



LEBANON RECOVERY FUND
PROJECT DOCUMENT COVER SHEET

Participating UN Organisation: Food and Agriculture Organization of the United Nations (FAO)	Sector: Agriculture / Livelihoods
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Programme/Project Title: Recovery and Rehabilitation of Dairy Sector in Bekaa Valley and Hermel-Akkar Uplands Programme/Project Number:	Programme/Project Location: 300 Villages From Mohafazats: Beqaa, Baalbeck-Hermel, Akkar and North Lebanon
Programme/Project Description: Assistance programme for 2000 smallholder dairy producers through: Grouping dairy producers' associations to reach self support a sustainable status, Support for improving milk hygiene and quality with distribution of small dairy equipment and creation of milk collection centres, distribution of inputs for rehabilitation of veterinary and artificial insemination services, Introduce intensive system of goat farming in stationary barns with import of Shami goats of high dairy breed and training to strengthen capacity in improved animal production, hygienic dairy production, feed resources and animal health	Total Programme/Project Cost: US\$1.2 million LRF: 0 Government Input: 0 Other: 0 Total: US\$1.2 million
	Programme/Project Duration: 24 months (Upon Approval)
Development Goal and Key Immediate Objectives: The aim of this proposal for PHASE TWO is to build on LRF-21's activities to reach a higher number of poor livestock farmers and improve the livelihoods of poor farmers and sustain the dairy sector in Lebanon, emphasis is made on improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer and improve the milk prices. The proposed project is also aiming to introduce pilot demonstrations on intensive breeding of genetically improved or imported milking goats in dairy farms to improve income-generation of the poor farmers in rural areas living from goat rearing. The project is targeting 2000 farmers to draw direct benefits from project interventions (distribution of project inputs, livestock services & milk services) with an additional 1000 farmers who will draw indirect benefits from the project through milk collection, cooling and transport services as well as training sessions.	
Outputs and Key Activities: <ul style="list-style-type: none"> Strengthening village dairy producers' associations: (10) additional Dairy Coops will be created in addition to the 23 existing ones grouping 2 000 participating co-operative dairy farmers; Setting up Primary Village Milk collection and Cooling Centers Network: (10) additional centres will be established in addition to 20 existing ones grouping 2 000 co-operative dairy farmers; Empower female-headed households through the provision of mini dairies and stainless steel milk cans: 100 additional beneficiaries in addition to 135 farmers already granted mini dairies and 1 000 additional beneficiaries in addition to 1 105 farmers already provided with milk cans; Capacity Building of farmers and MOA extension service people: 3 000 beneficiaries; Support to artificial insemination and veterinary services: 2 000 direct beneficiaries; Strengthened self-sustainability to facilitate undertake livestock services inputs for 1 500 co-operating smallholder dairy producers beneficiaries. <p>By the end of the project, the smallholder dairy producers and dairy communities will be in good position to improve their chances of becoming self supporting and sustainable. Provision of extension and other support services to livestock farmers by the project, MOA, private dairies and processing/marketing firms will lay the foundation stone for sustainable dairy sub-sector</p>	
Working Group Review Date: <u>17 JANUARY 2012</u> RRC Review Date: _____ Steering Committee/Project Approval Group Approval Date: <u>7 FEBRUARY 2012</u>	

On behalf of:
FAO

Signature

Date

27 MAR 2012

Name/Title

ALI MOUMEN
FAO REPRESENTATIVE

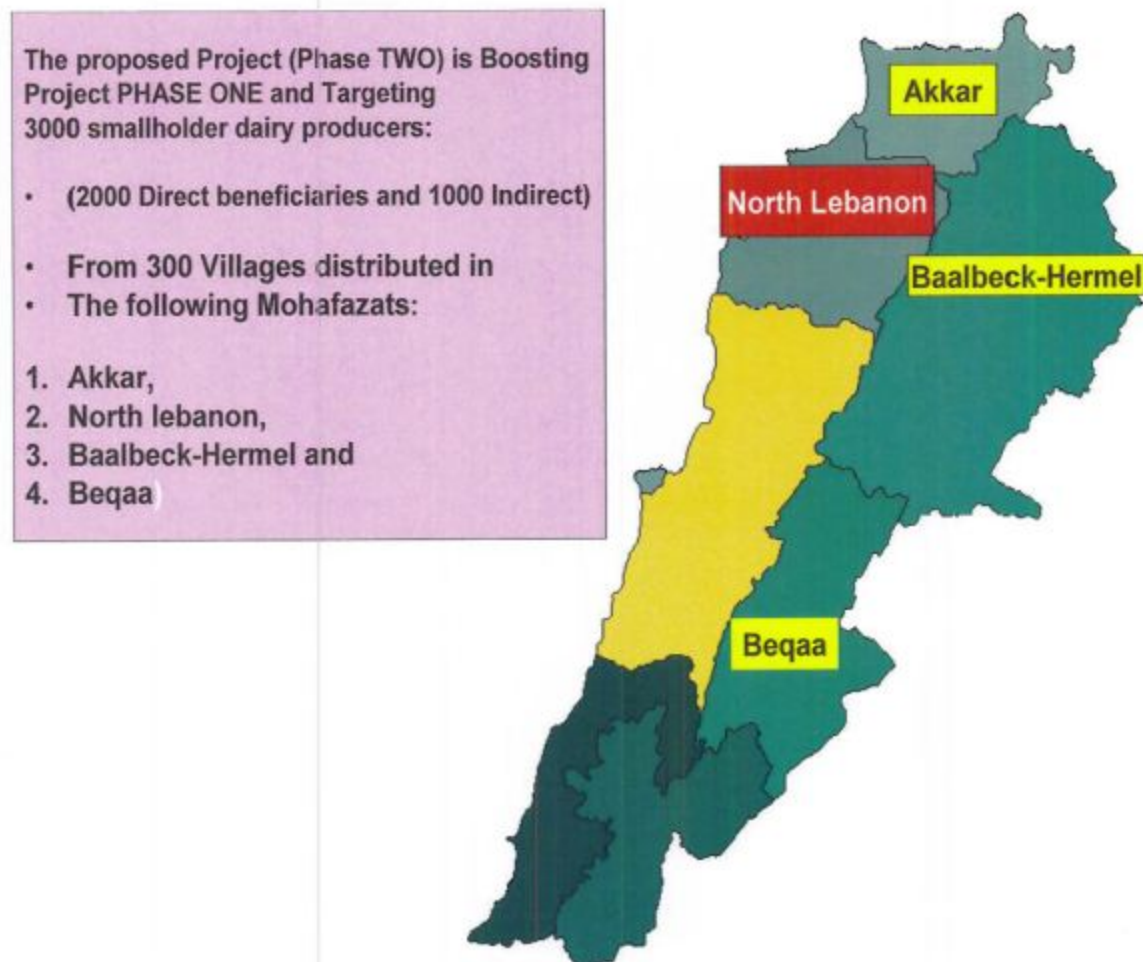
Chair, LRF SC

Mirwala Yak 15/5/2012

Targeted project sites

The project is touching the lives of the most unfortunate and poorest farmers. The target project sites cover more than 260 villages identified during phase ONE starting from Southern Rashayya Caza to the Northern border of Akkar Mohafazat passing through West Beqaa, Central Beqaa, North Beqaa. In addition this proposed phase TWO will be extended to 40 villages from Caza Minnieh-Danniyeh and other villages from Mohafazat North Lebanon. Therefore, this proposed phase TWO is targeting at least 300 villages from four (4) large Mohafazats inclusive of their Districts and Municipalities: Beqaa, Baalbeck-Hermel, Akkar and North Lebanon.

The project sites are indicated in the following graph:



1.0 PROGRAMME/PROJECT JUSTIFICATION

1.1 : Background

a) Lebanon suffers from a serious deficit in its domestic production of essential food supplies. Wheat, meat and milk are just a few examples. The country is currently strongly dependent on imports of basic food stuffs, particularly animal products and cereal crops. Meat and dairy products are essential in the daily diet of the Lebanese people. The annual consumption of milk is 150 kg and of red meat 25 kg / per capita. Dairy products appear at the table at almost all meals of every Lebanese family irrespective of standard of living or location. To meet the national consumption needs, the country almost imports 80% of meat and 60% of dairy products.

b) The agricultural sector in Lebanon and especially the milk and dairy segment represent the major source of income for the majority of rural communities. Based on recent studies undertaken by LRF project (phase ONE), the small dairy farmers in Akkar, Baalbeck, Hermel, and other areas have the lowest level of income in Lebanon. The dairy sector in Lebanon has been exposed to several deterring impediments over the last three decades. This is considered by The Ministry of Agriculture (MOA) of utmost priority. A survey of two thousand farmers conducted by LRF-21 project on small dairy farmers in Akkar, Baalbeck, Hermel, Beqaa and Rashaya on conditions of their farms and homestead, levels of income, and standard of living indicated that more than 70% of dairy farmers are categorized as poor or very poor. The only assurance that these deprived people may stay in their villages is to provide them with income generating activities through agriculture and dairy business and to secure essential and fundamental public services in their villages. By improving the livelihoods of villagers in the region, this will reduce the rising migration to urban areas of young people and maintain local agriculture production and employment.

c) In response to this urgent need in rehabilitating the agriculture sector, the LRF-21 dairy project, “ “Recovery and Rehabilitation of Dairy Sector in Bekaa Valley and Hermel – Akkar Uplands (Phase ONE)” funded by the Lebanon Recovery Fund (LRF) and executed by the FAO with direct collaboration and cooperation with the MOA is successfully taking the initial steps to support the recovery of sustainable milk and dairy production and improving the food safety standards of the dairy industry in Lebanon. The LRF was created as an outcome of Stockholm Conference to bring rapid relief to the wounds and disasters of Israeli assault on Lebanon in July 2006. A wide fan of development projects was established to bring recovery and rebuilding of all affected areas. The objective of this project is to support the small and poor dairy farmers in the Beqaa and Akkar and the goat and sheep farmers in Hermel and Akkar uplands. Major emphasis is made on improving the quality and hygienic standards of milk and dairy products, thus providing the farmer a higher selling price and increased income as well as safeguarding national food safety and consumer health.

1.2: Justification for PHASE TWO

1.2.1: LRF-21 Dairy Project is considered by MOA as success story and fits with MOA strategy

a) The dairy sub sector encompasses the major source of income to many poor Lebanese citizens. The project is touching the lives of the most unfortunate and powerless farmers starting from Southern Rashayya Caza to the Northern border of Akkar Mohafazat passing through Baalback, Hermel, Deir Al Ahmar, Jroud Al Hermel with 2000 dairy farmers in more than 260 villages. The smallholder dairy farmers are the poorest and neediest people in Lebanon according to LRF-21 findings and individual field verification. Improving their income and supporting them with whatever can be afforded may be the only way to keep them in their villages and reduce the high incidence of rural flow to the cities.

b) The project, “ Recovery and Rehabilitation of Dairy Sector in Bekaa Valley and Hermel – Akkar Uplands” can be considered the first step in a very long journey to retain the rural people in their villages and improve

their standard of living and improve the safety and hygienic standards of milk and dairy products. For example, the LRF-21 had a great impact on the current prices of milk increased from 800 up to 1250 L.L./liter during the last summer. This price increase was a result of many factors and interventions made by the project and augmented by regulations and decrees implemented by the MOA. This increase in milk prices will encourage many farmers to increase the size of their farms and investors to start up new dairy businesses.

c) The LRF-21 FAO Dairy Project is considered by MOA as success story in Lebanon, implementing activities in sustainable production, improving food safety standards in the dairy industry and helping to generate income for poor rural farmers; the MOA has emphasized on several occasions that FAO's dairy project is one of the most successful rehabilitation projects currently implemented in the country. The MOA is strongly supporting this project in order to assist farmers and upgrade the dairy sector in Lebanon and improve the hygienic standards of milk production. Therefore, the MOA is making significant efforts to make this project a success.

1.2.2: Major Constraint during implementation of PHASE ONE:

The LRF-21 Dairy Project is upgrading the dairy sub-sector in Lebanon strategically, with emphasis on improving living conditions of poor dairy smallholders through target interventions. However, lack of adequate funding is the largest constraint as the project cannot reach the actual number of vulnerable farmers to help reduce poverty, provide nutritious meat and dairy products and provide training and skills development to vulnerable farmers.

a: Chronological account:

- FAO's original project proposal to the LRF was formulated to include Beqaa, Akkar, and Hermel Uplands and had a budget of USD 6.5 million. The LRF granted to FAO only USD 2.5 million of the project budget; therefore, the geographical coverage and number of beneficiaries had to be drastically reduced and include only the regions of Central Beqaa, Northern Akkar, and Hermel Uplands with a total number of 300 direct beneficiaries.
- The project was launched according to these parameters. However, during the first Project Steering Committee Meeting held with all relevant stakeholders, a decision was taken to cover the original geographical area of all Beqaa and Akkar Mohafazat and Hermel Uplands without securing any additional funding. The total number of farmers added to the project increased from 300 to more than 2000 with most of them (1500) being of the poorest and most vulnerable people of Lebanon.

b: Challenges to overcome:

- The LRF-21 is dealing with the neediest and poorest people in Lebanon; the vast geographical expansion without the corresponding increase in funding has forced the project team to apply very strict and transparent selection criteria, the poorest among the poors. By doing so the project had to leave out hundreds of poor and needy people that deserve assistance. For example the electric milking machines that were distributed to 360 needy farmers, the number of farmers that are still in real need for milking machines is more than 400. The same situation has been repeated in most if not all other similar situations, since the limited funds can only reach a fraction of the needy population. Therefore a large number of small dairy farmers and producers that are very poor and needy from the project sites and from adjacent villages (estimated to 1000) were not served or supported by the project due to fund deficit. The project aspirations in PHASE TWO is to give support and helping those needy and poor farmers in these deprived areas

c: Way Forward

- FAO is seeking additional funding from the Lebanon Recovery Fund to complement the existing activities in order to reach the number of poor and vulnerable dairy farming households. A generous contribution of USD 1, 200,000 from LRF for Phase Two would enable the project to build on LRF-21's activities to increase the number of beneficiaries left out from receiving assistance due to lack of adequate funding and improve the livelihoods of poor farmers and sustain the dairy sector in Lebanon. By improving the livelihoods of villagers in Lebanon, this will reduce the rising migration to urban areas of young people and maintain local agriculture production and employment. The required budget will be allocated to the highest priority activities identified by the project during the implementation of PHASE ONE, as per the following:

1. Expand the geographical coverage of the project to include North Lebanon (Danniyeh and Menieh Zgharta-Batroun)
2. Strengthen the village dairy producers' associations to reach self support a sustainable status: monitoring the progress and activities of the 23 cooperatives already constituted with establishment of 10 additional new Dairy Coops
3. Support to improvement of milk quality standards through strengthening and setting up Intermediate Primary Village Milk collection and Cooling Centers Network: monitoring and boosting the activities and work at the already existing (20) and Increasing the capacity of some existing centres and creation of 10 extra primary milk collection
4. Support to small dairy holder for improving milk hygiene and sanitary conditions with distribution of milking machines, food grade almasilium and stainless steel milk cans:
5. Procurement of 400 single head electrical milking machines and 2000 stainless steel milk cans
6. Support to women-headed households with mini dairies for milk handling & processing at home level: procurement of 100 mini dairies and their accessories
7. Support to artificial insemination services through training skilled inseminators' and provision of good quality of Semen and supplies to VDPA's: Procurement of Fifty (50) Complete Insemination Kits, supplies and 10 000 semen doses for artificial insemination
8. Provision of veterinary supplies and vet drugs for prevention and treatment of major diseases: amount for 1000 dairy cows per Dairy Coop owned by poor smallholders
9. Support with high producing Shami breed goats to upgrade local Baladi flock and intensive goat farming: Procurement of 100 pure breed Shami bucks and 200 Shami pure breed pregnant goats.

1.3: FAO's experience in the livestock sector in Lebanon

- FAO's experience in the livestock sector in Lebanon has been defined through previous projects implemented by the Organization, in particular: 1) a Technical Cooperation Project - TCP/LEB/0068 «Introduction of techniques for conservation and improvement of agro-industrial by-products for the feeding of ruminants in the Bekâa Valley»; 2) Assistance aux petits éleveurs laitiers du Liban Sud (zones de Nabatiyeh, Saida-Est et Marjaayoun-Hasbaya) (TCP/LEB/ 2905 (T); 3) Lebanon Recovery Fund (LRF) - "Early recovery assistance to war-affected, resource-poor livestock keepers in south Lebanon", (LRF-4); and 4) Lebanon

Recovery Fund (LRF) – “Recovery and Rehabilitation of Dairy Sector in Bekaa Valley and Hermel -Akkar Uplands” PHASE ONE (LRF-21)”.

- This project proposal (PHASE TWO) will complement FAO’s livestock project implemented under LRF-21 (PHASE ONE) in design, implementation, monitoring and supervision. The methodologies to determine project beneficiaries, procurement procedures, distribution and building capacity are already developed by FAO.

2.0 PROGRAMME/PROJECT APPROACH

2.1: Short Briefing on the dairy sub sector in Lebanon:

a) The dairy sector in Lebanon has been exposed to several deterring impediments over the last three decades due to: Political and security unrest, hostilities and regional conflicts. The LRF-21 project “Recovery and Rehabilitation of the Dairy Sector in Bekaa Valley and Hermel-Akar Uplands” funded under the Lebanon Recovery Fund (LRF) is successfully laying the foundation stone for future development projects aspired by all the workers in the dairy subsector especially the smallholder dairy producers.

b) Traditional small scale dairy household is an integral part of the rural picture in Lebanon. Many families that live in rural areas have participated in some way or another in livestock or dairy production. Small scale dairy animal production has been a source of family food security, dignity and income generation. The entire family usually helps in daily farm chores in small scale dairy households. Families and livestock live side by side in very modest and humble dwellings and many farmers live in tents or basic housing made of tin and plastic. In general, one can safely say that the small scale dairy farmers in Lebanon that depend completely or mainly on income from dairy production are the poorest and neediest people in Lebanon.

c) According to the findings of the LRF-21 dairy: 70% of the farmers own one to five heads of cattle and 88% of them are considered poor and very poor. The above project has interviewed more than 2000 dairy farmers covering a vast area from 260 villages starting from southern borders of Rashayya Caza up to the northern borders of Akkar. About 15% of the farmers’ families were headed by women and most of farmers are elderly as only 28% are below 40 years. Most of these families are big with more than 8 dependents in more than 25% of the cases and 9% have critical medical or social cases. It was found that 60% of the farmers depend solely on dairy business as the only source of income while others have other sources like agriculture or casual employment. It was noticed that 66% of the farmers own only 15% of the 22 thousand heads of cattle meaning that most of small holders own between 1 and 3 cows only. The total daily quantity of milk produced at the time of the survey was about 216 tons giving an average of about 10 liters/day /cow. Most of the small holders dairy farmers use part of their production for their home use and some of them perform some kind of farm house milk processing that they sell to the neighbors and friends. The rest of the milk is sold at relatively low to very low prices to the milk dealers that pass by the farm and collect the milk. Milk hygiene presents a very serious problem especially for small farmers. Most of them do not have milking machines (750) and use plastic jars for milk handling. Very low fertility rates characterize all the herds small and large. Veterinary service and regular vaccination are also considered a luxury in 90% of the farms. As it may be suggested by the above phenomena feeding programs and nutrition are also major problems at all levels. Cow reproduction efficiency is very low and might be considered as bottleneck to dairying profitability, artificial insemination service is very poor.

d) With regard to the surveying activities on Goat and/or sheep farmers in Hermel-Akkar Uplands during summer transhumance, there are 66 goat and/or transhumant sheep farmers living in highlands with their flock during the summer season mainly from April-May to October-November. Almost 2/3 of them depend only on goat and/or sheep products for their main income, 78% are classified as either poor or very poor. Most of resource-poor families (70%) are selling milk at low prices (500 – 700 LL) to dairy merchants, due to the difficult access to the farms or shepherds in the mountains, milk hygiene and handling is poor to very poor.

2.2: Current status of dairy sub-sector and contribution of LRF-21 PHASE ONE

a) The Lebanese Ministry of Agriculture has implemented many new strategies to develop the dairy sub-sector. During the first phase of the dairy project "Recovery and Rehabilitation of Dairy Sector in Beqaa Valley and Hermel -Akkar Uplands" (LRF-21), maximum levels of cooperation and understanding were exhibited by MOA. Many Ministerial decisions were formalized to organize and protect the small dairy producers and the whole sub sector in general. MOA also responded actively and positively with almost all the project requests. For example the efficient processing of the dairy cooperatives legal registration, signing the training contract to support the project, releasing the utilization of nine milk transportation trucks, to name just a few of the examples of support. Furthermore, many regulations that control the import - export and transport of milk and dairy products were made. Other guidelines were given to check all the dairy processing plants for hygiene and food safety and to shut down those that do not comply after a reasonable grace period. Lately a work plan is studied to activate and support the sub sector with the help of the Ministry of Environment and Ministry of Finance. This governmental and official commitment to agricultural development in the country must be counteracted by support and collaboration from FAO to benefit the rehabilitation of this sector.

b) The LRF-21 Dairy Project in coordination with MOA and the support of the LRF is upgrading the dairy sub-sector in Lebanon strategically, with emphasis on improving poor dairy smallholders through targeted agriculture interventions:

1. Helping the most needy and poor dairy smallholders.
2. Supporting female-headed families to improve their living conditions and income.
3. Improving small dairy farm management practices with emphasis on cow nutrition, forage production, feeding, reproduction, and veterinary practices.
4. Working at the farm level to improve the milk quality and milk hygiene during storage and handling and transport.
5. Working at the farm house processing facilities to provide dairy products that are safe and nutritious to the producer's family and to the consumers.
6. Encouraging small dairy farmers to create and participate in Village Dairy Producers Associations (Cooperatives).
7. Supplying the necessary equipment and utensils to establish milk cooling and testing centers in intermediate and central locations that are far away from the dairy processing plants.

3. Objectives Of LRF-21 Project Proposal (PHASE TWO)

3.1: Overall objectives:

The LRF-21 dairy project (PHASE ONE) was not able to provide support to the high number of needy farmers due to insufficient financial resources. The overall objective of this proposal for Phase Two is to consolidate Phase One achievements while expanding support to other small and poor dairy farmers in the Beqaa and Akkar region and the goat and sheep farmers in Hermel and Akkar uplands. Emphasis is made on improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer and improve the milk prices. In summary, the following objectives are aimed:

1. Maximize the current accomplishments made in agricultural rehabilitation by the MOA to fulfill the FAO mandate of achieving food security, providing access to healthy and nutritious food to poor families to satisfy their nutritional and economical needs through the rehabilitation of a sustainable dairy sub-sector;
2. Sustain the achievements by the the LRF-21 project ,” Recovery and Rehabilitation of Dairy Sector in Beqaa Valley and Hermel -Akkar Uplands”;
3. Demonstrate that agriculture, in general, and dairy production in particular, can be a sustainable and help in reducing rural poverty when managed properly even with limited resources. This shall be a step towards a better standard of national food security.
4. Introducing the idea of intensive breeding of genetically improved or imported milking goats in dairy farms in addition to the nomadic migratory system.

3.2: Specific Objectives

The LRF-Dairy Project PHASE TWO is strategically strengthening LRF-21 PHASE ONE as follows:

1. Protecting and boosting the current achievements by on-farm monitoring and continuous awareness raising of good agriculture and livestock production practices;
2. Maintaining the training programs and courses along with extension and widening the range of topics and subjects in dairy production;
3. Controlling and monitoring the progress and activities of the cooperatives to safeguard it from disintegration and demolishing as was the case in previous experiences;
4. Supervising the running of the milk cooling and collection centers especially milk hygiene and milk testing;
5. Collaborating with MOA in launching prevention programs and vaccination campaigns to manage the critical animal health problems in Lebanon;
6. Conducting intensive training courses on Artificial Insemination to selected people from the farmer’s cooperatives and MOA veterinarians and procurement of the necessary semen and equipment;
7. Encourage the cultivation and production of forage crops and escorting the MOA project to subsidize the plantation and utilization of locally grown forage crops;
8. Introduce intensive system of goat farming in stationary barns. Introducing the practice of fertility boosting in goats in order to have longer lactating periods of milk per year;

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9. Expand this successful experience in other areas of Lebanon and to other poor smallholders' dairy producers (particularly to casa Minieh-Dannieyeh in the North Lebanon).

3.3: Project Outputs:

The project has already established 23 producers' associations in the Beqaa and Akkar- Hermel Uplands, ten (10) additional associations will be established with other villages .These associations will provide a range of services to their members, including negotiating with dairies and managing lacto-freezers, selecting members to participate in training events, organizing the purchase of farm inputs, and assisting members to secure public subsidies.

The proposal dairy project PHASE TWO has the following specific outputs:

1. Smallholder dairy farmers in rural areas grouped into cooperatives in order to help them help themselves;
2. The MOA extension personnel and groups of smallholder dairy farmers in rural areas trained in dairy production particularly animal and farm management, milk production, handling, basic processing, artificial insemination and forage based production;
3. Improved food security and safety standards, with better nutritional and economic status of low income rural families and small dairy holders;
4. Increased output of milk production in the Country to provide the increasingly growing and deficient market;
5. The capacity of Ministry of Agriculture is Strengthened to support small holder dairy development;
6. The dairy small producers are empowered by increasing their competitiveness and lowering their cost of production through training, improving milk quality and alleviating the dependence on grains and concentrates in dairy feeding;
7. The production of forages is becoming popular integrated with agriculture crops to reduce the feeding costs and improve the dairy herd nutrition and reduce the pressure on cash crops such as potatoes, tomatoes, and other important crops;
8. The gap between the farmer and the dairy processing plants will be filled by functioning small scale village milk collection and cooling centres with production of hygienic raw milk with increased for sale value.

4. Approach, Activities, Assessment of Impact and Expected Benefits:

As mentioned above, the main goal of this proposal phase TWO is to consolidate phase ONE while expanding support to other small and poor dairy farmers in the Beqaa and Akkar, emphasis is made on improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer and improve the milk prices. The project will benefit from experience gained from the LRF-21 phase ONE for implementing activities.

4.1: Project Relevance:

The Project is relevant to the urgent agricultural needs of rural households in that it addresses significant constraints to rural development, especially for poor and vulnerable farmers. The project LRF-21 (Phase One) has succeeded in creating farmers associations and it will continue doing so since these communities

are critical in any recovery program. Capacity building and skills development through training is also a critical matter that is crucial to improving farmers good agricultural practices. Improvement of milk quality and food safety issues are other important issues that the project will address. Poor and vulnerable farmers need technical assistance and agriculture inputs support to maintain their livelihoods and improve and sustain what has been provided by the project to date. Forage production for animal feed is low and poor farmers are unable to afford expensive animal feed, thus compromising the health and productivity of their livestock; in addition, veterinary assistance is sparse and the project will collaborate with the MOA to help improve animal productivity levels. Support to gender equality and women empowerment in agriculture is an essential component of this project as it promotes sustainable economic growth and poverty reduction. Women account for a high percentage of the total labour required for on-farm agriculture activities, particularly for livestock and dairy production and are largely responsible for the food security of their families. Assistance to women in agriculture help close the gender gap and generate significant gains in dairy production and availability of essential nutrients at the household level and generate much needed family income.

4.2 Livestock Productivity, income generation and food security:

The project shall particularly target the traditional poor farmers, who also lack assets and personal capital, mainly with very small or no land holding fragmentation and few heads of livestock. The marketable surplus, especially of milk, is small and income generation for most small farmers is meager. Although some improvement was noticed on the daily milk production per cow (which was about 10 liters), it is still much below normal. Normal production per cow per year (305) days must not be lower than 5 tons. The project will aim to reach that value. Improved goat milk production will be another important target as the price and demand of goat milk is considerably high and will give poor farmers a high return.

4.3 Socioeconomic, social capital and Empowerment Impact:

The close linkage between livestock production and poverty was established in Phase One of the project. It was evident that the livestock sub sector is one of the more appropriate means for addressing poverty reduction. The project will be serving the interests of the poor people in a collective manner. In response to gender equality, the project emphasizes that women had equal rights as men to access the knowledge and technology disseminated and to the project resources, including technical support, with positive impact on their income and quality of life. Most if not all dairy equipment for traditional home processing dairy products will be granted to female-headed households.

4.4 Project Sustainability:

The project is well-placed for future sustainability since farmers will gain substantial benefits during implementation of such agriculture activities. However, FAO understands that voluntary activities can seldom be sustained over lengthy periods of time. For this reason, farmer's cooperatives have to be heavily supported by donor organizations and governmental institutions intending to support small farmer development.

Involving the private sector in the organization and management of the cooperatives will improve their chances of becoming self supporting and sustainable. Provision of extension and other support services to livestock farmers by private dairies and processing/marketing firms to the members of cooperatives and lower ranks of the milk value chains would render these services more sustainable. The main activities that could be confidently maintained are those where full cost recovery and market prices prevailed for the provision of services. The following will most likely be sustained: the artificial insemination initiatives, provision of drugs and supplies for treatment, and provision of animal health services through private veterinarians mainly through cooperatives and intermediate milk collection centers. Another very important sustainable activity is the encouragement of the small farmers to indulge in farm house processing so they can gain added value to their raw milk and improve their income and delivery raw milk to milk collection centers as farmers are getting better price for chilled milk with improved quality.

4.5 Impact on Institutions, Services and Policy:

Research has shown that farmer's cooperatives are the best institutions to initiate agricultural development. The project will nurse the existing cooperatives and launch new ones. Some cooperatives have already forged linkages with the private sector through the development of commercial partnerships with the private dairies and milk dealers enhancing the institutional set up and the vertical and horizontal integration of the milk supply chain. The project will encourage and enhance such partnerships.

In terms of impact on extension institutions, the Project (Phase One) has already started with capacity building in improving technical skills of the MOA personnel with the association of the Ministry. The project will continue this activity as it is very important to have skilled and motivated extension people in the field. However, the project will face the usual lack of incentives and mobility of the extension teams.

Finally, the linkage between poverty reduction and livestock production, especially for the rural poor farmers who have no much other alternatives and female-headed rural households, has been well understood at the senior policy and planning levels in Lebanon. The importance of the livestock sub sector as a significant contributor to the national economy has been recognized and emphasized in this project.

4.6: Environmental Impact:

All project activities are generally environment friendly. Adoption of fodder production and pasture will enhance soil fertility. Production of additional animal manure improves soil productivity and structure, highlighting the positive relationship between livestock and crop production. Good farm management practices and good manufacturing practices at dairy plants will reduce the production of bad smell and polluting gases, liquids, and solids in the rural community. Less pollution to soil, air, rivers, springs, and underground water will be maintained.

4.7: Sustainability:

The project will have good potential for sustainability since farmers will gain substantial benefits during implementation of project activities. However, we understand that voluntary activities can seldom be sustained over lengthy periods of time. For this reason farmer's cooperatives have to be heavily supported by donor organizations and governmental institutions intending to support small farmer development.

Involving the private sector in the organization and management of the cooperatives will improve their chances of becoming self supporting and sustainable. Provision of extension and other support services to livestock farmers by private dairies and processing/marketing firms to the members of cooperatives and lower ranks of the milk value chains would render these services more sustainable. The main activities that could be confidently maintained are those where full cost recovery and market prices prevailed for the provision of services. The following will most likely be sustained: the artificial insemination initiatives, provision of drugs and supplies for treatment, and provision of animal health services through private veterinarians mainly through cooperatives and intermediate milk collection centers. Another very important sustainable activity is the encouragement of the small farmers to indulge in farm house processing so they can gain added value to their raw milk and improve their income and delivery raw milk to milk collection centers as farmers are getting better price for chilled milk with improved quality.

In summary, the project will particularly implement the following activities:

1. Group farmers in rural areas into cooperatives similar to the 23 co-ops that have been already created by the current project.

2. Upgrade the capacities of the extension personnel of the MOA especially on the issues of general dairy farm management, feeding, milk production, hygienic handling, animal health, and breeding.
3. Improve the food security and safety standards at the different milk chain levels starting at the farm and ending at the consumer table.
4. Improving the farmer's income and consequently his standard of living and well being.
5. Increase the total output of milk production in the country to satisfy the increasing demand of good quality hygienic milk.
6. Backing up the MOA in its great efforts to support the small dairy holder for social, economic and humanitarian raison d'être.
7. Increasing the competitiveness of the small dairy producers by lowering their cost of production through training, quality control, and forage subsidy and reducing their dependence on expensive grains.
8. Supporting the MOA project for forage crops cultivation and production subsidization and encouragement.
9. Maintain and boost the already existing intermediate village milk collecting and cooling centers and establish new ones in different locations fully equipped like the existing ones to improve milk cooling and hygiene and fill the gap between the farmer and the processing plant.
10. Carry on the milk sampling and analysis program to insure progress in health and safety measures concerning milk and dairy products. Creating a special team in the MOA to take over the mission of quality control and sampling and testing all over the country to insure conformity with the increasingly rising standards of quality and hygiene.
11. With the coordination with the MOA activate and support the Artificial Insemination program that has been idle for many decades.
12. With the coordination with the MOA activate and support the veterinary prevention and vaccination programs all over the country.
13. Encouraging intensive goat farming and supporting the nomadic styles of goat keeping by new improved and high producing breeds and training for triple milking seasons every two years.

Major areas of implementation:

1. In order to efficiently introduce and communicate the information and technologies that will be promoted by the project, extensive training, workshops, demonstrations, and publications shall be conducted and prepared.
2. Create new dairy farmers cooperatives and taking good care of the existing ones in order to maintain the team work spirit and legal routes to support and help the small dairy farmers and producers.
3. Provide technical and essential material support related to good farm management, milk hygiene, and farm house processing, to small dairy holders.
4. Create new village intermediate milk cooling centers and safe guard the existing ones in order to fill a very critical gap between the farmer and the dairy processing plants.
5. Follow up of major activities that control quality and hygiene of milk and dairy products.
6. Emphasize good farm management and good manufacturing practices at farm house small dairy processing facilities.
7. Follow up the good utilization of the milk transportation trucks.
8. Make a demonstration farm for intensive breeding of goats to be an example for farmers and investors. Detailed financial records are to be kept in order to prepare a feasibility study at the end. Coordinate and synchronize all activities with MOA to overcome the drawbacks encountered in the past and to intensify the efforts exerted by MOA towards Agriculture development in the country.

4.8: Development of Activities

- The extensive field surveys, undertaken during PHASE ONE of the project, has generated a better understanding of the general environment prevailing at the targeted areas with production of a necessary authentic and realistic database on dairy sub-sector. The data were used to sort out project intervention priorities and to decide on the criteria of farmers selections. Such results were recognized by the MoA and other partners as a unique, reliable and valuable source of information.
- The proposed interventions are aiming at improving the capacity of milk production while securing the dairy sub-sector through expanding and consolidating the existing activities in order to reach an increased number of vulnerable dairy farming households. The proposed project for a total duration of 24 months will cover a total of 3000 dairy farmers (2000 Direct and 1000 indirect) in Lebanon North of Lebanon, Akkar, Baalbeck-Hermel and beqaa Mohafazats including their highlands. This number of beneficiaries is including the existing ones from LRF-21 phase ONE.
- The required budget will be basically allocated to the most priority interventions already identified and needed by the dairy sector for its sustainable development; those activities are developed as follows:

4.8.1: Strengthening the village dairy producers' associations to reach self support a sustainable status

1. The MOA is giving high expectations and hope in organization of farmers by the project, considering that grouping small dairy farmers to work together is the most accurate way to improve the standards of the dairy sector in Lebanon. During this PHASE TWO, the project will continue Controlling and monitoring the progress and activities of the 23 cooperatives already constituted to safeguard them from disintegration and demolishing as was the case in previous experiences. Monitoring and supervising their daily activities in the first stage is an absolute necessity, most if not all of these cooperatives need direct care and attention before they reach the stage of self support and be able to run their business alone, since they do not have enough experience in team work and problem solving.
2. Furthermore, the project will establish 10 additional new Dairy Coops, supporting their legal procedures and all the necessary steps for their establishment in the following areas: Minieh-Dannieyeh (2); Batroun (1); Zgharta (1); Akkar (1); North Beqaa (1); Central Beqaa (1); West Beqaa (2) and Rashaya (1)
3. The project will emphasis on capacity building of VDPAs' for better milk marketing and act as focal points for providing other services, such as training, artificial insemination, vaccination campaign and management of government subsidies for fodder crops. The project will also supervise and follow up the VDPA's for efficient management of revolving fund small credit scheme (livestock's sevices, inputs and supplies) to smallholder dairy producers (adherents members)

4.8.2: Support the improvement of Milk Quality standards through Strengthening and Setting up Intermediate Primary Village Milk collection and Cooling Centers Network

Most of the medium and small dairy farms do not have milk storage and cooling facilities. They just leave the milk in milk jars waiting for the milk dealer to arrive and that usually take couple of hours. More time is needed before the hot milk reaches the milk processing plants resulting in bad quality milk with high acidity that is either refused or given low prices. To solve this important drawback that is affecting the dairy farmer, the dairy producer, and the consumer the LRF-21 FAO project (Phase ONE) the project has procured 51 milk cooling tanks along with the necessary generators, milk reception and filters, electronic balances, pumps, and laboratory equipments for milk testing for a total refrigeration volume 40 tons of milk at each milking.

This equipment was strategically used for setting up 20 effective primary village collection centres network at strategic location where the farmers of each area have easy access for milk marketing with improvement of milk hygiene standards.

The establishment of 20 primary milk collection and cooling centres network are empowering smallholder dairy producers. The direct impact is conspicuously savoured by all dairy stakeholders as there is significant improvement of milk hygiene standards (better quality of milk with lower detected acidity and contaminating germs) and significant increase in the milk prices (15 to 20%). Therefore, considering the positive impact of these primary village milk collection and cooling centres as well as the high demand and request from project beneficiaries to increase the capacity of the existing milk collection centres and to establish new collection centres in other areas, the project is planning to carry out during this phase TWO the following interventions:

Supervising, monitoring and boosting the activities and work at the already existing small scale village milk collection and cooling centres with the milk transportation trucks. They need help in good management and most important marketing of milk in the right way. So the project need to stay by their side for some time before they can stand strong by themselves, for the safe and hygienic milk storage and handling and marketing.

Increasing the capacity of some existing centres and creation of 10 extra primary milk collection centers and cooling network in new locations, particularly in the extended areas such as North Akkar (Minieh-Dannieyeh, Batroun, Zgharta). For this purpose the project will procure the following equipments: 30 cooling tanks (of different capacities); 10 electric generators (with different powers) and 10 kits for laboratory analysis and testing.

4.8.3: Support to small dairy holder for improving milk hygiene and sanitary conditions with distribution of milking machines, food grade almasilium and stainless jars.

1. Phase TWO of dairy project will tirelessly continue improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer. The project is dealing with the neediest and poorest people in Lebanon; most of them are using non-hygienic milk utensils that are in themselves a major source of contamination. During implementation of project phase ONE, the project has procured 360 milking machines and 1 200 stainless steel milk cans of 40 liters capacity equipped with a fine milk filter distributed to 360 and 1105 small farmers respectively.

2. Unfortunately, the project had to leave out hundreds of poor and needy people that deserve assistance from the project sites and from adjacent villages; they were not served or supported by the project due to fund deficit. For example, more than 750 small farmers with many of them being old women with health problems were individually identified by the project without milking machine and depend on manual milking, whereas the projected granted only 360 single head electrical milking machines to 360 farmers, in the same way most of farmers were granted only a single milk jar. The Ministry Of Agriculture decided to offer extra 80 milking machines, showing high level of governmental support to FAO's programmes. Therefore, the project is planning to carry out during this phase TWO the following interventions:

Procurement of 400 single head electrical milking machines along with the detergents and disinfectants, teat dipping solution and cups to be distributed to 400 poor farmers (with 2-10 cows) mostly women-headed households.

Procurement of 2000 stainless steel milk cans of 40 liters capacity; each can is equipped with a fine milk filter (1000 farmers)

4.8.4: Support to women-headed households with mini dairies for milk handling & processing at home level

1. One of the major goals of phase TWO is to continue assisting to the smallholder women-headed families by giving them appropriate small equipment to produce home-processed healthy dairy products of better quality to the consumer, while getting added value to their milk. The project has procured medium (10) and small size mini dairy (125) units to 135 selected women-headed households. However, the project has identified 300 women-headed households making traditional home-processed dairy products (labneh, labneh, varieties of white cheeses) for sale in villages and depending on old non sanitary or hygienic tools and utensils. Such rudimentary methods and appliances to process milk with very poor quality standards harbor many health and quality risks.

2. Considering the positive impact of the mini dairies and their accessories on getting healthier and safe dairy products and the high demand for mini dairies and request to use proper equipment and techniques of labneh manufacturing and local white varieties of cheeses, the project is planning to supply 100 additional women-headed households, especially those isolated from milk collection facilities and the expanded project areas, with small equipment for milk handling & processing at farm. The project will procure the following equipments:

- Medium size dairy units (Quantity: 30): composed of: pasteurizer 250 liters, .Working table and, Labneh bag hanger.
- Small size mini dairy (micro) unit (Quantity: 70) consists of the following items: Pot pasteurizer 60 to 70 Lt, fire place (gas and wood). Working table (small) and Labneh bag hanger (small).
- Set of general item and accessories (Quantity: 100) consisting of one milk ladle, one milk agitator, 2 plastic buckets, forty cheese moulds and two milk thermometers.
- Electric cream separator (Quantity : 20).
- Manual cream separators (Quantity : 20).
- Electrical butter churns (Quantity : 20).

4.8.5: Capacity Building of farmers and MOA extension service people

1. During its phase ONE, the project has identified a priority constraint that can be resumed as poor knowledge and technical skills of smallholder dairy farmers worsened by apparent weak linkage between the small producers and the extension service of MOA (lack of funding, lack of motivation, lack of targeting). This is why the project responded by introduction of comprehensive programme of training, extension and demonstration developed side by side with project activities, where the project had trained 1500 dairy producers on improving milk hygiene and sanitary conditions with good practices of milking procedures and on feeding management, which were supported by production and distribution of 14,000 booklets and posters.

2. During phase Two, the project will consolidate the training programs and courses along with extension areas and widening the range of topics and subjects. Training to the farmers and producers is a continuous process that will require in most cases repetition and emphasis on some topics and on some emergency subjects. These training sessions have to be replicated in each dairy coop for each topic or subject and that require adequate time. This program shall include the following important topics:

- Total fertility and reproduction management.

- Milk handling and testing at village milk collection and cooling centers.
- Home dairy processing and production of cheese and yogurt.
- Forage cultivation and production.
- Mastitis and dry cow management.
- Veterinary management prevention, vaccination, and treatment.
- Goat based integrated and intensive dairy production system

3. The number of beneficiaries of this intensive training program will reach about 3000 farmers in addition to a large number of the MOA employees and extension people. The necessary training material and publications (leaflets, manuals, and posters) will be prepared and printed and distributed to all dairy farmers in Lebanon (5000 copies for each topic). Furthermore, in order to make training sessions fruitful, the project will apply the same strategy employed during phase ONE, e.g. the regular participation and attendance to training sessions are prerequisite to get project kind support to all direct beneficiaries.

4.8.6: Support to artificial insemination services through training skilled inseminators' and provision of good quality of Semen and supplies to VDPA's

1. The fertility efficiency is a major hurdle to all dairy farmers and might be considered as the main cause of no profitable dairying and the high cow culling rate (25 – 35%). Therefore the very poor reproduction efficiency is hindering cow replacement and herd expansion, resulting in continuous import of pregnant heifers in Lebanon. The artificial insemination services are very poor with smallholders; there are only less than 10% of farmers using AI on regular basis, whereas most farmers raise bulls for natural mating with risks of disease transmission. The primary reasons for poor cow reproduction fertility were identified during phase ONE: 1) very poor skill of dairy farmers, 2) Absence of skilled inseminators and 3) Distrust of smallholders because of the high cost and poor efficiency of AI services

2. Therefore during its proposed phase TWO, the project will apply innovative strategy to reinforce artificial insemination services based on conducting intensive training courses on Artificial Insemination to selected people from the farmer's cooperatives and MOA veterinarians with procurement of the necessary semen and equipment. The LRF project will particularly implement the following activities:

- Procurement of fifty (50) complete insemination kits to be placed with the VDPA's, each insemination kit is composed of the followings items: One (1) Small liquid nitrogen tank (cap: 3 liters) with the necessary canisters to hold the straws, One (1) Lube (2,5 liters), Two (2) Red Spirit Thermometer, One (1) CITO Thaw Monitor for frozen semen and field use, One (1) Thawing Flask, Two (2) Scissors Straw Cutters, One (1) Lube Dispenser (250ml), Five (5) Packs Universal Sheaths, One (1) FIL Aerosol Tailpaint, Five (5) Packs Long Sleeve Polysem Gloves, five fingers (box of 100), Two (2) Straw Tweezers, Two (2) Universal insemination Stainless Steel Medium Guns (0.50 ml) and One (1) liquid nitrogen tank (cap: 25 liters) with appropriate opening and the necessary equipment (such as long spoon) for storage and handling of liquid nitrogen
- Supplies to improve cow reproduction efficiency: Five hundreds (500) bottles Selenium Vitamin E Injection (flask 100 ml), Five hundreds (500) bottles Solution Propylene glycol & calcium propionate (flask 500 ml). Five hundred (500) Metricure tube (30 ml), Five hundreds (500) bottles Logol solution (flask of 100 ml) and One hundreds (100) Womb Bolus boxes (Packet of 50 bolus 1 g)
- Provision of 10 000 semen doses for artificial insemination (Friesian-Holstein) to be place in the VDPA's

3. As indicated above the key strategy will be to use the VDPA's as focal point to give AI services to smallholders through the following: 1) the project will identify 60 young promising farmers from the different VDPA's capable to acquire the AI technique who will undergo an advanced intensive AI training session., 2) The successful trainees will be given official certificates and supplied with AI kits with frozen

semen jars and free proven semen to be used in the respective areas of the cooperatives at low charge (under the supervision of the Dairy Coop). MOA inseminators will attend also the training session and be assigned to the VDPA's. Private sector will be also involved through agreement. The project will be supported by 4 veterinarians already assigned by MOA to the project.

4.8.7: Provision of veterinary supplies for prevention of major diseases

The animal health status of dairy cows and small ruminant in the project areas is critical because of the inadequate veterinary services and health cover in the region. Surveys conducted during phase ONE showed that most of dairy farmers (60%) do not follow any regular programme of vaccination, they only react depending on outbreak of diseases and the very sporadic vaccination programmes given by MOA. However, MOA has recently mobilized veterinary services to increase intervention with vaccination programs.

During Phase One, the project has identified that all dairy farms were suffering from three recurrent cow diseases (% of total declared diseases): 1) Mastitis (52%); 2) Metritis (24%); 3) Laminitis and foot rot (10%). Those drawbacks encountered are mainly due to lack of preventive measures. Therefore, during its proposed phase TWO, the project will apply innovative strategy, as for artificial insemination services, to reinforce animal health and prevention against the most recurrent dairy diseases. The key strategy will be to use the VDPA's as focal point to give veterinary services to smallholders through their provision vet drugs and supplies under general supervision of veterinary people. The MOA had assigned recently 4 veterinarians from the region as well as from the central veterinary department to work with the project dairy communities. Private sector will be also involved through agreement.

The LRF project (Phase TWO) will particularly implement the following activities:

- Mastitis vet drugs and prevention kits (amount for 1000 dairy cows per Dairy Coop owned by poor smallholders): Teat dipping bottle and solutions, California test kit (CMT), effective vet drugs for the prevention of the cows from mastitis during dry period (dry cow treatment), effective vet drug for the treatment of mastitis for lactating cows;
- Vet drugs for prevention of metritis: (amount for 1000 dairy cows per Dairy Coop owned by poor smallholders): effective vet drugs for metritis prevention (BOLUS with antibiotics) and Metricure;
- Vet kits for foot root treatment and prevention: (amount for 1000 dairy cows per Dairy Coop owned by poor smallholders);
- Support with training sessions to farmers and VDPA's to ensure cows health and to prevent diseases.

4.1.8: Supporting the nomadic styles of goat keeping in Jrud Akkar-Hermel uplands by improved and high producing Shami breed goats to upgrade local Baladi flock and intensive goat farming

1. Goat rearing is the most appropriate opportunity for income-generating activities; this is playing a key role for the poorest farmers in most of Lebanon's rural areas, particularly those from Jrud Akkar and Jrud Hermel practicing transhumance during the lactation period in spring-summer to alpine pasture in highlands. During its phase ONE, the project has established VDPA's in Jrud Hermel-Akkar regrouping 66 smallholder goat/sheep producers and supported them with 2.5 tons diesel refrigerated truck specially equipped for milk cans cooling and transportation for milk marketing. The positive impact on improvement of milk quality standards and prices was immediately perceived, the price of goat and sheep milk has increased during the summer of 2011 by 40%, which in turn provided increased income generation for transhumant shepherds.

2. The production of goat milk is profitable but there is scarcity of goat's milk despite the increasing demand on dairy products produced from goat milk. Goats of the local "Baladi" breed are traditionally managed under poor grazing and extensive systems with low milk production (150 – 200 litres / lactation) and short lactating period from May to September with almost total absence of goat milk during winter time. During implementation of project phase ONE, farmers as well as small-scale dairy processing plants show a strong interest in genetic improvement for goat milk production and insistently requested project support for goat based integrated and intensive dairy production system.

3. The Shami breed is easily adapted to harsh conditions and has an excellent potential for high fertility, growth and milk production. It has been successfully tested in similar conditions and was introduced in South Lebanon under the project LRF-702 (OSRO/LEB/702/UNJ). This project procured and distributed 100 shami bucks (1 – 2 year-old) to 100 goat farmers for upgrading, through crossbreeding, local baladi goats and increasing milk productivity of goat flocks. Shami goats, originating from Cyprus where the breed had undergone thorough dairy selection with high milk production ranging between 500 – 700 litres / head / year, with high prolificacy of 230% and good adaptation to Mediterranean environmental conditions. The positive impact of mating local goat with imported shami bucks in South Lebanon was a significant increase of milk of their offspring (F1) by 30%.

Therefore, the project is planning to carry out during this phase TWO the following interventions:

- Procurement of 100 pure breed shami bucks (1 – 2 year-old) to be supplied to 50 progressive goat farmers from Jrud Akkar-Hermel, where each farmer will receive two males to upgrade his Baladi female flock.
- Procurement of 200 Shami pure breed pregnant goats (eight to ten months old) to be supplied to 20 progressive women-headed households (with experience in goat rearing). The objective is to initiate pilot demonstration with 20 families, mainly progressive women-headed households making traditional home-processed dairy products (laben, labneh, varieties of white cheeses) for sale in villages and in cities, each family will be supplied with 10 females and one buck. The family will be supplied also with mini dairy unit for milk home processing.
- The intensification of the dairy goat system to be undertaken is mainly on land use in that the system will only use a small surface of land and will be able to function managed by just one family unit. The integration part of the system being proposed involves incorporating the nutritional component, the biological component and housing under confinement of the goats to be used in the system. This is why this farming system will be only introduced to progressive smallholders who accept a contract with the project for farm management and training with facilities of growing forages and appropriate stationary barn. These demonstration farms for intensive breeding of goats will be an example for farmers and investors. Detailed financial records are to be kept in order to prepare a feasibility study at the end for wide dissemination in Lebanon.

4.8.9: Support with forage seeds for promoting fodder crops to sustain dairy sub-sector

1. The dairy feeding system in Lebanon is characterised by abusive utilisation of imported concentrate feeds (7-18 kg) and the absence or poor feeding of fodder crops, only poor roughages of negligible nutritive value are used like Tibn (chopped wheat straw) used as a filler (3-6 kg). Feeding cost of dairy cattle represents 60 – 70 % of the total cost of production. The average annual total cost of cattle feeds in Lebanon is estimated around 175 million USD. Ninety percent (90%) of this value is allocated for imports of such feed.

The dairy smallholders in project sites are facing severe competition because of the soaring prices of animal feed.

2. The recent increase of feed prices has demonstrated the susceptibility of many countries to changes in cost and availability of animal feeds. The unforeseen high price of cereals (mainly corn) and Soya increasingly used for production of biofuel but also to supply high demand for feeds in many emerging countries, increasing therefore the feed cost and thus increasing prices of milk and meat for their population, affecting also Lebanon market. Therefore, this is considered a major factor in increasing the cost of milk production threatening the live stock sector in Lebanon. The most vulnerable groups are the small dairy farmers and producers in the rural areas.

3. As a response to this issue, the LRF Project is developing a strategy for Sustainable development of animal production in Lebanon based on better utilization of local feed resources. For these reasons the LRF-21 has supported during his phase ONE, 600 farmers with high quality seeds for demonstration and promotion of forage crop cultivations which is very essential and critical in protecting the livestock sector as a whole and the small holders in particular.

4. During the implementing phase TWO, the project will continue to give high priority to promoting an extensive programme on forage development in the fertile Bekâa and in North Akkar to: 1) secure the dairy producers, 2) improving the competitiveness of the sub-sector and 3) alleviate the increasing feed dependence of the dairy farmers. The project will set up with new project beneficiaries' from expanded areas on-farm forage demonstration building on the successful outcomes of the phase ONE. This activity will particularly strengthen the new plan of the MOA for subsidizing the cultivation and production of forage crops, where LRF Project has actively contributed to its preparation and implementing strategy.

The project will support during phase TWO:

5. Six hundreds (600) additional beneficiaries from expanded areas with 80 tons of certified forage seeds (oat, vetch and rye grass). Priority is given to promote rain-fed fodder crops (Winter crops) such as mixtures of cereals and legumes (Oat / barley with Vetch) and annual Rye Grass as they are competitive (compared to fodder cultivated under irrigation) and easy to be cultivated by almost all smallholders.

4.8.10: Support to milk analysis and testing programs to insure health and safety of milk and dairy products.

1. One of the most important goals of the project is the improvement of raw milk quality as this reflects positively on the consumer's health standards, milk quality is also a decisive factor in milk pricing and it directly affects the income of the farmer.

2. During its implementing phase ONE, the LRF-21 has started with financial support of MOA an extensive milk sampling and analysis program to insure progress in health and safety measures concerning milk and dairy products with feed back of results and recommendations to farmers.

During the proposed phase TWO, LRF project will:

6. Continue monitoring the hygienic conditions and health situation of the raw milk through Collection of random milk samples from the farm, the milk dealers, and the dairy centers and conducting imperative laboratory tests and analysis for biological, physical, and chemical properties for basic assessment and follow up

7. Create a special team in the MOA to take over the mission of quality control and sampling and testing all over the country and run analytical and biological tests to insure conformity with the increasingly rising standards of quality and hygiene.



4.8.11: Set up of Sustainable Support Mechanisms to facilitate uptake of livestock's services inputs and supplies by the co-operating smallholder dairy producers.

The project will be sustained also through the establishment of a direct support mechanism to dairy communities and intermediate village milk collection centre networks under the overall support and the control of the LRF project. The mechanism will include livestock veterinary services, agriculture inputs and supplies to facilitate access of smallholder dairy producers to benefit from dairy services advantageously, offered by the dairy coop to its adherent members. This revolving fund will make the farmers cooperate and work in groups, strengthening the village dairy producers' associations to reach a sustainable status.

The functioning mechanism will be as follows:

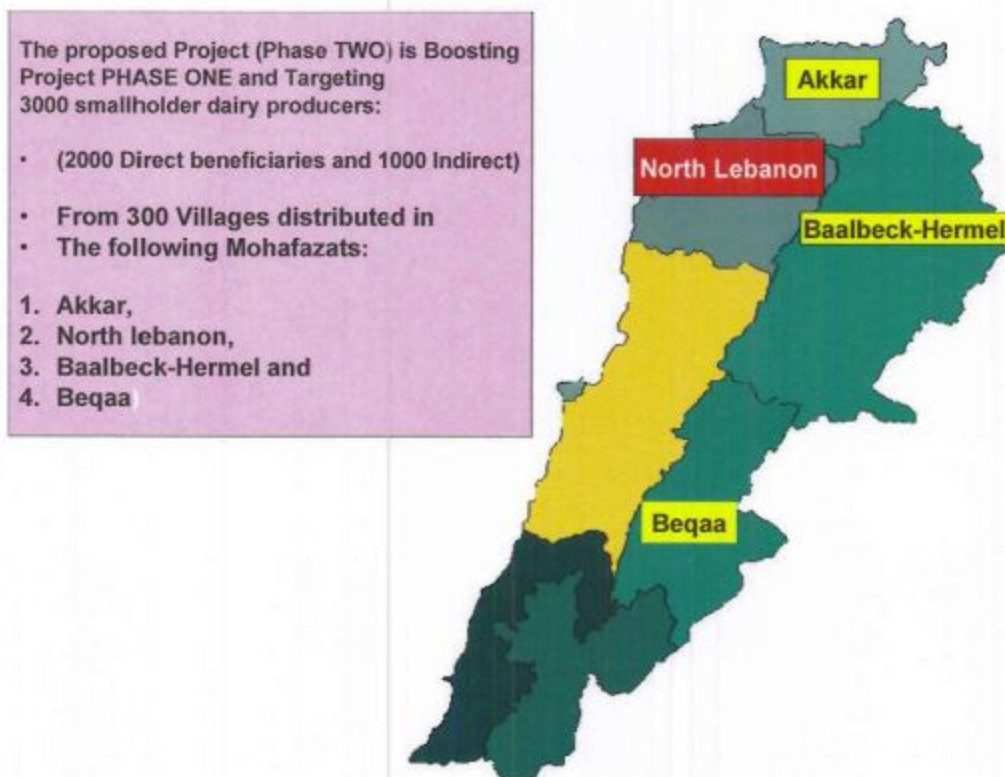
1. The project will support each Dairy Coop working successfully (active in milk collection, giving services to its members...) with animal inputs and supplies (concentrate feeds, vet drugs, artificial insemination supplies) equivalent to US\$ 5 000 to US\$ 10 000 (according to the size of Coops). This intervention is granted only one time and for the Dairy Coops with good management and transparency.
2. Each small farmer participating in the programme (with a maximum of 20 cows) should be active member (adherent) in the Dairy Coop and regularly participating in the training sessions. The farmer should be delivering milk to the intermediate milk collection centre for three months at least before qualifying to have access to Dairy Coop services. The member should also accept to contribute by 10 LL / litre of milk to the Dairy Coop (fees).
3. Each small farmer with the above conditions (point 2) can submit a request to buy animal inputs at advantageous price only after verification by the Dairy Coop (the sale price to members will be 70% of market price). The payment will be deduced directly by the intermediate milk collection centre (Dairy Coop) after the milk sale.
4. The support mechanism will increase in financial terms from farmer' milk sale, milk collection contribution (10 LL / litre of milk), Government subsidies and other earning from services which could be made available to assist the Coop farmers.
5. The LRF project team together with Directory of Coop (MOA) will supervise and control the support mechanism which will be administrated directly by the Dairy Coop according to official operational procedures. The project will establish a contract system with each beneficiary Dairy Coop, under clear rules and conditions, provide details on their mutual contributions and on their mutual share of final results.
6. The project will also collaborate closely with the existing MOA facilities / services in the target areas and contribute to strengthen and reinforce the capacities of the available facilities and delivered services; particularly for activities related to AI, veterinary drugs and vaccines in full cooperation with dairy processing plants and dairy communities.

4.9: Targeted project sites

The project is touching the lives of the most unfortunate and poorest farmers. The target project sites cover more than 260 villages identified during phase ONE starting from Southern Rashayya Caza to the Northern border of Akkar Mohafazat passing through West Beqaa, Central Beqaa, North Beqaa. In addition this proposed phase TWO will be extended to 40 villages from Caza Minnieh-Danniyeh and other villages from Mohafazat North Lebanon. Therefore, this proposed phase TWO is targeting at least 300 villages from four

(4) large Mohafazats with all their Casas and Municipalities: Beqaa, Baalbeck-hermel, Akkar and North Lebanon.

The project sites are indicated in the following map:



4.9.1: Targeted beneficiaries

1. The project will benefit from experience gained from the LRF-21 phase ONE, where extensive surveying activities were conducted in individual villages and with individual farmers aiming at generating a better understanding of the general environment prevailing at the targeted areas to produce a necessary authentic and realistic database. The collected and analysed information were used to sort out project intervention priorities and to decide on the criteria of farmers selections. Similar methodology will be used to identify the new project beneficiaries.

2. As previously done, very strict selection standards will be followed to identify the direct beneficiaries who will be supported with small equipment and supplies. The very poor small farmers and the widows and women and those with critical social and health conditions will be given the priority. Highest degrees of transparency and justice will be followed in selecting the beneficiaries; no compromises in that respect will be made. As an example, the following criteria will be followed for selection of the direct beneficiaries (distribution of project inputs and supplies):

The main source of income should be from dairy farming
Women are sponsors of the family or directly involved in managing and running the farm.
Presence of handicapped or disabled persons.
Small size farms are to be considered (2 – 15 cows).
Poor and very poor farmers who lack assets and human capital
Presence at their farm & taking good care of their animals.
With long experience in dairy farming, with capacity and space to accommodate the proposed

vention
To be progressive to cooperate with the project and participate regularly to training sessions

3. The following direct and indirect beneficiaries are targeted:

Activities	Beneficiaries
1. Strengthening the village dairy producers' associations	<ul style="list-style-type: none"> • Ten (10) additional Dairy Coop will be created in addition to 23 existing ones • 2000 Co-operating dairy farmers
2. Setting up Intermediate Primary Village Milk collection and Cooling Centers Network,	<ul style="list-style-type: none"> • Ten (10) additional primary milk collection centres will be implemented in addition to 20 existing ones • 2000 Co-operating dairy farmers • One Thousand (1000) Indirect beneficiaries
3. Support with 400 milking machines	<ul style="list-style-type: none"> • Four hundreds (400) additional beneficiaries in addition to 360 farmers already granted
4. Support with 2000 stainless steel milk cans	<ul style="list-style-type: none"> • One Thousand (1000) additional beneficiaries in addition to 1105 farmers already granted
5. Support with mini dairies to women-headed households	<ul style="list-style-type: none"> • One Hundred (100) additional beneficiaries in addition to 135 farmers already granted
6. Capacity Building of farmers and MOA extension service people	<ul style="list-style-type: none"> • Two Thousand (2000) Direct Beneficiaries • One Thousand (1000) Indirect beneficiaries
7. Support to artificial insemination services	<ul style="list-style-type: none"> • Two Thousand (2000) Direct Beneficiaries • One Thousand (1000) Indirect beneficiaries
8. Support with veterinary supplies	<ul style="list-style-type: none"> • Two Thousand (2000) Direct Beneficiaries • One Thousand (1000) Indirect beneficiaries
9. Support with forage seeds for promoting fodder crops to sustain dairy sub-sector	<ul style="list-style-type: none"> • Six hundreds (600) additional beneficiaries to the existing 600 already granted during phase ONE
10. Support with 100 Shamee breed bucks and 200 Shamee females	<ul style="list-style-type: none"> • Fifty (50) progressive goat farmers and • Twenty (20) progressive women-headed households
11. Support to milk analysis and testing programs	<ul style="list-style-type: none"> • Three Thousands (3000) dairy farmers
12. Access to Revolving Fund to facilitate uptake of livestock's services input	<ul style="list-style-type: none"> • One Thousand Five Hundres (1500) co-operating smallholder dairy producers.

4.9.2 : Expected outcomes

By the end of the project, the smallholder dairy producers and dairy communities will be in good position to improve their chances of becoming self supporting and sustainable. Provision of extension and other support services to livestock farmers by the project, MOA, private dairies and processing/marketing firms will lay the foundation stone for improvement and sustainability of dairy sub-sector and particularly the milk value chain in Lebanon. The immediate and subsequent outputs of the project are as follows:

1. Improved dairy production, covering the whole dairy production chain through complementary interventions: organizations of dairy farmers, milk collection centres, inputs and training, with good opportunities for gainful employment and decrease in the need for internal/external migration, mainly for the youth;
2. Increased milk production in the country with decreased reliance on imports as well as improved standards of food safety through the availability of better milk quality using appropriate cooling system and milk handling;
3. Establishment of thirty active dairy communities to help them help themselves and to independently follow up a core group of trained smallholder dairy farmers, able to provide dairy industry leadership and share their expertise with other farmers;
4. Improved farm management and dairy production and processing skills acquired through a comprehensive training programme for 3000 farmers (2000 direct beneficiaries and 1000 indirect) with increased Government and NGO's capacity to support small farmers;
5. Improved food security by increasing the efficiency of the dairy component and improved nutritional status of low income rural households (particularly women of childbearing age and children) as a result of increased incomes and consumption of animal products;
6. Improved dairy breeding stock as a result of an extensive artificial breeding programme and introduction of 300 shami breed (100 shami bucks and 200 shami goats);
7. Core group of 250 active women headed-families empowered in Central Bekâa Valley, North Akkar and hermel-Akkar Highlands, to efficiently manage dairy cattle and goats for income generation with increasingly more active role to ensure family survival;
8. Improved animal health and veterinary services through provision of vaccines and drugs
9. Improved competitiveness of milk dairy sub-sector with promotion of fodder crops to reduce the feeding costs and improve the dairy herd nutrition
10. Easy access of smallholder dairy producers to dairy services and inputs through the established and sustained revolving fund under the direct management of the Village dairy Producers' Association (VDPA's).

5. Contribution towards the attainment of the MDGs

The project will have a direct contribution to the attainment of the Millennium Development Goals, and in particular to goal 1 *"Eradicate extreme poverty and hunger"* and to goal 3 *"Promote gender equality and empower women"*. This will be achieved through its activities as it assists in the recovery and rehabilitation of dairy sector supporting the livelihoods of vulnerable livestock keepers in Bekâa Valley and Hermel-Akkar Highlands of Lebanon and by paying special emphasis on women-headed households. Indirectly, the project will make a contribution to goal 4 *"Reduce child mortality"*, goal 5 *"Improve maternal health"* and goal 7 *"Ensure environmental sustainability"*.

6.0 Timeline of the activities

- The project implementation period is of 24 months (from April 2012 to March 2014). An indicative work plan for the project will be extensively elaborated before starting phase TWO, detailing when activities will be implemented on a quarterly basis. A more detailed work plan will be produced in the first month of project implementation.

7.0 MANAGEMENT ARRANGEMENTS AND IMPLEMENTING FEASIBILITY

7.1 Implementation modalities

The project activities will be implemented under the supervision of the Project Management Unit (PMU) currently implementing LRF-21 phase ONE carrying out activities in Bekaa, Baalbeck-Hermel, Akkar and North Lebanon Mohafazats. The PMU will continue based in Central beqaa (Zahlé) with continuous supervision to all project sites, including frequent trips with spending nights in Akkar for effective follow up.

The PMU is managed by Project Manager (FAO international livestock consultant) with sound experience in Lebanon, particularly in project areas and familiar with similar activities, supported by three staff: one national Consultant in Smallholder Milk Handling, Hygiene and Technology, Officer for Small Holder Dairy Training, Milk Analysis and Testing and Officer for administrative support to Village Dairy producers' Association (VDPA's). The PMU is supported by MOA through assignment (already assigned during phase ONE) national project coordinator and four (4) veterinarians to assist the project in veterinary and artificial insemination services. The PMU will continue coordinating and establishing linkages with other UN agencies implementing projects, the Division of Livestock and Animal Health of MOA, with other service providers, at the regional or municipal levels, such as agricultural colleges, local government units and NGOs working in project areas.

The PMU will carefully pursue supervising selection of beneficiaries, on-site distribution to all beneficiaries as well as establishment and organisation of dairy communities. Progressive dairy communities with good leadership, commitment to development, good transparency and will be extensively involved in project implementing activities. The Project Management Unit will check delivery on farm sites.

The contribution of the MOA to the project will be in-kind. The Ministry of Agriculture will be the government counterpart agency responsible for the project and will assist all consultants and experts in the performance of their assigned tasks. Duty-free procurement will be facilitated in a timely manner. The MOA will particularly facilitate the project in organizing dairy communities and application of decrees and regulations for import and production of dairy products to protect dairysmallholders and the consumers.

The nature of the designed project activities will ensure sustainability after the lifespan of the project through the technical support and inputs to dairy communities that will generate some financial liability from commercial activities and services to the farmers. The implementing current phase One with the 24 months time frame (phase TWO) will put in place all the proper measures required for a comprehensive implementation of the activities and that dairy communities are up on their feet and with proper income enabling them to ensure the continuity of the scheme once the project ends.

The activities are designed in a manner not to incur any financial liability to the MOA budget even after the lifespan of the project. Extension services after project completion by MoA are recommended in order to help ensure sustainability. The project will be implemented over 24-month period covering: project coordination, procurement of inputs, monitoring and setting up milk collection centres network, organization of dairy coop's, distribution, technical assistance,

monitoring, and implementation of training programmes, impact assessment and reporting. The implementation of the proposed phase TWO would be facilitated by constraints and lesson learnt from phase One, those are presented in the following paragraph.

7.2: Implementing Feasibility of PHASE TWO taking into consideration Constraints and lessons learnt from PHASE ONE

• During the last period of implementing phase ONE the project had faced many constrains that hindered the fast implementation of the intervention actualities. Many of these constrictions were forecasted while others were not. To overcome these barriers we invented solutions or modifications or created shortcuts in most cases. Few cases were not curable as the decisions were not within our scope. The variety of stake holders involved in our project made it very difficult to coordinate among all the parties especially when conflicting benefits were present. Such conflicting parties are: the dairy farmers, the milk dealers, the dairy processing plant, the milk smugglers, and last but not the least the consumer. However, such constraints were very useful for the project since we have learnt some fruitful lessons in problem solving. The following paragraph presents the main constraints and lessons learnt which will be very helpful during implementing phase TWO:

1. Constraints	
Antagonistic stance towards the project.	In the first phase the project was looked at as a source of problems by some parties. The milk dealers thought that the project will steal their milk from them and cut their living. The milk processing plants thought that the project is going to harm them by increasing the milk prices and giving strength to Dairy Coops. They all bet that the idea of farmers cooperative will fail like the earlier experiences. No one was convinced that the project will be able to improve the milk quality and make the farmers cooperate and work in groups. In some cases they worked against the project by talking bad about us to the farmers and to other influential people in the area. We had to spend lot of time to convince them that we are not taking sides but we want to improve the whole system including all the parties and emphasizing on the poor small dairy holder.
The large number of needy and poor farmers.	FAO knew from its field survey that there were more than 1500 poor and needy farmers and producers. For this reason we made strict criteria of selection in order to reduce the number of beneficiaries so that the limited budget that we have can be evenly and fairly among the neediest people. What we discovered when we started our selection that the line we have drawn between the beneficiaries and the non beneficiaries is so light that many people below the line deserve to get the support but we were not able to give them any due to lack of funds. We have encountered many miserable cases of farmers that lack everything and need any kind of support and some of them were encouraged to appear at our office after they have seen their neighbors gain real benefits. So now we have many names of needy and deserving farmers and producers that we cannot neglect and we must fund some extra budget to be able to support them.
Language and comprehension constrain of the farmers and other related people.	Almost all farmers and producers do not know or understand English or are able to read instructions. Many are illiterate and do not know how to read or write. Even those that know little English and Arabic are not able to understand or follow directions and instructions strictly. Usually the members of the administrative boards of the cooperatives are literate. We tried to make all our publication in big font and with many explanatory colored images that the farmers find attractive and self explanatory. This strategy was applied on extension booklets, handouts and posters. Even the operation manuals and direction charts are translated and distributed with the instruments and equipments.
Shortage in time and personnel in the project.	Taking into consideration the geographical area and the number of farmers involved and the volume of inputs and follow up necessary to achieve the goals of the project, we can confirm that the time span allocated for the project is inadequate and the number of the working team is not sufficient. If we look at most if not all the achievements and accomplishments of the project especially the Farmers

	<p>cooperatives and Primary milk collection and cooling centers, operation of the milk transportation trucks etc We find that all of these require continuous follow up, control, and monitoring in order to reach a state of stability and sustainability. Also more training and milk sampling and testing are required. More time and personnel are required because the past experience has involved very hard work and lengthy working hours.</p>
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2. Lessons Learnt	
<p>Do not underestimate the retarding effects of opposing parties.</p>	<p>As we were confident that our project and intentions are very honest and sincere, we did not pay attention to the talks and rumors of some misunderstanding parties. Although most of these parties that opposed the project at its first stages were driven by their ignorance of our actual intentions, they have cost us lot of time and effort. Lengthy meetings and lot of explanations were needed to change the bad image created either intentionally or unintentionally by those people. Finally all of them including the people that were 100% in the opposing side were convinced that we are working for all the parties and for the good of the dairy sector as a whole. Many important figures that at the beginning refused to receive us are now coordinating with us and are at our office at regular intervals. We learned our lesson very well that we must communicate with those that appear to be against us and give them enough time and listening in order to understand their concerns and fears and manage or eliminate them.</p>
<p>Be patient but persistent.</p>	<p>In dealing with governmental and official organizations one should expect lengthy sufferings of the administrative routine and institutional ordinal. The only way to get something accomplished at these fields is to be very patient and give the employees sometime to understand exactly what do you want. In some cases you may get something different than what you asked for just due to a misunderstanding or to the failure of the other party to recognize or comprehend what you really wanted. Explain clearly what you want and repeat many times especially when your counterpart is talking on the phone or with someone else. Being patient does not mean you give unlimited time..... If you want something to be done you have to be persistent. Daily and regular calls and enquiries may give you good results in most cases.</p>
<p>Insist on transparency in all your actions.</p>	<p>Although the project team has made very transparent selection criteria for beneficiaries of material support, we were faced by many people claiming that we were biased and not fair. The priority schedule that was adopted is very clear but the boundary line between eligible and non eligible is very vague and confusing sometimes. So it is very important to insist on the application of strict priorities and transparency in all our actions. It is a good idea to leave about 10% of the material support aside in order to satisfy the really needy and critical cases that will usually appear after finishing distribution.</p>
<p>Never take sides in any quarrel or conflict.</p>	<p>Farmers, milk dealer, dairy producers are always exposed to quarrels among themselves and between each other. Each party wants us to stand by its side. The role of the project is to be peace pigeon among all parties as it is our strategy to develop the sector as a whole and that requires the effort of every single man and woman that is working in this field. It is true that we are supporting the weakest ring in this chain (the small and poor dairy holder); we have to be fair and just in giving the right to its owner. Stick to the side of the project strategy and work only against anything or anyone that may jeopardize the plan, policy and goals of the project.</p>
<p>Allocate more time.</p>	<p>Allocate more time for the project as a whole and to each component that requires special attention and follow up. Our experience has proved that the most if not all the farmers are not used or acquainted with the cooperative and team work. It is a new experience to them and the need lot of advice and extension in that field. The management of the milk collection centers and the milk transportation trucks can be a dangerous source of dispute and corruption if not attended to in transparent and rational approach. We believe that an additional year of follow up may be necessary before all these establishments can completely be self dependant.</p>

7.3 Procurement arrangements and distribution to beneficiaries

The procurement arrangements of project related inputs will be based on FAO's Rules and Regulations with all transparency of transaction as in previous projects: (i) Preparation of technical specifications and delivery conditions (Clearance FAO headquarters), (ii) Invitation to Bidding and (iii) Selection by Official Committee. Identification of project beneficiaries will be undertaken under transparent selection using clear criteria and through thorough field investigation conducted by the project team. The PMU will carefully supervise on-site distribution to all beneficiaries through the dairy communities.

7.4 Monitoring and evaluation

Close monitoring and evaluation of project activities, including implementation progress and expenditure, are essential, given the nature of the project. In conjunction with the National Coordinator and the national and international consultants, the Project Manager will be responsible for monitoring and follow-up of project activities. Given the nature of the project, close and frequent supervision, especially during the initial stages of implementation with new project beneficiaries and extended project areas, will be required. The monitoring and evaluation will be coordinated by the Project Management Unit and undertaken on a regular and continuous basis. Relevant information on the project's activities and achievements will be collected, processed and disseminated to all key stakeholders of the project.

8.0 ANALYSIS OF RISKS AND ASSUMPTIONS

The volatile political and security situation in Lebanon as well as in the region could negatively impact the efficient implementation of the project. No other critical factors are foreseen to negatively impact the project since the project was developed in full consultation of the MOA and other relevant partners. Furthermore, representatives of beneficiary groups will be involved in all the decision-making processes at each stage of implementation. These measures will minimize project risk and help to enhance ownership, trust, and sustainability.

9.0 PRIOR OBLIGATIONS AND PRE-REQUISITE

The government will facilitate access by the project personnel to official documents and meetings with government officials, the private sector and academia, as required. Duty-free procurement will be facilitated in a timely manner.

10.0 LEGAL CONTEXT

The proposed project will be implemented in line with the standard arrangements between FAO-LRF and the Government of Lebanon.

THE PROJECT BUDGET

LRF PROJECT BUDGET*	
CATEGORIES	AMOUNT
1. Supplies, commodities, equipment and transport	600,000
2. Personnel (staff, consultants and travel)	261,500
3. Training of counterparts	200,000
4. Contracts	30,000
5. Other direct costs	29,995
Sub-Total Project Costs	1,121,495
Indirect Support Costs**	78,505
TOTAL	1,200,000

* See the *UNDG Harmonized reporting to Donors for Joint Programmes approved in 2006* and available on <http://www.undg.org/docs/9442/Explanatory-Note---Annex-D.doc>.

** The rate shall not exceed 7% of the total of categories 1-5, as specified in the PBF MOU and should follow the rules and guidelines of each recipient organisation. Note that Agency-incurred direct project implementation costs should be charged to the relevant budget line, according to the Agency's regulations, rules and procedures.

THE PROGRAMME/PROJECT BUDGET

CATEGORY	ITEM	TOTAL COST USD
1. Personnel	Int'l Consultant (Project Manager)	200,000
	National Consultants	
	Temporary Recruited Labour	
	Office Clerk	
	One driver / security logistic	
	Programme / Operations backstopping	
2. Training	Seminars, Workshops, On-farm demonstrations, Manuals, Posters, Leaflets	200,000
3. Travel	Duty travel Costs:	61,500
	- Consultants: International	
	- Consultants: National	
	- Travel: Training	
	- Air Travel	
4. Equipment & Supplies	30 cooling tanks (of different capacities); 10 electric generators (with different powers) and 10 kits for laboratory analysis and testing.	600,000
	400 single head electrical milking machines & 2000 stainless steel milk cans of 40 liters	
	100 Medium & Mini size dairy units	
	50 Artificial Insemination Kits, 1000 semen doses & supplies	
	vet drugs and prevention kits	
	200 Shami pure breed pregnant goats & 100 pure breed shami bucks	
	80 tons of certified forage seeds (oat, vetch and ray grass)	
5. Technical Support	- Technical supervisory services	30,000
	- Evaluation	
	- Report costs	
6. Miscellaneous	General Operating Expenses	30,000
	Sub-total:	1,121,500
7. Agency Support Cost	7%	78,500
Project Budget Total		1,200,000
UNDG-ITF		

2. LOGICAL FRAMEWORK:

Objectives	Measurable Indicators	Means of Verification	Important Assumptions
<p>Development Goal: Improve the livelihoods of poor dairy farmers and sustain the dairy sector in Lebanon, emphasis is made on improving the quality and hygienic standards of milk and dairy products to safeguard the Lebanese consumer and improve the milk prices through small dairy equipment, farmer's organization and capacity building</p> <p>Immediate Objective: Provide assistance to the livelihoods of vulnerable livestock keepers through distribution of equipments, support with animal inputs and services, grouping farmers into village dairy producers' associations and set up of milk collection centres network</p>	<ul style="list-style-type: none"> - Improved farm management - Improved Milk Quality Standards ; - Increased food security in households. - Increased animal productivity <ul style="list-style-type: none"> - Project is implemented efficiently and in accordance with the work plan and timing; - Animal production income generation activities improved; - Proper animal health care and A.I. measures implemented. 	<ul style="list-style-type: none"> - Government Statistics - Mid-term Review - PMU reports - M&E reports - Gender Assessments <ul style="list-style-type: none"> - Project progress reports; - Supervision reports; - M&E reports; - List of farmers receiving livestock; - Training. 	<ul style="list-style-type: none"> - Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled. - Stable security situation and accessibility of the project area.
<p>Output 1: The dairy small producers are empowered through constitution of Village Dairy Producers Associations (Dairy Coops) in management of milk collection centres and milk marketing</p>	<ul style="list-style-type: none"> - Action Plan agreed upon by all stakeholders; - Improved milk prices - Improved household income; - Dairy Coops created - Intermediate milk collection centres created 	<ul style="list-style-type: none"> - Action plan report; - Government statistics on household income; - Government statistics on milk prices - Project M&E reports; - Project technical reports; - List of VDPA's created - List of milk collections centres & quantity of milk collected 	<ul style="list-style-type: none"> - Stable security situation and accessibility of the project area; - Key dairy processing plants support dairy Coops & milk collection network; - Key people in local committees actively support the project.
<p>Output 2 Smallholders supported by technical and essential material support related to good farm management, milk hygiene, and farm house processing, to small dairy holders, especially to women headed households</p>	<ul style="list-style-type: none"> - Action Plan agreed upon by all stakeholders; - Improved dairy farm management - Improved household income; - Improved milk quality standards - Improved living conditions of women headed households 	<ul style="list-style-type: none"> - Action plan report; - List of project beneficiaries - Data on milk production recorded by milk collections centres - Project M&E reports; - Project technical reports; - List of women headed households 	<ul style="list-style-type: none"> - Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled. - Availability of input from potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities;
<p>Output 3: Animal production improved with improved healthcare & improved cattle reproduction through provision of Veterinary & artificial insemination services and introduction of fodder crops</p>	<ul style="list-style-type: none"> - Improved household income; - Better public health status as a result of improved access to high-quality dietary protein from good 	<ul style="list-style-type: none"> - Government statistics on household income; - Government reports of public healthcare and nutrition status; 	<ul style="list-style-type: none"> - Stable security situation and accessibility of the project area; - Availability of input from potential suppliers (quantity, quality, timeliness

<p>Output 4: Improved goat milk production by introduction of intensive system of goat farming in stationary barns with import of Shami goats of high dairy breed and upgrading, local baladi through crossbreeding with shami males</p>	<p>quality pasteurized milk; - Improved dairy breeding stock (both in terms of quality and availability) as a result of an artificial breeding programme. - Improved feeding system based on local fodder crops</p> <p>- Improved household income for goat farmers - Regular availability of goat milk during all year round - Improved goat dairy breeding stock (both in terms of quality and availability) as a result of a crossbreeding programme. - Improved feeding system based on local fodder crops for intensive goat system</p> <p>Inputs:</p>	<p>- Project M&E reports; - Project technical reports. - Government statistics on cultivated land of fodder crops</p> <p>Government statistics on household income; - Project M&E reports; - Project technical reports. - Government statistics on small ruminant stock</p>	<p>and location) as required for smooth implementation of project activities; - Key people in local committees actively support the project.</p> <p>- Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled. - No outbreaks of animal diseases from county to import goat shami</p>
<p>Activities:</p> <ul style="list-style-type: none"> • Activities related to output 1: • Ten (10) additional Dairy Coops will be created in addition to 23 existing ones, they play a key role in empowering dairy smallholders in milk marketing and act as focal points for providing other services, such as training, artificial insemination, vaccination campaign and management of government subsidies for fodder crops. • Set up 10 extra primary milk collection and cooling network in new locations to the 20 primary milk collection and cooling centres already installed for milk cooling to improve milk quality standards, milk prices and supply the consumer with healthy dairy products. Procurement of: 30 cooling tanks (of different capacities); 10 electric generators (with different powers) and 10 kits for laboratory analysis and testing. • 2000 Co-operating dairy farmers will benefit from VDPA's and milk collection centres <p>Activities related to output 2:</p>	<p>Means of verification: Financial reports</p>	<p>Important Assumptions: Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled.</p>	<p>Important Assumptions: Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled.</p>
<p>Activities related to output 2:</p>	<p>Through the Government and</p>		<p>- Security situation in the country</p>

<ul style="list-style-type: none"> • One Thousand(1000) additional beneficiaries will be supported with 2000 stainless steel milk cans and filters to improve milk handling and storage • Four hundreds (400) single head electrical milking machines along with the detergents and disinfectants, teat dipping solution and cups to be distributed to 400 poor farmers (with 2-10 cows) mostly women-headed households • One Hundred (100) mini dairies along with their accessories will be distributed to 100 women-headed households for production of sanitary traditional home-processed dairy products (laben, labneh, varieties of white cheeses) • All project direct beneficiaries (2000) will be strengthened through comprehensive training programme covering the whole interventions related to dairy production-processing-marketing, also at least 1000 farmers will benefit indirectly from the project through training sessions and production of extension materials (manuals, leaflets and posters). <p>Activities related to output 3:</p> <ul style="list-style-type: none"> • Support to artificial insemination services to 2000 direct beneficiaries and 1000 indirect beneficiaries through: training 50 inseminators' assigned to the dairy coops and provision of good quality of Semen and supplies to VDPA's: Procurement of Fifty (50) Complete Insemination Kits, supplies and 10 000 semen doses for artificial insemination • Support to veterinary services through to 2000 direct beneficiaries and 1000 indirect beneficiaries through: procurement of vet drugs and prevention kits for mastitis, metritis and foot rot (amount for 1000 dairy cows per Dairy Coop owned by poor smallholders) • Support to 600 additional beneficiaries from expanded areas with 80 tons of certified forage seeds (oat, vetch and ray grass) to promote fodder crops for: securing the dairy producers, 2) improving the competitiveness of the sub-sector and 3) alleviating the increasing feed dependence of the dairy farmers 	<p>beneficiaries:</p> <p>The Government will facilitate access by the project personnel to official documents and meetings with Government officials, the private sector and academia, as required.</p> <p>Duty-free procurement will be facilitated in a timely manner.</p>	<p>improves or remains stable allowing project activities to be implemented as scheduled.</p> <p>- Availability of equipment from potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities;</p>
		<p>Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled.</p>

<p>Activities related to output 4: Support of Fifty (50) progressive goat farmers and Twenty (20) progressive women-headed households with high producing Shami breed goats to upgrade local Baladi flock and intensive goat farming through procurement: Procurement of 100 pure breed shami bucks and 200 Shami pure breed pregnant goats. The objective is to initiate pilot demonstration on upgrading Baladi goats and intensive dairy goat farming for dissemination of results to farmers and investors.</p>			<p>-Security situation in the country improves or remains stable allowing project activities to be implemented as scheduled. - No outbreaks of animal diseases from country to import goat shami</p>
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