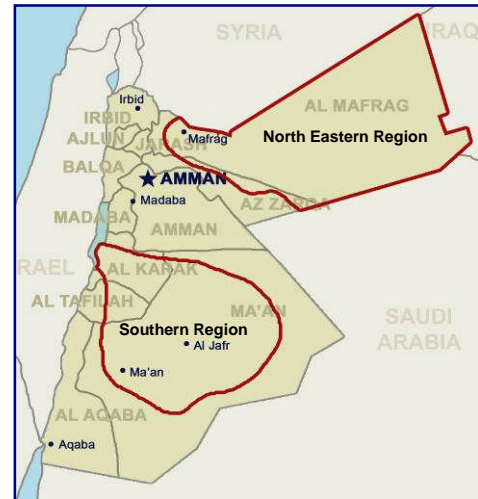
Technical Approach

I. BACKGROUND

The Hashemite Kingdom of Jordan, small, situated in the heart of the Middle East is a world leader with many vibrant economic centers. However, because of its limited natural resources, debt, poverty and unemployment remain fundamental challenges for large swaths of the country. The average economic growth during the period from 2000 to 2006 was 5.9 percent, with the lowest rate registered in the year 2000 at 2.4 percent and the highest rate at 8.4 percent in 2004.¹ Much to its credit, the Jordanian government has recognized and emphasized the role of private enterprise as the preferred engine of growth and launched in the 1990s a widespread effort to extricate itself from most sectors of the economy and to foster widespread privatization, attracting investors and facilitating collaborative efforts between private and public sectors. Despite major economic strides in the past decades, Jordan continues to face significant challenges to its economic development. Deep pockets of poverty remain, with 14 percent of Jordanians living below the poverty line, rising to 19 percent in rural areas.² The Badia, which makes up approximately 80 percent of Jordan's territory, includes four branch areas with poverty rates of over 34 percent.

The economy remains narrowly-based, centered on a few industries and clusters around Amman. The economic activity centers of Amman and Zarqa together account for more than two-thirds of the country's population and approximately 80 percent of its GDP.³ Despite significant foreign direct investment in the apparel and real estate sectors, the country is far from realizing its potential in labour-intensive manufacturing and services sectors.

Approximately 12.5 percent of the labor force is unemployed and Jordan's active-to-total population ratio is one of the lowest in the world, with an average of four non-active individuals depending on a single worker.⁴ Current job creation rates are insufficient to absorb the growing number of entrants to the workforce.⁵ Hence, one major challenge is the unequal distribution of development across all Jordan's regions and governorates. The Government of Jordan (GoJ) has worked since 2002 to empower and develop the governorates.



Approximate area of proposed target regions

The arid and semi-arid broad swath of territory that constitutes the Badia—like similar areas in the Middle East and North Africa with less than 300 mm average annual rainfall—depends on the small ruminant (sheep and goat) dairy and meat sectors as an important source of income. Small ruminants require low initial capital and maintenance costs and use marginal lands and crop residues to produce milk and meat, even in steep mountain terrain and desert regions. The animals are resistant to harsh conditions and disease, and are critically important to food security and nutrition (protein, calcium, vitamins and energy) in addition to income. For many people, and especially infants, goat and sheep milk and dairy products are an essential alternative to cow's milk. In addition to addressing domestic food security needs, there is significant local and export market demand for higher value products such as yogurt, artisanal cheeses, *kefir* milk powder and evaporated milk made from goat and sheep milk, as well as for specialty foods including traditional and gourmet products. Market trends also show an increased need for goats and sheep dairy products as an alternative to cow milk.⁶

¹ Department of Statistics Press Release

² IFAD, *Rural Poverty in Jordan*

³ Jordan National Agenda (2005-2006)

⁴ Jordan Department of Statistics Press Release

⁵ USAID funded projects reports

⁶ Haenlein, G.F.W., "Past, Present, and Future Perspectives of Small Ruminant Dairy Research," *Journal of Dairy Science*, vol. 84, no. 9, 2001

Jordan currently raises approximately 3.6 million sheep and goats⁷ (65 percent sheep, 35 percent goats), which are the sole source of income for approximately 37,000 families⁸ and provide for 25 percent of local meat consumption, particularly lamb and kids. Significantly, lamb production makes up 75 percent of producers' income. Annual milk production from small ruminants is estimated at approximately 100,000 tons⁹, only sufficient for about four months in the spring and early summer season.

The small ruminant sector in Jordan is an attractive option for development because of its potential to:

1. increase income in poor rural areas
2. encourage regional economic growth by linking small-scale producers to commercial enterprises
3. provide cross-cutting benefits in support of other sectors of the economy such as forage and grain production, trade and export related operations
4. address nutritional and food security needs in both rural and nearby urban areas



However, the sector faces significant constraints to growth. At the producer level, there is *poor access to quality feed* for animals. While Jordan produces 5 percent of the feed required to support livestock, it imports the remaining 95 percent. In 2004, Jordan imported 765,000 MT of barley and 427,327 MT of maize to help meet the needs of farmers. Natural grazing supplies only 25 to 30 percent of feed requirements, causing producers to often sell their lambs at low weight due to lack of feed and import additional animals to meet demand for meat. To meet domestic needs, Jordan imported almost 12,000 MT of mutton and lamb in 2004 alone. Since 70 percent of small ruminant flock income is derived from meat, increasing the weight of lambs would significantly increase household income. *Herd health* is another serious constraint. The GoJ-provided vaccination programs are insufficient to address issues of disease, and this constraint is compounded by the shortage of trained veterinarians in the Badia region.

Farms lack refrigerated, hygienic storage facilities for raw milk, resulting in high levels of spoilage and reduced quality. Approximately 90 percent of milk is sold within the village or community for household consumption as milk or a dairy product such as *jameed*, *shanenah*, *ghee* or *naboulsi* cheese. Dairy products are made in the producers' households using very simple and traditional technology, or in tents that move with Bedouin small ruminant producers in the desert. Only 10 percent of the local small ruminant milk is available to the dairy processing plants (according to unofficial statistics from several dairy plants). The milk is *transported to the dairy plant via open pickups in 30-50 liter non-refrigerated tanks*. Jordan produces only a limited variety of cheeses and traditional dairy products, but these products are of poor quality and marketability (due to inferior packaging) compared to neighboring countries and can not compete with the wide variety of import products available, as indicated by the 11,000 MT of cheese imports in 2004.¹⁰



II. PROJECT GOALS & OBJECTIVES

The overall goal of the RED project is to reduce poverty, enhance food security and increase incomes through the development of a more efficient and productive small ruminant sector.

⁷ According to FAO statistics for 2005, there are approximately 2.2 million goats and sheep in Jordan. However, field offices of the Ministry of Agriculture (MoA) and the farmers union report the actual number of goats and sheep currently to be 3.6 million.

⁸ Average family has 10 members

⁹ MoA Department of Statistics

¹⁰ Statistics on 2004 imports provided by FAO at <http://www.fao.org/es/ess/toptrade/trade.asp>

ACDI/VOCA proposes to strengthen and improve the value chain for small ruminant dairy and meat sectors in Jordan by increasing raw milk production, improving the productivity of farmers and the efficiency of the chain as a whole, and increasing farmers' self-reliance with regards to feed and fodder. This will be achieved through the sustainable delivery of technical assistance, training, business development and marketing services for producers, processors and other value chain actors in target areas. The key objectives of the RED project are to:

1. Increase productivity, product quality and profitability of small ruminant producers
2. Increase productivity, product quality and profitability of dairy sector enterprises
3. Increase access to critical sector support and input supply services
4. Strengthen capacity associations/cooperatives in the small ruminant sector
5. Increase awareness of nutritional value of hygienic milk leading to increased demand

The project will be grounded on the following operating principles:

- Vibrant and expanding small ruminant dairy and meat sectors should be led by consumers, driven by a free market, with private small ruminant producers, milk collection, processing and marketing businesses as the engines best placed to lead development and growth.
- Producers, processors and other actors must focus on meeting the requirements of the market place. Without that focus, investment in productivity and capacity, both physical and human, is inevitably constrained in its potential to expand markets and lift producers' incomes.
- The sector should be strengthened by increasing the profitability of input, production, collection, processing and marketing businesses and strengthening the linkages between each.

Given the interdependence of the small ruminant dairy and meat supply chains as well as the depth and breadth of each, ACDI/VOCA proposes a flexible and comprehensive multi-year value chain development project for the small ruminant dairy and meat sectors in Jordan. The proposed project will facilitate linkages among stakeholders—including the development of formal and informal associations and cooperatives—to reduce input costs, aggregate product and create other economies of scale. The efficiency of small-scale small ruminant farmers will be increased through improved technologies and training in proper feed rations, health and vaccinations and farm management. The project will improve the management and production capacity of dairy and meat businesses and facilitate the provision of a variety of services to meet the needs of these enterprises. Targeted clients will include producers and select private enterprises involved in the dairy sector, including ingredient suppliers, milk producers, processors/dairies and distributors/marketers.

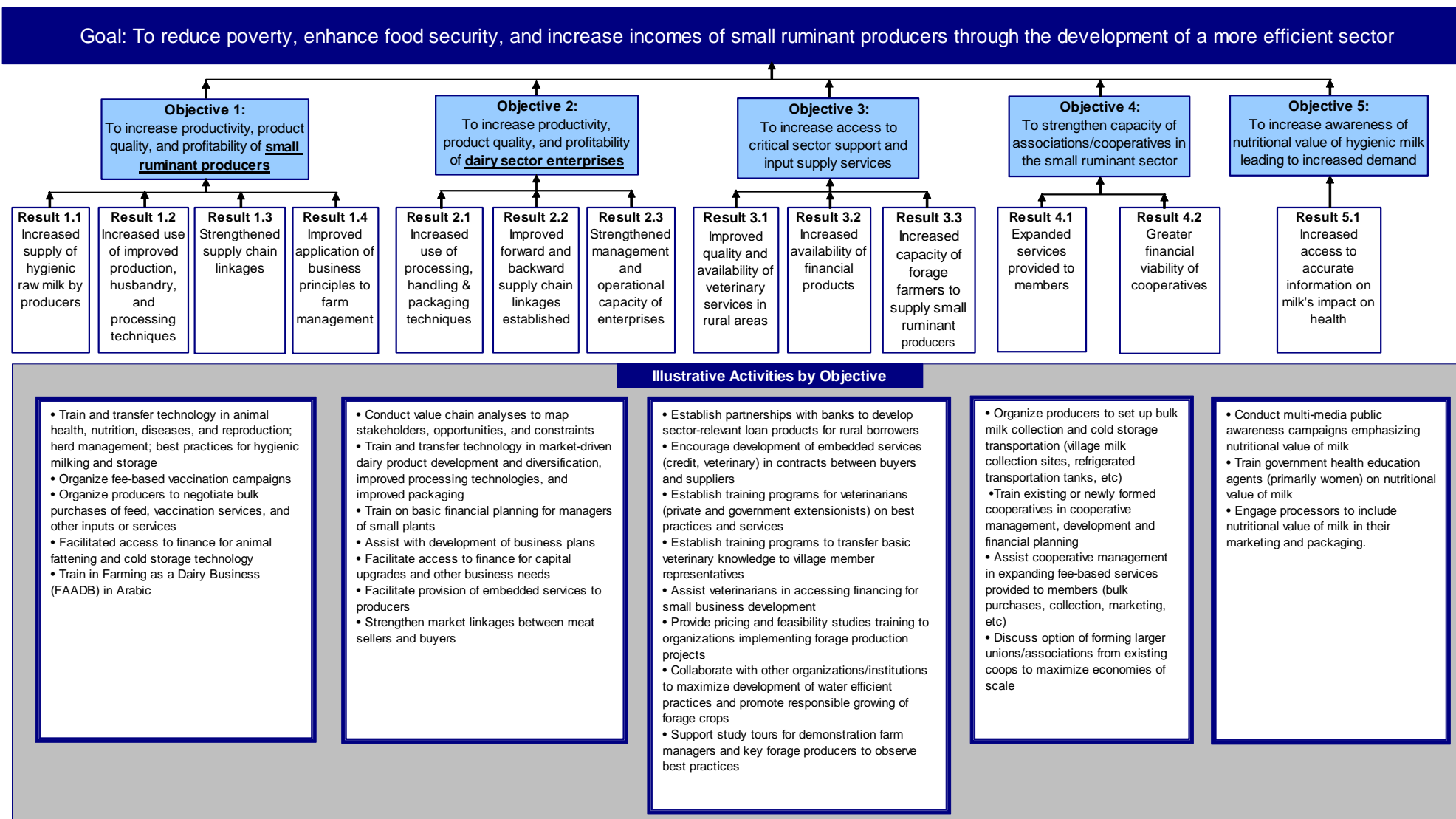
Success Snapshot

ACDI/VOCA's Action for Sustainable Agro-Industry in Lebanon (ASAIL) project used a value chain approach to develop two main subsectors in Lebanon: niche Lebanese foodstuffs and small ruminant dairy products. ASAIL trained over 1,000 small ruminant producers in improved milk practices and animal health and facilitated over \$6.5 million in savings from vaccination and feed ration campaigns. Beneficiaries introduced over 15 new and improved products into the agro-food industry, and 41 processors received GMP/ISO 22000 and HACCP training. As a result of this project, targeted businesses in the agro-food sector are in a stronger position to manage their businesses, rural-urban and coastal-inland linkages have been strengthened, effective marketing systems are now established, and a model of industry competitiveness has been developed for replication.

The project will also support initiatives to strengthen or create cooperatives or associations to increase efficiencies and profitability. Formal or informal partnerships with governmental and private organizations supporting small ruminant development will be established to benefit from existing efforts and expertise, to coordinate project interventions and to ensure the sustainability of project-facilitated services. ACDI/VOCA will directly tap into its experience and expertise from the ASAIL small ruminant project in Lebanon to address specific technical needs.

Over the life of project, we anticipate targeting 15 percent of the total producer population across Jordan (5,500 households). The diagram on the following page summarizes our proposed approach, linking project activities to expected results.

Figure 1. RED Results Framework



III. ACTIVITY OUTLINE

OBJECTIVE 1: INCREASE PRODUCTIVITY, PRODUCT QUALITY, AND PROFITABILITY OF SMALL RUMINANT PRODUCERS

Drawing upon local, regional and international experts and using field-tested training methodologies, ACDI/VOCA will work with producers, producer clusters and producer cooperatives to increase the productivity and quality of their product, resulting in increase sales and income. We will work with producers on decreasing the cost of feed by using least-cost balanced rations at different production levels, such as fattening, breeding and milk production. We will also work to improve the utilization of animal health and veterinary services, and emphasize the use of improved genetic inputs to improve both milk and meat production. The project will provide intensive training and technical expertise to milk producers and support services in dairy herd management, small ruminant feed and fodder, and milk handling techniques—generally weak technical areas among Jordan's milk producers.

ACDI/VOCA will identify steps that will contribute to the expansion and improved quality of dairy herds. One critical step is the introduction of agricultural techniques, such as crop substitution and rehabilitating fodder shrubs, to improve pasture capacity/density and increase local forage production. The project will field specialized regional and international experts to assess and provide advice on issues of feed and design training for dairy farmers on the preparation and use of correct feed rations.



Farming as a Business Training Program

ACDI/VOCA's flagship *Farming as a Business* training is designed to arm extension workers with skills that will assist them in fully understanding the commercial potential of small farm agricultural production. Using a progressive methodology, the training helps to assess capacity, identify shortcomings and propose strategies affecting the household's business success. The materials are participatory, illustrated and designed for participants with minimal levels of formal education. One way that *Farming as a Business* aims to decrease costs and risks is by encouraging farmers to work in associations, enabling them to purchase their agricultural inputs in bulk and sell their agricultural commodities together. The course stresses the importance of healthy inter-firm relationships and explains how working together will place money in their pockets and contribute to the rural economy.

Key Principles of Farming as a Dairy Business

Adapted from ACDI/VOCA's *Farming as a Business* methodology, the Arabic-language *Farming as a Dairy Business* imparts these additional sector-specific skills:

- The importance of knowing the cost of milk production and how small changes in feed costs and milk prices can impact profitability
- Strategies for lowering risks in dairy farming, such as weather, market availability, competition, input costs, fodder crop failure and pests and diseases
- Simple tools for planning the work program of a dairy business
- How to keep basic records on animal health as well as business operations
- The implication of investing in higher priced inputs to increase revenues

Activities will focus on milk production and handling and milk collection. The project will facilitate and support the training of dairy producers in more hygienic milk handling techniques and the provision of improved milking technology. Working through farmer and community groups, ACDI/VOCA will set up bulk milk collection points and cold storage transportation (see discussion below). The principal producers of traditional and specialty cheese in Jordan are women: By establishing community milk collection points, improving cheese production practices and developing new cheeses, ACDI/VOCA will strengthen women's ability to assume an increasingly important role in the dairy value chain and generate increased income. ACDI/VOCA may collaborate with the Jordan River Foundation to provide training on additional income generating activities. All training and technical assistance will be in response to market opportunities to ensure that improved practices lead to increased incomes.

OBJECTIVE 2: INCREASE PRODUCTIVITY, PRODUCT QUALITY, AND PROFITABILITY OF DAIRY SECTOR ENTERPRISES

ACDI/VOCA will strengthen the competitiveness of the small ruminant dairy and meat sectors through the sustainable delivery of product development services, quality control and management systems, business development and marketing assistance. Through partnership with local institutions and private-sector firms, the project will facilitate the provision of intensive on-the-job training and technical assistance in the areas of management (financial planning, business plans), market-driven dairy product development and diversification, improved processing technologies and improved packaging. Strengthening the management, technical and backward and forward linkages of these enterprises will play a key role in ensuring the sustainable growth of the sector after the project ends.

In the first quarter of the project,

ACDI/VOCA will build upon our recent rapid value chain assessment of the small ruminant sector by conducting a more detailed market assessment of local, regional and international market potential, product requirements and possible buyers. The assessment will also include a more detailed assessment of the small ruminant sector to identify key enterprises with which the project will collaborate, based on a map of stakeholders and an analysis that factors in geographic location, demand-driven market opportunities for investment and/or expansion, constraints to growth and capacity of both producers and processors.

Informed by the market assessment and detailed value chain analysis, the project will bring stakeholders together from throughout the dairy and meat sectors to develop action plans to increase industry competitiveness. The RED project will facilitate access to services that will:

- strengthen the management capability of milk producers, increase the quantity and improve the quality of their milk, and strengthen their capacity to supply milk collection and/or dairies
- improve the management of milk collection businesses, including their links to suppliers of fresh raw milk and commercial dairies

We will also work with dairy sector enterprises to identify potential embedded services such as supplier financing, technical assistance to meet market standards, milk or animal collections, or even the provision of vaccines and training in their application.

By the end of the project, annual sales of partner firms will increase by 15 percent.

OBJECTIVE 3: INCREASE ACCESS TO CRITICAL SECTOR SUPPORT AND INPUT SUPPLY SERVICES

Improve access to finance

Recognizing that Jordan already has microfinance institutions and commercial bank branches throughout the country, including the Badia, ACDI/VOCA will work to increase producers' and rural enterprises' access to credit by working with financial institutions to develop appropriate lending instruments. ACDI/VOCA will also strengthen the capacity of potential borrowers by improving their management skills and increasing their sales' volumes. In addition, ACDI/VOCA will work with

Success Snapshot

From 2001 to 2004, ACDI/VOCA's Dairy Directive Project worked throughout Egypt to prevent malnutrition and illnesses associated with contaminated and spoiled dairy products by promoting improvements in the dairy sector.

247 project-trained Health Education Agents (HEAs) – mostly women – provided training and education to over 41,745 smallholder mothers on safe milk-handling and the nutritional value of dairy. By project close, these core agents had trained another 1,385 individuals as HEAs.

An educational campaign reached 58.4 million consumers through a massive mixed-media consumer awareness campaign. By project's end, malnutrition and infant/child mortality in the targeted governorates had fallen. Due to increased demand, retail prices of milk and dairy products increased 16 percent, the capacity utilization of commercial dairy processors rose substantially, and commercial dairy processors increased their domestic sourcing of milk by 38 percent.

ACDI/VOCA also enabled five commercial dairy processors to receive and maintain HACCP certification, played a major role in making four dairy processing and/or bottling plants eligible for HACCP and enabled three processors to receive ISO 9000 certification.

processors and other buyers to embed financial services, in addition to any technical services, into their commercial relationships with producers.

Improve access to veterinary services

One major constraint facing the small ruminants sector is the issue of herd health. Although the Ministry of Agriculture annually provides two vaccines per animal for free, additional vaccines are expensive and there is an insufficient number of veterinarians covering the large Badia region. ACDI/VOCA will explore the feasibility of processors providing vaccines through embedded services, and will look into creating a network of *paravets*, or veterinary assistants within each community or cluster of communities. Capable of addressing basic animal care issues, including vaccinations, the paravet is a member of the community who serves as the liaison to a formally trained veterinarian, requesting medical supplies as needed and referring more complex cases directly to the veterinarian. In exchange for these services, the paravet charges a commission or is directly hired by the veterinarian.

In addition, ACDI/VOCA proposes to train current veterinarians in small ruminant care through seminars and will include them in herd health trainings provided to farmers, increasing awareness of and stimulating demand for veterinary services. To ensure longer-term sustainability of the strengthened veterinary services, ACDI/VOCA will train the veterinarians and paravets in basic business management, including writing business plans, and will facilitate access to finance for small business loans.

Improved access to quality forage

Ensuring an economic and cost-effective forage/feed supply in both quantitative and qualitative terms is a major component of profitable and sustainable milk production on smallholder dairy farms. As the majority of fodder consumed in Jordan is currently imported, the purpose of this component is to increase both the quantity and quality of domestic forage, in order to encourage the consumption of the local product while still maintaining the health of the animals. Activities will focus on 1) new varieties and methodologies and 2) best practices.

1) New varieties and methodologies: With training and support from ACDI/VOCA, local organizations will work with target communities to identify appropriate and cost-effective forage shrubs, forbs or trees, as well as a variety of cropping and water-harvesting methods. The studies will take into account soil texture, land slope, infiltration rate, average annual rainfall and the water requirements of plants for satisfactory growth, as well as any other critical needs identified by livestock smallholders. In addition to expanding forage planting and improving the types of forage planted, ACDI/VOCA will also explore the viability of forage substitution, such as the use of feed blocks for small ruminants as an environmentally-friendly and healthier supplement to traditional forage.

2) Best practices: With proper grazing management, native grasses and planted shrubs will continue to produce palatable forage sustainably in the long run. Demonstration farms will be used to promote the establishment and use of forage shrub reserves and efficient water practices and enhance awareness about the importance of rangeland management to livestock production.

Success Snapshot

In Egypt, ACDI/VOCA responded to a severe animal disease outbreak by organizing 35 veterinary campaigns that reached 97,000 livestock and 27,000 producers and helped establish direct commercial linkages between remote smallholders and 309 veterinarians. ACDI/VOCA provided training to smallholders on how to diagnose and treat common ailments; how to control the spread of infectious diseases; recommended practices during calving; and when to vaccinate. Veterinarians – many of them women - received training from ACDI/VOCA to improve the quality of their technical services and their businesses, and linkages were established with associations that resulted in contracts for regular visits by veterinarians to smallholders on a fee-for-services basis.

ACDI/VOCA also worked with a local rural microcredit NGO to develop a loan product for smallholder association members to encourage better, more lucrative fattening practices. The loan package bases the repayment schedule on the fattening and sales cycle and promotes application of standards and procedures for selecting and grading animals. By the end of the project, 397 smallholders had received loans totaling over \$650,000. The NGO has continued the management, funding and promotion of this program long after the close of the project, making it an important sustainable legacy.

The project will seek to collaborate with existing demonstration farms such as:

- The Hashemite Fund for the Development of Jordan Badia and Ministry of Agriculture's 1000 ha demonstration farm that promotes planting of forage in surrounding communities (barley for grain and waste/byproducts for small ruminant grazing) and demonstrates water-efficient practices for forage shrubs
- The Badia Research and Development Center (BRDC) and New Mexico State University's demonstration farm near Al-Mafraq

As feasible, we will help to further develop and broaden access to these existing farms and will investigate the need to establish new demonstration farms.

Pilot Forage Project Implemented by the Hashemite Fund for Badia Development

The Fund will implement this project with help from concerned ministries and a local private sector company on state-owned lands in the Badia region. The project, which began in the fall of 2008 is designed to foster self-dependence on locally cultivated animal feed. Although the amount of cultivated fodder will be limited during the first phase of the project, it is hoped that it will help establish full dependence on locally planted fodder and ending the import of animal feed.

The project seeks to:

- Provide fodder to local farmers at affordable prices.
- Cut expenditures by gradually reducing imported animal feed from neighboring countries.
- Support and sustain Jordan's livestock sector.

Community members will receive training at the demonstration farms in how to apply techniques on their own land. Where appropriate, study tours to neighboring countries will be arranged for demonstration farm managers and key forage producers to observe best practices and successful models of forage production. Over the course of the project, ACDI/VOCA will provide training to demonstration farm employees and experts to encourage farm sustainability.

OBJECTIVE 4: STRENGTHEN ASSOCIATIONS/COOPERATIVES IN THE SMALL RUMINANT SECTOR

Inadequate knowledge and generally poor farm management practices by Jordanian dairy farmers are a principal reason for weak dairy production and poor milk quality. The project will seek to build on existing farmer groups that represent clusters of communities or will identify groups that can be formed early on in the project to create models for replication.¹¹ Depending on local capacity and available resources, we will explore the option of forming larger unions or associations of cooperatives to maximize economies of scale.

The project will facilitate the delivery of training and business advisory services to client dairy producers using well-established and field-tested training curriculum and techniques. Potential topics might include:

- cooperative management, development and financial planning
- simple production-related and administrative farm management systems and procedures
- establishing and maintaining market linkages
- fee-based services to members (bulk input purchases, product aggregation, marketing, etc.) to increase the cooperative's financial viability

To strengthen access to necessary inputs, ACDI/VOCA will work with farmer groups to negotiate bulk purchases of feed, vaccination services and other inputs. Where needed, the project may facilitate the creation of community-based milk collection farmer groups or cooperatives and equip them with milk chillers (refrigerated tanks) and other related equipment in addition to providing training and technical assistance to these groups on how to manage these systems. By pooling the community's milk and improving quality, the collection groups will generate sufficient economy of scale for processors to transport the milk to processing and packaging plants. In all of these activities,

¹¹ ACDI/VOCA will explore working with the Royal Jordan Foundation, which currently has a wide network of over 200 cooperatives, to identify and strengthen groups.

ACD/VOCA will draw on its extensive resource base of experts, its strength in cooperative formation and training around the globe, and its experience in Lebanon, Palestine and Egypt.

OBJECTIVE 5: INCREASE AWARENESS OF NUTRITIONAL VALUE OF HYGIENIC MILK LEADING TO INCREASED DEMAND

ACDI/VOCA will launch a country-wide public awareness campaign to raise understanding of the nutritional benefits milk and other dairy products play in maintaining a healthy diet and preventing diseases as well as increase confidence in the safety of locally produced milk and milk products. We will utilize electronic and print media and work through a wide variety of partners such as civil society, government agencies and community groups and forums in order to achieve broad outreach. One potential collaborator in this area is the Jordanian Osteoporosis Prevention Society (JOPS), which is already carrying out events such as symposiums, trainings and social events to promote a calcium-rich diet.

The project will train government health education agents on the nutritional value of milk. The trainings will include not only information on the benefits of including milk in the daily diet, but will also provide tips on effectively communicating the message to clients. The agents will disseminate the message to community members, targeting in particular women, who are more likely to be doing the shopping for the household and to be feeding the children. The project will supplement the training with easy to understand materials such as brochures and posters for agents to distribute in the communities.

Targeting Children's Nutrition

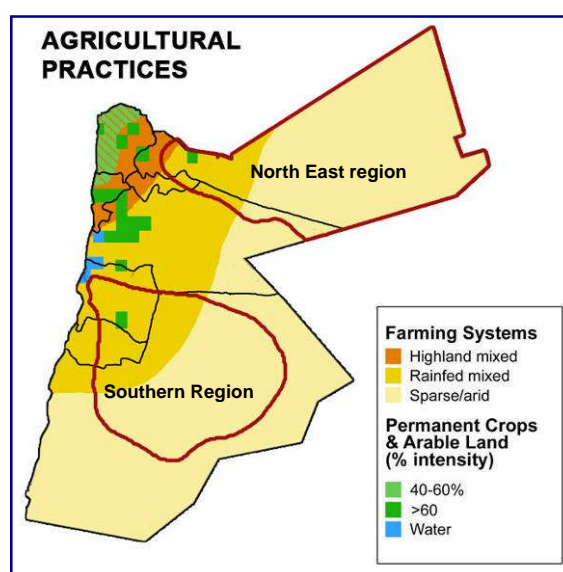
Schools will be targeted in order to ensure parent and teacher understanding of the potentially deleterious health effects of low milk consumption. Teachers will receive materials promoting the benefits of consuming milk and ACDI/VOCA will explore the possibility of working with producers to distribute milk to participating schools.

We will also engage local processors in the awareness raising campaign. Staff will encourage processors to include the nutritional value of milk in their marketing and packaging. For example, the label on a carton of milk might indicate that the product is a rich source of calcium, and that this is a nutrient which is useful in reducing the risk of osteoporosis. Such information has the potential to contribute actively and positively to public health objectives, by allowing consumers to make more informed food choices and enabling consumers to plan their diets around their own health goals.

IV. IMPLEMENTATION PLAN

The foundation of the RED project will be a strong understanding of issues and constraints inherent in each region targeted. The project will identify the best strategies, types of interventions, business clients and partners the project will adopt and work with to achieve project goals and maximize impact in the shortest period of time.

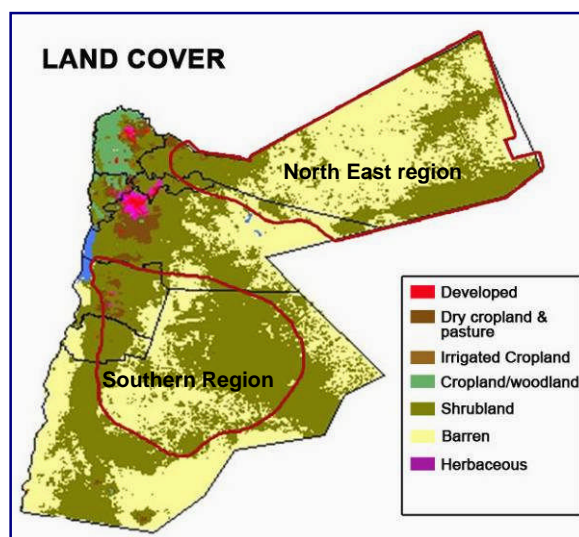
During the first six months of the project, advisory planning committees consisting of public- and private-sector actors in each regional value chain will be created. These committees will work closely with project staff in assessing critical constraints and opportunities, and in developing appropriate interventions. Subsequently, at the completion of the detailed market assessment and value chain analysis described previously, a strategic framework will be developed for the small ruminants value chain in each target region (see



Farming systems and arable land density in approximate target areas.

map above for approximations of geographic areas of each region) at a one-day participatory workshop attended by key value chain stakeholders and partners. Containing region-specific goals, objectives, intervention strategies and targeted businesses operating in the dairy sector, these strategic frameworks will serve as “road maps” for strengthening the regional dairy chain. The appropriateness of the strategic frameworks will be reviewed on a semi-annual basis and adjusted to reflect progress in project implementation and changing circumstances on the ground. A second and parallel key initiative during the first six months of the project will be the development of a monitoring and evaluation Plan. The M&E plan will be closely linked to the development of strategic frameworks and, once implemented, will serve as the basis for measuring project progress and impact.

During year one of the project, ACDI/VOCA proposes to focus on one region to develop and launch pilot activities that will generate rapid impact and demonstrate the effectiveness of working with the RED project before we expand into other two target areas. We propose launching the project in **Southern Badia** (Karak-Ma'an-Al Jafer region), which offers potential for partnering with existing demonstration farms, is relatively rich in aquifers (and the Government of Jordan plans to dig 18 new aquifer wells), has more than 400,000 head of small ruminants and a strong need for pasture rehabilitation. Additionally, it is one of the poorest areas in the Kingdom. In month 18, RED will expand activities into the **North-East Badia** (Mafrqa region). See Annex A for a description of the regions and potential for crop substitution.



Land cover in approximate target areas.

V. POTENTIAL PARTNERS

ACDI/VOCA fully recognizes the valuable work conducted to date in Jordan by both local and international organizations that have committed significant resources towards developing the Badia region. To maximize impact and as one element of its sustainability plan, ACDI/VOCA intends to allocate up to \$1.5 million in its budget for subawardees under the RED project and will also establish strategic, non-financial relationships with many key stakeholders. Throughout the project, we will draw upon our partners' resources – including their technical expertise, historical knowledge and physical infrastructure. ACDI/VOCA has already identified several major local organizations with which it intends to engage, including the Badia Research and Development Center, the Hashemite Fund for Development and the Jordan River Foundation.

Additionally, ACDI/VOCA will engage the members of a consortium of organizations and institutions participating in the *Middle East and North Africa Farmer-to-Farmer Leader with Associations Award*, a consortium which ACDI/VOCA now leads. Other members include Winrock International, Land of Lakes International, Lincoln University, and the nine-member strong International Arid Lands Consortium.

Additional information on a preliminary list of potential partners can be found in section VI “Organizational Qualifications and Past Performance,” below. Final determination of partners, roles and associated funding will be determined at a later date and submitted to the donor for approval with the project work plan in the first quarter.

VI. PROGRAM OPERATIONS

Management and Staffing: RED will be led by a project director with extensive experience implementing large, donor-funded economic development projects in the Middle East; a lead technical advisor who will be an expert in small ruminants; and a cadre of full-time Jordanian technical implementing staff based in the Badia. This expertise will be enhanced by short-term technical assistance assignments provided by international experts and substantial use of volunteer consultants. The project will also have a small core of administrative and financial operations staff.

Project Offices and Equipment: In accordance with the implementation plan outlined above, the RED project anticipates three project offices: a small head office in Amman and two regional field offices which will serve as a base for programmatic activities in northern and southern Badia. Every effort will be made to maximize cost efficiency and consideration will be given to co-locating with a project partner, although the results of the value chain assessment conducted early in the project will lead the final selection of project offices in order to maximize RED's ability to reach and impact its clients.

Monitoring & Evaluation: The project's M&E system will be designed in parallel to the development of regional strategic frameworks. M&E staff will contribute to the development of regional strategic frameworks, design specific performance measurement tools, select data sources and collection methods, and establish baselines. By the end of month 3, ACDI/VOCA will develop an Indicator Performance Tracking Table as well as a system to manage indicator targets and outputs. This will be used as a guide for ensuring that activities lead to expected outputs and outcomes, which in turn contribute to the proposed impact of RED.

VII. ORGANIZATIONAL QUALIFICATIONS AND PAST PERFORMANCE

ACDI/VOCA, founded in 1963, is a private, nonprofit international development organization that fosters broad-based economic growth, raises living standards and creates vibrant communities. ACDI/VOCA's respect for host societies and commitment to the involvement of beneficiaries as true partners in development results in improved local capacities, enhanced opportunities and dynamic sustainable communities, cooperatives and enterprises. ACDI/VOCA's business model is designed to increase incomes and wealth, permitting beneficiaries to fully participate in the global economy. ACDI/VOCA is known as a leader in value chain methodology and its practical application in the field, particularly as it relates to agribusiness. Our programs apply community-based development approaches, working closely with all stakeholders to identify local priorities for economic growth and investment, social infrastructure and community development.

ACDI/VOCA's Approach to Sustainability

ACDI/VOCA forms and works with collaborative relationships, building on existing expertise and systems to avoid replication, enable rapid program start-up and ensure sustainability. Links are encouraged and facilitated among market actors and among neighboring or similar producer groups that are private-sector based and can continue without ACDI/VOCA's involvement after the program is finished.

Regional Experience: ACDI/VOCA has significant regional experience in the Middle East, gained over decades of partnerships with USAID, the World Bank and local governments during the implementation of over 40 projects in the region. Current regional program offices are located in Beirut, Ramallah and Cairo. Through this experience, ACDI/VOCA has cultivated a well-developed roster of regional agribusiness experts, many of them Arabic speakers. ACDI/VOCA has implemented projects in Egypt since 1988, in Palestine since 1998 and in Lebanon since 2005, where we managed the \$6.9 million *Action for Sustainable Agro-Industry in Lebanon (ASAIL)* program, funded by USAID. Recent feasibility studies conducted in Jordan in collaboration with local organizations have grounded ACDI/VOCA's understanding of Jordan's agricultural landscape in the context of complex environmental, geographical and cultural considerations.

Expertise in the Livestock Sector: Globally, as well as in countries such as Lebanon and Egypt, ACDI/VOCA has worked with stakeholders of small ruminants, cow and buffalo livestock value chains, including small producers, milk traders, small-, medium- and large-scale processors, abattoir owners and service providers such as veterinarians and feed suppliers. Technical assistance includes animal health and production, meat and dairy processing, milk and processed product marketing, association building and advocacy. Through the ASAIL program in Lebanon, 1,700 small ruminant producer households were trained from 2005-2008 in improved milk practices and animal health and nutrition. In Egypt, ACDI/VOCA's *Agribusiness Linkages for Egypt (AgLink)* project targeted dairy, meat and farm supply sectors. AgLink's interventions resulted in a 30 percent cost reduction through improved techniques, and clients added 2,079 MT of meat and 82,031 MT of milk to Egypt's domestic supply. In addition, more than 13,000 indirect beneficiaries adopted new farming practices or technologies.

Stimulating Sustained Income and Employment Generation: ACDI/VOCA promotes sustainable agricultural practices that help farmers and agro-entrepreneurs generate profits by improving production and value-added processing techniques, diversifying crops and improving marketing capabilities. In Egypt, for example, the AgLink program increased revenues of the project's core livestock and dairy clients by more than \$72 million, and non-core clients' revenues by over \$196 million, and client farms created 13,000 additional jobs. Income increased by more than \$10.3 million for small ruminant producers reached by ACDI/VOCA's ASAIL program in Lebanon, as a result of buyer linkages, group formation for bulk purchases and marketing, vaccinations, and training in animal health and nutrition and milking practices. Additionally, 82 processors received technical assistance, training and follow-up services in marketing, business planning and product development, resulting in direct sales of more than \$2.2 million internationally.

Volunteer Activities: ACDI/VOCA has implemented more than 9,300 agricultural and business-related, short-term volunteer technical assistance assignments in 130 countries. Annually, ACDI/VOCA fields more than 400 volunteer specialists, most having over 15 years of relevant technical experience. Volunteers include farmers, agribusiness executives, marketing information systems specialists, cooperative managers and marketing professionals. ACDI/VOCA has considerable experience in recruiting volunteers in the Middle East region, having conducted over 340 assignments in Lebanon, Egypt, Jordan, West Bank and Gaza and Yemen, to date.

Potential RED Partners: A list of potential partners from which the RED project will draw is detailed below. Final selection and an outline of roles and funding levels will be made in coordination with the donor upon award and completion of the value chain analysis in the first quarter.

Farmer-to-Farmer

ACDI/VOCA has been a leading implementer of the USAID Farmer-to-Farmer program since its inception in 1985. ACDI/VOCA was awarded the first Farmer-to-Farmer grant, which sent volunteers to Latin America and Caribbean countries to provide hands-on training and technical assistance to farmers and entrepreneurs. ACDI/VOCA now leads two multi-million dollar, five-year Regional Farmer-to-Farmer Leader with Associates Awards, covering the Middle East and West Africa. ACDI/VOCA has managed FTF for over 24 years, recruiting thousands of volunteers to provide direct assistance to farmers, agribusinesses, associations and credit institutions around the world.

Table 1. Potential RED Partners

Potential Partners	Description
International Arid Lands Consortium	<p>IALC is an independent nonprofit organization consisting of nine institutions that approach development in arid and semi-arid lands from a research-based, practical application perspective. Expertise includes agricultural and natural resource research and management, business management and marketing, energy provision and policy, human resource development and water resource development, conservation and management. Project activities include education and training, demonstration projects, workshops, and technology-transfer activities in the U.S., Middle East and elsewhere.</p> <p>IALC members represent nine institutions and four nations: the University of Arizona, the Desert Research Institute – Nevada, Higher Council for Science and</p>

	<p><i>Technology – Jordan, The University of Illinois, Jewish National Fund, Ministry of Agriculture and Land Reclamation – Egypt, New Mexico State University, South Dakota State University, and Texas A&M University-Kingsville.</i></p> <p>ACDI/VOCA anticipates a particular fit for New Mexico State University, which has a presence in Jordan as a USAID-funded implementer in collaboration with the Badia Research and Development Center and others.</p>
Hashemite Fund for Development of Jordan Badia	<p>The Hashemite Fund for Development of Jordan Badia is a key partner in the government's plan to expand economic growth in the Badia region, improve human and natural resources, attract investment, and reduce poverty and unemployment for Badia's citizens. The HFBD is implementing a variety of projects aimed at improving infrastructure, increasing water accessibility and sound water management, and upgrading the quality of agricultural services available in the region.</p> <p>We expect one key element of our activities to be our collaboration with HFBD to strengthen and broaden access to their 1000 ha demonstration farm in southern Badia, promoting planting of forage in surrounding communities (barley for grain and waste/by-products for small ruminant grazing) and demonstrating water-efficient practices for forage shrubs. HFBD's staff will be a key part of RED's sustainability plan.</p>
Badia Research and Development Center	<p>The well-respected Badia Research and Development Center, established in 1992, implements a variety of mainly agricultural research and applied research programs to develop the semi-arid lands of the Badia and reduce poverty. With field stations throughout the Badia, including Sawafi in eastern Jordan and a small forage demonstration area in Tal Rimah, BRDC's strong network of technical experts conduct rangeland restoration projects as well as research on crop varieties that will grow in the Badia's unique environment. BRDC also has the infrastructure to provide training centers, some with meals and lodging, at several of its stations.</p> <p>BRDC will play a critical role in the RED project's mandate to increase the availability of forage and improve the quality of service providers involved in forage. It will also play a critical role in promoting sound water management and environmental best growing practices for the region.</p>
Jordan River Foundation	<p>The Jordan River Foundation, chaired by Her Majesty Queen Rania Al-Abdullah, is a non-profit NGO that emphasizes empowerment of youth and women, community development, and income generating activity trainings in a variety of areas, including handicrafts and computers. With a strong emphasis on participatory approaches to development, JRF has worked with over 200 cooperatives throughout Jordan's poverty areas and has a loan program which to date has dispersed 120 animal production loans</p> <p>The organization's strong emphasis on women and children's empowerment make it unique to the RED project's potential consortium. ACDI/VOCA anticipates collaborating with JRF on trainings in cooperative management, income generating activities outside the scope of small ruminants, and drawing on their expertise to integrate considerations for women and children into RED programming and activities.</p>
Land of Lakes (LOL)	<p>LOL is a farmer-owned cooperative and diversified agribusiness, highly acclaimed for its nationally branded dairy products and owner of the largest livestock feed and agronomy company in North America. A division of Land O'Lakes, Inc., LOL has 27 years of experience implementing more than 140 projects in over 70 countries worldwide.</p> <p>LOL has strong abilities to recruit volunteer experts for the RED project with a specific emphasis on livestock, dairy, feedstuffs, agribusiness management systems, marketing and cooperative development. Volunteer recruiters draw on a database of 3,000 technical specialists covering a broad range of agricultural expertise from animal care and health to food processing and packaging and cooperative and enterprise development.</p>
Rutgers University	<p>Rutgers University, based in the United States, implements various projects to promote integration of smallholders into commercial food chains, livelihood</p>

	diversification activities, and sustainable agriculture. RED may engage Rutgers in alternative income generation activities later in the project's life cycle – mainly in medicinal herbs and spices - as they have extensive capabilities in this area.
Winrock International	<p>Winrock International is an international nonprofit organization based in the United States that empowers the disadvantaged, increases economic opportunity, and sustains natural resources. They have a wide range of capabilities including water, energy, and agriculture and are also a member of the Farmer to Farmer Leader with Associates Award Consortium.</p> <p>ACDI/VOCA may engage Winrock International, if needed, to provide volunteer experts in the areas of alternative energy (possibly on farms or processing centers) and water conservation. Their previous experience in Jordan will prove valuable.</p>

ANNEX A

Field Assessment Findings of the Small Ruminant Sector in the Hashemite Kingdom of Jordan

Overview of the Small Ruminant Sector

The Jordanian Herd

Compared to Lebanon, Jordan is a vast country with an area of 80,000 square kilometers, 90 percent of which is arid desert. The country is divided into different regions:

The central region—the most prosperous region that includes the capital, Amman, and reaches Madaba—has a relative abundance of rain (in the range of 350-490 mm annually), with a yearly daily average temperature of 17 degrees Celsius (range 13-30), with a population of around 600,000 heads of small ruminant, and has olive trees production. This area could be ideal for the production of winter cereal forage crops.

The western region includes Irbid, Ajloun and Jarash, and has an annual precipitation of around 500 mm, and an average temperature of 18 degrees Celsius (range 9-25). The region has a population of 350,000 heads of small ruminant and a higher concentration of goat production than elsewhere as it is a more mountainous than the other regions in the Kingdom. This area has a great potential for producing winter cereal forage crops.

The north-east region, which includes Al Mafrag, has an annual precipitation of 160 mm, and an average temperature of 24 degrees Celsius (range 12-33). This area is predominantly desert, and is referred to as the North-Eastern Badia.¹² The highest concentration of small ruminant production in the Kingdom is found in this area—mainly sheep, which account for more than a million heads. Moreover, most of the aquifer water of the Kingdom is found in the Badia. This is one of the reasons that most agriculture crops are produced in the Badia together with Al Ghour area. North-Eastern Badia is classified as one of the poorest regions of the Kingdom. This area has a high potential for crop substitution, such as some of the current horticultural production with forage production.

The southern region, including Al Karak, Ma'an and Al Jafer, has an annual precipitation of less than 50 mm, an average temperature of 25 degrees Celsius (range 14-36), and around 400,000 heads of small ruminant. This region is known as the Southern Badia, and many of the Bedouins still raise their animals in a traditional way in this region. The average size of the flock in this area is more than 1,000 heads; some of the producers in this area have up to 7,000 heads. This region is also considered to be among the poorest in the Kingdom.¹³ The Badia has a great potential for rehabilitating pastures, especially the perennial shrubs.

Socio-Economic Findings

The general finding concerning the small ruminant sector in the Kingdom is that there are 37,000 families¹⁴ with small ruminant production as their only source of income. Jordan is raising about 3.6 million heads of small ruminant animals, 65 percent of which are sheep. Drought is the major problem facing the Kingdom in general and especially the desert areas which are the main areas for small ruminant production. Not surprisingly, Jordan produces only 5 percent of the fodder needed for its domestic small ruminant production, and the remaining 95 percent is imported from different countries.

¹² Badia in Arabic is Desert

¹³ Kingdom of Jordan has 3 main poor areas these are: Al Jafer, Rwayched, Al Mafrag

¹⁴ Average family has 10 members

Small Ruminant Dairy Sector and Milk Production

The estimated annual milk production from the small ruminant sector is more than 100,000 tons,¹⁵ and lasts for about 4 months, in the spring and early summer season, 90 percent of this milk is being sold to the local village community, as either fresh milk or dairy products, like Jameed, Shenegah, local cheese, ghee, and Nabulsi cheese.



Dairy Processing and Milk Collection: Dairy products are made in the producers' households, in very simple and traditional dairy plants, or in tents that move with small ruminant producers in the desert (Bedouins)—in each case, under unhygienic conditions. Only 10 percent of the local small ruminant milk is available to the dairy processing plants (according to unofficial statistics from the dairy plants visited by the expert), transported from the producers to the dairy plant via open pickups in 30-50 litres non-refrigerated tanks. In general dairy products are sour and very salty, and of poor quality compared to the other cheese types in the surrounding

Arab region. More importantly the varieties of cheeses are very limited, with a very few white basic cheeses. This sector has a great potential for development, and interventions could be in the following areas:

- Milk quality and transportation
- Introducing new types of cheeses
- Improving the quality of the local cheeses
- Better quality and hygiene practices in the dairy plants
- Improving the quality of the Jameed which has a huge market since it is the main ingredient for the popular dish called "Mansef"
- Establishing mutual benefit linkages among the small ruminant producers, the dairy processing plants, and the entire value chain.

Small Ruminant Meat Production: 25 percent of local red meat consumption is in the form of lambs and kids. The market preference is for small lambs that are sold at approximately 12-14 kg carcass weight, which is 25-30 kg live weight. Imported lambs are sold at 20-25 kg carcass weight, which is 40-50 kg live weight. There is a great potential in lamb and kid fattening, which could generate a substantial income. I.e., the total income of the producer could increase tremendously, as 70 percent of the small ruminant flock income is from meat. Therefore, there is a great potential to improve this income in terms of percentage and total income with proper fattening practices.

Potential for Forages: Forage production in Jordan has huge potential, especially with increased international demand and prices. Partial substitution for horticultural products in some areas is required, in order to support the small ruminant and the general livestock sector. Certain regions are suitable for this forage production—namely, the Central regions would be ideal for winter cereal forage production (mainly barley) and the North-Eastern area would be suitable for planting summer forage crops (mainly corn) that will not only support the livestock sector but could also lower imports of forages.

Value Chain Analysis: The chains within the value chain are made up by raw material suppliers, herders, producers or processors, middle men, buyers and retailers. As such, value chains are rooted within the territory locally owned and managed and entail mobilization of local resources and competitive advantages. A quick glance of the value chain of the small ruminant dairy sector shows that the major components in the VC are the **small ruminant producers, milk transporters, and the dairy processing plants**. At the producer level there is much that can be done with great potential for

¹⁵ MoA Department of Statistics

development to make this component independent from any governmental subsidy, i.e., make it sustainable on its own. Issues that need direct interventions¹⁶ at the producers' level would be: animal health, nutrition, fattening, farm management and milk production. Improving technical know-how at the producers' level is needed to make their business more profitable and sustainable¹⁷ thus, improving the livelihood of the producers and their families. Milk transportation is another component of the value chain requiring intervention in order to make more and better quality milk available for the larger, formal dairy plants through the introduction of improved milk handling practices and cold chain infrastructure. The dairy processing plants, which process very limited types of cheeses, need to improve quality standards, in addition to introducing new types of cheeses based on market demand.

Different feasibility studies are needed for each region in the Kingdom, depending on the area characteristics in term of annual precipitation, type of soil, availability of water for irrigation, and the small ruminant population.

Fodder: Emergency Plan

In 2008 drought conditions were very severe, affecting the Middle East region in general and resulting in an inadequacy of pastures needed to sustain a normal level of animal production. As Jordan has vast desert areas, which normally sustain a major portion of the national flock, the drought had an



extreme impact on the sector. As pastures were completely lost to the drought, accordingly the producers started depending almost exclusively on imported feed to maintain their animals. Feed prices have in turn doubled due to increased international demands and increased costs of transportation. The Government of Jordan has a subsidized feed distribution program, by which the small ruminant producers receive 10 kg of barley and 4 kg of wheat bran/per head/per month at half price (150 JD/ton of barley) as compared to the free market prices (300 JD/ton of barley). The average daily feed needed for each animal for good maintenance is around 30-36 kg /month per head,

in normal years. In most years, producers use the government-subsidized feed allowance as supplementary feeding to support the pastures, with the animals depending mainly on the pastures for their nutritional needs. This year the producers relied almost 100 percent on the supplementary feeding, depending on the area, to support their animals, buying extra feed at higher market prices on top of what the government subsidized, using their money reserves for the first 2-4 months of the year. By March/ April producers started selling their young animals (lambs and kids) at early ages and low weights, as there were unable to provide them with feed to fatten them for sale at higher prices. Accordingly lambs and kids were sold during the weaning period weighting on average between 13-18 kg and priced at 40 JD. Milk production was also extremely low, not reaching 40 percent of the average production in normal years.

By May /June producers started selling the mature female animals (the breeders) which are the major asset of a producer, in order to secure cash to buy feed and maintain their flock. The resulting oversupply in the market brought the prices of ewes down to 40-60 JD, compared to 120-140 JD in 2007. Every producer that the expert met with in Jordan was willing to sell his flock should he find a buyer. Now, in July 2008, producers are not able to sell their animals in order to get cash to buy feed, and as a result animals are not given the required nutritional ration, and thus animals are dying of

¹⁶ Beside the partial substitution from vegetables to forage crops (please see table 1)

¹⁷ Many techniques that ACDI/VOCA's volunteers and experts introduced and taught ASAIL producers have proven to have great impacts. I.e. lambing rates increased from 50 percent to 80-85 percent which resulted to about an increase of 30 percent of producers' incomes.

hunger. Per expert visits to different regions of the Kingdom, this situation of malnutrition and mortality was common to all regions.

In Irbid one producer lost to date 1,100 heads as a result of either sales or mortality. In Bani Hameda Mountain a producer lost 170 heads out of 280 for the same reasons, and in Al Jafer Badia, an elderly lady visited reported a loss of 1,000 heads out of 3,000 that her and her husband were raising to feed 40 children and grand children in their household. The woman producer indicated the following: “we have lost in a few months what we built in a life time; the sad part is that it is happening in front of our eyes and we are not able to do anything to stop the massacre”.

The coming few months are critical for the small ruminant sector in Jordan, as there are no pastures and no cash being generated to buy feed to support the animals. The national flock of Jordan is under the threat of extinction, and an emergency plan is required to rescue the sector. The implications at the socio-economical level of losing this sector are severe. As previously stated, the national flock counts 3.6 million heads sustaining the lives of 37,000 families¹⁸, and providing 25 percent of local consumption of red meat. In addition to meat production, more than 100,000 tons of fresh milk is produced per season for household consumption and local sale, in addition to about 800 tons of other dairy products.



An emergency plan should be put in place to rescue the national flock: feed rations should be distributed immediately to producers, providing each animal with an extra 20 kg of feed (barley, wheat bran, corn, alfalfa hay, cereal straw, wheat bran, feed by-products, etc.), on top of what is being given already (i.e. 10 kg of barley +4 kg of wheat bran), from now until the start of the new pasture season. This amount of feed will be sufficient to maintain the animals in a healthy condition, enabling them to survive and breed, and to enable good production levels in the coming season. If, however, current feeding patterns continue, any surviving animals will be unable to breed, which will result in a loss of the next production season. After rescuing the national flock through the emergency feed distribution, the sector should be developed in order to be self-sustainable, and ultimately stop relying on the government-subsidized allowance. Once again the issues that should be seriously addressed are: animal health, nutrition, fattening, milk production, forage production and pasture rehabilitation in the Badia.¹⁹

¹⁸ Each family accounts for approximately 10 members

¹⁹ Badia region was visited by his Majesty King Abdullah July 3rd, 2008, and some major issues—such as infrastructure, water, fodder, education, health and others—were mentioned as the main areas of intervention to be financed through the Hashemite Fund (see article sent) in the very near future.

Table 1. Summary of Crops substitution by region in Jordan

Region	Annual precipitation	SR population	Area Existing crops	Crops substitution	Forage crops recommendations
Central Region	450 mm	Sheep:525,000 Goats:123,000	Cereal, olive, and vegetables	Forage corn partially replacing vegetable crops	Winter: Barley, vetch Summer: Forage corn
North-Eastern Region	160 mm	Sheep: 1,225,000 Goats:122,000	Vegetables (availability of aquifer water)	Forage corn partially replacing vegetable crops	Winter: Cereals and vetch Summer: Forage corn
Western Region	500 mm	Sheep: 179,000 Goats: 171,000	Vegetables, olives, and cereals	Forage corn partially replacing vegetable crops	Winter: Cereals and vetch Summer: Forage corn
Southern Region	50 mm	Sheep:291,000 Goats: 99,000	Vegetables in the areas where water is available	Forage corn partially replacing vegetable crops	Rehabilitating the Badia with perennial shrubs, and planting the flood areas with cereals

Table 2. Recommended feed distribution by area

Region	Types of feed	Period
Central Region	Barley, wheat bran, cereal straw, alfalfa hay, corn silage, etc.	July till the rainy season
North-Eastern Region	Barley, wheat bran, cereal straw, alfalfa hay, corn silage, etc.	July till February
Western Region	Barley, wheat bran, cereal straw, alfalfa hay, corn silage, etc.	July till the rainy season
Southern Region	Barley, wheat bran, cereal straw, alfalfa hay, corn silage, etc.	July till February

ANNEX B

Crop Substitution Feasibility Studies

Feasibility for Alfalfa/Ha:	Lebanon	Jordan
Seeding rate (Kg/Ha):	5 Kg	5 Kg
Seeds Price:	7 \$/Kg	7 \$/Kg
Cost of Seeds:	350 \$	350 \$
Land Rent/year:	1400 \$	800 \$
Land preparation:	150 \$	140 \$
Irrigation:	850 \$	2500 \$
Planting:	60 \$	100 \$
Pesticides:	50 \$	100 \$
Fertilizers:	500 \$	1500 \$
Labor:	250 \$	250 \$
Harvesting:	900 \$	900 \$
Total:	4510 \$	6640 \$
Total income:	6000 \$	10000 \$
Net Profit:	1490 \$	3360 \$

Average production /Ha is 20 tons

Expected price per ton of alfalfa bails in the field is 300 \$ in Lebanon for the year 2008, and in Jordan the price of Alfalfa for the year 2007 was 280 \$/ton. The price for this year in Lebanon has increased by 90%, in addition to the price of the transportation, the expected price of the alfalfa in Jordan for this year is about 500 \$.

These figures are collected from the field from alfalfa producers, suppliers, and traders, in the Bekaa, Lebanon, and from the field in Al Mafrag area in Jordan.

Feasibility for tomato production in Jordan:

Cost of Seeds and transplants	700 \$
Land Rent:	280 \$
Land preparation:	140 \$
Irrigation:	2100 \$
Planting:	150 \$
Pesticides:	700 \$
Fertilizers:	2100 \$
Labor:	150 \$
Harvesting:	1400 \$
Drip Irrigation System	250 \$
Black Mulch	700 \$
Manure	280 \$
Total:	8950 \$
Total income:	3500 \$- 12500 \$
Net Profit:	-5450 \$- 3550 \$

Average production /Ha is 25 tons

Expected price of tomato in the whole sale market is 140 \$-500 \$/Ton

These figures are collected from the field from Tomato producers in Al Mafrag area in Jordan.

Feasibility for watermelon production in Jordan:

Cost of Seeds and transplants	700 \$
Land Rent:	280 \$
Land preparation:	140 \$
Irrigation:	2100 \$
Planting:	150 \$
Pesticides:	280 \$
Fertilizers:	700 \$
Labor:	150 \$
Harvesting:	300 \$
Drip Irrigation System	250 \$
Black Mulch	700 \$
Manure	280 \$
Total:	6030 \$
Total income:	8000 \$
Net Profit:	1970 \$

Average production /Ha is 40 tons

Expected price of watermelon in the whole sale market is 200 \$/Ton

These figures are collected from the field from water melon producers in Al Mafrag area in Jordan.

Feasibility for Forage Corn/Ha: Lebanon**Jordan**

Seeding rate (Kg/Ha):	80,000 seeds	80,000 seeds
Seeds Price:	Sac 50,000 seeds cost 125\$	125 \$/sac
Cost of Seeds:	200 \$	200 \$
Land Rent:	600 \$	280 \$
Land preparation:	70 \$	140 \$
Irrigation:	700 \$	2100 \$
Planting:	60 \$	100 \$
Pesticides:	50 \$	100 \$
Fertilizers:	200 \$	700 \$
Labor:	150 \$	150 \$
Harvesting:	150 \$	150 \$
Total:	2180 \$	3920 \$
Total income:	3600 \$	10800 \$
Net Profit:	1420 \$	6880 \$

Average production /Ha is 45 tons

Expected price of corn silage in the field is 80-90 \$ in Lebanon for the year 2008, and in Jordan the price for year 2007 was 140 \$/ton. Need to say that the prices of corn silage in Lebanon have increased by 70% in addition to the increased price of transportation, the expected prices in Jordan for this year is 240 \$.

These figures are collected from the field from forage corn producers, suppliers, and traders, in Akkar and in Bekaa, Lebanon, and from vegetable producers in Al Mafrag in Jordan.

ANNEX C. Rural Economic Development (RED) Project Estimated Costs**Rural Economic Development (RED) Project Estimated Costs Overview**

Phase I: February 1, 2009 - January 31, 2011; Phase II: February 1, 2011 - January 31, 2013

	Phase I				Phase II		
Description	Yr 1 Total Costs	Yr 2 Total Costs	Yr 3 Total Costs	Total Phase I USD	Yr 4 Total Costs	Yr 5 Total Costs	Total Phase II USD
Technical Implementation	\$1,121,060	\$1,286,221	\$1,627,128	\$4,034,409	\$1,609,418	\$1,623,446	\$3,232,864
Project Operations	\$443,929	\$390,259	\$253,489	\$1,087,676	\$266,163	\$259,229	\$525,392
Sub-Total	\$1,564,988	\$1,676,480	\$1,880,616	\$5,122,085	\$1,875,581	\$1,882,675	\$3,758,256
Local and International Subcontractors & Pass through	\$375,000	\$426,500	\$453,045	\$1,254,545	\$429,636	\$325,000	\$754,636
Grand Total	\$1,939,988	\$2,102,980	\$2,333,661	\$6,376,630	\$2,305,217	\$2,207,675	\$4,512,893

** In addition, the RED project anticipates leveraging over \$1 million in donated time from regional and U.S. based professional volunteers in fields such as animal husbandry, branding and marketing, water management, fattening, product development, business trainings, HACCP/ISO implementation, milk production, grades and standards.*