

TECHNICAL COOPERATION PROGRAMME



LEBANON

PROJECT PROPOSALS

Damage and Early Recovery Needs Assessment of Agriculture, Fisheries and Forestry

November 2006

Special Emergency Programmes Service
Emergency Operations and Rehabilitation Division
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, Italy

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منظمة الأغذية
والزراعة
للأمم المتحدة

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et
l'agriculture

Organización
de las
Naciones
Unidas
para la
Agricultura
y la
Alimentación

PROJECT PROPOSAL

Country: LEBANON

Project title: Establishment of an emergency and early recovery coordination unit for agriculture-based livelihoods

Project symbol: OSRO/LEB/.../...

Project Duration: 12 months

Implementing agency: FAO in collaboration with the Ministry of Agriculture, NGO and municipalities

Budget: US\$561 000

PROJECT SUMMARY

The large-scale hostilities on Lebanon that broke out in July/August 2006 took place at the peak of the crop harvest season, affecting the farming and fishing sectors directly in terms of physical destruction, and more importantly indirectly in terms of lost markets and labour opportunities.

Direct losses such as the damage to fields during the bombing and the destruction of greenhouses account for an important share of the agriculture losses. However, the major damage was caused indirectly through the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the crops and livestock unattended. Mostly cited losses were on tobacco, olives, fruit trees and seasonal produce. In addition, livestock, such as cows, goats and poultry, has been hard-hit – with large numbers of animals, especially cows, having died or no longer producing milk, and poultry running out of feed. The conflict also had a significant negative impact on the fishing sector. Approximately 3 500 fishers lost their only source of income when warships began preventing any boats from moving in Lebanese territorial water. Ports in Lebanon were attacked from Tripoli in the north to Naqoura in the south, and fisher's assets destroyed.

The mass displacement during the hostilities put a halt to most economic activities, and the coping mechanisms available to different socio-economic livelihood groups have since revolved around reliance on savings and social networks. In the immediate aftermath of the conflict, first the blockade and then the presence of unexploded ordnances (UXOs), a dramatic access problem developed for most livelihoods linked to food production systems. In addition, the lost income and the unavailability of cash flow is the greatest threat to the livelihoods recovery, as farmers usually repay their debts during harvest (May-October) and secure credit for the following season.

Therefore, there is a need to provide emergency assistance to farming and fishing communities until they can resume their agricultural activities and sustain their incomes. Upon the cessation of hostilities, government, UN agencies and NGOs started or are planning activities in agriculture, food security, and livelihoods related areas. With this intensive start-up of activities, there is an urgent need for strengthened coordination within/between the parties involved in the recovery effort – public entities, UN agencies, bilateral cooperation, NGOs, and other partners and stakeholders.

The objective of this project is to achieve rapid recovery and rehabilitation of agriculture-based rural livelihoods of the affected communities through the creation of a consolidated approach between the various relief and development partners, thereby contributing to poverty alleviation and increased food security.

1 INTRODUCTION

1.1 Background

Between 12 July and 14 August 2006, large-scale hostilities broke out in southern Lebanon. On the Lebanese side the conflict resulted in more than 1 187 deaths, 4 398 injuries and large-scale destruction of infrastructure, disruption of essential services and displacement of people. It was estimated that over one million people were displaced during the period of the conflict. In the wake of UN Resolution 1701, a ceasefire came into effect on 14 August 2006, allowing for the return home of a large majority of displaced persons. The rural and agricultural setting was one of the hardest-hit by the war.

From a national perspective, Lebanese agriculture plays a limited role in the economy of the country, contributing overall up to 12 percent to the GDP, and representing 20 percent of the total export earnings. According to the Ministry of Agriculture (MoA) survey conducted in 2004, the value of crop production is approximately US\$1 030 million, representing 73 percent of the total agricultural production in Lebanon. The sector employs just over 9 percent of the labour force with large variations depending on the governorate. However, agriculture constitutes the main source of income for an average 30-40 percent of the population in Lebanon. In particular, **for many of the war-affected villages in the south of Lebanon as well as in Bekaa and Hermel, which also represent the poorest sections of the country, agriculture is reported to assume up to 80 percent of the local GDP and is the major income-earning and employment opportunity.**

The conflict affected the sector directly in terms of physical damage, but, more importantly, indirectly in terms of lost markets and labour opportunities. The *mass displacement* during the hostilities put a halt to most economic activities and the coping mechanisms available to different socio-economic livelihood groups have since revolved around reliance on savings and social networks. The impact on farming took the form of the interruption in crop care and livestock husbandry, the dislocation of markets and direct physical damage to land and other agricultural assets. Direct losses, such as the physical damage to crops and equipment through direct bombing, and the destruction of greenhouses, account however for a minor share of the agriculture loss.

The major damage was caused through the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the *crops and animals unattended*. The interruption in the care of crops and animals was responsible for a large portion of the income/production losses. Most of the agricultural workforce, including foreign labourers, fled south Lebanon. Those who remained were unable to work as mobility was restricted. Mostly cited losses were on seasonal produce. Especially those crops that require regular watering and harvest reported losses in some areas of up to 90 percent. The war took place at the peak time for harvest (mainly of stone fruits and potatoes) destined for export, but much of this year's *harvest perished* on the ground, as bombing forced farmers to abandon their lands and transport to market became impossible. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids. According to agricultural wholesalers, MoA and Investment Development Authority of Lebanon (IDAL), restrictions on movement reduced the flow of fruit and vegetables to Lebanese consumers by three-quarters and *reduced expected annual exports* by some 15-20 percent (around US\$20-25 million).

With the loss of income from harvests, many farmers have become *heavily indebted* as they usually repay their debts during the harvest period (May-October) to secure credit for the following planting season. This year, their ability to repay these debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for Lebanese farmers.

Similarly, the *livestock* sector in Lebanon, mainly in the south, has been heavily affected by the 2006 hostilities. The conflict has weakened the productive capacity of animals through death of stock and decrease in production – due to the forced rural exodus and related abandonment of animals, and lack of feed and healthcare during and after the hostilities. This will have a serious negative impact on country

supply of animal products and it therefore will increase tremendously the import of beef and dairy products, worsening the balance of payment of the country which is already heavily indebted. The outbreak of the war and its aftermath had slowed down livestock rearing and processing activities, resulting in the immobility of workers and loss of employment opportunities. The sale of livestock and its products in the affected areas of south Lebanon is one of the major income sources for resource-poor rural households, providing cash to the families to buy food. Therefore, a loss of livestock or a decrease in their market value has a devastating impact on these families' food security. The traditional dairy products, particularly the '*laban*' and '*labneh*' from goats and cows are the most popular protein sources in Lebanese culinary habits, and accompany daily food, providing high-quality dietary protein for people, mainly for children and women. The prices of animal products have almost doubled during and after the war, becoming non-affordable to the most resource-poor families.

Unexploded cluster bombs

Many agricultural fields have been rendered useless until unexploded bombs littering the land can be removed or exploded. Clearing the land of these unexploded bombs will be essential to enable the reconstruction of agriculture-based livelihoods. De-mining the agricultural fields and roads that are scattered with cluster bombs that represent a great danger to the population is a paramount need. The amount of unexploded bombs will hamper the future social and economic livelihood of the region. Cluster bombs were part of an enormous quantity of bombs fired by Israel into southern Lebanon. During the first weeks of the Israeli aerial and ground assault, Israeli forces delivered up to 3 000 bombs, rockets and artillery rounds daily, climbing to 6 000 per day towards the end of the war. Hundreds of thousands of pieces of unexploded ordnance (UXO), mostly cluster bombs (anti-personnel weapons that spray bomblets indiscriminately over a wide area) will need to be cleared before agriculture can be re-established. It was reported that more than 1.2 million cluster bombs were dropped by the Israeli forces. About 90 percent were dropped in the last 72 hours of the war when the Israeli forces were already aware that a ceasefire was imminent. Israeli reports indicate that cluster bomb contamination may be significantly greater than first estimated. Israeli rocket units fired a total of 1 800 rockets containing cluster bombs in the last days of the conflict. Each rocket fired contained 644 cluster component bombs, adding up to a total of 1 159 200 individual bombs that were dispersed over southern Lebanon. As of 19 October 2006, the United Nations Mine Action Coordination Cell (UNMACC) had identified 778 individual cluster bomb strike locations. UNMACC estimates that the failure rate of these cluster bomb sub-munitions is between 30 and 40 percent. Many hundreds of thousands of unexploded cluster sub-munitions are scattered throughout the southern region. It is also estimated that from 14 August to 19 October, 150 civilians were injured and 21 died as a result of mines and cluster bombs - one child has been killed and 23 injured. Most of the victims were men since they were typically the first ones to return home after the ceasefire and generally tend to be more involved in agriculture than women and children. Most unexploded bombs are small and innocuous looking, some in the shape of a soft drink can, often with ribbons attached, thus making them particularly attractive to curious children. Nearly 1 000 staff are currently involved in clearance operations. According to the National De-mining Office (NDO), it is hoped that 95 percent of the 'contaminated areas' in the south will be cleared of UXOs by 2008.

1.2 Project context

The hostilities on Lebanon that lasted five weeks in summer 2006 had an extremely devastating impact on the agricultural sector of the country. The hostilities targeted mainly southern Lebanon. The magnitude of damage is huge, ranging from loss of human life to damage to main infrastructures as well as farm infrastructures to loss of harvest and crops. The hostilities have weakened all segments of the agricultural sector, from small- to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season.

The Food and Agricultural Organization (FAO) of the United Nations, in close collaboration with MoA, has conducted a damage assessment of the hostilities to the crop production sector. As a result of this

assessment, it was estimated that total financial losses in the crop production sector amount to US\$233 million for all Lebanon (five governorates: Bekaa, North, Mount Lebanon, South and Nabatiyeh). The two governorates which suffered the most are South and Nabatiyeh in southern Lebanon (US\$152 million), incurring 65 percent of total financial losses in all Lebanon. These financial losses in southern Lebanon that amount to US\$152 million are composed of about US\$72 million loss in fruit trees (about 47 percent), US\$23 million in field crops (about 15 percent), US\$43 million in nurseries and flower production (about 28 percent), US\$1 million in greenhouse crops (about 0.7 percent) and US\$12 million for farm equipment and machinery (about 8 percent).

Due to the unavailability of working capital and the accumulated debt burden, many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their minimum daily needs. As mentioned above, in addition to the direct losses (physical damage and harvest loss), large areas including agricultural land are still contaminated with various types of deadly cluster bombs. The presence of UXOs indeed constitutes a hazard for many early recovery efforts. The movement of returnees, reestablishment of irrigation canals, construction of new shelters as well as income generation are all adversely affected by the presence of UXOs. Even more dangerous is the existence of cluster bombs in areas which have not been subject to hostilities. Clearing the agricultural land of these UXOs will be essential to enable the reconstruction of agriculture-based livelihoods.

Upon the cessation of hostilities, government, UN agencies and NGOs have started or are planning activities in agriculture, food security and livelihoods-related areas. With this intensive start-up of activities, there is an urgent need for strengthened coordination within/between the parties involved in the recovery effort – public entities, UN agencies, bilateral cooperation, NGOs and other partners and stakeholders.

2 PROJECT OBJECTIVES

2.1 Overall objective

The overall objective is to achieve rapid recovery and rehabilitation of agriculture-based rural livelihoods of the affected communities through the creation of a consolidated approach between the various relief and development partners, thereby contributing to poverty alleviation and increased food security.

2.2 Specific objective

In order to maximize impact, avoid duplication of efforts/activities and ensure quick coverage of all affected regions with relevant and technically sound projects, the objective is to establish a pragmatic coordination and implementation tool for quick formulation and execution of rapid impact initiatives geared towards the immediate relief of farming and fishing communities affected by the hostilities. Data will be centralized and made available to actors involved with agriculture and food security as a means of supporting proper planning and decision-making. Overall, the project will contribute to a more efficient utilization of funds and greater cost effectiveness of recovery efforts in the agriculture, fisheries and forestry sectors. Furthermore, through the creation of substantial capacity building in the country, the response capacity of government and national partners will be strengthened.

3 PROJECT BENEFICIARIES AND TARGET AREAS

3.1 Direct beneficiaries

The geographical coverage of the related operations will focus on south Lebanon, where the areas most affected by the July/August hostilities, including Bekaa and Hermel, are located. The target

beneficiaries are the most vulnerable farming and fishing communities affected by the July/August hostilities, mainly in south Lebanon.

3.2 Indirect beneficiaries

Other stakeholders which will be involved in the project are UN agencies, bilateral cooperation agencies, NGOs, government entities and local municipalities.

4 PROJECT OUTPUT

An Emergency and Early Recovery Coordination Unit for agriculture-based livelihoods will be established by FAO in collaboration with MoA of Lebanon in the southern town of Tyre, where UN facilities exist, and where many of the local development partners are located. Through the presence of the Unit, the various actors will be provided with the necessary technical support and guidance. The strengthened coordination function will establish a platform for regular meetings, information-sharing and data collection, and will encourage collaboration in joint rapid livelihoods and agriculture assessments, creating synergies, linkages and partnerships between various actors.

5 PROJECT ACTIVITIES

The project activities related to the establishment of the Emergency Coordination Unit will be carried out according to the work plan set out below:

- establish the office in Tyre and set up its operational facilities;
- strengthen contacts with/amongst the current and potential stakeholders operating in agricultural/livelihoods emergency and recovery initiatives in south Lebanon;
- collect and centralize related data and information requirements and make it accessible to stakeholders; monitor the food security situation in the affected areas;
- provide technical support to humanitarian/development partners and local municipalities in agriculture and fishing related livelihoods recovery initiatives, as well as in formulation and implementation of related recovery projects;
- create a forum for regular meetings and consolidated action by all development partners for the early recovery of agricultural and fishing communities – with special emphasis on livelihoods development, food security and poverty alleviation; hold information meetings on regional and central (Beirut) levels;
- verify the various ongoing and planned projects and initiatives of the various partners, point out potential geographical and or subject-matter-related duplications and suboptimal distribution of resources, as well as necessary synergies, and facilitate respectively a coordinated verification of initiatives;
- identify and facilitate the implementation of localized assessments/studies, identify ad-hoc needs where and whenever necessary, and formulate respective project proposals for donor funding;
- in a participatory way, streamline all agricultural recovery initiatives planned for the recovery of the farming and fishing communities in south Lebanon; and
- coordinate and supervise implementation of FAO donor-funded emergency and recovery projects.

*As **de-mining** is a pre-requisite for any safe resumption of agricultural activity in many farms in south Lebanon, working sessions between FAO and NDO/UNMACC revealed the need for a common approach by which agricultural input supply, training and livelihoods support would be provided to farmers, immediately after clearing of a farmer's field. The distribution of supply and advice to farmers on the best ways to use these inputs would immediately take place, according to the progress of de-mining activities. This would translate itself into a cooperation in which UNMACC would execute the de-mining of fields according to the prioritization set by MoA and an FAO expert team.*

Coordination between FAO/MoA, UNMACC, NDO, the Lebanese army and the concerned municipalities is needed to locate all contaminated fields. This will require some surveys but also overlaying of agricultural maps (latest satellite images) with the existing maps of strikes and cluster bomb locations. Only then can one prioritize the fields which need to be de-mined first, and which fields can wait until a later stage. This prioritization should take into consideration the crop calendar needs (harvest, planting, crop care, etc.) as well as the individual urgency from the point of view of the agricultural income dependency of the landowner.

6 PROJECT BUDGET

Account	Description	Total (US\$)
5031	Consultants	180 000
5542	International Consultant (<i>Emergency Coordinator</i>)	144 000
5543	National Consultant (<i>Agronomist</i>)	36 000
5014	Contracts (<i>assessments, special studies, ad-hoc consultancies</i>)	36 000
5020	Locally contracted labour (<i>administrative support</i>)	36 000
5021	Travel	96 000
5023	Training (<i>workshops, seminars</i>)	30 000
5024	Expendable procurement (<i>office facilities, consumables</i>)	36 000
5025	Non-expendable procurement (<i>PC sets, equipment, vehicle</i>)	35 000
5027	Technical Support Services	13 000
6116	Evaluation	8 000
6121	Reporting	5 000
5028	General operating expenses (<i>rental of premises, vehicles, etc.</i>)	48 000
5029	Direct operating costs (10%)	51 000
	Total	561 000

7 PROJECT IMPLEMENTATION ARRANGEMENTS

The Coordination Unit – headed by an international emergency coordinator and assisted by a national agronomist – would be based in Tyre (south Lebanon), where UN facilities and many of the local development partners are located, in order to facilitate direct contact with local partners and municipalities. It would institutionally be linked to MoA in order to benefit from its technical and operational setting. The major partners within the coordination effort for the implementation of quick response projects would be, *inter alia*:

- UN agencies, especially the United Nations Development Programme (UNDP) and UNMACC (for agricultural recovery in post-clearing);
- bilateral cooperation agencies;
- international NGOs;
- national NGOs;
- community-based organizations;
- local municipality committees (existing or to be created where needed);
- farming/fishing cooperatives/associations/groups; and
- public and government entities

The implementation of emergency and recovery projects would be carried out with the support of NGOs, and facilitated by municipality committees and community-based organizations, but supervised and monitored by the FAO Emergency Coordination Unit.

8 REPORTING

Concise monthly updates will be prepared describing project activities, workshops completed, implementing partners' involvement and main constraints faced. A final report will be prepared towards the end of the project by the Emergency Coordinator in the format required by the donor, including achievements and results, main conclusions and recommendations for follow-up work. This final report will be submitted to FAO headquarters for approval and forwarding to the donor.

9 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

TERMS OF REFERENCE

(a) International Consultant – FAO Emergency Coordinator

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), the general supervision of the FAO Representative in Lebanon, the technical guidance of the relevant FAO technical divisions at headquarters and in the FAO Regional Office for the Near East (RNE) and in close cooperation with the relevant government authorities, the incumbent will head the Emergency and Early Recovery Coordination Unit for agriculture-based livelihoods in Lebanon and undertake the following duties:

- manage and supervise the establishment and operation of the Unit;
- strengthen the operational structure to plan, monitor and provide technical assistance as required for agriculture, fisheries and forestry emergency recovery interventions implemented by FAO and other agencies in south Lebanon;
- oversee the collection and centralization of related data and information requirements and make it accessible to stakeholders; monitor the food security situation in the affected areas;
- provide technical support to humanitarian/development partners and local municipalities in agriculture and fisheries related livelihoods recovery initiatives, as well as in the formulation and implementation of related recovery projects;
- create a forum for regular meetings and consolidated action by all development partners for the early recovery of agricultural and fishing communities – with special emphasis on livelihoods development, food security and poverty alleviation; hold information meetings on regional and central levels (Beirut);
- verify the various ongoing and planned projects and initiatives of the various partners, point out potential geographical and or subject-matter-related duplications and suboptimal distribution of resources, as well as necessary synergies, and facilitate respectively a coordinated verification of initiatives;
- establish and maintain a database with updated information on the impact of the crisis and prioritized needs taking into account assistance provided and evolving needs;
- identify and facilitate the implementation of localized assessments/studies, identify ad-hoc needs where and whenever necessary, and formulate respective project proposals for donor funding;
- in a participatory work in progress streamline all agricultural recovery initiatives planned for the recovery of the farming and fishing communities in south Lebanon;
- coordinate and supervise the implementation of donor-funded emergency and recovery projects.
- travel regularly to the field, providing back-up support to the Ministry of Agriculture and other relevant government authorities;
- prepare and implement operational strategies;
- fulfil reporting requirements of FAO and donors; and
- perform other related duties as requested by the Chief, TCES.

Qualifications: The incumbent should have an advanced university degree in agronomy, economics, natural sciences or related discipline, with at least ten years of relevant experience and technical work in the sectors of agricultural and rural development, including experience in developing countries as well as disaster-stricken countries; solid experience with needs assessment in the context of emergencies or post-conflict situations; and extended experience in coordination of emergency programmes for livelihoods recovery. The candidate should possess excellent leadership skills, analytical thinking and proven ability to conceptualize and formulate projects. Excellent knowledge of spoken and written English and working knowledge Arabic are needed.

Duty station: Tyre (south Lebanon) with frequent field visits to war-affected areas.

Duration: 12 months



PROJECT PROPOSAL

Country: **LEBANON**

Project title: **Emergency assistance to small farmers to resume farming through provision of necessary farm inputs (Nabatiyeh)**

Project symbol: **OSRO/LEB/.../...**

Project duration: **12 months**

Implementing agency: **FAO in collaboration with Ministry of Agriculture, UNMACC and NGO partners**

Budget: **US\$1 930 500**

PROJECT SUMMARY

The large-scale hostilities that targeted mainly southern Lebanon between 12 July and 14 August 2006 had an extremely devastating impact on the agricultural sector of the country. Northern Litani River (Cazas¹ of Nabatiyeh and Iklim At Teffah) and particularly southern Litani River (Cazas of Bint Jbail, Marjayoun and Hasbaya) were the most critically affected areas and hit by the heaviest battles throughout the whole period of the hostilities. The magnitude of damage is huge, ranging from loss of human life and damage to the main infrastructures as well as farm infrastructures to loss of harvest and crops. The hostilities weakened all segments of the agricultural sector, from small to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season.

The major damage was caused by the impossible access to agricultural fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. Most of the agricultural workforce, including foreign labourers, fled South Lebanon and Nabatiyeh². Furthermore, the war took place at the peak time for the harvest of crops destined for export, but much of this year's *harvest perished* on the ground. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids.

With the loss of income from harvests, many farmers became *heavily indebted*. Their ability to repay their debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for the Lebanese farmers.

In addition to the direct losses (physical damage and harvest/income loss), large areas, including agricultural land, are still contaminated with various types of deadly cluster bombs. The presence of unexploded ordnance (UXOs) indeed constitutes a hazard for many early recovery efforts. The movement of returnees, reestablishment of irrigation canals, construction of new shelters as well as income generation are all adversely affected by the presence of UXOs. Even more dangerous is the existence of cluster bombs in areas which have not been subject to hostilities. Clearing the agricultural land of these UXOs will be essential to enable the reconstruction of agriculture-based livelihoods.

Due to the unavailability of working capital and the accumulated debt burden, many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their minimum daily needs. Providing farmers with minimum agricultural inputs will help them to resume their agricultural activities and encourage them to remain in rural areas.

Alongside with the gradual de-mining of agricultural fields, the project's main objective is to provide 2 250 farmers (15 750 beneficiaries) with needed farm inputs sufficient to cultivate 0.05-0.5 ha of land each, depending on the type of crop (greenhouse, perennial or seasonal). It was estimated that an area of 500 m² of greenhouse, 0.3 ha of perennial and 0.5 ha of field crops is sufficient to cover the livelihood expenses of one family in southern Lebanon – considering the varying levels of contribution of agriculture to the overall household income.

¹ Lebanon is divided into six regional administrative districts (governorates), in Arabic *Mouhafazat* (singular: *Mouhafazah*), which are further subdivided into counties, in Arabic *Caza*.

² Nabatiyeh is one of the six *Mouhafazat* of Lebanon. The others are Beirut, Bekaa, Mount Lebanon, North and South.

1 INTRODUCTION

1.1 Background

Between 12 July and 14 August 2006, large-scale hostilities broke out in southern Lebanon. On the Lebanese side, the conflict resulted in more than 1 187 deaths, 4 398 injuries and large-scale destruction of infrastructure, disruption of essential services and displacement of people. It was estimated that over one million people were displaced during the period of the conflict. In the wake of UN Resolution 1701, a ceasefire came into effect on 14 August 2006, allowing for the return home of a large majority of displaced persons. The rural and agricultural setting was one of the hardest-hit by the war.

From a national perspective, Lebanese agriculture plays a limited role in the economy of the country, contributing overall up to 12 percent to the GDP, and representing 20 percent of total export earnings. According to a survey conducted by the Ministry of Agriculture (MoA) in 2004, the value of crop production is approximately US\$1 030 million, representing 73 percent of the total agricultural production in Lebanon. The sector employs just over 9 percent of the labour force, with large variations depending on the governorate. However, agriculture constitutes the main source of income for an average 30-40 percent of the population in Lebanon. In particular, **for many of the war-affected villages in the south of Lebanon, which also represent the poorest sections of the country, agriculture is reported to assume up to 80 percent of the local GDP and is the major income-earning and employment opportunity.**

The conflict affected the sector directly in terms of physical damage, but, more importantly, indirectly in terms of lost markets and labour opportunities. The *mass displacement* during the hostilities put a halt to most economic activities, and the coping mechanisms available to different socio-economic livelihood groups have since revolved around reliance on savings and social networks. The impact on farming took the form of interruption in crop care and livestock husbandry, dislocation of markets and direct physical damage to land and other agricultural assets. Direct losses, such as the physical damage to crops and equipment through direct bombing and the destruction of greenhouses, account however for a minor share of the agriculture loss.

The major damage was caused through the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. The interruption in the care of crops was responsible for a large portion of the income/production losses. Most of the agricultural workforce, including foreign labourers, fled South Lebanon and Nabatiyeh. Those who remained were unable to work as mobility was restricted. Furthermore, the war took place at the peak time for the harvest of crops destined for export (mainly stone fruits and potatoes), but much of this year's *harvest perished* on the ground, as bombing forced farmers to abandon their lands and transport to market became impossible. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids; restrictions on movement reduced the flow of fruit and vegetables to Lebanese consumers by three-quarters and *reduced the expected annual exports* by some 15-20 percent (around US\$20-25 million).

With the loss of income from harvests, many farmers became *heavily indebted* as they usually repay their debts during the harvest period (May-October) to secure credit for the following planting season. This year, their ability to repay these debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for Lebanese farmers.

Unexploded cluster bombs

Many agricultural fields have been rendered useless until unexploded bombs littering the land can be removed or exploded. Clearing the land of these unexploded bombs will be essential to enable the reconstruction of agriculture-based livelihoods. Israeli rocket units fired a total of 1 800 rockets containing cluster bombs (anti-personnel weapons that spray bomblets indiscriminately over a wide

area) in the last days of the conflict. Each rocket fired contained 644 cluster component bombs, adding up to a total of 1 159 200 individual bombs that were dispersed over southern Lebanon. As of 19 October 2006, the United Nations Mine Action Coordination Cell (UNMACC) had identified 778 individual cluster bomb strike locations. UNMACC estimates that the failure rate of these cluster bomb sub-munitions is between 30 and 40 percent. From 14 August to 19 October, 150 civilians were injured and 21 died as a result of mines and cluster bombs – one child was killed and 23 injured. Most of the victims were men since they were typically the first ones to return home after the ceasefire and generally tend to be more involved in agriculture than women and children. Most unexploded bombs are small and innocuous looking, some in the shape of a soft drink can, often with ribbons attached, thus making them particularly attractive to curious children. Hundreds of thousands of pieces of unexploded ordnance (UXO), mostly cluster bombs, will need to be cleared before agriculture can be reestablished on similar levels as before the war. According to the National De-mining Office (NDO), it is hoped that 95 percent of the ‘contaminated areas’ in the south will be cleared of UXOs by early 2008.

Mine clearance personnel are understandably giving priority to urban centres and roads, rather than to agricultural fields. Therefore, many farmers are attempting to explode the bombs on their own, which is extremely dangerous. In many instances, farmers have been burning off their fields after demarking the bombs, in an attempt to destroy them, but in doing so put their lives at stake. Other farmers are paying approximately US\$6.50 per bomblet for “artisanal” bomb disposal in order to resume farming. This is not desirable, but reflects lack of confidence that the Lebanese army will clear the fields rapidly. It is estimated that overall at least *26 percent of the cultivated land in southern Lebanon has been contaminated* – 16 percent of land used to cultivate citrus fruits and bananas and 10 percent for planting field crops. Also, olive trees will suffer the economic impact for two years as the farmers are not able to prune their trees – 3 percent of the area has been affected. In addition, about 7 percent of the land used for grazing by animals has been contaminated. Translated into hectares, NDO estimates that there are approximately 9 450 ha of agricultural land contaminated with UXOs, of which 1 800 ha are citrus and banana, 7 400 ha field crops and 250 ha olive groves, in addition to some 3 500 ha of grasslands. These figures might be underestimated, especially as they do not take into consideration open-field crops and other field crops that are also contaminated with UXOs, and given the fact that dozens of cluster bombs are found every week.

1.2 Project context

The hostilities during five weeks in summer 2006 on Lebanon had an extremely devastating impact on the agricultural sector of the country. The hostilities targeted mainly southern Lebanon. Northern Litani River (Cazas³ of Nabatiyeh and Iklim At Teffah) and particularly southern Litani River (Cazas of Bint Jbail, Marjayoun and Hasbaya) were the most critically affected areas and hit by the heaviest battles throughout the whole period of the hostilities. The magnitude of damage is huge, ranging from loss of human life and damage to main infrastructures as well as farm infrastructures to loss of harvest and crops. The hostilities have weakened all segments of the agricultural sector, from small- to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season.

The Food and Agriculture Organization (FAO) of the United Nations, in close collaboration with MoA, conducted a damage assessment in September-October 2006 of the impact of the hostilities on the crop production sector (as well as on the livestock, fisheries and forestry sectors). As a result of this assessment, it was estimated that the total financial losses in the crop production sector amount to US\$233 million in five governorates of Lebanon (Bekaa, North, Mount Lebanon, South and Nabatiyeh). The two governorates that suffered the most are South and Nabatiyeh in southern Lebanon (US\$152 million) incurring 65 percent of the total financial losses of all of Lebanon. These financial losses (US\$152 million) are composed of about US\$72 million loss in fruit trees (about 47 percent), US\$23 million in field crops (about 15 percent), US\$43 million in nurseries and flower production (about 28 percent),

³ Lebanon is divided into six regional administrative districts (governorates), in Arabic *Mouhafazat* (singular: *Mouhafazah*), which are further subdivided into counties, in Arabic *Caza*.

US\$1 million in greenhouse crops (about 0.7 percent) and US\$12 million in farm equipment and machinery (about 8 percent).

Due to the unavailability of working capital and the accumulated debt burden, many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their minimum daily needs. Providing farmers with minimum agricultural inputs (seed and seedlings, fertilizers, pesticides, small irrigation equipment, etc.) will help them resume their agricultural activities and encourage them to remain in rural areas rather than become another burden on the suburbs of towns – *as an alternative to the direct provision of agricultural inputs to the farmers, a voucher system could be used which would re-finance the input suppliers thereby contributing also to the recovery of the supply chain.*

As mentioned above, in addition to the direct losses (physical damage and harvest loss), large areas including agricultural land are still contaminated with various types of deadly cluster bombs. The presence of UXOs indeed constitutes a hazard for many early recovery efforts. The movement of returnees, reestablishment of irrigation canals, construction of new shelters as well as income generation are all adversely affected by the presence of UXOs. Even more dangerous is the existence of cluster bombs in areas which have not been subject to hostilities. Clearing the agricultural land of these UXOs will be essential to enable the reconstruction of agriculture-based livelihoods.

The project's main objective is to provide 2 250 farmers (15 750 beneficiaries) with inputs sufficient enough to cultivate 0.05-0.5 ha of land each, depending on the type of crop (greenhouse, perennial or seasonal). It was estimated that an area of 500 m² of greenhouse, 0.3 ha of perennial and 0.5 ha of field crops is sufficient to cover the livelihood expenses of one family in southern Lebanon – considering the varying levels of contribution of agriculture to the overall household income.

1.3 Rationale for FAO proposed assistance

The project is proposing interventions to provide immediate relief to vulnerable farmers in the governorate of Nabatiyeh who sustained direct physical damage and losses related to the war-conflict. In order to sustain activities and particularly to make good use of the proposed interventions, and considering the limited skills of farmers as well as the shortage of extension service in MoA, top priorities will be given to training and strengthening the capacity of the project beneficiaries, including rural youth and women. The training sessions, including on-farm demonstration, must start side by side with the interventions. The impact of the project will be increased by focusing on key farmers and farmer associations who are likely to become major agents for growth and change in crop production development. The training messages will cover all interventions and provide advice on crop management, including integrated pest management (IPM), and Good Agricultural Practices.

The project will give emphasis to strengthening the capacity of the extension service of MoA to sustain and complete the recovery process beyond the lifetime of the project, then the initial foundations laid by the project should provide the basis for successful follow-up. By the end of the project, cooperating farmers will be in a position to independently implement the technologies promoted by the project.

As de-mining is a pre-requisite for any safe resumption of agricultural activity in many farms in South Lebanon and Nabatiyeh, working sessions between FAO and NDO/UNMACC revealed the need for a common approach by which agricultural input supply and training would be provided to farmers immediately after clearing a farmer's field. The distribution of supply and advice to farmers on the best way to use those inputs would immediately take place, according to the progress of de-mining activities. This would translate itself into an emergency project in which UNMACC would execute the de-mining of fields according to the prioritization set by MoA and an FAO expert team.

Coordination between FAO/MoA, UNMACC, NDO, the Lebanese army and the concerned municipalities is needed to locate all contaminated fields. This will require not only some surveys but also the overlaying of agricultural maps (latest satellite images) with the existing maps of strikes and

cluster bomb locations. Only then could one prioritize the fields which need to be de-mined first, and which fields could wait until a later stage. This prioritization should take into consideration the crop-calendar needs (harvest, planting, crop care, etc.) as well as the individual urgency from the point of view of the agricultural income dependency of the landowner.

2 PROJECT OBJECTIVES

2.1 Overall objective

The objective of the assistance is to urgently enable early recovery needs and immediate relief to the lives and livelihoods of 2 250 vulnerable farmers – with critical physical damage and significant crop harvest losses – in the governorate of Nabatiyeh who were severely hit by the war of 12 July 2006.

The project is aiming to provide the conditions to affected farmers to restore a minimum capacity of production and of income generation.

2.2 Specific objectives

The specific objectives of this project are to:

1. provide crucial farm inputs – seeds, fertilizer, implements, small-scale irrigation equipment for open-field crops, greenhouse vegetables, flower production and fruit trees (including citrus and olives);
2. rehabilitate agricultural activities;
 - replacement of destroyed citrus orchards with new plantations using new high-yielding cultivars and high planting density (double the number of trees per area) and implementing drip irrigation, where appropriate;
 - replacement of destroyed olive orchards with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars for table olives and high planting density (double the number of trees per area);
 - replacement of destroyed banana orchards with new plantations using healthy plantlets (from tissue culture) and drip irrigation where appropriate; and
 - replacement of the destroyed greenhouses.
3. provide training to farmers and farm workers regarding Good Agricultural Practices (GAP) and IPM in open-field crops and greenhouse crops: planting material quality, adequate planting density, adequate cultural practices, rational use of fertilizers and plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.) in an IPM strategy; and
4. de-mine agricultural land and farm holdings accompanied by an evaluation of the quality of soil and surface water. De-mining to be conducted in collaboration with UNMACC and the Lebanese army. The funds relative to this task will be covered by other UN organizations. Analysis of soil and water for any contaminants resulting from weapons used during the war (*inter alia*, uranium) is to be conducted in collaboration with the Ministry of Environment.

3 PROJECT BENEFICIARIES AND TARGET AREAS

3.1 Direct beneficiaries

The project area covers the governorate of Nabatiyeh. A total of 2 250 households from 50 villages in northern Litani River (Cazas of Nabatiyeh and Iklim At Teffah) and particularly southern Litani River (Cazas of Bint Jbail, Marjayoun and Hasbaya) will benefit from the interventions. The project will give particular attention to the southern Litani River's villages that witnessed heavy damage and losses and whose inhabitants belong to the most vulnerable populations with increased threshold of deprivation. The project beneficiaries are identified on the basis of priority needs for poor rural households; those who have sustained direct physical damage and losses. In order to cover a maximum number of affected farmers the project is not intending to go for full replacement of physical damages, but will apply a partial early-recovery strategy allowing for the minimum conditions for the people and the economic life to gradually return to normal.

The project targets 2 250 of the most vulnerable farmers in the governorate of Nabatiyeh and will benefit some 15 750 beneficiaries, considering an average number of household members of seven persons. The following direct beneficiaries are expected:

- 1 500 families will benefit from restoring open-field irrigated crops;
- 500 families will benefit from restoring orchards (olive, citrus and various fruit trees including banana); and
- 250 families will benefit from restoring greenhouse crops.

3.2 Indirect beneficiaries

About 4 500 farm workers (two workers per farm) will indirectly benefit from the project activities. In addition to family members and farm workers, this project will also benefit extension agents from MoA; NGO and private companies will benefit from training sessions and extension manuals and leaflets provided by the project.

4 PROJECT RESULTS

4.1 Expected direct outputs

- Agricultural fields prioritized and ready to be cleared;
- soil and water analysis performed to ensure safety of farmers and workers; and
- restored agricultural production capacity of farmers (in case of contaminated fields – activity after de-mining of the agricultural land and insuring farmer's safety).

Resumed agricultural activities through the achievement of:

- improved greenhouse design available allowing for the production of higher yields with integration of IPM tactics and minimum use of chemical inputs;
- destroyed citrus orchards which used old cultivars replaced with new plantations using new cultivars (list in Annex 9) which are high yielding and more appreciated by the consumer, improving farmers' income and incorporating IPM and biological control of citrus pests (chemical pesticide use is a major problem in Lebanon);
- destroyed olive orchards replaced with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars (list in Annex 13) and high planting density for table olives (double the number of trees per area); these cultivars should be suitable to local conditions and resistant and/or tolerant to local pests and diseases;
- destroyed fruit tree orchards replaced with new plantations using new high-yielding cultivars (list in Annex 10, 11 and 12) and using high planting density (double the number of trees per

area); these cultivars should be suitable to local conditions and resistant and/or tolerant to local pests and diseases;

- destroyed banana orchards replaced with new plantations using healthy plantlets (from tissue culture); and
- water- and fertilizer-use efficiency increased by rational use of water through a localized drip irrigation system, where appropriate;

The current interventions (projects) of FAO/MoA should be used to introduce or promote IPM and/or biological control, and the use of chemical inputs should be minimized.

4.2 Expected indirect outputs/benefits

Training on Good Agricultural Practices will benefit 14 000 beneficiaries in addition to several extension agents, engineers and technicians of MoA or private companies.

5 PROJECT ACTIVITIES

1. De-mining of the agricultural land and insuring farmers' safety (*activities performed together with NDO/UNMACC*):

- perform satellite imagery of the actual locations of crops;
- overlay of the contaminated agricultural land on the crop map;
- prioritize the fields to be cleared by UNMACC based on the overlaying of maps and on crop calendar; and
- perform soil and water analysis for detection of any contamination.

2. Provision of agricultural inputs:

- vegetable hybrid seeds (tomato, pepper, eggplant, cucumber, melon, watermelon);
- plant saplings (citrus, olive, fruit trees, banana);
- small implements and tools;
- fertilizers (NPK, N, K); and
- plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (fungicides, acaricides, nematicides, insecticides).

3. Resume the agricultural activity by type of crop:

- planting open-field crops;
- equipping fields and orchards with drip irrigation systems;
- planting citrus orchards;
- planting olive orchards;
- planting fruit tree orchards;
- planting banana plantations; and
- constructing greenhouse structures.

4. Capacity building

- The main purpose of the project is to provide the war-affected poor farmers with **agricultural inputs**, allowing them to resume their activities.
- The project is using this opportunity to introduce new technologies such as new cultivars, Good Agricultural Practices and localized irrigations systems. This project will also focus on **training** of participating farmers.

- Considering the shortage of technical staff at MoA and in order for this to be sustainable, it is essential that suitably tailored programmes to farmers and **farmers' associations** be developed side by side with project activities.
- The impact of the project will be increased by focusing on at least 100 **key farmers** who have influence and will likely become major agents for growth and extension in crop production.
- The project will help in building capacity of crop production **services of MoA** to sustain and complete the recovery process beyond the life of the project.
- By the end of the project, cooperating farmers will be in a position to independently implement the technologies promoted by the project.

6 PROJECT INPUTS

Details of agricultural inputs and equipment to be provided to 2 250 farmers:

Description	Unit	Number of units/farm ²	Number of beneficiary farms	Cost/unit (US\$)	Total cost (US\$)
Agricultural input					
Fruit tree saplings ¹	1 tree plantlet ²	60	500	8	240000
Hybrid seed (Annex 14) ³	1 kit	1	1500	100	150000
Fertilizers					
NPK	Kg	100	2000	0.6	120000
N	Kg	50	2000	0.4	40000
K	Kg	50	2000	0.7	70000
Plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (Annex 15)	Kit	1	2000	60	120000
Equipment					
Greenhouse ⁴	1 tunnel of 450 m ²	1	50	3150	157500
Drip irrigation system ⁵ (for 1000 m ²)	1 kit	1	500	500	250000
		Total	2250 farm beneficiaries		

- 1) Fruit tree saplings include citrus, olive and other fruit trees.
- 2) Tree sapling: 60 trees/1000 m² translate to a planting density of 600 trees/ha.
- 3) Hybrid seed of vegetables (tomato, cucumber, melon, watermelon, pepper, etc.) to grow 0.5 ha (Annex 14).
- 4) This corresponds to a standard size tunnel of the dimension 9 m by 50 m (see Annex 8 for design).
- 5) Drip irrigation system kit includes T-tape, Dozatrone (fertilization) and a 200 litres plastic tank mix.

7 PROJECT BUDGET

Account	Description	Sub Comps.	Main Comp.
5013	Consultants		176 000
5542	International Consultant	32 000	
5543	Consultants – National	96 000	
5544	Consultants – International	24 000	
5545	Consultant – National Project Coordinator	24 000	
5014	Contracts		407 500
5650	Greenhouse	157 500	
5650	Drip Irrigation	250 000	
5020	Locally Contracted Labour		50 000
5652	Casual Labour- Temporary Assistance	50 000	
5021	Travel		50 000
5661	Duty travel others		
5684	Consultants – International		
5685	Consultants – National		
5686	Consultants – International		
5694	Travel Training		
5692	Travel ATS		
5693	Travel STS		
5023	Training		180 000
5920	Training Budget	180 000	
5024	Expendable Equipment		740 000
6000	Fruit Tree Saplings	240 000	
	Hybrid Seeds	150 000	
	Fertilizers NPK	120 000	
	Fertilizers N	40 000	
	Fertilizers K	70 000	
	Plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.)	120 000	
5025	Non Expendable Equipment		40 000
6100	1 4WD double-cab pickup and 1 small vehicle	40 000	
5027	Technical Support Services		51 500
6111	Report costs	5 000	
6116	Evaluation	15 000	
6121	Backstopping mission	31 500	
5028	General Operating Expenses		60 000
6300	General Operating Expenses Budget	60 000	
5029	Support Cost		175 500
6118	Direct Operating Costs (10%)	175 500	
	Total Budget		1 930 500

(UNMACC will cover cost of de-mining agricultural fields.)

8 BUDGET DESCRIPTION

5013: Consultants

- FAO International Consultant Crop Production Specialist will supervise the overall implementation of the proposed project interventions, and conduct training on Good Agricultural Practices. S/he will conduct four missions (13 weeks) (Annex 3).
- One procurement/operations mission from headquarters of 10 days (US\$6 000).
- One international expert who will provide professional/technical support on micro-irrigation (two missions of two weeks each) (Annex 5).
- One National Project Coordinator who will be the counterpart of the International Coordinator, on a full-time basis (12 person months) (Annex 4).
- Four local engineers (one per Caza) for logistic and technical support for the whole duration of the project (12 person months) (Annex 6).

5014: Contract labour

- Up to US\$407 500 for contract services: equipment for 500 farms with drip irrigation systems (US\$500 for equipment of 1 000 m²) and construction of 50 improved greenhouses at the level of 50 farms (450 m² at a cost of US\$7/m², including plastic and net cover) (Annex 8).

5020: Locally Contracted Labour

- Up to US\$50 000 for hiring one secretary, one driver, one accountant for the Project Management Unit and casual labour.

5021: Official Travel

- Up to US\$50 000 for in-country travel

5023: Training

- Up to US\$180 000 for in-service training, seminars and workshop training supplies (laptops, videos, digital camera, photocopy, stationery, production of posters, leaflets, manuals). The project is taking this occasion to train farmers on Good Agricultural Practices. All project beneficiaries (2 250 farmers) as well as technicians and extension agents will attend the training sessions which will cover all interventions.

5024: Expendable Procurement

- Up to US\$740 000 to cover the purchase of project supplies: hybrid seeds, planting material (various fruit trees plantlets such as citrus, olives, apple, pears, apricot, peaches, etc.), fertilizers (NPK), plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.). (For details see list in section 6 and Annex 15.)

5025: Non-expendable Procurement

- Up to US\$40 000 for the purchase of one 4WD double-cab pickup and one small vehicle.

5027: Technical Support

- Up to US\$51 500 for covering technical backstopping by FAO technical staff members at the commencement of the project (1 week), during implementation (1 week) and in the final months (1 week) (Annex 7).

5028 General Operating Expenses

- Up to US\$60 000 for office facilities and communication equipment, maintenance of office equipment and cars, office furniture.

5029: Support Cost

- 10% sub-total.

9 WORK PLAN

The most urgent interventions will focus on de-mining agricultural land and restoring agricultural activities through provision of essential inputs and training. Considering the emergency situation faced by small farmers in south Lebanon, the project will be implemented over a 12-month period covering: project coordination, procurement and distribution of agricultural inputs, technical assistance, monitoring, implementation of training programmes, impact assessment and reporting.

While an outline of the activities to be undertaken and the likely time frame is presented here, a more detailed work plan will be drawn up at the start of the project.

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Recruitment International Consultant, National Staff and set-up of Project Management Unit													
Preparation, identification of beneficiaries, ordering equipment													
Providing initial training and workshops to beneficiaries													
Greenhouse construction													
Equipping fields with drip irrigation													
Distribution of agricultural inputs													
Mission of International Consultant													
Mission of the Irrigation Specialist													
Backstopping mission													
Mission of National Project Coordinator													
Mission of Location Engineers (Cazas)													
Training and workshops													
Monitoring													
Evaluation													
Reporting													

10 PROJECT IMPLEMENTATION ARRANGEMENTS

10.1 Project implementation structure

The project activities will be implemented under a Project Management Unit that will be called the “Emergency/Early Recovery Coordination Unit” to oversee the overall implementation and supervision of the proposed project interventions. This will be headed by an FAO Emergency Coordinator/International Consultant, with sound experience in Lebanon, particularly in war-affected project areas. MoA will nominate a National Coordinator who will be the counterpart of the International Coordinator, on a full-time basis.

The Emergency/Early Recovery Coordination Unit will be based in the south of Lebanon in Tyre, in the Regional Office of MoA, so that it can effectively serve the project implementation in the war-affected zones.

10.2 Project implementation partners

- National Consultant: One highly qualified National Project Coordinator (NPC) will be recruited (12 person months) (Terms of Reference detailed in Annex 4). In addition to his/her technical inputs, the national consultant will participate in identifying farmers and distribution of inputs.
- One expert will provide professional/technical support on micro-irrigation (two missions of two weeks each (Terms of Reference detailed in Annex 5).
- Four local engineers (one per Caza) will provide logistic and technical support for the duration of the project (Terms of Reference detailed in Annex 6).
- Technical backstopping by FAO technical staff members at the launch of the project, in mid-term project and in the final wrap-up workshop (Terms of Reference detailed in Annex 7).
- The administrative services will be providing efficient financial management and procurement functions, with recruitment of one secretary, one accountant and one driver.
- The Emergency Coordination/Project Management Unit will coordinate and establish linkages, through the Division of Crop Production of MoA, with other service providers, at the regional or municipal levels, such as agricultural colleges, local government units, and especially NGOs which will be main cooperating partners in project execution.

11 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 FAO Emergency Coordinator/International Consultant 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 stage of implementation, will be required. The monitoring and evaluation will be coordinated by the Emergency Coordination/Project Management Unit and undertaken at villages 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.

12 REPORTING

At the inception of the project, the FAO Emergency Coordinator, in close consultation with the national coordinator, will prepare a detailed work plan. The inception report will give an update on the impact of the war-affected farmers and confirm the validity of the proposed interventions. The report will also elaborate on the administrative/organization/technical issues at stake and identify implementing partners and relevant resource persons. Input distribution and training programmes will be elaborated and local sources of project inputs will be confirmed. The FAO Emergency Coordinator will also prepare quarterly

reports and final report which describe project activities, main results and conclusions, constraints, expenditures by project component, impact on beneficiaries and recommendations for follow-up activities.

13 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

Logical Framework

<i>Principal Objective</i>	<i>Intervention Logic</i>	<i>Objectively Verifiable Indicators</i>	<i>Sources of Verification</i>	<i>Risks and Assumptions</i>
	To sustain the early rehabilitation and recovery of small farm holders in the governorate of Nabatiyeh	<ul style="list-style-type: none"> - De-mining of agricultural land - Resumption of agricultural activity in the area 	<ul style="list-style-type: none"> - UNMACC clearing of fields previously identified by MoA 	Stable security situation and accessibility of the project area
<i>Specific Objective</i>	To ensure resumption of agricultural activity in the governorate of Nabatiyeh that was heavily affected by the hostilities	<ul style="list-style-type: none"> - Citrus, fruit tree, banana, field and greenhouse crop activities restored 	<ul style="list-style-type: none"> - Results to be compared against the damage and needs assessments carried out jointly by FAO and MoA after the hostilities 	Stable security situation and accessibility of the project area
<i>Results</i>	Result 1. Small-scale farmers enabled to resume crop production activities; technical improvement of the production systems	<ul style="list-style-type: none"> • 2 250 small-scale farms benefiting from the project • 11 250 beneficiaries (including farmers and family members) benefiting from the project • 4 500 indirect beneficiaries (including farm workers) benefiting from the project • 2 250 farmers trained in managing crops using GAP 	<ul style="list-style-type: none"> • Project technical reports • Beneficiary certification of inputs received • Certification of attendance of beneficiaries to capacity building sessions/workshops • Certification of completed works 	<ul style="list-style-type: none"> • Stable security situation and accessibility of the project area • Availability of inputs from the potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities
	Result 2. Water- and fertilizer-use efficiency increased	<ul style="list-style-type: none"> • Citrus, fruit trees, olive orchards, banana plantations and some field crops equipped with modern localized irrigation systems 	<ul style="list-style-type: none"> • Monitoring/evaluation reports • Inventory of equipment and supplies effectively distributed • Group interviews of beneficiaries 	
	Result 3. More effective greenhouse design	<ul style="list-style-type: none"> • Improved greenhouse design introduced to the governorate of Nabatiyeh • Better environmental conditions inside greenhouse reduce the need for pesticide use • Healthy vegetables produced 	<ul style="list-style-type: none"> • Monitoring/evaluation reports • Inventory of equipment and supplies effectively distributed • Field visits of a sample of beneficiaries • Group interviews of beneficiaries 	

TERMS OF REFERENCE

International Consultant in Horticulture

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the National Project Coordinator (NPC), the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

- establish close liaison with the Ministry of Agriculture in Lebanon and with its field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- manage and supervise the implementation of the present project;
- identify, recruit and manage national staff envisaged under the present project;
- take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- manage the FAO extension and training activities;
- ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors;
- perform other related tasks as and when necessary.

First mission: (4 weeks during phase 1 in project month 1)

Two weeks at home station (under Author's Contract)

- Prepare a paper on “Needs for Good Agricultural Practices for a healthy and competitive Agricultural Sector in Lebanon” for presentation at workshop in Lebanon.

Three weeks in Lebanon

- Finalize the list of farmer's recipients of the FAO Project.
- Refine the work plan of the project according to the finding of the first mission.
- Assist in organizing the project inception workshop and present his paper on “Needs for Good Agricultural Practices for a healthy and competitive Agriculture Sector in South of Lebanon”.
- Finalize the technical specification of the equipment and supplies to be purchased in the frame of the project.

Second mission: (3 weeks in project month 3)

- Assess the progress in the input supply and installation of greenhouses and irrigations systems.
- Assist in the start up of the first crop cycle to demonstrate selected IPP techniques depending on crop type and geographical areas of Lebanon.
- Provide guidance for the implementation of the first crop protocols.

Third mission: (3 weeks in project month 6)

One week at home station (under Author's Contract)

Prepare a paper for presentation in the second workshop in Lebanon.

- Present a paper at the national workshop on Good Agricultural Practices that gives an overview of GAP as conducted in other country of southern Europe and the Mediterranean with special due attention to:
 - Selected cultural practices.
 - Choice of performing cultivars

- Planting densities and yield and quality increase
- Crop cultivation with respect to the environment.
- Integrated Pest Management
- Biological control and other non-chemical control measures.
- Training of extension service and farmers.
- Product quality labeling and certification

Two weeks in the country

- Present the paper on occasion of the training workshops in each of the 5 governorates.
- Participate in farmers' training sessions in line with the Farmers' Field School approach as organized and monitored by the designated national agricultural University in co-operation with the extension staff.
- Follow-up of the crops management and site implementation of the project

Fourth Mission: 3 weeks in project month 12)

- Contribute to the establishment of a pilot farmer's association whose members would agree on a contract growing in accordance to the guidelines for the production of labelled products (introduce the concept of tractability and certificate of origin and quality).
- Participate in the end of project workshop.
- Participate in discussions on the components of a follow-up programme, to expand on the activities initiated by the project.
- Contribute to the drafting and finalization of the terminal statement of the project.

Reporting

Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO not later than 3 weeks after the completion of the mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Essential Qualifications:

Horticulture consultant with experience in integrated production and protection and Good Agricultural Practices in horticultural crops. Good leadership abilities and substantial experience working in Lebanon. Speaking Arabic in addition to English and French is preferred.

Duty station: Beirut and field visits to project sites

Duration: 13 weeks in four missions

TERMS OF REFERENCE

National Programme Coordinator (NPC)

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the National Program Coordinator (NPC) will carry out the following duties:

- Co-ordinate and facilitate all activities requiring government interaction.
- Co-ordinate the roles and activities of the extension service, the ministry personnel, the directorate of Agriculture and the research institutions.
- Supervise the technical manager and the 5 location engineers.
- Make sure that the activities are directed within the national agricultural policy.
- Would ensure the continuous support of the ministry for the dissemination of this technology all over the country once the project ends.
- Establish close liaison with the Ministry of Agriculture field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- In consultation with the FAO Emergency Coordinator and International Consultants, review and amend the work plan for all programme components;
- Manage and supervise the implementation of the present project on a day to day basis;
- Identify, recruit and manage national staff envisaged under the present project; and identify specific tasks to be fulfilled by the national staff and other concerned entities;
- Take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- Act as a resource person in training courses, particularly to assist in the improvement of multiplication knowledge and skills of all staff;
- Ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- Provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors;
- Perform other related tasks as and when necessary.
- Prepare quarterly, draft and end of project reports in accordance with FAO requirements;
- Carry out other related duties as requested by the FAO Emergency Coordinator.
- Assess the candidates for subcontracts (greenhouse construction, localized irrigation systems and field training activities).
- Ensure that all the Government inputs are available in order to enable a timely implementation of the project work plan.
- Ensure the nomination of the study tour beneficiaries.
- Supervise and co-ordinate the finalisation of terminal statement of the project.
- Formulate recommendations in regard to follow up activities in accordance with the priorities of the Ministry of Agriculture in order to expand on the activities initiated by the project.

Qualifications:

Agronomist/Horticulture Specialist with good experience in project management. Good leadership abilities and substantial experience working in international networks. Fluent in English.

Location: Lebanon

Duration: 12 months

TERMS OF REFERENCE

International Consultant in Irrigation and Fertigation

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

First mission: (2 weeks in total during phase 1)

2 weeks in Lebanon

- Participate in the training workshops and present his paper on irrigation and fertigation management of horticultural crops.
- Review the technical specifications of the equipment and materials to be purchased in relation to the irrigation and fertigation component of the project.
- Discuss the contents of the technical booklet and make proposals for this booklet.
- Discuss the crop protocol for the first cropping season with the national partners and the international consultants.
- Provide technical training to the national partners on the management of irrigation and fertigation of horticultural crops.
- Contribute to the preparation of technical brochures and card system for growers.

Second mission: Two weeks during phase 3 of the project (project month 20)

2 weeks in Lebanon

- Review the irrigation and fertigation technology as applied at project sites.
- Prepare and submit his contribution to the Technical Booklet on Horticultural Crop Management Techniques in accordance with IPP.
- *Participate in the training workshops*

Reporting:

Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using for Word for Windows.

Qualifications:

Irrigation and fertigation specialist with at least 7 years of experience in small-scale and low cost drip irrigation system for vegetable greenhouse crops.

Duty station: Beirut with field visits to project sites

Duration: Four weeks in two missions of 2 weeks each

TERMS OF REFERENCE

Local Engineers

(Four persons: One for each Caza)

Under the overall supervision of the Chief, Emergency Operations Service, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

6 weeks at the inception of the project

- Implement the field review and the assessment of current horticultural technology and production practices, and analyse farmer's constraints and potentials for producing high quality and safe fruit and vegetables in his governorate.
- Assist in selection of project sites and related field demonstrations and training activities.
- Determine the technical specifications of structures and all equipment and supplies to be purchased in the context of the project.
- Participate in the project inception workshop to present the outcome of the field review, participate in the discussions and assist in finalisation of a detailed project work plan and time frame for implementation.

Reporting:

Upon completion of the mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Qualifications:

University degree in Agronomy with 5 years experience in Agricultural/horticultural production

Duty station: Governorate of Nabatiyeh and project sites

Duration: 12 months (for the duration of the project)

TERMS OF REFERENCE

Technical Backstopping by lead FAO technical unit

First mission: 1 week (at the inception of the project)

- Discuss project components with the International Consultant and the National Project Co-ordinator (NPC).
- Briefing of national consultants for the project site selection
- Discuss the contents of contract to be made with local Institution/private sector.
- Provide briefing on the Farmers' Field School (FFS) approach for training of farmers and extension staff.
- Review the elements and timing of the project's work plan.

Second mission: 1 week (at project mid term)

- Assess the progress made in the implementation of the project.
- Participate in the training workshops and provide training on the use of FAO's Horticulture Variety Information System (Hortivar).
- Review the project's work plan and make the adjustments as may be required.

Third mission: 1 week (on occasion of the end of project workshop):

- Provide guidance to the end of project workshop and specifically in regard to the recommendations for a follow-up programme.
- Review the draft of the project's Terminal Statement.

Reporting:

Upon completion of each mission, the Technical Officer will submit a mission report on his findings and recommendations.

Duty station: Beirut and project sites

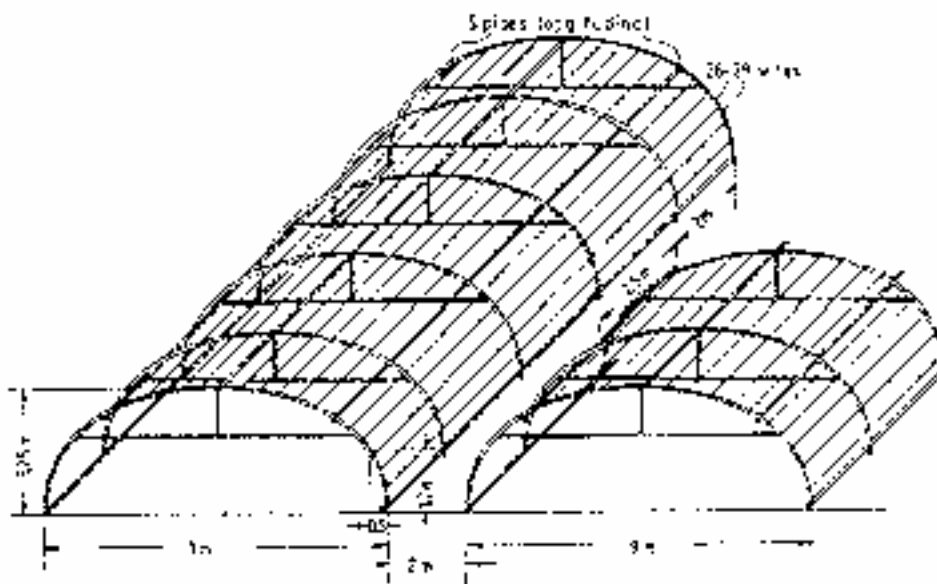
Duration: Three weeks in three missions

PRELIMINARY TERMS AND CONDITION

Contract for Greenhouse Construction

The Contractor will have to comply with the following conditions:

- The whole system should not only be “low cost” but “cost effective”.
- Stability against wind and snow by stable construction and foundation.
- No drop fall on the plants.
- Sufficient ventilation in summer by sufficient height and ventilation openings (see design).
- Equip the greenhouse with plastic and Insect nets (to be fitted on both lateral sides on a height of 1.5 m improving greenhouse ventilation)
- Equip the greenhouse with drip irrigation system



Conditions of payment:

30% upon acceptance

30 % upon delivery of equipment at the project sites

40% upon finalization of assembling

Duration: Two months

EOD: Month three

List of selected citrus tree cultivars*

The following annexed tables present the list of varieties that the project has suggested to be planted in Lebanon based not only on agronomic performance and resistance to pests and diseases but also on adaptation to local environment (LARI Project, Ministry of Agriculture, Lebanon). Most of these varieties are already produced under a certification scheme in line with the Italian protocol for certification. This certification respects the set of rule which guarantee trueness to type and the sanitary status of the vegetative propagation material.

For some of the varieties of citrus and olive the mother plants are found at LARI stations, and are in the process of multiplication and will be made available to the project for the planting in 2006-2007.

Type	Common Name	Cultivar	Comments
Citrus	Common Orange	Shamouti	Cultivars already used by farmers and well adapted to Lebanon conditions
		Valencia	
		Khettmali	
		Lanelate	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Valencia Late Olinda	
		New hall	
		Tarocco nucellare 57-1E-1	
	Navel Orange	Washington Navel	Cultivars already used by farmers and well adapted to Lebanon conditions
	Blood Orange	Moro	
	Lemon	Meyer	
		Saasly I-II	
		Interdonato I-II-III	
		Monachello	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Sfusato Amalfitano	
		Femminello Siracusano	
		Femminello Cerza	Cultivars already used by farmers and well adapted to Lebanon conditions
	Grape Fruit/Pomello	Pomello Ruby	
		Shambar	
		Red Blash	
		March Segueless	
	Clementine	Seedless Montreal	
		Clementino de Nules	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Rubino	
		Nour	
		Fedele	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected pome fruit tree cultivars*

Type	Common Name	Cultivar	Comments
Pome Fruit	Apple	Granny Smith	Cultivars already used by farmers and well adapted to Lebanon conditions
		Gala Gala	
		Galaxy	
		Scarlet Spur	
		Supercheif	
		Smoothee	
		Reinders	
		Golden Suprem	
		Pinova	
		Fugi Nagafu2	
		Heisei Fuji	
		Early Smith	
The below cultivars and rootstocks are not widely used and are recommended			
Pome Fruit	Apple	Cultivar	Rootstock
		Golden B	M9
		Golden B	Malus communis seedling
		Golden B	MM 106
		Granny Smith	M9
		Granny Smith	Malus communis seedling
		Granny Smith	MM 106
		Red Chief	M9
		Red Chief	Malus communis seedling
	x	Red Chief	Malus communis seedling
		Starking delicious	M9
	s	Starking deliciou	Malus communis seedling
		Starking delicious	MM 106
		Starking delicious	M26
		Top red	M9
		Top red	Malus communis seedling
		Top red	MM 106

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Apricot	Myrabolan 29/c	Thyrintos	
	Myrabolan 29/c	Monacobello	
Cherry	Prunus avium	Ferrovia	
	Prunus mahaleb	Ferrovia	
	Prunus avium	Giorgia	
	Prunus mahaleb	Giorgia	
	Prunus avium	Lapins	
	Prunus mahaleb	Lapins	
	Prunus avium	New Star	
	Prunus mahaleb	New Star	
	Prunus avium	S. Hardy Giant	
	Prunus mahaleb	S. Hardy Giant	
Nectarine	GF 677	Caldesi 2000	
	Missour	Caldesi 2000	
	Montclar	Caldesi 2000	
	Myrabolan 29/c	Caldesi 2000	
	Penta	Caldesi 2000	
	Tetra	Caldesi 2000	
	Missour	Caldesi 2020	
	GF 677	Caldesi 2020 Sept.Queen	
	Montclar	Firebrite	
	Myrabolan 29/c	Firebrite	
	Tetra	Firebrite	
	GF 677	Firebrite	
	Missour	Flavortop	
	GF 677	Nectaross	
	Montclar	Nectaross	
	Myrabolan 29/c	Nectaross	
	GF 677	Vega	
	Tetra	Vega	
	GF 677	Venus	
	Montclar	Venus	
	Tetra	Venus	
Peach	GF 677	Falravorcrest	
	GF 677	Iris Rosso	
	Montclar	Iris rosso	
	GF 677	O'Henry	
	Montclar	O'Henry	
	Penta	O'Henry	
	Tetra	O'Henry	
	GF 677	Red Cal	
	Montclar	Red cal	
	GF677	Bigmoon	
	Tetra	Bigmoon	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Clingstone	GF 677	Baby Gold 5	
	Montclar	Baby Gold 5	
	GF 677	Federica	
	GF 677	Maria Serena	
Pear			
	BA 29	Abate fetele	
	Pyrus communis seedling	Abate fetele	
	BA 29	Conference	
	Pyrus communis seedling	Conference	
	BA 29	Coscia	
	Pyrus communis seedling	Coscia	
	BA 29	Williams	
	Pyrus communis seedling	Williams	
Plum	Myrabolan seedling	Black amber	
	Penta	Black amber	
	Tetra	Black amber	
	Myrabolan seedling	Firenze 90	
	Penta	Fortune	
	Tetra	Friar	
	Myrabolan seedling	Obilnaya	
	Myrabolan seedling	Sorriso di primavera	
	Penta	Sorriso di Primavera	
	Tetra	Sorriso di Primavera	
	Myrabolan seedling	Sugar	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected olive tree cultivars*

Species	Type	Variety	Comment
<i>Olea europaea</i>	Table olives	Sant' Agostino	
		Termine di Bitetto	
		Nocellara Belice	
		Chami	Local native variety well adapted for table olive
	Olive oil	Soury	Local native variety well adapted for both oil and table olive
		Baladi	Local native variety well adapted for both oil and table olive
		Ayrouni	Local native variety well adapted for both oil and table olive
		Smoukmouki (Samakmaki)	Local native variety well adapted for both oil production
		Leccino	
		Frantoio	
		Coratina	
		Cima di Melfi	
		Nociara	
		Pendolino	
	Table and olive	Nocellara messinese	
		Picholine	
		All above mentioned local varieties	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb. It is recommended that the cultivation of the local native olive varieties that are well adapted to the local environmental conditions and traditions is further encouraged since the Ministries of Agriculture and Economy and Trade are initiating a programme of Geographical Indications (appellation d'origine contrôlée -AOC) for Lebanese olive oil.

List of selected vegetable cultivars*

Type	Cultivars	Resistance	Comments
Tomato	Round tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cluster Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cherry Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Pepper	Hot pepper	PVY, nematodes	Many hybrids are commercialized in Lebanon
	Sweet pepper (various colour red, green, yellow, orange)	PVY, nematodes	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Cucumber	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Watermelon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Melon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Eggplant	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops

* Several hybrid seeds are available on the market in Lebanon and are registered and authorized by the Ministry of Agriculture of Lebanon. All have been tried by the seed companies at research stations in Lebanon and thus, they are well adapted to local conditions, acceptable to farmers, in line with national policies and regulations, meet or exceed QDS standards. The costs of such hybrid seeds are indeed higher than for ordinary cultivars.

List of selected pesticides* registered in Lebanon and compatible with IPM

Common Name	Percent AI	Formulation	Use
Abamectin	1,80%	EC	Mites
Thiametoxam	25%	WG	Insects
Metalaxyl+Chlorothalonil	3.75%+50%	SC	Fungi
Sulfur	80%	WG	Fungi/Mites
Mancozeb	80%	WP	Fungi
Cypermethrin	25%	EC	Insects
Copper oxychloride	85%	WP	Fungi/Mites
Mancozeb+metalaxyl	64%+8%	WP	Fungi
Dichlorovos-DDVP	50%	EC	Insects
Pyridaben	20%	WP	Insects
Cyromazine	75%	WP	Insects
Mancozeb	80%	WP	Fungi
Sulfur	80%	WG	Fungi/Mites
Sulfur	80%	WP	Fungi/Mites
metalaxyl+propamocarb	15+10	WP	Fungi
Metam Sodium	51%	SL	Nematodes
Zineb+Copper Oxychloride	34%+17%	WP	Fungi
Zineb+Copper Oxychloride	15%+37%	WP	Fungi
Copper oxychloride	85%	WP	Fungi

* The pesticides listed in this table are all registered and authorized by the Ministry of Agriculture in Lebanon for use on fruits and vegetables.

With regards to the procurement of farm inputs (especially pesticides): (a) FAO rules and regulations - *inter alia* Field Circular 8/92 - will have to be applied rigorously; and (b) additional and specific technical clearance (by FAO headquarters) will have to be obtained for any kind of procured inputs (especially pesticides) prior to actual field implementation of the project.

Insect traps: available from local distributors of agricultural inputs:

- pheromone traps for the following pests: California red scale on citrus, Mediterranean fruit fly on citrus, codling moth on pome fruits, *Heliothis armigera* and *Spodoptera littoralis* on vegetables, potato tuber moth on potato;
- yellow sticky traps for the monitoring of small insects in vegetables crops in open fields and greenhouses;
- blue sticky traps for the monitoring of thrips in vegetables crops in open fields and greenhouses

Natural enemies: available from Biobest Biological Control (Belgium) and or Koppert Biological Systems (The Netherlands):

- Eretmocerus* sp. to use in biological control against whiteflies in greenhouse vegetables
- Encarsia formosa*, to use in biological control against whiteflies in greenhouse vegetables
- Aphidius colemani* to use against aphids in greenhouse vegetables
- Phytoseiulus persimilis* to use against mites in open and greenhouse vegetables



PROJECT PROPOSAL

Country: LEBANON

Project title: Emergency assistance to small-scale farmers to resume farming through provision of necessary farm inputs (South)

Project symbol: OSRO/LEB/.../...

Implementing agency: FAO in collaboration with Ministry of Agriculture and NGO partners in Lebanon

Duration: 12 months

Budget: US\$3 039 300

PROJECT SUMMARY

The large-scale hostilities that targeted mainly southern Lebanon between 12 July and 14 August 2006 had an extremely devastating impact on the agricultural sector of the country. Northern Litani River (Cazas⁴ of Nabatiyeh and Iklim At Teffah) and particularly southern Litani River (Cazas of Bint Jbail, Marjayoun and Hasbaya) were the most critically affected areas and hit by the heaviest battles throughout the whole period of the hostilities. The magnitude of damage is huge, ranging from loss of human life and damage to the main infrastructures as well as farm infrastructures to loss of harvest and crops. The hostilities weakened all segments of the agricultural sector, from small to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season.

The major damage was caused by the impossible access to agricultural fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. Most of the agricultural workforce, including foreign labourers, fled South Lebanon⁵ and Nabatiyeh. Furthermore, the war took place at the peak time for the harvest of crops destined for export, but much of this year's *harvest perished* on the ground. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids.

With the loss of income from harvests, many farmers became *heavily indebted*. Their ability to repay their debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for the Lebanese farmers.

In addition to the direct losses (physical damage and harvest/income loss), large areas, including agricultural land, are still contaminated with various types of deadly cluster bombs. The presence of unexploded ordnance (UXOs) indeed constitutes a hazard for many early recovery efforts. The movement of returnees, reestablishment of irrigation canals, construction of new shelters as well as income generation are all adversely affected by the presence of UXOs. Even more dangerous is the existence of cluster bombs in areas which have not been subject to hostilities. Clearing the agricultural land of these UXOs will be essential to enable the reconstruction of agriculture-based livelihoods.

Due to the unavailability of working capital and the accumulated debt burden, many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their minimum daily needs. Providing farmers with minimum agricultural inputs will help them to resume their agricultural activities and encourage them to remain in rural areas.

Alongside with the gradual de-mining of agricultural fields, the project's main objective is to provide 2 250 farmers (15 750 beneficiaries) with needed farm inputs sufficient to cultivate 0.05-0.5 ha of land each, depending on the type of crop (greenhouse, perennial or seasonal). It was estimated that an area of 500 m² of greenhouse, 0.3 ha of perennial and 0.5 ha of field crops is sufficient to cover the livelihood expenses of one family in southern Lebanon – considering the varying levels of contribution of agriculture to the overall household income.

⁴ Lebanon is divided into six regional administrative districts (governorates), in Arabic *Mouhafazat* (singular: *Mouhafazah*), which are further subdivided into counties, in Arabic *Caza*.

⁵ South is one of the six *Mouhafazat* of Lebanon. The others are Beirut, Bekaa, Mount Lebanon, North and Nabatiyeh.

1 INTRODUCTION

1.1 Background

Between 12 July and 14 August 2006, large-scale hostilities broke out in southern Lebanon. On the Lebanese side, the conflict resulted in more than 1 187 deaths, 4 398 injuries and large-scale destruction of infrastructure, disruption of essential services and displacement of people. It was estimated that over one million people were displaced during the period of the conflict. In the wake of UN Resolution 1701, a ceasefire came into effect on 14 August 2006, allowing for the return home of a large majority of displaced persons. The rural and agricultural setting was one of the hardest-hit by the war.

From a national perspective, Lebanese agriculture plays a limited role in the economy of the country, contributing overall up to 12 percent to the GDP, and representing 20 percent of total export earnings. According to a survey conducted by the Ministry of Agriculture (MoA) in 2004, the value of crop production is approximately US\$1 030 million, representing 73 percent of the total agricultural production in Lebanon. The sector employs just over 9 percent of the labour force, with large variations depending on the governorate. However, agriculture constitutes the main source of income for an average 30-40 percent of the population in Lebanon. In particular, **for many of the war-affected villages in the south of Lebanon, which also represent the poorest sections of the country, agriculture is reported to assume up to 80 percent of the local GDP and is the major income-earning and employment opportunity.**

The conflict affected the sector directly in terms of physical damage, but, more importantly, indirectly in terms of lost markets and labour opportunities. The *mass displacement* during the hostilities put a halt to most economic activities, and the coping mechanisms available to different socio-economic livelihood groups have since revolved around reliance on savings and social networks. The impact on farming took the form of interruption in crop care and livestock husbandry, dislocation of markets and direct physical damage to land and other agricultural assets. Direct losses, such as the physical damage to crops and equipment through direct bombing and the destruction of greenhouses, account however for a minor share of the agriculture loss.

The major damage was caused through the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. The interruption in the care of crops was responsible for a large portion of the income/production losses. Most of the agricultural workforce, including foreign labourers, fled South Lebanon and Nabatiyeh. Those who remained were unable to work as mobility was restricted. Furthermore, the war took place at the peak time for the harvest of crops destined for export (mainly stone fruits and potatoes), but much of this year's *harvest perished* on the ground, as bombing forced farmers to abandon their lands and transport to market became impossible. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids; restrictions on movement reduced the flow of fruit and vegetables to Lebanese consumers by three-quarters and *reduced the expected annual exports* by some 15-20 percent (around US\$20-25 million).

With the loss of income from harvests, many farmers became *heavily indebted* as they usually repay their debts during the harvest period (May-October) to secure credit for the following planting season. This year, their ability to repay these debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for Lebanese farmers.

Unexploded cluster bombs

Many agricultural fields have been rendered useless until unexploded bombs littering the land can be removed or exploded. Clearing the land of these unexploded bombs will be essential to enable the reconstruction of agriculture-based livelihoods. Israeli rocket units fired a total of 1 800 rockets containing cluster bombs (anti-personnel weapons that spray bomblets indiscriminately over a wide

area) in the last days of the conflict. Each rocket fired contained 644 cluster component bombs, adding up to a total of 1 159 200 individual bombs that were dispersed over southern Lebanon. As of 19 October 2006, the United Nations Mine Action Coordination Cell (UNMACC) had identified 778 individual cluster bomb strike locations. UNMACC estimates that the failure rate of these cluster bomb sub-munitions is between 30 and 40 percent. From 14 August to 19 October, 150 civilians were injured and 21 died as a result of mines and cluster bombs – one child was killed and 23 injured. Most of the victims were men since they were typically the first ones to return home after the ceasefire and generally tend to be more involved in agriculture than women and children. Most unexploded bombs are small and innocuous looking, some in the shape of a soft drink can, often with ribbons attached, thus making them particularly attractive to curious children. Hundreds of thousands of pieces of unexploded ordnance (UXO), mostly cluster bombs, will need to be cleared before agriculture can be reestablished on similar levels as before the war. According to the National De-mining Office (NDO), it is hoped that 95 percent of the ‘contaminated areas’ in the south will be cleared of UXOs by early 2008.

Mine clearance personnel are understandably giving priority to urban centres and roads, rather than to agricultural fields. Therefore, many farmers are attempting to explode the bombs on their own, which is extremely dangerous. In many instances, farmers have been burning off their fields after demarking the bombs, in an attempt to destroy them, but in doing so put their lives at stake. Other farmers are paying approximately US\$6.50 per bomblet for “artisanal” bomb disposal in order to resume farming. This is not desirable, but reflects lack of confidence that the Lebanese army will clear the fields rapidly. It is estimated that overall at least *26 percent of the cultivated land in southern Lebanon has been contaminated* – 16 percent of land used to cultivate citrus fruits and bananas and 10 percent for planting field crops. Also, olive trees will suffer the economic impact for two years as the farmers are not able to prune their trees – 3 percent of the area has been affected. In addition, about 7 percent of the land used for grazing by animals has been contaminated. Translated into hectares, NDO estimates that there are approximately 9 450 ha of agricultural land contaminated with UXOs, of which 1 800 ha are citrus and banana, 7 400 ha field crops and 250 ha olive groves, in addition to some 3 500 ha of grasslands. These figures might be underestimated, especially as they do not take into consideration open-field crops and other field crops that are also contaminated with UXOs, and given the fact that dozens of cluster bombs are found every week.

1.2 Project context

The hostilities during five weeks in summer 2006 on Lebanon had an extremely devastating impact on the agricultural sector of the country. The hostilities targeted mainly southern Lebanon. The governorate of South was amongst the most critically affected areas and hit by the heaviest battles throughout the whole period of the hostilities. The magnitude of damage is huge, ranging from loss of human life to damage to main infrastructures and farm infrastructures to loss of harvest and crops. The hostilities have weakened all segments of the agricultural sector, from small- to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season.

The Food and Agriculture Organization (FAO) of the United Nations, in close collaboration with MoA, conducted a damage assessment in September-October 2006 of the impact of the hostilities on the crop production sector (as well as on the livestock, fisheries and forestry sectors). As a result of this assessment, it was estimated that total financial losses in the crop production sector amounts to US\$233 million in five governorates of Lebanon: Bekaa, North, Mount Lebanon, South and Nabatiyeh. The two governorates which suffered the most are South and Nabatiyeh in southern Lebanon (US\$152 million) incurring 65 percent of total financial losses of all Lebanon. These financial losses (US\$152 million) are composed of about US\$72 million loss in fruit trees (about 47 percent), US\$23 million in field crops (about 15 percent), US\$43 million in nurseries and flower production (about 28 percent), US\$1 million in greenhouse crops (about 0.7 percent) and US\$12 million in farm equipment and machinery (about 8 percent).

Due to the unavailability of working capital and the accumulated debt burden, many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their minimum daily needs. Providing farmers with minimum agricultural inputs (seed and seedlings, fertilizers, pesticides, small irrigation equipment, etc.) will help them resume their agricultural activities and encourage them to remain in rural areas rather than become another burden on the suburbs of towns – *as an alternative to the direct provision of agricultural inputs to the farmers, a voucher system could be used which would re-finance the input suppliers thereby contributing also to the recovery of the supply chain.*

As mentioned above, in addition to the direct losses (physical damage and harvest loss), large areas including agricultural land are still contaminated with various types of deadly cluster bombs. The presence of UXOs indeed constitutes a hazard for many early recovery efforts. The movement of returnees, reestablishment of irrigation canals, construction of new shelters as well as income generation are all adversely affected by the presence of UXOs. Even more dangerous is the existence of cluster bombs in areas which have not been subject to hostilities. Clearing the agricultural land of these UXOs will be essential to enable the reconstruction of agriculture-based livelihoods.

Alongside with the gradual de-mining of agricultural fields, the project's main objective is to provide 2 250 farmers (15 750 beneficiaries) with inputs sufficient enough to cultivate 0.05-0.5 ha of land each, depending on the type of crop (greenhouse, perennial or seasonal). It was estimated that an area of 500 m² of greenhouse, 0.3 ha of perennial and 0.5 ha of field crops is sufficient to cover the livelihood expenses of one family in southern Lebanon – considering the varying levels of contribution of agriculture to the overall household income.

1.3 Rationale for FAO proposed assistance

The project is proposing interventions to provide immediate relief to vulnerable farmers in the governorate of South that sustained direct physical damage and losses related to the war-conflict. In order to sustain activities and particularly to make good use of the proposed interventions, and considering the limited skills of farmers as well as the shortage of extension service in MoA, top priorities will be given to training and strengthening the capacity of the project beneficiaries, including rural youth and women. The training sessions, including on-farm demonstration, must start side by side with the interventions. The impact of the project will be increased by focusing on key farmers and farmer associations who are likely to become major agents for growth and change in crop production development. The training messages will cover all interventions and provide advice on crop management, including integrated pest management (IPM), and Good Agricultural Practices (GAP).

The project will give emphasis to strengthening the capacity of the extension service of MoA to sustain and complete the recovery process beyond the lifetime of the project, then the initial foundations laid by the project should provide the basis for successful follow-up. By the end of the project, cooperating farmers will be in a position to independently implement the technologies promoted by the project.

As de-mining is a pre-requisite for any safe resumption of agricultural activity in many farms in southern Lebanon and in the governorate of South, working sessions between FAO and NDO/UNMACC revealed the need for a common approach by which agricultural input supply and training would be provided to farmers immediately after clearing a farmer's field. The distribution of supply and advice to farmers on the best way to use those inputs would immediately take place, according to the progress of de-mining activities. This would translate itself into an emergency project in which UNMACC would execute the de-mining of fields according to the prioritization set by MoA and an FAO expert team.

Coordination between FAO/MoA, UNMACC, NDO, the Lebanese army and the concerned municipalities is needed to locate all contaminated fields. This will require not only some surveys but also the overlaying of agricultural maps (latest satellite images) with the existing maps of strikes and cluster bomb locations. Only then could one prioritize the fields which need to be de-mined first, and which fields could wait until a later stage. This prioritization should take into consideration the crop-

calendar needs (harvest, planting, crop care, etc.) as well as the individual urgency from the point of view of the agricultural income dependency of the landowner.

2 PROJECT OBJECTIVES

2.1 Overall objective

The objective of the assistance is to urgently enable early recovery needs and immediate relief to the lives and livelihoods of 2 250 vulnerable farmers – with critical physical damage and significant crop harvest losses – in the governorate of South who were severely hit by the war of 12 July 2006.

The project is aiming to provide the conditions to affected farmers to restore a minimum capacity of production and of income generation.

2.2 Specific objectives

The specific objectives of this project are:

5. provide crucial farm inputs – seeds, fertilizer, implements, small-scale irrigation equipment for open-field crops, greenhouse vegetables, flower production and fruit trees (including citrus and olives);
6. rehabilitate agricultural activities;
 - replacement of destroyed citrus orchards with new plantations using new high-yielding cultivars and high planting density (double the number of trees per area) and implementing drip irrigation, where appropriate;
 - replacement of destroyed olive orchards with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars for table olives (list in Annex 13) and high planting density (double the number of trees per area);
 - replacement of destroyed banana orchards with new plantations using healthy plantlets (from tissue culture) and drip irrigation where appropriate; and
 - replacement of the destroyed greenhouses.
7. provide training to farmers and farm workers regarding GAP and IPM in open-field crops and greenhouse crops: planting material quality, adequate planting density, adequate cultural practices, rational use of fertilizers and plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.) in an IPM strategy; and
8. de-mine agricultural land and farm holdings accompanied by an evaluation of the quality of soil and surface water. De-mining to be conducted in collaboration with UNMACC and the Lebanese army. The funds relative to this task will be covered by other UN organizations. Analysis of soil and water for any contaminants resulting from weapons used during the war (*inter alia*, uranium) is to be conducted in collaboration with the Ministry of Environment.

3 PROJECT BENEFICIARIES AND TARGET AREAS

3.1 Direct beneficiaries

The project area covers the governorate of South. A total of 2 250 households from 50 villages in southern Litani River (Cazas⁶ of Tyre) and the northern Litani River (Cazas, Jezzine and Saidia) will

⁶ Lebanon is divided into six regional administrative districts (governorates), in Arabic *Mouhafazat* (singular: *Mouhafazah*), which are further subdivided into counties, in Arabic *Caza*.

benefit from the interventions. The project will give particular attention to the southern Litani River's villages that witnessed heavy damage and losses and whose inhabitants belong to the most vulnerable populations with increased threshold of deprivation. The project beneficiaries are identified on the basis of priority needs for poor rural households; those who have sustained direct physical damage and losses. In order to cover a maximum number of affected farmers the project is not intending to go for full replacement of physical damages, but will apply a partial early-recovery strategy allowing for the minimum conditions for the people and the economic life to gradually return to normal.

The project targets 2 250 of the most vulnerable farmers in the governorate of South and will benefit some 15 750 beneficiaries, considering an average number of household members of seven persons. The following direct beneficiaries are expected:

- 500 families will benefit from restoring open-field irrigated crops;
- 1500 families will benefit from restoring orchards (olive, citrus and various fruit trees including banana); and
- 250 families will benefit from restoring greenhouse crops.

3.2 Indirect beneficiaries

About 4 500 farm workers (two workers per farm) will indirectly benefit from the project activities. In addition to family members and farm workers, this project will also benefit extension agents from MoA; NGO and private companies will benefit from training sessions and extension manuals and leaflets provided by the project.

4 PROJECT RESULTS

4.1 Expected direct outputs

- Agricultural fields prioritized and ready to be cleared;
 - soil and water analysis performed to ensure safety of farmers and workers; and
 - restored agricultural production capacity of farmers (in case of contaminated fields – activity after de-mining of the agricultural land and insuring farmer's safety).
- Resumed agricultural activities through the achievement of:
 - improved greenhouse design available allowing for the production of higher yields with integration of IPM tactics and minimum use of chemical inputs;
 - destroyed citrus orchards which used old cultivars replaced with new plantations using new cultivars (list in Annex 9) which are high yielding and more appreciated by the consumer, improving farmers' income and incorporating IPM and biological control of citrus pests (chemical pesticide use is a major problem in Lebanon);
 - destroyed olive orchards replaced with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars (list in Annex 13) and high planting density for table olives (double the number of trees per area); these cultivars should be suitable to local conditions and resistant and/or tolerant to local pests and diseases;
 - destroyed fruit tree orchards replaced with new plantations using new high-yielding cultivars (list in Annex 10, 11 and 12) and using high planting density (double the number of trees per area); these cultivars should be suitable to local conditions and resistant and/or tolerant to local pests and diseases;
 - destroyed banana orchards replaced with new plantations using healthy plantlets (from tissue culture); and
 - water- and fertilizer-use efficiency increased by rational use of water through a localized drip irrigation system, where appropriate;

The current interventions (projects) of FAO/MoA should be used to introduce or promote IPM and/or biological control, and the use of chemical inputs should be minimized.

4.2 Expected indirect outputs/benefits

Training on Good Agricultural Practices will benefit 14 000 beneficiaries in addition to several extension agents, engineers and technicians of MoA or private companies.

5 PROJECT ACTIVITIES

- De-mining of the agricultural land and insuring farmer's safety:
(activities performed together with NDO/UNMACC)
 - perform satellite imagery of the actual locations of crops;
 - overlay of the contaminated agricultural land on the crop map;
 - prioritize the fields to be cleared by UNMACC based on the overlaying of maps and on crop calendar; and
 - perform soil and water analysis for detection of any contamination.
- Provision of agricultural inputs
 - vegetable hybrid seeds (tomato, pepper, eggplant, cucumber, melon, watermelon);
 - plant saplings (citrus, olive, fruit trees, banana);
 - small implements and tools;
 - fertilizers (NPK, N, K); and
 - plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (fungicides, acaricides, nematicides, insecticides).
- Resume the agricultural activity by type of crop:
 - planting open-field crops;
 - equipping fields and orchards with drip irrigation systems;
 - planting citrus orchards;
 - planting olive orchards;
 - planting fruit tree orchards;
 - planting banana plantations; and
 - constructing greenhouse structures.
- Capacity Building
 - The main purpose of the project is to provide the war-affected poor farmers with **agricultural inputs**, allowing them to resume their activities.
 - The project is using this opportunity to introduce new technologies such as new cultivars, Good Agricultural Practices and localized irrigations systems. This project will also focus on **training** of participating farmers.
 - Considering the shortage of technical staff at MoA and in order for this to be sustainable, it is essential that suitably tailored programmes to farmers and **farmers' associations** be developed side by side with project activities.
 - The impact of the project will be increased by focusing on at least 100 **key farmers** who have influence and will likely become major agents for growth and extension in crop production.
 - The project will help in building capacity of crop production **services of MoA** to sustain and complete the recovery process beyond the life of the project.

6 PROJECT INPUTS

Details of agricultural inputs and equipment to be provided to 2 250 farmers:

Description	Unit	Number of units/farm ²	Number of beneficiary farms	Cost/unit (US\$)	Total cost (US\$)
Agricultural input					
Fruit tree saplings ¹	1 tree plantlet ²	60	500	8	240000
Hybrid seed (Annex 14) ³	1 kit	1	1500	100	150000
Fertilizers					
NPK	kg	100	2000	0.6	120000
N	kg	50	2000	0.4	40000
K	kg	50	2000	0.7	70000
Plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (Annex 15)					
	Kit	1	2000	60	120000
Equipment					
Greenhouse ⁴	1 tunnel of 450 m ²	1	50	3150	157500
Drip irrigation system ⁵ (for 1000 m ²)	1 kit	1	500	500	250000
		Total	2250 farm beneficiaries		

- 1) Fruit tree saplings include citrus, olive and other fruit trees.
- 2) Tree sapling: 60 trees/1000 m² translate to a planting density of 600 trees/ha.
- 3) Hybrid seed of vegetables (tomato, cucumber, melon, watermelon, pepper, etc.) to grow 0.5 ha (see Annex 14).
- 4) This corresponds to a standard size tunnel of the dimension 9 m by 50 m (see Annex 8 for design).
- 5) Drip irrigation system kit includes T-tape, Dozatrone (fertilization) and a 200 litres plastic tank mix.

7 PROJECT BUDGET

Account	Description	Sub Comps.	Main Comp.
5013	Consultants		174 000
5542	International Consultant	32 000	
5543	Consultants – National	96 000	
5544	Consultants – International	16 000	
5545	Consultant – National Project Coordinator	30 000	
5014	Contracts		1 037 500
5572	Greenhouse	787 500	
5572	Drip Irrigation	250 000	
5020	Locally Contracted Labor		50 000
5652	Casual Labor- Temporary Assistance	50 000	
5021	Travel		50 000
5661	Duty travel others		
5684	Consultants – International		
5685	Consultants – National		
5686	Consultants – International		
5694	Travel – Training		
5692	Travel ATS		
5693	Travel STS		
5023	Training		170 000
5920	Training Budget	170 000	
5024	Expendable Equipment		1 120 000
5940	Fruit Tree Saplings	720 000	
5940	Hybrid Seeds	50 000	
5936	Fertilizers NPK	120 000	
5936	Fertilizers N	40 000	
5936	Fertilizers K	70 000	
5939	Plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.)	120 000	
5025	Non Expendable Equipment		40 000
6011	1 4WD double-cab pickup and 1 small vehicle	40 000	
5027	Technical Support Services		61 500
6121	Backstopping missions	31 500	
6116	Evaluation	25 000	
6111	Report costs	5 000	
5028	General Operating Expenses		60 000
6300	General Operating Expenses Budget	60 000	
5029	Support Cost		
6118	Direct Operating Costs (10%)		276 300
	Total Budget		3 039 300

(UNMACC will cover cost of de-mining agricultural fields)

8 BUDGET

5013: Consultants

- FAO International Consultant who will supervise the overall implementation of the proposed project interventions, and will act as International Consultant Crop Production Specialist, conducting training on Good Agricultural Practices. S/he will conduct four missions (13 weeks) (Annex 3).
- One international expert who will provide professional/technical support on micro-irrigation (two missions of two weeks each) (Annex 5).
- One National Project Coordinator who will be the counterpart of the International Coordinator, on a full-time basis (12 person months) (Annex 4).
- Four local engineers (one per Caza) for logistic and technical support for the whole duration of the project (12 person months) (Annex 6).

5014: Contract labour

- Up to US\$1 037 500 for contract services: equipment for 500 farms with drip irrigation systems (US\$500 for equipment of 1 000 m²) and construction of 250 improved greenhouses at the level of 250 farms (450² at a cost of US\$7/m² including plastic and net cover) (Annex 8).

5020: Locally Contracted Labour

- Up to US\$50 000 for hiring one secretary, one driver, one accountant for the Project Management Unit and casual labour.

5021: Official Travel

- Up to US\$50 000 for in-country travel

5023: Training

- Up to US\$170 000 for in-service training, seminars and workshop training supplies (laptops, videos, digital camera, photocopy, stationery, production of posters, leaflets, manuals). The project is taking this occasion to train farmers on Good Agricultural Practices. All project beneficiaries (2 250 farmers) as well as technicians and extension agents will attend the training sessions which will cover all interventions.

5024: Expendable Procurement

- Up to US\$1 120 000 to cover the purchase of project supplies: hybrid seeds, planting material (various fruit trees plantlets such as citrus, olives, apple, pears, apricot, peaches, etc.), fertilizers (NPK), plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.). (For details see list in section 6 and Annex 15.)

5025 Non-expendable procurement

- Up to US\$40 000 for the purchase of one 4WD double-cab pickup and one small vehicle.

5027: Technical Support

- Up to US\$61 500 for covering technical backstopping by FAO technical staff members at the commencement of the project (1 week), during implementation (1 week) and in the final months (1 week) (Annex 7).

5028 General Operating Expenses

- Up to US\$60 000 for office facilities and communication equipment, maintenance of office equipment and cars, office furniture.

5029: Support Cost.

- 10% of total budget.

9 WORK PLAN

The most urgent interventions will focus on de-mining agricultural land and restoring agricultural activities through provision of essential inputs and training. Considering the emergency situation faced by small farmers in south Lebanon, the project will be implemented over a 12-month period covering: project coordination, procurement and distribution of agricultural inputs, technical assistance, monitoring, implementation of training programmes, impact assessment and reporting.

While an outline of the activities to be undertaken and the likely time frame is presented here, a more detailed work plan will be drawn up at the start of the project.

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Recruitment International Consultant, National Staff and set-up of Project Management Unit													
Preparation, identification of beneficiaries, ordering equipment													
Providing initial training and workshops to beneficiaries													
Greenhouse construction													
Equipping fields with drip irrigation													
Distribution of agricultural inputs													
Mission of International Consultant													
Mission of the Irrigation Specialist													
Backstopping mission													
Mission of National Project Coordinator													
Mission of Location Engineers (Cazas)													
Training and workshops													
Monitoring													
Evaluation													
Reporting													

10 PROJECT IMPLEMENTATION ARRANGEMENTS

10.1 Project implementation structure

The project activities will be implemented under a Project Management Unit that will be called the “Emergency/Early Recovery Coordination Unit” to oversee the overall implementation and supervision of the proposed project interventions. This will be headed by an FAO Emergency Coordinator/International Consultant, with sound experience in Lebanon, particularly in war-affected project areas. MoA will nominate a National Coordinator who will be the counterpart of the International Coordinator, on a full-time basis.

The Emergency/Early Recovery Coordination Unit will be based in the south of Lebanon in Tyre, in the Regional Office of MoA, so that it can effectively serve the project implementation in the war-affected zones.

10.2 Project implementation partners

- National Consultant: One highly qualified National Project Coordinator (NPC) will be recruited (12 person months) (Terms of Reference detailed in Annex 4). In addition to his/her technical inputs, the national consultant will participate in identifying farmers and distribution of inputs.
- One expert will provide professional/technical support on micro-irrigation (two missions of two weeks each (Terms of Reference detailed in Annex 5).
- Four local engineers (one per Caza) will provide logistic and technical support for the duration of the project (Terms of Reference detailed in Annex 6).
- Technical backstopping by FAO technical staff members at the launch of the project, in mid-term project and in the final wrap-up workshop (Terms of Reference detailed in Annex 7).
- The administrative services will be providing efficient financial management and procurement functions, with recruitment of one secretary, one accountant and one driver.
- The Emergency Coordination/Project Management Unit will coordinate and establish linkages, through the Division of Crop Production of MoA, with other service providers, at the regional or municipal levels, such as agricultural colleges, local government units, and especially NGOs which will be main cooperating partners in project execution.

11 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 FAO Emergency Coordinator/International Consultant 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 stage of implementation, will be required. The monitoring and evaluation will be coordinated by the Emergency Coordination/Project Management Unit and undertaken at villages 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.

12 REPORTING

At the inception of the project, the FAO Emergency Coordinator, in close consultation with the national coordinator, will prepare a detailed work plan. The inception report will give an update on the impact of the war-affected farmers and confirm the validity of the proposed interventions. The report will also elaborate on the administrative/organization/technical issues at stake and identify implementing partners and relevant resource persons. Input distribution and training programmes will be elaborated

and local sources of project inputs will be confirmed. The FAO Emergency Coordinator will also prepare quarterly reports and final report which describe project activities, main results and conclusions, constraints, expenditures by project component, impact on beneficiaries and recommendations for follow-up activities.

13 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

Logical Framework

	<i>Intervention Logic</i>	<i>Objectively Verifiable Indicators</i>	<i>Sources of Verification</i>	<i>Risks and Assumptions</i>
<i>Principal Objective</i>	To sustain the early rehabilitation and recovery of small farm holders in the governorate of Nabatiyeh	<ul style="list-style-type: none"> - De-mining of agricultural land - Resumption of agricultural activity in the area 	<ul style="list-style-type: none"> - UNMACC clearing of fields previously identified by MoA 	Stable security situation and accessibility of the project area
<i>Specific Objective</i>	To ensure resumption of agricultural activity in the governorate of Nabatiyeh that was heavily affected by the hostilities	<ul style="list-style-type: none"> - Citrus, fruit tree, banana, field and greenhouse crop activities restored 	<ul style="list-style-type: none"> - Results to be compared against the damage and needs assessments carried out jointly by FAO and MoA after the hostilities 	Stable security situation and accessibility of the project area
<i>Results</i>	Result 1. Small-scale farmers enabled to resume crop production activities; technical improvement of the production systems	<ul style="list-style-type: none"> • 2 250 small-scale farms benefiting from the project • 11 250 beneficiaries (including farmers and family members) benefiting from the project • 4 500 indirect beneficiaries (including farm workers) benefiting from the project • 2 250 farmers trained in managing crops using GAP 	<ul style="list-style-type: none"> • Project technical reports • Beneficiary certification of inputs received • Certification of attendance of beneficiaries to capacity building sessions/workshops • Certification of completed works 	<ul style="list-style-type: none"> • Stable security situation and accessibility of the project area • Availability of inputs from the potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities
	Result 2. Water- and fertilizer-use efficiency increased	<ul style="list-style-type: none"> • Citrus, fruit trees, olive orchards, banana plantations and some field crops equipped with modern localized irrigation systems 	<ul style="list-style-type: none"> • Monitoring/evaluation reports • Inventory of equipment and supplies effectively distributed • Group interviews of beneficiaries 	
	Result 3. More effective greenhouse design	<ul style="list-style-type: none"> • Improved greenhouse design introduced to the governorate of South • Better environmental conditions inside greenhouse reduce the need for pesticide use • Healthy vegetables produced 	<ul style="list-style-type: none"> • Monitoring/evaluation reports • Inventory of equipment and supplies effectively distributed • Field visits of a sample of beneficiaries • Group interviews of beneficiaries 	

TERMS OF REFERENCE

International Consultant in Horticulture

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the National Project Coordinator (NPC), the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

- establish close liaison with the Ministry of Agriculture in Lebanon and with its field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- manage and supervise the implementation of the present project;
- identify, recruit and manage national staff envisaged under the present project;
- take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- manage the FAO extension and training activities;
- ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors;
- perform other related tasks as and when necessary.

First mission: (4 weeks during phase 1 in project month 1)

Two weeks at home station (under Author's Contract)

- Prepare a paper on “Needs for Good Agricultural Practices for a healthy and competitive Agricultural Sector in Lebanon” for presentation at workshop in Lebanon.

Three weeks in Lebanon

- Finalize the list of farmer's recipients of the FAO Project.
- Refine the work plan of the project according to the finding of the first mission.
- Assist in organizing the project inception workshop and present his paper on “Needs for Good Agricultural Practices for a healthy and competitive Agriculture Sector in South of Lebanon”.
- Finalize the technical specification of the equipment and supplies to be purchased in the frame of the project.

Second mission: (3 weeks in project month 3)

- Assess the progress in the input supply and installation of greenhouses and irrigations systems.
- Assist in the start up of the first crop cycle to demonstrate selected IPP techniques depending on crop type and geographical areas of Lebanon.
- Provide guidance for the implementation of the first crop protocols.

Third mission: (3 weeks in project month 6)

One week at home station (under Author's Contract)

Prepare a paper for presentation in the second workshop in Lebanon.

- Present a paper at the national workshop on Good Agricultural Practices that gives an overview of GAP as conducted in other country of southern Europe and the Mediterranean with special due attention to:
 - Selected cultural practices.
 - Choice of performing cultivars

- Planting densities and yield and quality increase
- Crop cultivation with respect to the environment.
- Integrated Pest Management
- Biological control and other non-chemical control measures.
- Training of extension service and farmers.
- Product quality labeling and certification

Two weeks in the country

- Present the paper on occasion of the training workshops in each of the 5 governorates.
- Participate in farmers' training sessions in line with the Farmers' Field School approach as organized and monitored by the designated national agricultural University in co-operation with the extension staff.
- Follow-up of the crops management and site implementation of the project

Fourth mission: (3 weeks in project month 12)

- Contribute to the establishment of a pilot farmer's association whose members would agree on a contract growing in accordance to the guidelines for the production of labelled products (introduce the concept of tractability and certificate of origin and quality).
- Participate in the end of project workshop.
- Participate in discussions on the components of a follow-up programme, to expand on the activities initiated by the project.
- Contribute to the drafting and finalization of the terminal statement of the project.

Reporting:

Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO not later than 3 weeks after the completion of the mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Qualifications:

Horticulture consultant with experience in integrated production and protection and Good Agricultural Practices in horticultural crops. Good leadership abilities and substantial experience working in Lebanon. Speaking Arabic in addition to English and French is preferred.

Duty station: Beirut and field visits to project sites

Duration: 13 weeks in four missions

TERMS OF REFERENCE

National Programme Coordinator (NPC)

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the National Program Coordinator (NPC) will carry out the following duties:

- Co-ordinate and facilitate all activities requiring government interaction.
- Co-ordinate the roles and activities of the extension service, the ministry personnel, the directorate of Agriculture and the research institutions.
- Supervise the technical manager and the 5 location engineers.
- Make sure that the activities are directed within the national agricultural policy.
- Would ensure the continuous support of the ministry for the dissemination of this technology all over the country once the project ends.
- Establish close liaison with the Ministry of Agriculture field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- In consultation with the FAO Emergency Coordinator and International Consultants, review and amend the work plan for all programme components;
- Manage and supervise the implementation of the present project on a day to day basis;
- Identify, recruit and manage national staff envisaged under the present project; and identify specific tasks to be fulfilled by the national staff and other concerned entities;
- Take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- Act as a resource person in training courses, particularly to assist in the improvement of multiplication knowledge and skills of all staff;
- Ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- Provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors;
- Perform other related tasks as and when necessary.
- Prepare quarterly, draft and end of project reports in accordance with FAO requirements;
- Carry out other related duties as requested by the FAO Emergency Coordinator.
- Assess the candidates for subcontracts (greenhouse construction, localized irrigation systems and field training activities).
- Ensure that all the Government inputs are available in order to enable a timely implementation of the project work plan.
- Ensure the nomination of the study tour beneficiaries.
- Supervise and co-ordinate the finalisation of terminal statement of the project.
- Formulate recommendations in regard to follow up activities in accordance with the priorities of the Ministry of Agriculture in order to expand on the activities initiated by the project.

Qualifications:

Agronomist/Horticulture Specialist with good experience in project management. Good leadership abilities and substantial experience working in international networks. Fluent in English.

Location: Lebanon

Duration: 12 months

TERMS OF REFERENCE

International Consultant in Irrigation and Fertigation

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

First mission: (2 weeks in total during phase 1)

2 weeks in Lebanon

- Participate in the training workshops and present his paper on irrigation and fertigation management of horticultural crops.
- Review the technical specifications of the equipment and materials to be purchased in relation to the irrigation and fertigation component of the project.
- Discuss the contents of the technical booklet and make proposals for this booklet.
- Discuss the crop protocol for the first cropping season with the national partners and the international consultants.
- Provide technical training to the national partners on the management of irrigation and fertigation of horticultural crops.
- Contribute to the preparation of technical brochures and card system for growers.

Second mission: Two weeks during phase 3 of the project

2 weeks in Lebanon

- Review the irrigation and fertigation technology as applied at project sites.
- Prepare and submit his contribution to the Technical Booklet on Horticultural Crop Management Techniques in accordance with IPP.
- *Participate in the training workshops*

Reporting:

Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using for Word for Windows.

Qualifications:

Irrigation and fertigation specialist with at least 7 years of experience in small-scale and low cost drip irrigation system for vegetable greenhouse crops.

Duty station: Beirut with field visits to project sites

Duration: Four weeks in two missions of 2 weeks each

TERMS OF REFERENCE

Local Engineers

(Four persons: One for each Caza)

Under the overall supervision of the Chief, Emergency Operations Service, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Program coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

6 weeks at the inception of the project

- Implement the field review and the assessment of current horticultural technology and production practices, and analyse farmer's constraints and potentials for producing high quality and safe fruit and vegetables in his governorate.
- Assist in selection of project sites and related field demonstrations and training activities.
- Determine the technical specifications of structures and all equipment and supplies to be purchased in the context of the project.
- Participate in the project inception workshop to present the outcome of the field review, participate in the discussions and assist in finalisation of a detailed project work plan and time frame for implementation.

Reporting:

Upon completion of the mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Qualifications:

University degree in Agronomy with 5 years experience in Agricultural/horticultural production

Duty station: Governorate of South and project sites

Duration: 12 months (for the duration of the project)

TERMS OF REFERENCE

Technical Backstopping by lead FAO technical unit

First mission: 1 week (at the inception of the project)

- Discuss project components with the International Consultant and the National Project Co-ordinator (NPC).
- Briefing of national consultants for the project site selection
- Discuss the contents of contract to be made with local Institution/private sector.
- Provide briefing on the Farmers' Field School (FFS) approach for training of farmers and extension staff.
- Review the elements and timing of the project's work plan.

Second mission: 1 week (at project mid term)

- Assess the progress made in the implementation of the project.
- Participate in the training workshops and provide training on the use of FAO's Horticulture Variety Information System (Hortivar).
- Review the project's work plan and make the adjustments as may be required.

Third mission: 1 week (on occasion of the end of project workshop):

- Provide guidance to the end of project workshop and specifically in regard to the recommendations for a follow-up programme.
- Review the draft of the project's Terminal Statement.

Reporting:

Upon completion of each mission, the Technical Officer will submit a mission report on his findings and recommendations.

Duty station: Beirut and project sites

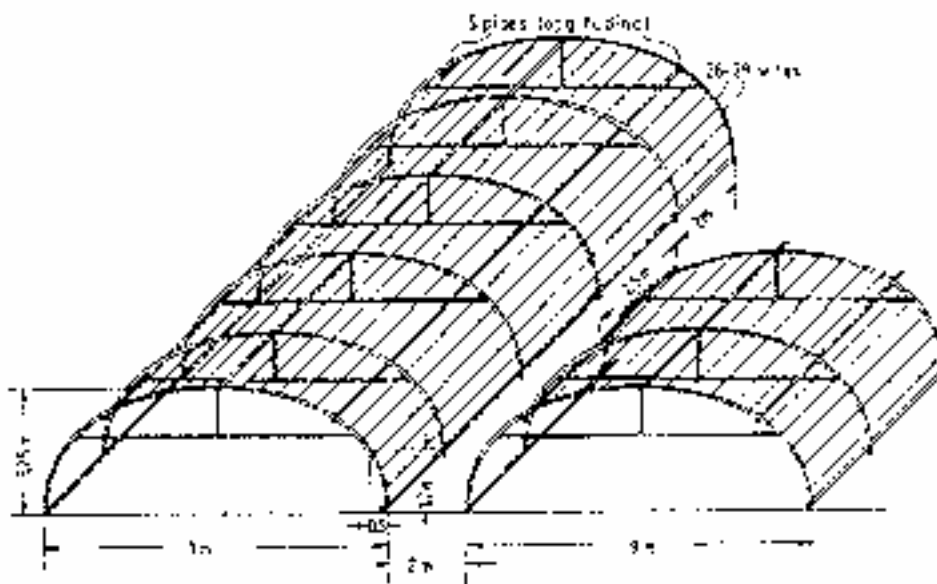
Duration: Three weeks in three missions

Contract for Greenhouse Construction

PRELIMINARY TERMS AND CONDITION

The Contractor will have to comply with the following conditions:

- The whole system should not only be “low cost” but “cost effective”.
- Stability against wind and snow by stable construction and foundation.
- No drop fall on the plants.
- Sufficient ventilation in summer by sufficient height and ventilation openings (see design).
- Equip the greenhouse with plastic and Insect nets (to be fitted on both lateral sides on a height of 1.5 m improving greenhouse ventilation)
- Equip the greenhouse with drip irrigation system



Conditions of payment:

30% upon acceptance

30 % upon delivery of equipment at the project sites

40% upon finalization of assembling

Duration: Two months

EOD: Month three

List of selected citrus tree cultivars*

The following annexed tables present the list of varieties that the project has suggested to be planted in Lebanon based not only on agronomic performance and resistance to pests and diseases but also on adaptation to local environment (LARI Project, Ministry of Agriculture, Lebanon). Most of these varieties are already produced under a certification scheme in line with the Italian protocol for certification. This certification respects the set of rule which guarantee trueness to type and the sanitary status of the vegetative propagation material.

For some of the varieties of citrus and olive the mother plants are found at LARI stations, and are in the process of multiplication and will be made available to the project for the planting in 2006-2007.

Type	Common Name	Cultivar	Comments
Citrus	Common Orange	Shamouti	Cultivars already used by farmers and well adapted to Lebanon conditions
		Valencia	
		Khettmali	
		Lanelate	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Valencia Late Olinda	
		New hall	
		Tarocco nucellare 57-1E-1	
	Navel Orange	Washington Navel	Cultivars already used by farmers and well adapted to Lebanon conditions
	Blood Orange	Moro	
	Lemon	Meyer	
		Saasly I-II	
		Interdonato I-II-III	
		Monachello	
		Sfusato Amalfitano	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Femminello Siracusano	
		Femminello Cerza	
	Grape Fruit/Pomello	Pomello Ruby	Cultivars already used by farmers and well adapted to Lebanon conditions
		Shambar	
		Red Blash	
		March Segueless	
	Clementine	Seedless Montreal	
		Clementino de Nules	
		Rubino	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Nour	
		Fedele	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected pome fruit tree cultivars*

Type	Common Name	Cultivar	Comments
Pomme Fruit	Apple	Granny Smith	Cultivars already used by farmers and well adapted to Lebanon conditions
		Gala Gala	
		Galaxy	
		Scarlet Spur	
		Supercheif	
		Smoothee	
		Reinders	
		Golden Suprem	
		Pinova	
		Fugi Nagafu2	
		Heisei Fuji	
		Early Smith	
The below cultivars and rootstocks are not widely used and are recommended			
Pomme Fruit	Apple	Cultivar	
		Golden B	M9
		Golden B	Malus communis seedling
		Golden B	MM 106
		Granny Smith	M9
		Granny Smith	Malus communis seedling
		Granny Smith	MM 106
		Red Chief	M9
		Red Chief	Malus communis seedling
	x	Red Chief	Malus communis seedling
		Starking delicious	M9
	s	Starking deliciou	Malus communis seedling
		Starking delicious	MM 106
		Starking delicious	M26
		Top red	M9
		Top red	Malus communis seedling
		Top red	MM 106

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Apricot	Myrabolan 29/c	Thyrintos	
	Myrabolan 29/c	Monacobello	
Cherry	<i>Prunus avium</i>	Ferrovia	
	<i>Prunus mahaleb</i>	Ferrovia	
	<i>Prunus avium</i>	Giorgia	
	<i>Prunus mahaleb</i>	Giorgia	
	<i>Prunus avium</i>	Lapins	
	<i>Prunus mahaleb</i>	Lapins	
	<i>Prunus avium</i>	New Star	
	<i>Prunus mahaleb</i>	New Star	
	<i>Prunus avium</i>	S. Hardy Giant	
	<i>Prunus mahaleb</i>	S. Hardy Giant	
Nectarine	GF 677	Caldesi 2000	
	Missour	Caldesi 2000	
	Montclar	Caldesi 2000	
	Myrabolan 29/c	Caldesi 2000	
	Penta	Caldesi 2000	
	Tetra	Caldesi 2000	
	Missour	Caldesi 2020	
	GF 677	Caldesi 2020 Sept.Queen	
	Montclar	Firebrite	
	Myrabolan 29/c	Firebrite	
	Tetra	Firebrite	
	GF 677	Firebrite	
	Missour	Flavortop	
	GF 677	Nectaross	
	Montclar	Nectaross	
	Myrabolan 29/c	Nectaross	
	GF 677	Vega	
	Tetra	Vega	
	GF 677	Venus	
	Montclar	Venus	
	Tetra	Venus	
Peach	GF 677	Falravorcrest	
	GF 677	Iris Rosso	
	Montclar	Iris rosso	
	GF 677	O'Henry	
	Montclar	O'Henry	
	Penta	O'Henry	
	Tetra	O'Henry	
	GF 677	Red Cal	
	Montclar	Red cal	
	GF677	bigmoon	
	Tetra	bigmoon	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Clingstone	GF 677	Baby Gold 5	
	Montclar	Baby Gold 5	
	GF 677	Federica	
	GF 677	Maria Serena	
Pear			
	BA 29	Abate fetele	
	Pyrus communis seedling	Abate fetele	
	BA 29	Conference	
	Pyrus communis seedling	Conference	
	BA 29	Coscia	
	Pyrus communis seedling	Coscia	
	BA 29	Williams	
	Pyrus communis seedling	Williams	
Plum	Myrabolan seedling	Black amber	
	Penta	Black amber	
	Tetra	Black amber	
	Myrabolan seedling	Firenze 90	
	Penta	Fortune	
	Tetra	Friar	
	Myrabolan seedling	obilnaya	
	Myrabolan seedling	Sorriso di primavera	
	Penta	Sorriso di Primavera	
	Tetra	Sorriso di Primavera	
	Myrabolan seedling	Sugar	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected olive tree cultivars*

Species	Type	Variety	Comment
<i>Olea europaea</i>	Table olives	Sant' Agostino	
		Termine di Bitetto	
		Nocellara Belice	
		Chami	Local native variety well adapted for table olive
	Olive oil	Soury	Local native variety well adapted for both oil and table olive
		Baladi	Local native variety well adapted for both oil and table olive
		Ayrouni	Local native variety well adapted for both oil and table olive
		Smoukmouki (Samakmaki)	Local native variety well adapted for both oil production
		Leccino	
		Frantoio	
		Coratina	
		Cima di Melfi	
		Nociara	
		Pendolino	
	Table and olive	Nocellara messinese	
		Picholine	
		All above mentioned local varieties	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb. It is recommended that the cultivation of the local native olive varieties that are well adapted to the local environmental conditions and traditions is further encouraged since the Ministries of Agriculture and Economy and Trade are initiating a programme of Geographical Indications (appellation d'origine contrôlée -AOC) for Lebanese olive oil.

List of selected vegetable cultivars*

Type	Cultivars	Resistance	Comments
Tomato	Round tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cluster Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cherry Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Pepper	Hot pepper	PVY, nematodes	Many hybrids are commercialized in Lebanon
	Sweet pepper (various colour red, green, yellow, orange)	PVY, nematodes	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Cucumber	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Watermelon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Melon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Eggplant	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops

* Several hybrid seeds are available on the market in Lebanon and are registered and authorized by the Ministry of Agriculture of Lebanon. All have been tried by the seed companies at research stations in Lebanon and thus, they are well adapted to local conditions, acceptable to farmers, in line with national policies and regulations, meet or exceed QDS standards. The costs of such hybrid seeds are indeed higher than for ordinary cultivars.

List of selected pesticides* registered in Lebanon and compatible with IPM

Common Name	Percent AI	Formulation	Use
Abamectin	1,80%	EC	Mites
Thiametoxam	25%	WG	Insects
Metalaxyl+Chlorothalonil	3.75%+50%	SC	Fungi
Sulfur	80%	WG	Fungi/Mites
Mancozeb	80%	WP	Fungi
Cypermethrin	25%	EC	Insects
Copper oxychloride	85%	WP	Fungi/Mites
Mancozeb+metalaxyl	64%+8%	WP	Fungi
Dichlorovos-DDVP	50%	EC	Insects
Pyridaben	20%	WP	Insects
Cyromazine	75%	WP	Insects
Mancozeb	80%	WP	Fungi
Sulfur	80%	WG	Fungi/Mites
Sulfur	80%	WP	Fungi/Mites
metalaxyl+propamocarb	15+10	WP	Fungi
Metam Sodium	51%	SL	Nematodes
Zineb+Copper Oxychloride	34%+17%	WP	Fungi
Zineb+Copper Oxychloride	15%+37%	WP	Fungi
Copper oxychloride	85%	WP	Fungi

* The pesticides listed in this table are all registered and authorized by the Ministry of Agriculture in Lebanon for use on fruits and vegetables.

With regards to the procurement of farm inputs (especially pesticides): (a) FAO rules and regulations - *inter alia* Field Circular 8/92 - will have to be applied rigorously; and (b) additional and specific technical clearance (by FAO headquarters) will have to be obtained for any kind of procured inputs (especially pesticides) prior to actual field implementation of the project.

Insect traps: available from local distributors of agricultural inputs:

- h. pheromone traps for the following pests: California red scale on citrus, Mediterranean fruit fly on citrus, codling moth on pome fruits, *Heliothis armigera* and *Spodoptera littoralis* on vegetables, potato tuber moth on potato;
- i. yellow sticky traps for the monitoring of small insects in vegetables crops in open fields and greenhouses;
- j. blue sticky traps for the monitoring of thrips in vegetables crops in open fields and greenhouses

Natural enemies: available from Biobest Biological Control (Belgium) and or Koppert Biological Systems (The Netherlands):

- k. *Eretmocerus* sp. to use in biological control against whiteflies in greenhouse vegetables
- l. *Encarsia formosa*, to use in biological control against whiteflies in greenhouse vegetables
- m. *Aphidius colemani* to use against aphids in greenhouse vegetables
- n. *Phytoseiulus persimilis* to use against mites in open and greenhouse vegetables



PROJECT PROPOSAL

Country: **LEBANON**

Project title: **Emergency assistance for the recovery of smallholder horticulture**

Project symbol: **OSRO/LEB/.../...**

Project Duration: **12 months**

Implementing agency: **FAO in collaboration with the Ministry of Agriculture and NGO partners in Lebanon**

Budget: **US\$4 032 050**

PROJECT SUMMARY

Between 12 July and 14 August 2006, large-scale hostilities broke out in southern Lebanon. On the Lebanese side, the conflict resulted in more than 1 187 deaths, 4 398 injuries and large-scale destruction of infrastructure, disruption of essential services and displacement of people. It was estimated that over one million people were displaced during the period of the conflict. In the wake of UN Resolution 1701, a ceasefire came into effect on 14 August 2006, allowing for the return home of a large majority of displaced persons. The rural and agricultural setting was one of the hardest-hit by the war.

The conflict affected the sector directly in terms of physical damage, but, more importantly, indirectly in terms of lost markets and labour opportunities. The *mass displacement* during the hostilities put a halt to most economic activities, and the coping mechanisms available to different socio-economic livelihood groups have since revolved around reliance on savings and social networks. The impact on farming took the form of interruption in crop care and livestock husbandry, dislocation of markets and direct physical damage to land and other agricultural assets. Direct losses, such as the physical damage to crops and equipment through direct bombing and the destruction of greenhouses, account however for a minor share of the agriculture loss.

The major damage was caused through the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. The interruption in the care of crops was responsible for a large portion of the income/production losses. Most of the agricultural workforce, including foreign labourers, fled the country and are just now returning. Those who remained were unable to work as mobility was restricted. Furthermore, the war took place at the peak time for the harvest of crops destined for export (mainly stone fruits and potatoes), but much of this year's *harvest perished* on the ground, as bombing forced farmers to abandon their lands and transport to market became impossible. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids; restrictions on movement reduced the flow of fruit and vegetables to Lebanese consumers by three-quarters and *reduced the expected annual exports* by some 15-20 percent (around US\$20-25 million).

With the loss of income from harvests, many farmers became *heavily indebted* as they usually repay their debts during the harvest period (May-October) to secure credit for the following planting season. This year, their ability to repay these debts has been reduced to the minimum, making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for Lebanese farmers.

The project is designed to provide immediate relief to vulnerable horticulture farmers in all governorates of Lebanon who sustained significant losses related to the war-conflict. The major interventions would have quick impact on early recovery and would contribute to restoring some form of normalcy to the lives of war-affected resource-poor and low-income households. The project's main objective is to provide 3 000 farmers (21 000 beneficiaries) with sufficient inputs to cultivate 0.05-1 ha of land each, depending on the type of crops (greenhouse, perennial or seasonal).

1 INTRODUCTION

1.1 Background

Between 12 July and 14 August 2006, large-scale hostilities broke out in southern Lebanon. On the Lebanese side the conflict resulted in more than 1 187 deaths, 4 398 injuries and large-scale destruction of infrastructure, disruption of essential services and displacement of people. It was estimated that over one million people were displaced during the period of the conflict. In the wake of UN Resolution 1701, a ceasefire came into effect on 14 August 2006, allowing for the return home of a large majority of the displaced persons. The rural and agricultural setting was one of the hardest-hit by the war.

The major damage was caused as a result of the impossible access to the fields during the 33 days of bombing as farmers fled their villages and left the *crops unattended*. The interruption in the care of crops was responsible for a large portion of the income/production losses. Most of the agricultural workforce, including foreign rural labourers fled the country and are just now returning gradually. Those who remained were unable to work as mobility was restricted. Furthermore, the war took place at the peak time for the harvest of crops destined for export (mainly stone fruits and potatoes), but much of this year's *harvest perished* on the ground, as bombing forced farmers to abandon their lands, while transport to market became impossible. It was reported that trucks attempting to transport agricultural products to market were hit several times by air raids; restrictions on movement reduced the flow of fruit and vegetables to Lebanese consumers by three-quarters and *reduced expected annual exports* by some 15-20 percent (around US\$20-25 million).

With the loss of income from harvests, many farmers have become *heavily indebted* as they usually repay their debts during the harvest period (May to October) to secure credit for the following planting season. This year, their ability to repay these debts has been reduced to the minimum making it impossible to start the new cropping cycle due to the *lack of working capital*. There is much concern that this will lead to a *downward spiral of debt and poverty* for Lebanese farmers.

1.2 Project context

As a consequence of the hostilities on Lebanon in the summer of 2006, considerable damage has been incurred to the agricultural sector in Lebanon. The magnitude of damage is huge, ranging from loss of human life and damage to main infrastructures as well as farm infrastructures to loss of harvest and crops. The hostilities have weakened all segments of the agricultural sector, from small- to large-scale farming as well as the manufacturers and distributors of agricultural inputs. Direct and indirect losses were particularly large because the hostilities took place at the peak time of harvest of many crops and also during the peak of the export season. The estimate of the total financial loss to the agricultural sector throughout Lebanon, according to the Food and Agriculture Organization (FAO) of the United Nations and the Ministry of Agriculture (MoA) of Lebanon, amounts to US\$235 million, of which 44 percent is related to fruit tree production, 30 percent to field crops, 19 percent to nurseries and flower production and the rest to greenhouse crops and farm machinery and equipment.

From a socio-economic point of view, the hostilities have had a devastating impact and hardship on the horticulture sub-sector throughout Lebanon. Beyond the direct physical losses, there is immediate impact on employment and the revenue-generation capacity for several thousands of households in all of Lebanon. Furthermore, the indirect impact on perennial crops would resonate for months to come, similarly affecting the farmers' capacity to recover. Unless action is taken to help the most vulnerable farming populations, there will be a lack of confidence to confine investment and entrepreneurial activities to the agricultural sector. In this respect, the increasing level of rural unemployment in the country affects mainly the young population – this matter is subject of great concern to the government authorities as it may lead to social unrest. The development of the labour-intensive horticulture sector is expected to contribute to the creation of job opportunities and adequate income for the small farmers. It is anticipated that each farmer and his family could gain sufficient income from areas of 2 000-5 000 m².

However, due to the unavailability of working capital and the accumulated debt burden (lost harvest/income), many of the affected families who live exclusively from agriculture find themselves unable to resume their agricultural activities in order to satisfy their daily needs. Providing farmers with minimum agricultural inputs (seed and seedlings, fertilizers, pesticides, small irrigation equipments, etc.) will help them resume their agricultural activities and encourage them to remain in rural areas rather than becoming another burden on the suburbs of towns – *as an alternative to the direct provision of agricultural inputs to the farmers, a voucher system could be used which would re-finance the input suppliers thereby contributing also to the recovery of the supply chain.*

1.3 Rationale for FAO proposed assistance

The project is designed to provide immediate relief to vulnerable horticulture farmers in all governorates of Lebanon who have sustained significant losses related to war-conflict. The major interventions would have quick impact on early recovery and will contribute to restore some form of normalcy to the lives of war-affected resource-poor and low-income households. The project's main objective is to provide 3 000 farmers (21 000 beneficiaries) with sufficient inputs to cultivate 0.05-1 ha of land each, depending on the type of crops (greenhouse, perennial or seasonal).

In order to sustain activities and particularly to make good use of the proposed interventions, and considering the limited skills of farmers as well as the shortage of extension service in MoA, top priorities will be given to training and strengthening the capacity of the project beneficiaries, including rural youth and women. The training sessions, including on-farm demonstrations, must start before, as well as side by side, the interventions; the impact of the project will be increased by focusing on key farmers and farmer associations who are likely to become major agents for growth and change in crop production development. The training messages will cover all interventions and provide advice on crop management and Good Agricultural Practices (GAP). The project will place emphasis on strengthening the capacity of the extension service of MoA to sustain and complete the process beyond the lifetime of the project, then the initial foundations laid by the project should provide the basis for successful follow-up. By the end of the project, cooperating farmers will be in a position to independently implement the technologies promoted by the project.

The small-scale horticulture sector has remained very traditional and has not benefited from the latest technological developments. However, in Lebanon, there is an increasing awareness and demand for high-quality and safe fruits and vegetables, which unfortunately are, under the present conditions, is difficult to satisfy from local production. The government wishes to rapidly reverse the unfavourable situation of the horticulture sector by initiating a rehabilitation programme for the production of high-quality and safe fruits and vegetables in Lebanon. The immediate target is to restore the national capability to produce high-quality fruits and vegetables which can compete not only with imported products but which would also be suitable for export. Before the war, Lebanon was a renowned and traditional exporter of fresh vegetables of high quality to the Gulf States and wishes to recapture its share of the market.

In this context, the Government of Lebanon has urgently requested FAO's assistance to reverse the current situation and to set the norms and standards for adequate technological developments. It is expected that, with the assistance of FAO, the horticulture sector rehabilitation programme can be launched based on up-to-date technical guidelines. The proposed project would lay the basis for such a horticulture rehabilitation programme, which will be pursued by the national institutions in Lebanon. Priority will be given to establishing the guidelines and production protocols for the growing of high-quality and safe vegetables for the national and international markets. On-farm demonstrations and training would focus on integrated production and protection (IPP) management, including Integrated Pest Management (IPM), GAP and improved irrigation management. The demonstration of the advanced and adapted horticulture management techniques will rapidly increase the quantity and improve the quality of yield produced and help to restore the competitiveness of the Lebanese horticulture crop sector. It is expected that this project will act as a catalyst and that, with the active

participation of the extension service, most farmers will implement GAP for their economic advantages and sustainability.

2 PROJECT OBJECTIVES

2.1 Overall objective

The objective of the assistance is to enable immediate relief to lives and livelihoods of 3 000 resource-poor and vulnerable horticulture farmers – with critical crop harvest losses – in all of Lebanon, who were severely hit by the July/August 2006 hostilities.

The project aims to strengthen the national horticulture sector in Lebanon and, more specifically, to restore the small-scale farmers' capability to produce high-quality and safe fruits and vegetables.

2.2 Specific objectives

The project aims to improve horticulture practices (improved cultivars, improved planting densities, improved greenhouse structure, GAP, water-use efficiency, rational use of fertilizers and pesticides and production of safe fruits and vegetables) in Lebanon. The specific objectives of this project are to:

1. rehabilitate horticultural activities:

- replacement of the current/damaged greenhouse tunnels with an improved greenhouse design that is available in the country, allowing for the production of higher yields with integration of IPM tactics and minimum use of chemical inputs;
- replacement of destroyed citrus orchards with new plantations using new high-yielding cultivars (list in Annex 13) and high planting density (double the number of trees per area) and implementing drip irrigation, where appropriate; incorporating IPM and biological control of citrus pests (chemical pesticide use is a major problem in Lebanon);
- replacement of destroyed olive orchards with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars for table olives (list in Annex 17) and high planting density (double the number of trees per area); these cultivars should be suitable to the local conditions and resistant and/or tolerant to local pests and diseases;
- replacement of destroyed fruit tree orchards with new plantations using new high-yielding cultivars (list in Annex 14, 15 and 16) and high planting density (double the number of trees per area); these cultivars should be suitable to the local conditions and resistant and/or tolerant to local pests and diseases;

The current interventions (projects) of FAO-MoA should be used to introduce or promote IPM and/or biological control, while the use of chemical inputs should be minimized.

- replacement of destroyed banana orchards with new plantations using healthy plantlets (from tissue culture) and drip irrigation where appropriate.
2. provide localized/adapted irrigation equipment for major irrigated crops – open-field and greenhouse vegetable and flower production, fruit trees (citrus, olive, etc.) and grapes; and
 3. provide training to farmers and farm workers regarding Good Agricultural Practices in open-field crops and greenhouse crops (planting material quality, adequate planting density, adequate cultural practices, rational use of fertilizers and pesticides and group marketing).

3 PROJECT BENEFICIARIES AND TARGET AREAS

3.1 Direct beneficiaries

The project area covers five governorates of Lebanon: Mount Lebanon, North, Bekaa, South and Nabatiyeh). The project beneficiaries are defined on the basis of the vital needs of poor rural households that have incurred significant harvest losses related to the hostilities. In order to cover a maximum number of affected farmers, the project is not intending to go for full coverage of financial losses, but it will apply a partial early recovery strategy, allowing for livelihoods and thus the standards of living to gradually increase. The direct beneficiaries are:

- 500 families from Mount Lebanon;
- 500 families from North;
- 1000 families from Bekaa (500 in Bekaa north and 500 in Bekaa west-central);
- 500 families from South; and
- 500 families from Nabatiyeh.

The project targets 3 000 of the most vulnerable farmers in Lebanon and will provide benefits to some 21 000 beneficiaries, considering an average number of household members of seven people.

3.2 Indirect beneficiaries

About 6 000 farm workers (two workers per farm) will indirectly benefit from the project activities. In addition to family members and farm workers, this project will also benefit extension agents from MoA, NGOs and private companies through capacity building and training.

4 PROJECT RESULTS

4.1 Expected direct outputs

The expected outputs of this project are:

Agricultural/horticulture activities resumed with the following achievements:

- using an improved greenhouse design that is available in the country resulting in the production of higher yields with minimum use of pesticides;
- destroyed citrus orchards which used old cultivars replaced with new plantations using new cultivars which are high yielding and more appreciated by the consumer, improving farmer's income;
- destroyed olive orchards replaced with new plantations using high quality seedlings of the native local varieties for oil production and new high-yielding cultivars and high planting density for table olives (double the number of trees per area);
- destroyed fruit tree orchards replaced with new plantations using new high-yielding cultivars and high planting density (double the number of trees per area);
- destroyed banana orchards replaced with new plantations using healthy plantlets (from tissue culture); and
- water- and fertilizer-use efficiency improved through rational use of water using localized/adapted drip irrigation systems.

4.2 Expected indirect outputs/benefits

The project will assist in producing the following outputs:

- public and private awareness fostered on the needs and means to rehabilitate the horticulture sector in Lebanon through workshops concentrating on the quality criteria of fruit and

- vegetables and the requirements for the reduction in the use of pesticides;
- small- and medium-size entrepreneurs will gain technical know-how through training and demonstrations in private farms in the major horticulture production areas;
- extension agents trained in applying the Farmers' Field School (FFS) extension methodology to disseminate information regarding GAP;
- the project counterpart staff trained to follow up on the technology demonstrated and the methodology developed by the project at the pilot sites, in order to expand it to other regions; and
- guidelines developed for improved crop management in line with the IPP approach for the production of high-quality and healthy fruits and vegetables (including recommendations on irrigation management, cultural techniques, crop pollination as well as IPM).

The project will have contributed to attaining the following impact:

- IPP principles (Annex 12) will be widely implemented by farmers as a more sustainable, healthy, cost-effective and environmentally friendly fruit and vegetable production system;
- environmental pollution will be reduced through rational chemical control and alternative management strategies for pest control;
- the safe use of pesticides will be widespread and exposure of farmers and consumers to potential contamination by pesticides will be reduced significantly;
- the path will be set for the production and distribution of labelled products, and the market will be increasingly supplied with high-quality, safe and certified fruit and vegetables from local origin;
- the competitiveness of the small-scale sector in Lebanon will be improved by: lowering the production cost through proper management, increasing fruit and vegetable yields and product quality and improving the product quality and safety;
- the net income of the farmers will be raised through better and sustainable crop management;
- employment opportunities in the horticulture sector will be saved and created, particularly for young entrepreneurs; and
- the overall food security in Lebanon will be improved and the foreign exchange bill for fruit and vegetables will be reduced.

5 PROJECT ACTIVITIES

Provision of agricultural inputs:

- improved greenhouse design and structure;
- improve cultivars (plant material of citrus, olive, fruit trees, banana);
- vegetable hybrid seed (tomato, pepper, eggplant, cucumbers, melon, watermelon);
- improved irrigation systems;
- fertilizers (N, P, K); and
- plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (fungicides, acaricides, nematocides, insecticides).

Resume agricultural activity by type of crop:

- constructing greenhouse structures;
- equipping fields with drip irrigation systems;
- planting citrus orchards and installing drip irrigation systems;
- planting olive orchards and installing drip irrigation systems;
- planting fruit tree orchards and installing drip irrigation systems;
- planting banana plantation and installing drip irrigation systems; and
- planting open field crops and installing drip irrigation systems.

Capacity building:

- The main purpose of the project is to provide the war-affected poor farmers with **agricultural inputs**, allowing them to resume their activities.
- The project is using this opportunity to introduce new technologies, such as new cultivars, Good Agricultural Practices and localized irrigations systems. The project will also focus on **training** of participating farmers.
- Considering the shortage of technical staff in MoA and in order for the practices and activities introduced by the project to be sustainable, it is essential that suitable training programmes for farmers and **farmers' associations** be developed side by side with the project activities.
- The impact of the project will be increased by focusing on at least 100 **key farmers** who have influence and would likely become major agents for growth and extension in crop production.
- The project will help in building capacity of crop production **services of MoA** to sustain and complete the recovery process beyond the life of the project.
- By the end of the project, cooperating farmers will be in a position to independently implement the technologies promoted by the project.

6 PROJECT INPUTS

Details of agricultural inputs as well as equipment to be provided to 3 000 farmers:

Description	Unit	Number of units/farm ²	Number of beneficiary farms	Cost/unit in (US\$)	Total cost (US\$)
Agricultural input					
Fruit tree saplings ¹	1 tree plantlet ²	60	2000	7	800000
Hybrid seed (Annex 18) ³	1 kit	1	1000	200	200000
Fertilizers					
NPK	kg	100	3000	0,5	150000
N	kg	50	3000	0,3	45000
K	kg	50	3000	0,6	90000
Plant protection products: traps, pheromones, natural enemies, bio- and chemical pesticides (Annex 19)					
	Kit	1	3000	60	180000
Equipment					
Greenhouse ⁴	1 tunnel of 300 m ²	1	300	3150	945000
Drip irrigation system ⁵	1 kit	1	600	500	300000

- 1) Fruit tree saplings include citrus, olive and other fruit trees.
- 2) Tree sapling: 60 trees/1000 m² translate to a planting density of 600 trees/ha.
- 3) Hybrid seed of vegetables (tomato, cucumber, melon, watermelon, pepper, etc.) to grow 0.5 ha (see Annex 18).
- 4) This area corresponds to a standard size tunnel of the dimension 9 m by 50 m (see Annex 11 for design).
- 5) Drip irrigation system kit includes T-tape, Dozatrone (fertilization) and a 200 litre plastic tank mix.

- **PROJECT BUDGET**

Account	Component Description	Sub Comps.	Main Comp.
5013	Consultants		192 000
5542	International Consultant	60 000	
5543	Consultants – National	54 000	
5544	Consultants – International	48 000	
5545	Consultant – National Project Coordinator	30 000	
5014	Contracts		1 245 000
5572	Greenhouse	945 000	
5572	Drip Irrigation	300 000	
5020	Locally Contracted Labour		30 000
5652	Casual Labour- Temporary Assistance	30 000	
5021	Travel		100 000
5661	Duty travel others		
5684	Consultants – International		
5685	Consultants – National		
5694	Travel – Training		
5692	Travel ATS		
5693	Travel STS		
5023	Training		420 000
	Study Tours	120 000	
5920	In-country training	300 000	
5024	Expendable Equipment		1 465 000
5940	Fruit tree saplings	800 000	
5940	Hybrid seeds	200 000	
5936	Fertilizers NPK	150 000	
5936	Fertilizers N	45 000	
5936	Fertilizers K	90 000	
5939	Plant protection products (traps, pheromones, natural enemies, bio- and chemical pesticides, etc.)	180 000	
5025	Non Expendable Equipment		72 000
6011	Three 4-WD pickups	72 000	
5027	Technical Support Services		71 500
6121	Backstopping missions	31 500	
6116	Evaluation	35 000	
6111	Report costs	5 000	
5028	General Operating Expenses		70 000
6300	General Operating Expenses Budget	70 000	
5029	Support Cost		
6118	Direct Operating Costs (10%)		366 550
	Total Budget		4 032 050

8 BUDGET DESCRIPTION

5013: Consultants

- FAO International Consultant who will supervise the overall implementation of the proposed project interventions, and will act as Crop Production Specialist, conducting training on Good Agricultural Practices. S/he will conduct four missions of a total of 16 weeks (4 person months).
- Three International Consultants who will provide professional/technical support in various components related to project activities. One micro-irrigation specialist (1 person month), one agro-economist and marketing specialist (2 weeks) and one quality standards specialist (2 weeks).
- Operations/procurement expert from headquarters for 2 weeks;
- One National Project Coordinator who will be the counterpart of the International Coordinator, on a full-time basis (12 person months).
- Five location engineers for logistic and technical support covering the project components (12 person months).
- One national consultant agro-economist for a total duration of 2 months (2 person months).

5014: Contracts

- Up to US\$1 245 000 for contract services: equipment for 600 farms with drip irrigation systems (US\$500 for equipment of 1000 m²) and construction of 300 improved greenhouses at the level of 300 farms (450 m² at a cost of US\$7/m² including plastic and net cover).

5020: Administrative Support

- Up to US\$30 000 for hiring one secretary, one driver, one accountant for the Project Management Unit and casual labour.

5021: Travel

- Up to US\$100 000 for in-country travel.

5023: Training

- Up to US\$420 000 for in-service training, seminars, workshops and training supplies (laptops, videos, digital camera, photocopy, stationery, production of posters, leaflets, manuals). The project is taking this opportunity to bring about sustainable improvement in the different components of horticultural production (fruit tree and vegetable production) through the introduction of appropriate technologies and training of farmers in Good Agricultural Practices. All project beneficiaries (3 300 farmers) as well as technicians and extension agents will attend the training sessions which will cover all interventions.
- In addition to in-country training, a study tour will be organized in a south Mediterranean country that has the lead in horticultural production, and where the farmers' conditions are not so different from those of Lebanese farmers.

5024: Expendable procurement

- Up to US\$1 505 000 to cover purchase of project supplies: hybrid seeds, planting material (various fruit trees plantlets such as citrus, olives, apple, pears, apricot, peaches, etc.), fertilizers (NPK),

plant protection products (traps, pheromones, natural enemies, bio and chemical pesticides, etc.).
(For details see list in section 6 and Annex 19.)

5025: Non-expendable procurement

- Up to US\$72 000 for the purchase of three 4WD double-cab pickups.

5027: Technical Support

- Up to US\$31 500 for covering report costs, evaluation and technical services; technical backstopping by FAO technical staff members at the commencement of the project (2 weeks), during implementation (2 weeks) and in the final months (2 weeks).

5028: General Operating Expenses

- Up to US\$70 000 for office facilities and communication equipment, maintenance of office equipment and cars, office furniture.

5029: Support Cost

- US\$359 450 for direct operating costs (10% of total budget)

9 WORK PLAN

Considering the emergency situation faced by small farmers in Lebanon, the project will be implemented over a 12-month period covering: project coordination, procurement of agricultural inputs, distribution, technical assistance, monitoring, and implementation of training programmes, impact assessment and reporting. To achieve the outputs listed above, the project activities will be organized in the following three phases:

PHASE 1: APPRAISAL AND PLANNING (MONTHS 1 TO 2)

- implement a field mission by the International Consultant to:
 - (a) oversee recruitment of National Staff and set-up the Project Management Unit;
 - (b) prepare, identify beneficiaries, order equipment and supplies; and
 - (c) provide initial training and workshops to beneficiaries.
- evaluate the proposed project sites;
- determine the technical specifications of greenhouse structure, irrigation systems and all equipment and supplies to be purchased in the context of the project;
- formulate crop protocols to serve as training materials for extension agents and production guidelines for growers;
- organize the first project workshop in order to discuss the outcome of the field review, and finalize a detailed project work plan and time frame for implementation. This will be an opportunity to analyse and discuss the constraints identified and give the farmers and other stake holders the opportunity to participate in the preparation of the project work plan; and
- submit a detailed work plan and timetable for the project duration by the nominated project coordinator, based on the outcome of the survey.

PHASE 2: FIELD IMPLEMENTATION AND TRAINING (MONTHS 3 TO 10)

- construct the improved greenhouses;
- install the irrigation system in the orchards, greenhouses and fields;
- plant crops following a calendar based on crop types and geographical location (Bekaa, Mount Lebanon, North, South and Nabatiyeh);
- train farmer groups in line with the Farmers' Field School approach. This activity would be entrusted to an institution designated by the government to this effect (extension service at IRAL and/or the Directorate of Planning and Study, or Division of Agriculture Cooperative of the Ministry of Agriculture);
- organize a training workshop (10 days) (2 days in each governorate including field visits) including, engineers from the Plant Protection Department, relevant government staff and agro-entrepreneurs interested in the promotion and the development of new fruit and vegetable production technologies;
- follow-up the crop management at the project sites; and
- organize and implement two study tours of 1 week each, at the end of project month 6 and month 9, to a Mediterranean country with good experience yet comparable means and technologies in horticulture. This study tour will be organized for two key participants from the private sector (one per governorate), an NGO and a governmental institution to visit small- and medium-size horticulture farms with emphasis on vegetable (open and greenhouse) and fruit production (citrus, olives, other fruit trees) using IPP crop management practices.

PHASE 3: CONSOLIDATION AND END-OF-PROJECT APPRAISAL (MONTHS 11 TO 12)

- continue project implementation activities;
- select two project pilot sites per governorate as permanent training and demonstration centres for recurrent training of extension agents and farmers in Horticultural crop technology;
- train farmer groups in line with the Farmers' Field School approach (continuation of activity as initiated under phase 2);
- prepare and publish a technical booklet on "Good Agricultural Practices in Lebanon" to provide up-to-date information on vegetable and fruit production technologies; and
- end-of-project workshop, to be held during project month 12 with the objective of analysing the results obtained by the project and to suggest future development strategies at the national level.

While an outline of the activities to be undertaken and the likely time frame are presented here, a more detailed work plan will be drawn up at the start of the project:

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Recruitment International Consultant, National Staff & set-up the Project Management Unit													
Preparation, identification of beneficiaries, ordering equipment and animals													
Provide initial training and workshops to beneficiaries													
Greenhouse construction													
Equipping farms with drip irrigation													
Distribution agricultural inputs													
Mission of the International Consultant													
Mission of the Irrigation Specialist													
Mission of the External Monitoring and Evaluation Specialist													
Mission of the Quality Standards Specialist													
Mission of the International Consultant/Marketing Specialist													
Backstopping mission													
Mission of the National Project Coordinator													
Missions of 5 Location Engineers (one for each governorate)													
Training and workshops													
Study tour													
Monitoring													
Evaluation													
Reporting													

10 PROJECT IMPLEMENTATION ARRANGEMENTS

10.1 Project implementation structure

The project activities will be implemented under the supervision of a Project Management Unit (PMU) that will oversee the overall implementation of the proposed project interventions. This will be headed by an FAO International Coordinator/Consultant. MoA will nominate a National Coordinator who will be the counterpart of the International Coordinator, on a full-time basis.

10.2 Project implementation partners

International Consultants

(2)

- One International Consultant with experience in integrated production and protection of horticultural crops (Terms of Reference in Annex 3)
- One consultant quality standards specialist with experience in standards and guidelines on quality criteria and requirements, based on Codex MRLs and the other relevant Codex provisions as well as directives from other International Organizations and the requirements of the EU and other major markets (Terms of Reference in Annex 5).
- One consultant agro-economist and marketing specialist with experience in export marketing of fruits and vegetables, with particular reference to Europe and the Gulf States (one mission of 4 weeks) (Terms of reference in Annex 6).
- One consultant in Irrigation and fertigation (Terms of Reference in Annex 7).

National Consultants

- One National Project Coordinator (Annex 4).
- One national consultant agro-economist (Annex 10).
- Five location coordinators engineers (Annex 8).

FAO Supervisory Technical Services: 21 days in 3 missions (Terms of Reference in Annex 9)

- The administrative services will be providing efficient financial management and procurement functions, with recruitment of one secretary, one accountant and one driver.
- The Project Management Unit will coordinate and establish linkages, through the Division of Crop Production and the Division of Coordination of MoA, with other service providers, at the regional or municipal levels, such as agricultural colleges, local government units and NGOs.

Considering that in the present set-up, the local government institutions are not in the position to provide an efficient delivery mechanism of emergency input assistance and to ensure that farmers are legitimately and correctly identified to receive project inputs, criteria will be developed in consultation with all partners involved, and village committees will be established to select beneficiaries and to supervise the distribution of inputs – with the involvement of NGOs as cooperating partners.

The Project Management Unit will carefully supervise on-site distribution to all beneficiaries. Municipalities with good leadership, commitment to development, good transparency and progressive community organization will be extensively involved. Only war-affected farmers residing at farm sites, who live exclusively from agriculture, will be considered. The Project Management Unit will check delivery on farm sites.

11 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 FAO Emergency Coordinator/International Consultant 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 stage of implementation, will be required. The monitoring and evaluation will be coordinated by the Emergency Coordination/Project Management Unit and undertaken at villages 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.

12 REPORTING

At the inception of the project, the FAO Emergency Coordinator, in close consultation with the national coordinator, will prepare a detailed work plan. The inception report will give an update on the impact of the war-affected farmers and confirm the validity of the proposed interventions. The report will also elaborate on the administrative/organization/technical issues at stake and identify implementing partners and relevant resource persons. Input distribution and training programmes will be elaborated and local sources of project inputs will be confirmed. The FAO Emergency Coordinator will also prepare quarterly reports and final report which describe project activities, main results and conclusions, constraints, expenditures by project component, impact on beneficiaries and recommendations for follow-up activities.

13 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

Logical Framework

	<i>Intervention Logic</i>	<i>Objectively Verifiable Indicators</i>	<i>Sources of Verification</i>	<i>Risks and Assumptions</i>
Objective	To sustain the early rehabilitation and recovery of small farm holders in all of Lebanon and to ensure resumption of agricultural activity	<ul style="list-style-type: none"> • Citrus production restored. - Fruit tree production restored - Banana production restored - Field crop production restored - Irrigations systems improved 	<ul style="list-style-type: none"> - Project final, monitoring and evaluation reports will compare the results achieved by the project against the baseline information gathered by the damage and needs assessments carried out jointly by FAO, MoA after hostilities 	Stable security situation and accessibility of the project area.
Results	Result 1. Government supported in the coordination, preparation, implementation and linking of emergency and rehabilitation projects in south Lebanon	<ul style="list-style-type: none"> • 1. Contributions made to the formulation and implementation of well-connected emergency projects. • 2. Increased cost-effectiveness and equity of assistance as measured by : <ul style="list-style-type: none"> - coverage of targeted beneficiaries and areas; - timely delivery of project inputs, implementation and reporting. 	<ol style="list-style-type: none"> 1. Project reports/ end of mission reports. 2. Project Final Reports, Assessment surveys, situation reports from FAO, government, UN Agencies and NGOs, and input procurement documents. 3. Signed minutes of meetings. 	<ul style="list-style-type: none"> - Support from donors and UN agencies for the provision of comprehensive assistance to rural areas. - Willingness of NGOs UN agencies, public institutions, to collaborate with FAO. - Willingness of NGOs to coordinate assistance activities with the government and FAO, and to act as implementing partners and to receive technical assistance.
	Result 2. Small-scale farmers enabled to resume crop production activities, and technical improvement of the production systems	<ul style="list-style-type: none"> • 3 000 small scale farms would have benefited from the project • 15 000 beneficiaries (including farmers and family members). • 60 00 indirect beneficiaries (including farm workers). • 3 000 farmers trained in managing crops using GAP 	<ul style="list-style-type: none"> • Project technical reports. • Beneficiary certifications of inputs received. • Certification of attendance of beneficiaries to capacity building sessions/workshops. • Certification of completed works. 	Availability of input from potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities.

	Result 3. Water- and fertilizer-use efficiency	<ol style="list-style-type: none"> 1. Citrus orchards equipped with modern localized irrigation systems 2. Fruit tree orchards equipped with modern localized irrigation systems 3. Banana plantations equipped with modern localized irrigation systems 	<ol style="list-style-type: none"> 1. Monitoring/evaluation reports. 3. Inventory of equipment and supplies effectively distributed. 4. Group interviews of beneficiaries. 	Availability of input from potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities.
	Result 4. Improved greenhouse design	<ol style="list-style-type: none"> 1. Improved design with lateral ventilation openings 2. Better climate inside the greenhouse 3. Less pests and diseases incidence 4. Production of safe vegetables for consumer 	<ol style="list-style-type: none"> 1. Monitoring/evaluation reports. 2. Inventory of equipment and supplies effectively distributed. 3. Group interviews of beneficiaries. 	Availability of input from potential suppliers (quantity, quality, timeliness and location) as required for smooth implementation of project activities.

TERMS OF REFERENCE

International Consultant in Horticulture

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the National Project Coordinator (NPC), the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

- establish close liaison with the Ministry of Agriculture in Lebanon and with its field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- manage and supervise the implementation of the present project;
- identify, recruit and manage national staff envisaged under the present project;
- take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- manage the FAO extension and training activities;
- ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors; and
- perform other related tasks as and when necessary.

First mission: (4 weeks during phase 1 in project month 1)

Two weeks at home station (under Author's Contract)

- Prepare a paper on “Needs for Good Agricultural Practices for a healthy and competitive Horticulture Sector in Lebanon” for presentation at workshop in Lebanon. This paper should cover guidelines on crop management practices for improving the quality of fruits and vegetables in general.

Three weeks in Lebanon

- Finalize the list of farmer's recipients of the FAO Project.
- Refine the work plan of the project according to the finding of the first mission.
- Assist in organizing the project inception workshop and present his paper on “Needs for Good Agricultural Practices for a healthy and competitive Horticulture Sector in Lebanon”.
- Finalize the technical specification of the equipment and supplies to be purchased in the frame of the project.

Second mission: (3 weeks in project month 3)

- Assess the progress in the input supply and installation of greenhouses and irrigations systems.
- Assist in the start up of the first crop cycle to demonstrate selected IPP techniques depending on crop type and geographical areas of Lebanon.
- Provide guidance for the implementation of the first crop protocols.
- Initiate the preparation of technical brochures and an illustrated card system to facilitate the adoption of GAP by the grower.
- Make detailed proposals for the organization of a study tour for key participants from the private sector, an NGO and a governmental institution to visit small- and medium-size horticulture farms in Morocco or another south Mediterranean country.

Third mission: (3 weeks in project month 6)

One week at home station (under Author's Contract)

Prepare a paper for presentation in the second workshop in Lebanon.

- Present a paper at the national workshop on Horticultural Crop Production that gives an overview of GAP in Horticultural Crops as conducted in other country of Southern Europe and the Mediterranean with special due attention to:
 - Selected cultural practices.
 - Choice of performing cultivars
 - Planting densities and yield and quality increase
 - Crop cultivation with respect to the environment.
 - Integrated Pest Management and Horticulture
 - Biological control and other non-chemical control measures.
 - Training of extension service and farmers.
 - Product quality labeling and certification

Two weeks in the country

- Present the paper on occasion of the training workshops in each of the 5 governorates.
- Participate in farmers' training sessions in line with the Farmers' Field School approach as organized and monitored by the designated national agricultural University in cooperation with the extension staff.
- Follow-up of the crops management and site implementation of the project

Fourth mission: (4 weeks in project month 12)

2 weeks at home station (project month 11 - under Author's Contract)

- Collate all contributions and prepare text for technical booklet on "Good Agricultural Practices in Horticultural Crops in Lebanon" in the format of a camera-ready copy for printing.
- Finalize the card system regarding horticultural crop management techniques in accordance with IPP principles for use by the extension service and growers.

3 weeks in Lebanon (project month 12)

- Contribute to the establishment of a pilot farmer's association whose members would agree on a contract growing in accordance to the guidelines for the production of labelled products (introduce the concept of tractability and certificate of origin and quality).
- Participate in the end of project workshop.
- Participate in discussions on the components of a follow-up programme, to expand on the activities initiated by the project.
- Contribute to the drafting and finalization of the terminal statement of the project.

Reporting

Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO not later than 3 weeks after the completion of the mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Qualifications:

Horticulture consultant with experience in integrated production and protection and Good Agricultural Practices in Horticultural Crops. Good leadership abilities and substantial experience working in Lebanon. Speaking Arabic in addition to English and French is preferred.

Duty station: Beirut and field visits to project sites

Duration: 16 weeks in four missions

TERMS OF REFERENCE

National Project Coordinator

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the National Programme Coordinator (NPC) will carry out the following duties:

- coordinate and facilitate all activities requiring government interaction;
- coordinate the roles and activities of the extension service, the ministry personnel, the directorate of Agriculture and the research institutions;
- supervise the technical manager and the 5 location engineers;
- ensure that the activities are directed within the national agricultural policy;
- ensure the continuous support of the ministry for the dissemination of this technology all over the country once the project ends;
- establish close liaison with the Ministry of Agriculture field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- in consultation with the FAO Emergency Coordinator and International Consultants, review and amend the work plan for all programme components;
- manage and supervise the implementation of the present project on a day to day basis;
- identify, recruit and manage national staff envisaged under the present project; and identify specific tasks to be fulfilled by the national staff and other concerned entities;
- take the lead in the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- act as a resource person in training courses, particularly to assist in the improvement of multiplication knowledge and skills of all staff;
- ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- fulfil reporting requirements of FAO and donors;
- perform other related tasks as and when necessary;
- prepare quarterly, draft and end of project reports in accordance with FAO requirements;
- carry out other related duties as requested by the FAO Emergency Coordinator;
- assess the candidates for subcontracts (greenhouse construction, localized irrigation systems and field training activities);
- ensure that all the government inputs are available in order to enable a timely implementation of the project work plan;
- ensure the nomination of the study tour beneficiaries;
- supervise and coordinate the finalization of terminal statement of the project;
- formulate recommendations in regard to follow up activities in accordance with the priorities of the Ministry of Agriculture in order to expand on the activities initiated by the project; and
- perform other related tasks as and when necessary.

Qualifications: Agronomist/Horticulture Specialist with good experience in Project's management. Good leadership abilities and substantial experience working in international networks. Fluent in English.

Location: Lebanon

Duration: 12 months

TERMS OF REFERENCE

International Consultant - Quality Criteria and Standard

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

First mission: (1 week in phase 1 of the project)

Two weeks in Lebanon

- Present a paper in the first project workshop on “International Quality Criteria and Standard of Fruits and Vegetables”.
- Compile available information on quality requirements and safety standards for fresh fruits and vegetables based on standards, guidelines and recommendations of relevant International Organizations such as the Codex Alimentarius Commission and IPPC as well as requirements of the EU and other major markets (Maximum Residue Levels, Code of Conduct).
- Formulate crop protocols to serve as training materials for extension agents and production guidelines for growers.
- Analyse farmers’ constraints and potential for producing high quality and safe vegetables under protected cultivation.
- Discuss the contents of GAP booklet and make proposals for contributions to this booklet.
- Participate in first project workshop to present his paper and contribute to the preparation of the project work plan.
- Participate in discussions of a guideline for the development of high quality and safe fruit and vegetable production in Lebanon, which will be one component of the project work plan.

Second mission: (1 week during phase 3 of the project month 12)

- Train trainers and farmers on the importance of adopted standards and the need to observe good agricultural practice in order to consistently meet them (participate as resource person in the training workshops).
- Contribute to the establishment of a pilot farmer’s association whose members would agree to contract growing in accordance to the guidelines for the production of high quality and safe vegetables.
- Assess the progress and results in adopting appropriate quality requirements and safety standards for fresh fruits and vegetables in Lebanon.
- Train trainers and farmers on the importance of adopted standards and the need to observe good agricultural practice in order to consistently meet them.
- Draft national guidelines for high quality and safe vegetable crops under greenhouse production.
- Participate in the end of project workshop and prepare to the terminal statement of the project.

Reporting: Upon completion of the mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5” diskette, using Word for Windows.

Qualifications: Experience in fruit and vegetable standards and quality criteria for international markets

Duty station: Beirut and field visits to project sites

Duration: 2 weeks in two missions

TERMS OF REFERENCE

International Consultant in Fruit and Vegetable Marketing

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

1 week during phase 3 of the project:

One week at home station

- Prepare workshop paper. The paper should describe potential market outlets for selected fruit and vegetable crops and olive oil for Europe and the Gulf area. The paper should also provide guidance on grading, packaging and labelling requirements and information on:
 - Evolution and future trends in packaging for fresh vegetables.
 - Evolution and trend in the utilisation of trade marks for fresh vegetables.
 - Current quality standards for selected vegetables (tomato, cucumber, melon, pepper, squash, and lettuce).
 - Presentation of the results of the Uruguay Round as they may affect international trade of fresh vegetables.

One week in Lebanon (project month 12)

- Participate in national end-of-project workshop sessions and present a paper on “International Marketing of Fruits and Vegetables”.
- Participate in discussions on the components of follow-up programme to expand on the experience gained during the project.
- Write text as contribution to the technical project booklet with regards to marketing issues.

Reporting: Upon completion of the mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5” diskette, using Word for Windows.

Qualifications:

University degree in economics, business administration or agriculture with experience in export marketing of vegetables with particular reference to Europe and Gulf countries.

Duty station: Beirut and field visits to project sites

Duration: Two weeks in one mission

TERMS OF REFERENCE

International Consultant in Irrigation and Fertigation

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

First mission: (2 weeks in total during phase 1)

2 weeks in Lebanon

- Participate in the training workshops and present his paper on irrigation and fertigation management of horticultural crops.
- Review the technical specifications of the equipment and materials to be purchased in relation to the irrigation and fertigation component of the project.
- Discuss the contents of the technical booklet and make proposals for this booklet.
- Discuss the crop protocol for the first cropping season with the national partners and the international consultants.
- Provide technical training to the national partners on the management of irrigation and fertigation of horticultural crops.
- Contribute to the preparation of technical brochures and card system for growers.

Second mission: (2 weeks during phase 3 of the project (project month 20)

2 weeks in Lebanon

- Review the irrigation and fertigation technology as applied at project sites.
- Prepare and submit his contribution to the Technical Booklet on Horticultural Crop Management Techniques in accordance with IPP.
- *Participate in the training workshops*

Reporting: Upon completion of each mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using for Word for Windows.

Qualifications:

Irrigation and fertigation specialist with at least 7 years of experience in small-scale and low cost drip irrigation system for vegetable greenhouse crops.

Duty station: Beirut with field visits to project sites

Duration: 4 weeks in two missions

TERMS OF REFERENCE

Local Engineers

(5 persons: one for each governorate)

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

- Coordinate and facilitate all activities requiring government interaction.
- Make sure that the activities are directed within the national agricultural policy.
- Establish close liaison with the Ministry of Agriculture field offices, as well as with other UN agencies and NGOs operating projects in Lebanon in the horticulture sector;
- in consultation with the FAO Emergency Coordinator and International Consultants, review and amend the work plan for all programme components;
- manage and supervise the implementation of the present project on a day to day basis;
- take the lead in the respective governorate for the procurement, transport, storage and distribution of agricultural inputs envisaged under the present project;
- act as a resource person in training courses, particularly to assist in the improvement of multiplication knowledge and skills of all staff;
- ensure effective and productive collaboration and coordination with other UN agencies and NGOs for the implementation of the project;
- provide support to other international FAO consultants assigned to the project;
- travel as needed under the prevailing conditions;
- Perform other related tasks as and when necessary.
- Prepare quarterly, draft and end of project reports in accordance with FAO requirements;
- Carry out other related duties as requested by the FAO Emergency Coordinator.
- Assess the candidates for subcontracts (greenhouse construction, localized irrigation systems and field training activities).

Qualifications: University degree in Horticulture with 5 years experience in horticulture production

Duty station: Beirut and project sites

Duration: 12 person months

TERMS OF REFERENCE

Technical backstopping by lead FAO technical unit

First mission: 1 week (at the inception of the project)

- Discuss project components with the International Consultant and the National Project Coordinator (NPC).
- Briefing of national consultants for the project site selection
- Discuss the contents of contract to be made with local Institution/private sector.
- Provide briefing on the Farmers' Field School (FFS) approach for training of farmers and extension staff.
- Review the elements and timing of the project's work plan.

Second mission: 1 week (at project mid term)

- Assess the progress made in the implementation of the project.
- Participate in the training workshops and provide training on the use of FAO's Horticulture Variety Information System (Hortivar).
- Review the project's work plan and make the adjustments as may be required.

Third mission: 1 week (on occasion of the end of project workshop):

- Provide guidance to the end of project workshop and specifically in regard to the recommendations for a follow-up programme.
- Review the draft of the project's Terminal Statement.

Reporting: Upon completion of each mission, the Technical Officer will submit a mission report on his findings and recommendations.

Duty station: Beirut and project sites

Duration: 3 weeks in three missions

TERMS OF REFERENCE

National Consultant Agro-Economist

Under the overall supervision of the Chief, TCES, with the technical guidance of the Horticultural Crops Group, AGPC, and in close collaboration with the International Consultant/Emergency Programme coordinator, the national and international project staff and the FAO Representative in the country, the consultant will carry out the following duties:

- Review and analyse the socio-economic and financial profitability of Horticultural production with regard to investments and labour requirements.
- Evaluate the sustainability of the Horticulture production sector and financial perspectives related to current cropping patterns and potential diversification options.
- Liaise with local credit institutions to establish appropriate guidelines for eligibility of adapted credit operations for small-scale farmers related to improved horticultural production.
- Contribute, in consultation with the international consultant and the national project coordinator, to the development of a simple accounting system to assist the small-scale growers in monitoring the cost-effectiveness of their business.
- Assist in drafting and editing the technical documents to be prepared by the project (technical booklet, extension brochures etc.) with regard to socio-economic and financial issues.

Reporting: Upon completion of the mission, the consultant will prepare a mission report and will submit a hard copy to FAO, not later than 3 weeks after the completion of his/her mission. The document should be submitted in final form, together with the text recorded on a 3.5" diskette, using Word for Windows.

Qualifications:

Holds a Masters level degree in socio-economic and financial analysis or business management. A degree in horticulture will be an advantage but experience as Agro-Economist is required.

Duty station: Project sites and Beirut

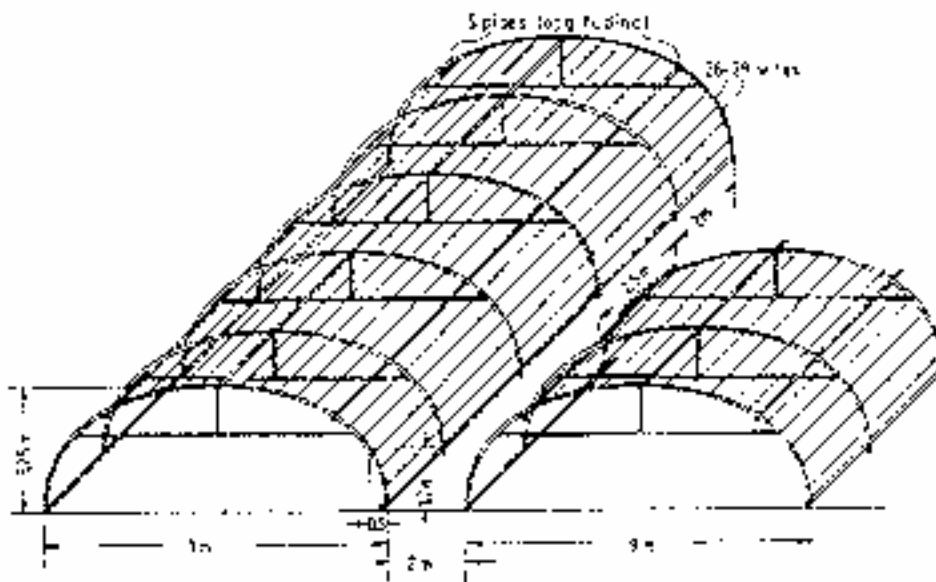
Duration: 2 months

PRELIMINARY TERMS AND CONDITIONS

Contract for Greenhouse Construction

The Contractor will have to comply with the following conditions:

- The whole system should not only be “low cost” but “cost effective”.
- Stability against wind and snow by stable construction and foundation.
- No drop fall on the plants.
- Sufficient ventilation in summer by sufficient height and ventilation openings (see design).
- Equip the greenhouse with plastic and insect nets (to be fitted on both lateral sides on a height of 1.5 m improving greenhouse ventilation).
- Equip the greenhouse with drip irrigation system.



Conditions of payment:

30% upon acceptance
 30 % upon delivery of equipment at the project sites
 40% upon finalization of assembling

Duration: Two months

EOD: Month 3

TERMS OF REFERENCE**List of IPP techniques proposed for
demonstration in horticultural crop production in Lebanon**

The IPP techniques proposed for demonstration in horticultural crop production in Lebanon will include among others:

- Selection of most suitable cultivars according to yields, disease resistance or tolerance, good quality of products and others characteristics as desired by the consumer.
- Production of high quality transplants: implement a model nursery for specialised production of high quality plantlets.
- High planting density for higher yield and profitability
- Adequate cultural practices as needed per type of crop
- Soil solarisation to control soil borne pests by placing plastic sheets on moist soil during periods of high ambient temperatures.
- Fertigation to add nutrients to the crop with the irrigation water.
- Mechanical control of pests by using insect traps and insect-proof nets on all ventilation openings of the greenhouse, coupled with the installation of a SAS at all entries.
- Promote crop pollination through the use of vibrators, insect pollinators (bumble bees).
- General plant hygiene including plant training and pruning, leaf pruning.
- Mulching

List of selected citrus tree cultivars*

The following annexed tables present the list of varieties that the project has suggested to be planted in Lebanon based not only on agronomic performance and resistance to pests and diseases but also on adaptation to local environment (LARI Project, Ministry of Agriculture, Lebanon). Most of these varieties are already produced under a certification scheme in line with the Italian protocol for certification. This certification respects the set of rule which guarantee trueness to type and the sanitary status of the vegetative propagation material.

For some of the varieties of citrus and olive the mother plants are found at LARI stations, and are in the process of multiplication and will be made available to the project for the planting in 2006-2007.

Type	Common Name	Cultivar	Comments
Citrus	Common Orange	Shamouti	Cultivars already used by farmers and well adapted to Lebanon conditions
		Valencia	
		Khattmali	
		Lanelate	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Valencia Late Olinda	
		New hall	
		Tarocco nucellare 57-1E-1	
	Navel Orange	Washington Navel	Cultivars already used by farmers and well adapted to Lebanon conditions
	Blood Orange	Moro	
	Lemon	Meyer	
		Saasly I-II	
		Interdonato I-II-III	
		Monachello	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Sfusato Amalfitano	
		Femminello Siracusano	
		Femminello Cerza	Cultivars already used by farmers and well adapted to Lebanon conditions
	Grape Fruit/Pomello	Pomello Ruby	
		Shambar	
		Red Blash	
	Clementine	March Segueless	
		Seedless Montreal	
		Clementino de Nules	
		Rubino	Cultivars registered in Lebanon but their use is limited despite their high performance and demand by consumer
		Nour	
		Fedele	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected pome fruit tree cultivars*

Type	Common Name	Cultivar	Comments
Pomme Fruit	Apple	Granny Smith	Cultivars already used by farmers and well adapted to Lebanon conditions
		Gala Gala	
		Galaxy	
		Scarlet Spur	
		Supercheif	
		Smoothee	
		Reinders	
		Golden Suprem	
		Pinova	
		Fugi Nagafu2	
		Heisei Fuji	
		Early Smith	
The below cultivars and rootstocks are not widely used and are recommended			
Pomme Fruit	Apple	Cultivar	Rootstock
		Golden B	M9
		Golden B	Malus communis seedling
		Golden B	MM 106
		Granny Smith	M9
		Granny Smith	Malus communis seedling
		Granny Smith	MM 106
		Red Chief	M9
		Red Chief	Malus communis seedling
	x	Red Chief	Malus communis seedling
		Starking delicious	M9
	s	Starking deliciou	Malus communis seedling
		Starking delicious	MM 106
		Starking delicious	M26
		Top red	M9
		Top red	Malus communis seedling
		Top red	MM 106

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Apricot	Myrabolan 29/c	Thyrintos	
	Myrabolan 29/c	Monacobello	
Cherry	Prunus avium	Ferrovia	
	Prunus mahaleb	Ferrovia	
	Prunus avium	Giorgia	
	Prunus mahaleb	Giorgia	
	Prunus avium	Lapins	
	Prunus mahaleb	Lapins	
	Prunus avium	New Star	
	Prunus mahaleb	New Star	
	Prunus avium	S. Hardy Giant	
	Prunus mahaleb	S. Hardy Giant	
Nectarine	GF 677	Caldesi 2000	
	Missour	Caldesi 2000	
	Montclar	Caldesi 2000	
	Myrabolan 29/c	Caldesi 2000	
	Penta	Caldesi 2000	
	Tetra	Caldesi 2000	
	Missour	Caldesi 2020	
	GF 677	Caldesi 2020 Sept. Queen	
	Montclar	Firebrite	
	Myrabolan 29/c	Firebrite	
	Tetra	Firebrite	
	GF 677	Firebrite	
	Missour	Flavortop	
	GF 677	Nectaross	
	Montclar	Nectaross	
	Myrabolan 29/c	Nectaross	
	GF 677	Vega	
	Tetra	Vega	
	GF 677	Venus	
	Montclar	Venus	
	Tetra	Venus	
Peach	GF 677	Falravorcrest	
	GF 677	Iris Rosso	
	Montclar	Iris rosso	
	GF 677	O'Henry	
	Montclar	O'Henry	
	Penta	O'Henry	
	Tetra	O'Henry	
	GF 677	Red Cal	
	Montclar	Red cal	
	GF677	bigmoon	
	Tetra	bigmoon	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected fruit tree cultivars*

Type	Rootstock	Cultivar	Comments
Clingstone	GF 677	Baby Gold 5	
	Montclar	Baby Gold 5	
	GF 677	Federica	
	GF 677	Maria Serena	
Pear			
	BA 29	Abate fetele	
	Pyrus communis seedling	Abate fetele	
	BA 29	Conference	
	Pyrus communis seedling	Conference	
	BA 29	Coscia	
	Pyrus communis seedling	Coscia	
	BA 29	Williams	
	Pyrus communis seedling	Williams	
Plum	Myrabolan seedling	Black amber	
	Penta	Black amber	
	Tetra	Black amber	
	Myrabolan seedling	Firenze 90	
	Penta	Fortune	
	Tetra	Friar	
	Myrabolan seedling	obilnaya	
	Myrabolan seedling	Sorriso di primavera	
	Penta	Sorriso di Primavera	
	Tetra	Sorriso di Primavera	
	Myrabolan seedling	Sugar	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb.

List of selected olive tree cultivars*

Species	Type	Variety	Comment
<i>Olea europaea</i>	Table olives	Sant' Agostino	
		Termine di Bitetto	
		Nocellara Belice	
		Chami	Local native variety well adapted for table olive
	Olive oil	Soury	Local native variety well adapted for both oil and table olive
		Baladi	Local native variety well adapted for both oil and table olive
		Ayrouni	Local native variety well adapted for both oil and table olive
		Smoukmouki (Samakmaki)	Local native variety well adapted for both oil production
		Leccino	
		Frantoio	
		Coratina	
		Cima di Melfi	
		Nociara	
		Pendolino	
	Table and olive	Nocellara messinese	
		Picholine	
		All above mentioned local varieties	

* The cultivars in this list have all been registered in Lebanon www.agriculture.gov.lb. It is recommended that the cultivation of the local native olive varieties that are well adapted to the local environmental conditions and traditions is further encouraged since the Ministries of Agriculture and Economy and Trade are initiating a programme of Geographical Indications (appellation d'origine contrôlée -AOC) for Lebanese olive oil.

List of selected vegetable cultivars*

Type	Cultivars	Resistance	Comments
Tomato	Round tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cluster Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	Cherry Tomato	TMV, CMV, TYLCV	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Pepper	Hot pepper	PVY, nematodes	Many hybrids are commercialized in Lebanon
	Sweet pepper (various colour red, green, yellow, orange)	PVY, nematodes	Many hybrids are commercialized in Lebanon
	All above cultivars Grafted on tolerant rootstock	Nematodes	Rootstocks were introduced in a TCP project on greenhouse crops
Cucumber	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Watermelon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Melon	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops
Eggplant	All available cultivars Grafted on tolerant rootstock	Nematodes, pythium	Rootstocks were introduced in a TCP project on greenhouse crops

* Several hybrid seeds are available on the market in Lebanon and are registered and authorized by the Ministry of Agriculture of Lebanon. All have been tried by the seed companies at research stations in Lebanon and thus, they are well adapted to local conditions, acceptable to farmers, in line with national policies and regulations, meet or exceed QDS standards. The costs of such hybrid seeds are indeed higher than for ordinary cultivars.

List of selected pesticides* registered in Lebanon and compatible with IPM

Common Name	Percent AI	Formulation	Use
Abamectin	1,80%	EC	Mites
Thiametoxam	25%	WG	Insects
Metalaxyl+Chlorothalonil	3.75%+50%	SC	Fungi
Sulfur	80%	WG	Fungi/Mites
Mancozeb	80%	WP	Fungi
Cypermethrin	25%	EC	Insects
Copper oxychloride	85%	WP	Fungi/Mites
Mancozeb+metalaxyl	64%+8%	WP	Fungi
Dichlorovos-DDVP	50%	EC	Insects
Pyridaben	20%	WP	Insects
Cyromazine	75%	WP	Insects
Mancozeb	80%	WP	Fungi
Sulfur	80%	WG	Fungi/Mites
Sulfur	80%	WP	Fungi/Mites
metalaxyl+propamocarb	15+10	WP	Fungi
Metam Sodium	51%	SL	Nematodes
Zineb+Copper Oxychloride	34%+17%	WP	Fungi
Zineb+Copper Oxychloride	15%+37%	WP	Fungi
Copper oxychloride	85%	WP	Fungi

* The pesticides listed in this table are all registered and authorized by the Ministry of Agriculture in Lebanon for use on fruits and vegetables.

With regards to the procurement of farm inputs (especially pesticides): (a) FAO rules and regulations - *inter alia* Field Circular 8/92 - will have to be applied rigorously; and (b) additional and specific technical clearance (by FAO headquarters) will have to be obtained for any kind of procured inputs (especially pesticides) prior to actual field implementation of the project.

Insect traps: available from local distributors of agricultural inputs:

- pheromone traps for the following pests: California red scale on citrus, Mediterranean fruit fly on citrus, codling moth on pome fruits, *Heliothis armigera* and *Spodoptera littoralis* on vegetables, potato tuber moth on potato;
- yellow sticky traps for the monitoring of small insects in vegetables crops in open fields and greenhouses;
- blue sticky traps for the monitoring of thrips in vegetables crops in open fields and greenhouses

Natural enemies: available from Biobest Biological Control (Belgium) and or Koppert Biological Systems (The Netherlands):

- Eretmocerus* sp. to use in biological control against whiteflies in greenhouse vegetables
- Encarsia formosa*, to use in biological control against whiteflies in greenhouse vegetables
- Aphidius colemani* to use against aphids in greenhouse vegetables
- Phytoseiulus persimilis* to use against mites in open and greenhouse vegetables



PROJECT PROPOSAL

Country: LEBANON

Project title: Emergency assistance to war-affected, resource-poor livestock keepers in south Lebanon

Project symbol: OSRO/LEB/.../...

Project Duration: 12 months

Implementing agency: FAO in close cooperation with Ministry of Agriculture, NGOs and local municipalities

Budget: US\$5 995 497

PROJECT SUMMARY

The livestock sector in Lebanon, mainly in the south, has been affected by several conflicts over the last three decades, particularly the 2006 hostilities. The recent conflict has weakened the productive capacity of animals through death of stock and decrease in production – due to the forced rural exodus and related abandonment of animals and lack of feed and healthcare during and after the hostilities. The outbreak of the war and its aftermath has slowed down livestock rearing and processing activities, resulting in the immobility of workers and loss of employment opportunities. The sale of livestock and its products in the affected areas of south Lebanon is one of the major income sources of resource-poor rural households that provides cash to the families for buying food. Therefore, the loss of livestock or decrease in their market value has a devastating impact on these households' food security. Furthermore, the traditional dairy products, particularly the '*laban*' and '*labneh*' from goats and cows, are the most popular protein sources in Lebanese culinary habit. They accompany daily food, providing high-quality dietary protein for people, mainly children and women. The prices of animal products have almost doubled during and after the war, becoming unaffordable to the most resource-poor families.

All categories of livestock production were heavily affected by the hostilities. With respect to dairy cattle, the nature of the damage ranges from loss of animals, buildings, feed resources, equipment and machinery to lost revenue income. The impact of the hostilities hit most of the livestock farmers in all of Lebanon, but at various damage degrees. The most direct physical damage and losses are witnessed in southern Litani River, in border villages hit by the heaviest battles throughout the whole period of the conflict. The main causes of physical damage and losses are, by degree of importance: (i) death of starvation and thirst after rural exodus; (ii) death by shelling and bombs; and (iii) death due to shortage of feed, water and lack of healthcare.

The overall early recovery strategy is designed to bring immediate relief to those vulnerable livestock farmers in the south of Lebanon who were directly affected by the hostilities, either through physical damage or by financial losses. The major intervention would need to have a quick and high impact in order to restore some form of normalcy to the lives of these affected low-income households. Most of the smallholders have lost, partially or totally, their main livestock production assets. Thus, the most urgent interventions will be carried out on restocking and distribution of animals (cattle, goats, sheep, horses and chicks) and beehives. Emphasis will also be placed on accompanying measures that have the greatest potential to contribute to rapid improvements of livestock productivity in affected areas: provision of veterinary drugs to cope with potential diseases, provision of feeds for three months (winter time) and provision of small equipment for dairy handling, hygiene and processing at the farm level.

In order to sustain activities and particularly to make good use of the proposed intervention, and considering the limited skills of farmers as well as the shortage of extension service at the Ministry of Agriculture (MoA), emphasis will be given to training and capacity building of the project beneficiaries, including rural youth and women. The training messages will cover all interventions and provide advice on poultry management, honeybee management, large- and small-ruminant management, forage development, animal health, milk handling, hygiene and basic milk processing at the farm level. The project will also strengthen the capacity of the Animal Production and Health Services of MoA to sustain and complete the process beyond the life of the project activities.

The aim is to urgently enable early recovery and immediate relief to the livelihoods of 1 500 vulnerable livestock keepers (one-third women-headed families) in the south of Lebanon, who were severely hit by the 2006 hostilities. An additional 2 000 farmers will draw indirect benefits from the project through training and veterinary services. The proposed project is therefore aiming to provide the bases for livestock keepers and farmers to resume production and income-generation activities after the war.

1 BACKGROUND AND RATIONALE

Lebanon has a heavy deficit in its major staple food products, such as wheat, beef and milk. The country imports almost 80 and 60 percent, respectively, to meet the national consumption of beef and dairy products; the imported value of these animal products reached almost US\$500 million during the year 2005. According to recent government statistics, there are 80 000 cattle head, 350 000 sheep, 450 000 goats and a few million poultry in Lebanon. Livestock is a mainstay of the rural economy and has a significant impact on rural well-being and poverty alleviation, particularly in marginal areas, such as in the south of Lebanon, which present the highest poverty indicators in the country. The small stockbreeders in the main affected areas represent at least half of the farmers; the livestock sub-sector is their major economic activity, generating significant household cash income through sales of live animals or livestock products. Almost two-thirds of the farmers in the southern Litani River area are of low socio-economic status, living mostly from goat rearing and processing popular milk products like '*laban*' (yoghurt) and '*labneh*' for sale. Many people, mainly the youth and women, are usually involved in milking, animal care, milk processing or industrial poultry enterprises.

The livestock sector in Lebanon, mainly in the south, has been continuously affected by several conflicts over the last three decades, more specifically due to the 2006 hostilities. The recent conflict has weakened the productive capacity of animals through death of stock and decrease in production – due to the forced rural exodus and related abandonment of animals, and lack of feed and healthcare during and after the hostilities. This will have a serious negative impact on the country supply of animal products and will therefore tremendously increase the imports of beef and dairy products, worsening the balance of payment of the country which is already heavily indebted. The outbreak of the war and its aftermath slowed down livestock rearing and processing activities, resulting in the immobility of workers and loss of employment opportunities.

The sale of livestock and its products in the affected areas of south Lebanon is one of the major income sources of resource-poor rural households, providing cash to the families to buy food. Therefore, a loss of livestock or a decrease in their market value has a devastating impact on these resource-poor rural households' food security. Furthermore, the traditional dairy products, particularly the *laban* and *labneh* from goats and cows are the most popular protein sources in Lebanese culinary habit. They accompany daily food, providing high-quality dietary protein for the people, mainly children and women. The prices of animal products have almost doubled during and after the war, becoming unaffordable to the most resource-poor families.

All categories of livestock production were heavily affected by the hostilities. With respect to dairy cattle, the nature of the damage ranges from the loss of animals, buildings, feed resources, equipment and machinery to lost revenue income. The impact of the hostilities hit most of the livestock farmers throughout Lebanon, but at various damage degrees. The most direct physical damage and losses are witnessed in southern Litani River, in border villages hit by the heaviest battles throughout the whole period of the conflict. The main causes of physical damage and losses are by degree of importance: (i) death of starvation and thirst after rural exodus; (ii) death by shelling and bombs; and (iii) death due to shortage of feed, water and lack of healthcare. The table below demonstrates the geographical focus of the hostilities on south Lebanon, which suffered 1 500 of the total 3 050 dead animals.

War-affected areas	Number of dairy herd prior to the conflict	Percentage of direct physical loss	Number of dead animals
North of Lebanon	4 000	2.5	100
Western and central Bekaa Valley	20 000	2	400
Eastern Bekaa Valley	5 000	6	300
Northern Litani River	5 000	15	750
Southern Litani River	30 000	50	1 500
Total	37 000		3 050

Beyond the direct physical losses, there is a significant impact on employment and revenue-generation capacity, as the indirect shocks on dairy herds will resonate for months to come and thereby also on the farmers' financial situation. The war stress on animals, the shortage of feeding and watering and the rupture of veterinary interventions resulted in: (i) loss and/or reduced milk production; (ii) loss of body weight; (iii) deterioration of animal health; and (iv) reduced reproduction capacity.

In addition to the above, an estimated number of 60 smallholders, around Bint Jbail, Khiam, Tyre, Nabatiyeh and Beirut suburbs lost some 500 beef cattle. The total number of beehives that were completely destroyed by the war is estimated at 18 000, of which 14 450 hives were located in south Lebanon. Moreover, it is estimated that 10 000 beehives were indirectly damaged through interruption of feeding and watering during the dry season at war-time. Among small ruminant breeders, goat stockbreeders were heavily affected by the conflict. The most direct physical damage and losses were witnessed in southern Litani River, in border villages. Goats are one of the main users of natural resources, mainly in the south where there is a wide range of sylvo-pastoral pastures for grazing. The main causes of physical damage and losses of goat and sheep were: (i) death due to shelling and bombs, particularly with respect to animals that fled to the mountainous areas with high incidences of forest fires; (ii) death of starvation and thirst due to the rural exodus; and (iii) death due to shortage of feed, water and lack of healthcare. Furthermore the indirect shocks on goats will resonate for months to come: (a) lost milk earnings during the war; (b) low milk production estimated at 30 percent less than during the usual lactating season; (c) loss of body weight; and (d) deterioration of animal health. Furthermore, the war also had a devastating impact on most poultry farmers throughout the country, but with particular focus on the south of Lebanon. The conflict has weakened the productive capacity, mainly through death of stock breeders and decrease in production. As a result of the crisis, the prices of chicken had already jumped significantly compared to the those during normal circumstance before the war. The nature of the damage ranges from the physical loss of bird stocks, eggs, buildings, feeds, equipment and machinery to indirect damage such as loss of employment opportunities and revenue income.

The overall early recovery strategy is designed to bring immediate relief to vulnerable livestock farmers in the south of Lebanon who were directly affected by the hostilities, either through physical damage or by financial losses. The major interventions should have quick and high impact in order to restore some form of normalcy to the lives of affected low-income households. Most of the smallholders have partially or totally lost their main livestock production assets. Thus, the most urgent interventions will be carried out on restocking and distribution of animals (cattle, goats, sheep, horses and chicks) and beehives. Emphasis will also be placed on accompanying measures that have the greatest potential to contribute to rapid improvements of livestock productivity in affected areas: provision of veterinary drugs to cope with potential diseases, provision of feed for three months (winter time) and provision of small equipment for dairy handling, hygiene and processing at the farm level.

In order to sustain activities and, particularly, to make good use of the proposed interventions, and considering the limited skills of farmers as well as the shortage of extension service at the Ministry of Agriculture (MoA), emphasis will be given to training and capacity building of the project beneficiaries, including rural youth and women. The training messages will cover all interventions and provide advice on poultry management, honeybee management, large and small ruminant management, forage development, animal health, milk handling, hygiene and basic milk processing at the farm level. The project will also strengthen building capacity of the Animal Production and Health Services at MoA to sustain and complete the process beyond the life of the project activities.

2 PROJECT OBJECTIVES

2.1 Overall objective

The aim of the proposed project is to urgently enable early recovery and immediate relief to the livelihoods of 1 500 vulnerable livestock keepers (one-third women-headed families) in the south of

Lebanon who were severely hit by the 2006 hostilities. An additional 2 000 farmers will draw indirect benefits from the project through training and veterinary services. The proposed project is therefore aiming to provide the bases for livestock keepers and farmers to resume production and income-generation activities after the war.

2.2 Specific objectives

- Initiate comprehensive emergency measures to support the war-affected livestock smallholders, mainly by restocking and distribution of animals (cattle, goats, sheep, draft animal power, chicks and beehives);
- assist war-affected livestock farmers to improve animal production through provision of supplementary livestock feeds and improved healthcare;
- assist a core group of leading women-headed households from war-affected villages with small equipment for milk handling, hygiene and basic milk processing in order to improve milk quality standards, reduce the work burden on the women and increase their income by gaining some added-value over the price of milk;
- strengthen capacity building of project beneficiaries, including rural youth and women, as well as extension staff from MoA, NGOs and other related entities;
- improve the competitiveness of the sub-sector and alleviate the increasing rural exodus by diversifying and improving farm income;
- organize farming communities in honey, milk, poultry, feeds and forage production and marketing;
- improve the food security, nutritional and economic status of low-income rural families while training farmers on health safety of consuming locally produced milk; and
- prevent and eradicate zoonotic and reproductive diseases.

3 PROJECT TARGET AREAS AND BENEFICIARIES

The project area covers the south of Lebanon where the most vulnerable livestock keepers are located, including a total of 1 500 households (1 500 direct beneficiaries) from 50 villages in southern Litani River (municipalities of Tyre, Bint Jbail, Marjayoun and Hasbaya) and in the northern Litani River areas (municipalities of Nabatiyeh, Iklim At Teffah, Jezzine and Saida). The project will give particular attention to the southern Litani River's villages that sustained heavy losses during the war and represent the most vulnerable households in these areas with highest levels of deprivation. Therefore, some 900 families along the Israel-Lebanese border zones will be part of the project beneficiaries (mainly from Khiam, Bint Jbail, Aytaroun, Aita Chaab, Ayta, Taiba, Addyssa, Rob Thlethine, Gandouria, Seddikine, Zebkine, Kleila, Marwahine, Majdel Selm, Tebnine, Ainata, Kfar Kila, Kfar Chouba, Froun, Maroun Erras, Dardghaya, Al Abassia, Hanawia, Srifa, Kana, Ermadia, Ouedi El Hjr, Aytit, El Bazouria and Ain Bâal villages).

The main project clients are those identified with direct physical damage and losses related to war-conflict among cattle, small ruminants, bees and poultry farmers – who are dependent on livestock production and remained in their farms. Therefore, in order to cover a maximum number of affected farmers, the project is not intending to go for full replacement of physical damage (livestock), only a partial early recovery strategy will be applied to allow generating the minimum conditions for livelihoods to gradually return to normalcy. The following direct beneficiaries are targeted:

- 400 families, including 100 women-headed households, who will receive partial dairy cattle restocking;
- 300 families, including 100 women-headed households, who will receive partial goat restocking;
- 75 leading women-headed households from 50 affected villages will be equipped with small units of equipment for milk handling, hygiene and basic milk processing at the home level;
- 70 farmers who will be supported with urgent partial recovery birds in order to restart activities;
- 25 farmers, including 10 women, who will be assisted to rebuild their livestock structures;
- 100 farmers who will be supplied with draft animal power and small equipment;
- 530 farmers, including 300 women headed-families, who will receive partial beehives restocking;
- all project beneficiaries, estimated at 1 500 farmers, including one-third of women headed-households, who will benefit from the veterinary interventions through the receipt of drugs and vaccinations; and
- about 1 000 livestock producers who will indirectly benefit from the improved veterinary services, also 1 000 farmers, extension people from MoA, NGOs and other related entities will benefit from training sessions and extension manuals and leaflets produced by the project.

4 PROJECT RESULTS

- improved livestock off-take in war-affected areas through restocking of 1 000 dairy pregnant heifers, 5 000 goats and 100 draft animal power provided for distribution to small-scale farmers;
- 2500 beehives distributed to 530 farmers contribute to diversifying income for marginalized farmers, especially to 300 women headed-families, strengthening their income capacities;
- improved animal production at the village and small-farm level through restocking, inputs and training, with good opportunities for employment and decrease in the need for internal/external migration;
- benefits to the animal production sub-sector will accrue through improved farm-management skills acquired through the project's training programme for 1 500 beneficiaries with increased government and NGO capacity to support small-scale farmers;
- improved food security related to the increased efficiency of livestock production 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;
- a core group of 75 active women-headed families equipped with 75 units of small equipment for milk handling, hygiene and basic milk processing, well trained to be able to provide leadership in dairy production and share their expertise and the developed package of technologies with other women;
- better public health status in southern rural areas as a result of improved access to high-quality dietary protein from good-quality pasteurised milk;

- 2 750 tonne of feed distributed to a total of 770 farmers restocked with heifers, goats and poultry, contributing to improving the feed balance affected by the war;
- up to US\$110 000 worth of veterinary remedies and vaccines procured and used to improve livestock health and veterinary services; and
- improved dairy breeding stock (both in terms of quality and availability) as a result of an artificial breeding programme (5 000 semen doses for artificial insemination or AI) and import of 500 “Chami” males for improving local “Baladi” breed.

5 PROJECT ACTIVITIES

As mentioned above, the war hit and weakened all livestock components. Therefore, it is preferred that war-affected poor farmers be supported to resume all existing animal production sub-sectors in the emergency restocking interventions, as detailed below. However, priorities need to be established in the event of funding of a smaller-size project. To allow for this, the traditional dairy cattle and goat sub-sectors should be considered of first priority due to their importance in food security, income generation and local rural economy of the project zone.

5.1 Emergency support to the dairy cattle sub-sector

Most of dairy farmers in the south of Lebanon are smallholders, keeping a small-size herd between 1 and 10 cows, generating their income revenue through milk and the traditional *laban* and *labneh*. The project will implement the urgent actions described below.

5.1.1 Dairy cattle redistribution/restocking

The project will provide the smallholders with technical assistance in the fields of milk hygiene and milk processing, general farm management, AI, forage production and animal nutrition. Proper milking, filtering, agitating and quick cooling of fresh milk to preserve quality will be emphasized. Through the project, 1 000 pregnant heifers (5–6 month pregnancy for partial restocking of lost dairy cows) will be purchased from the international market. It is proposed that the distribution to affected farmers be conducted using a coefficient according to the size of the adult dairy herd (only counting milking and dried-off cows as well as pregnant heifers at restocking time) as follows (while considering that herd size categories should be reviewed on the basis of the actual distribution among the targeted beneficiaries – through field assessment at project inception):

Dairy size at restocking time	Restocking rate of dead adult dairy cattle (only counting dead milking and dried-off cows as well as pregnant heifers)
More than 20 dairy cows	50 percent of dead cows will be replaced
Between 11 and 20 cows	75 percent of dead cows will be replaced
Between 6 and 10 cows	85 percent of dead cows will be replaced
Between 1 and 5 cows	100 percent of dead cows will be replaced

5.1.2 Provision of small equipment for milk handling, hygiene and basic milk processing at the farm level for women-headed households

The project will provide 50 leading women-headed households from 25 affected villages (two leading women per village) with 50 units of small equipment for milk handling, hygiene and basic milk processing (for details see list in Annex 7). The equipment will also be used by other needy women under the supervision of leader women. Women training on proper milking, filtering, agitating, and quick cooling of fresh milk to preserve quality will be emphasized.

5.1.3 Semen for artificial insemination

The project will reinforce artificial insemination service in south Lebanon, initiated by the FAO-TCP/LEB/2905 project (2003–2005) under which 12 young farmers from south Lebanon were trained on the AI technique and equipped with complete AI sets. The project will purchase 5 000 semen doses for artificial insemination (Friesian-Holstein).

5.1.4 Provision of feed concentrate and forage

The dairy feeding system in south Lebanon is based mainly on feed concentrate that small holders acquire from milk selling. Considering that their milk capacity was seriously weakened by the war, appropriate quantities of dairy feeds will be procured locally and distributed to beneficiary families receiving dairy cows. Around 400 targeted poor households will receive 5 kg feed concentrate per day as supplementary feeding for each received pregnant heifer during three months. Moreover, 1 000 tonne of roughage (barley/oat vetch and corn silage) will be distributed.

5.2 Emergency support to the goat sub-sector

A total of 500 resource-poor families from the southern mountainous affected areas, including 200 women-headed households, will receive partial restocking according to the size of their goat flocks as follows (while considering that herd size categories should be reviewed on the basis of the actual distribution among the targeted beneficiaries – through field assessment at project inception):

Adult goat flock at restocking time	Restocking rate of dead goats (kids not included)
More than 400 goats	25 percent of dead goats will be replaced
Between 250 and 400	50 percent of dead goats will be replaced
Between 150 and 250	75 percent of dead goats will be replaced
Less than 150	100 percent of dead goats will be replaced

Unexploded cluster munitions in pastoral areas threaten goats and goat-herds by reducing grazing areas, resulting in shortage of feed balance. Therefore, appropriate quantities of goat feed will be procured locally and distributed to beneficiary families receiving animals, calculated at 300 g feed supplement per day to each received goat during three months (for the winter cool and snowy season). The focus will be on women groups for provision of small equipment for milk handling, hygiene and basic milk processing at the farm level. Thus, the project will provide 25 leading women-headed households from 25 affected villages (different from those selected for dairy cattle) with 25 small milk-processing units for production of hygienically safe *laban*, *labneh* and goat cheese (see list in Annex 7).

5.3 Emergency support for poultry farmers in south Lebanon

The project will support 70 farmers in affected areas in south Lebanon with urgent partial recovery measures in order to restart activities. The project will provide them with a total 500 000 meat chicks (1-day old chicken) with subsequent feeds (2 kg feeds/broiler/cycle). Farmers from Kfour and Jabel Al Botm who completely lost their poultry houses and 33 000 broilers will be given priority in receiving chicks and feeds for three cycles of production, in case they succeed to build new poultry houses or secure other housing alternatives.

5.4 Emergency support to honey-beekeepers

The bee production sub-sector is a substantial source of supplementary income for poor farmers in south Lebanon, the regions that was severely hit by the conflict (bombardment, poisoning, fires and absence of feeding and watering care). The project will carry out distribution of 2 500 beehives that are entirely populated by honeybee strains to 1 000 families, including 200 rural young people who left education and 400 women-headed families. Each family will receive five beehives, that would serve as extending nurseries, since honeybees multiply very fast and therefore farmers will restore honey

production rapidly in year one. Farmers will be supplied also with small tools, such as manual centrifuge, to extract the honey, gloves and masks. The centrifuges will be placed with leading farmers and used by the village community.

5.5 Emergency support for treatment/control of animal diseases

Interruption of milking cows, ewes and absence of animal healthcare as a result of the war (rural exodus, shortage of manpower and discarded milk) enabled the outbreak of several diseases such as mastitis, which affected approximately 20 percent of the milking animals. Also, most of the national stocks, weakened by starvation and stress, are predisposed to prevalent parasites and diseases. The project will provide the Livestock and Animal Health Division of MoA with appropriate veterinary drugs and supplies to urgently set up a national campaign of vaccination, treatment and control of the major diseases such as mastitis, pneumonia, endo- and ecto-parasitism, Foot and Mouth Disease, Brucella, Enterotoxemia, Rinderpest, Newcastle disease and infectious bronchitis.

5.6 Emergency support to draft animals

About 100 resource-poor farmers, mainly from southern Litani River, have lost their draft animals (horses, mules, donkeys and cows of 'Baldi' Breed) which are considered their main tools for ploughing small acreage, often inaccessible to tractors. The project will provide these farmers with draft animals as well as with an equivalent number of metal ploughs and metal harrows.

5.7 Capacity building

The main purpose of the project is to provide the war-affected poor farmers with animals and some inputs to get back on their feet and to partially restore a minimum capacity of livestock-based income-generation. However, the project is taking this opportunity to bring about a sustainable improvement in the different components of animal production (dairy, goat, poultry and honeybee production) through the introduction of appropriate technologies and training of participating farmers. Considering the shortage of technical staff in MoA and in order for the interventions introduced by this project to become sustainable, it is essential that suitable training programmes for farmers and farmers' associations be developed side by side with the above main project activities. The impact of the project will be increased by focusing on at least 200 key farmers who are likely to become major agents for growth and extension in animal production. The project beneficiaries will attend the training sessions which will cover all interventions: poultry management, honeybee management, large- and small-ruminant management, forage development, animal health, milk handling, hygiene and basic milk-processing at the farm level. The project will put emphasis on strengthening capacity building of animal and health services within MoA to sustain and complete the initiated process beyond the lifetime of the project.

6 PROJECT INPUTS

Personnel Services (US\$318 000)

- FAO International Consultant will supervise the overall implementation of the proposed project interventions, and will act as livestock specialist conducting training on dairy cattle and goat management and on feed resources. S/he will be assigned to the project throughout its lifetime (12 person months at US\$15 000/month);
- Four international experts will provide professional/technical support in various components related to project activities. One External Monitoring and Evaluation Specialist (1 person month), one Animal Health Specialist (1 person month), one Agro-economist and Marketing Specialist (1 person month) and one Gender/Honeybee Specialist (1 person month) – all at US\$12 000/month);

- One National Project Coordinator who will be the counterpart of the International Coordinator, on a full-time basis (12 person months) at US\$2 500 /month;
- Six National Consultants for technical support covering the project components: Gender Specialist in extension and women-community mobilization (3 person months), Artificial Insemination Services and Dairy Cattle/Goat Management (12 person months), Milk Handling, Hygiene and Processing Specialist (4 person months); Animal Health Specialist (6 person months), Poultry Specialist (2 person months) and Honeybee Specialist (3 person months) at US\$2 000/month.

Contracts

- Up to US\$100 000 for contract services and construction, for rehabilitation of 25 animal sheds and transport of goods.

Locally Contracted Labour

- Up to US\$45 000 for hiring one secretary, one driver, one accountant for the Project Management Unit, casual labour and temporary assistance.

Travel

- Up to US\$96 000 for in-country travel, based on a lump-sum estimate

Training

- Up to US\$250 000 for in-service training, seminars and workshop training supplies (laptops, videos, digital camera, photocopy, stationery, production of posters, leaflets and manuals).

Expendable Equipment

- Up to US\$4 432 500 to cover the purchase of project supplies: feeds, forage, forage seeds, veterinary drugs, AI semen, pregnant heifers, goats, draft animal power, beehives (for details see list in Section 8), milk handling and processing equipment at the farm level for women communities (for details see Annex 7).

Non-expendable Equipment

- Up to US\$40 000 for the purchase of one 4WD double-cab pickup.

Technical Support Services

- Up to US\$103 952 for covering report costs (US\$5 000), evaluation (US\$55 000). and technical services (US\$4 952): technical backstopping by FAO technical staff members at the commencement of the project for 2 weeks, during implementation for 2 weeks and in the final months for 2 weeks (US\$39 000).

General Operating Expenses

- Up to US\$65 000 for office facilities and communication equipment, maintenance of office equipment and cars, office furniture.

Support Costs

- Up to **US\$545 045** for direct operating costs (10 percent of total budget)

7 PROJECT BUDGET

Account	Description	Total US\$
5013	Consultants	318 000
5542	International Consultant – Livestock	180 000
5542	Consultants – International	48 000
5543	Consultants – National	60 000
5545	Consultants – National Project Coordinator	30 000
5014	Contracts	100 000
5650	Contracts budget	100 000
5020	Locally Contracted Labour	45 000
5652	Casual Labour- Temporary Assistance	45 000
5021	Travel	96 000
5023	Training	250 000
5920	Training Budget	250 000
5024	Expendable Equipment	4 432 500
6000	Pregnant heifers	1 700 000
	Goats	850 000
	Chicks	225 000
	Honey Beehives	375 000
	Draft Animals	47 500
	Feeds	515 000
	Semen for Artificial Insemination	25 000
	Veterinary drugs and vaccines	110 000
	Small milk equipment for women	495 000
	Small equipment for honeybee	50 000
	Small equipment for draft animals	40 000
5025	Non-expendable Equipment	40 000
6100	1 4WD double cab pickup	40 000
5027	Technical Support Services	103 952
6116	Evaluation	55 000
6111	Report costs	5 000
6122	Standard Supervisory Technical Services	4 952
6121	Backstopping missions	39 000
5028	General Operating Expenses	65 000
6300	General Operating Expenses Budget	65 000
	Subtotal	5 450 452
5029	Support Costs	545 045
6118	Direct Operating Costs (10%)	545 045
	TOTAL BUDGET	5 995 497

8 BUDGET DESCRIPTION

Description	Unit	Unit Cost (US\$)	Total Cost (US\$)
Dairy Cattle			2,200,000
• Pregnant heifers	1,000 head	1,7000	1,700,000
• Feeds	450 tonne	200	90,000
• Forage	1000 tonne	80	80,000
• AI semen	5000	5	25,000
• Small equipment <i>milk handling, hygiene, basic milk processing</i>	50 Units ⁽¹⁾	5000	250,000
• Milking machine	25	1,000	25,000
• Milk cans (capacity 20 litre)	1000	30	30,000
Goats			1,085,000
• Local 'Baladi' breed	5,000 head	130	650,000
• Goat 'Chami' breed	500 males	400	200,000
• Feeds	300 tonne	150	45,000
• Small equipment <i>milk handling, hygiene, basic milk processing</i>	25 Units ⁽²⁾	7000	175,000
• Milk cans (capacity 20 litre)	500	30	15,000
Poultry			525,000
• Chicks	500,000 chicks	0.45	225,000
• Feeds	1000 tonne	300	300,000
Honeybees			425,000
• Beehives with strains	2,500	150	375,000
• Small equipment	-500 (gloves/masks) -100 centrifuges	- 20 US\$/unit - 400	10,000 40,000
Animal health			110,000
• Drugs, vaccines, antibiotics, chemicals			100,000
• Small tools such as kits and supplies <i>field and laboratory testing, cool boxes for storage, syringes, needle</i>			10,000
Draft Animals			87,500
• Horses	25 head	600	15,000
• Mules	25 head	400	10,000
• Donkeys	25 head	300	7,500
• 'Baladi' cows	25 pairs	600	15,000
• Metal ploughs	100	200	20,000
• Metal harrows	100	200	20,000
GRANT TOTAL			4,432,500

(1) and (2): For details see Annex 7.

9 WORK PLAN

Considering the emergency of the situation faced by livestock farmers in south Lebanon, the project will be implemented within the immediate 12-month period. While a rough work plan for the main activities to be undertaken is presented here, a more detailed work plan will be drawn up at the start of the project.

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Recruitment Livestock International Consultant, National Staff and Set-up the Project management Unit												
Preparation, identification of beneficiaries, ordering equipment and animals												
Provide initial training and workshops to beneficiaries												
Mobilization for distribution of feeds												
Mobilization for distribution of Animals												
Distribution of Vet drugs and vaccination												
Mission of the animal health consultant												
Mission of the of the Gender/honeybee Specialist												
Mission of the Agro-economist and marketing specialist												
Mission of the External Monitoring and Evaluation Specialist												
Backstopping Mission												
Training and workshops												
Monitoring												
Evaluation												
Reporting												

10 PROJECT IMPLEMENTATION ARRANGEMENTS

The project will have a Project Management Unit (PMU) to oversee the overall implementation of proposed project interventions, headed by an FAO International Livestock Consultant with experience in Lebanon, particularly in war-affected project areas. MoA will nominate a National Coordinator who will be the counterpart of the International Coordinator. The PMU shall be based in Nabatiyeh in south Lebanon, located in the Regional Office of MoA, so that it will effectively serve the project implementation in the war-affected zones. The PMU will coordinate and establish linkages, through 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. Under the Project Coordinator, will be two supporting services.

The technical services staffed by:

Gender specialist in extension and women-community mobilization (3 person months)
Milk Handling, Hygiene and Processing Specialist (4 person months);
Artificial Insemination Services and Dairy Cattle/Goat Management (12 person months)
Animal Health Specialist (6 person months)
Poultry Specialist (2 person months)
Honeybee Specialist (3 person months)

Plus four international experts:

External Monitoring and Evaluation Specialist (1 person month)
Animal Health Specialist (1 person month)
Agro-economist and Marketing Specialist (1 person month)
Gender/Honeybee Specialist (1 person month)

The administrative Services will be providing financial management and procurement functions, with recruitment of one secretary, one accountant and one driver.

Procurement arrangements and selection of beneficiaries

The procurement arrangements of live animals and related inputs will be based on FAO's Rules and Regulations. Procurement of civil works amounting to a total of US\$100 000 will be carried out via National Competitive Bidding (NCB); such contracts will be awarded for building/rehabilitation of 25 goat/dairy cattle housings for the most vulnerable farmers severely hit by the war with destruction of their assets. Contracts for the purchase of inputs will be awarded either under National Competitive Bidding when available on the local market (such as feeds) or under International Competitive Bidding for imported goods, such as veterinary drugs, pregnant heifer, goat "Chami" breed. Lebanese suppliers are sufficiently qualified and experienced to ensure import of large numbers of animals in a short time as they are used to importing yearly between 250 000 and 300 000 live animals (mainly beef cattle). Therefore, the most critical issue is to facilitate the procedure for procurement at FAO level while considering emergency actions.

Considering that in the present set-up the local government institutions are not in a position to provide for fair and efficient delivery mechanisms of emergency input assistance, in order to avoid impediments to the success of the proposed programme and to ensure that farmers are legitimately and correctly identified to receive project inputs, criteria will be developed in consultation with all partners involved, and village committees will be established to select beneficiaries and assist – together with cooperating NGOs – in the distribution of inputs.

The PMU will carefully supervise on-site distribution to all beneficiaries. NGOs and municipalities with good leadership, commitment to development, good transparency, and progressive community organizations will be extensively involved. In order to reduce distribution costs, the project will

consider where the input market is locally well established, the indirect distribution mechanism using the “coupon and trade fair” such as for feeds. The PMU will always check delivery on farm sites.

11 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 FAO International Livestock Consultant, who also function as senior livestock consultant, 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, 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.

12 REPORTING

At the inception of the project, the FAO International Livestock Consultant, in close consultation with the National Coordinator, will prepare a detailed work plan. The inception report will give an update on the impact of the war-affected farmers and confirm the validity of the proposed interventions. The report will also elaborate on the administrative/organization/technical issues at stake and identify implementing partners and relevant resource persons. Restocking, input distribution and training programmes will be elaborated and local sources of project inputs will be confirmed. The FAO International Livestock Consultant will also prepare quarterly reports and final report which describe project activities, main results and conclusions, constraints, expenditures by project component, impact on beneficiaries and recommendations for follow-up activities.

13 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

TERMS OF REFERENCE

Livestock International Consultant

Under the general supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the FAO Representative in Lebanon and the technical guidance of the relevant technical services at FAO headquarters and in collaboration with the designated national counterpart officer, the FAO Livestock International Consultant will carry out the following tasks:

- prepare a detailed work plan, on project activities, on national consultants' assignment and on budgets;
- identify necessary supplies and equipment as well as suppliers and recommend to FAO regarding their purchase;
- preparing tender dossiers and calls for proposals. Also draft contracts for supply of goods and services in conformity with FAO Standard Procedures;
- assist in identifying and organizing project beneficiaries and participants;
- supervise distribution of inputs, animals and equipment for project beneficiaries;
- conduct planning and overall coordination of all aspects of the project implementation at the Caza and villages level and ensure that each activity is harmonized with project interventions;
- prepare a detailed work plan for the National consultants and assist them for training sessions;
- assist with briefing and orientation of the international experts during their missions;
- design of training proposal and subject matter specialist for beneficiaries farmer groups and livestock extension staff;
- coordinate and participate to training sessions given by the National Consultants and international experts to project beneficiaries on the following topics related to project interventions: Poultry management, honeybee management, large and small ruminant management, forage development, animal health, milk handling, hygiene and basic milk processing at farm level;
- closely monitor project implementation and assess impact on beneficiaries and the community as a whole;
- carrying out training on dairy, forage crops, feed resources, animal feeding to farmers and extensionists with design demonstrations of feeding technologies based on local feedstuffs;
- organize seminars and workshops for Government officers, business people and farmers;
- inform the executing agency of any event, which might jeopardize the success of the project;
- prepare and submit reports: inception report, quarterly reports and final report to TCES describing project activities, main results and conclusions, constraints, expenditures by project component, impact on beneficiaries and recommendations for follow-up activities; and
- perform other related tasks as and when necessary.

Qualifications:

Advanced university degree (PhD) in animal production, with specialization in dairy management and feedstuffs, is required. The candidate should have at least 10 years of sound international professional experience in livestock development projects in developing countries. Work experience in Lebanon or other countries of the Middle East is highly desirable. Good experience with management and implementation of livestock projects funded by FAO is preferred. Excellent knowledge of English is essential and working knowledge of French and/or Arabic is desirable. Initiative, judgment, organizational ability and a good sense of teamwork and human relations are required.

DUTY STATION: NABATIYEH, SOUTH LEBANON

Duration: Twelve months

TERMS OF REFERENCE

International Consultant - Animal Health Specialist

Under the general supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the FAO Representative in Lebanon and the technical guidance of the relevant technical services at FAO headquarters and in collaboration with the Livestock International Consultant, the National Project Coordinator (NPC) and the Division of Animal Production and Health Services of MoA, the expert will undertake the following tasks:

- conduct visits to participating farmers in the main project localities and assess the needs for veterinary interventions;
- assess the level of expertise in animal health of local staff and design a training programme;
- assist in formulating strategy and priority, especially for emergency epidemic;
- assist in identification and specification of the veterinary inputs to be purchased by the project;
- establish a detailed work plan and monitoring procedures for operational implementation of vaccination and veterinary activities to the national Animal Health Specialist and the local staff of MoA;
- formulate a strategy and priorities, especially for emergency epidemic and animal health services;
- provide training to local staff and to project farmers on preventive and curative major animal diseases;
- establish procedures for operational control of disease;
- ensure that veterinary drugs, vaccines and equipment are properly managed and timely reaching project beneficiaries;
- conduct one day in-service training workshop in each Cazas during the first and the second mission;
- prepare and submit a project report after each mission to TCES describing project activities, results, impact, conclusions and recommendations; and
- perform other related tasks as and when necessary.

Qualifications:

The incumbent should have at least an advanced degree in veterinary medicine with at least ten years of appropriate and relevant field experience in a developing country. North Africa and Middle East experience is preferred. The incumbent should be familiar with implementation of similar animal health activities as described in the project, mainly with distribution of veterinary drugs, vaccination campaign and training. Excellent knowledge of English is essential and working knowledge of French and/or Arabic is desirable.

Duty station: Nabatiyeh, south Lebanon

Duration: One month in two missions (two weeks each, one at the beginning of the project and one at the arrival of the veterinary drugs and vaccines)

TERMS OF REFERENCE

International Consultant - Gender/Honeybee Specialist

Under the general supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the FAO Representative in Lebanon and the technical guidance of the relevant technical services at FAO headquarters and in collaboration with the FAO Livestock International Consultant, the NPC and the Division of Animal Production and Health Services of the MoA, the expert will undertake the following tasks:

- conduct visits to participating farmers in the main project localities and assess the needs for training components;
- establish a detailed work plan and monitoring procedures for operational implementation of honeybee activities;
- provide training to local staff and to project farmers, on particularly to women-headed families, on honey beehives handling and management;
- ensure that honey beehives, the small equipment are properly managed and timely reaching project beneficiaries;
- conduct one day in-service training workshop in each Cazas;
- produce a poster, leaflet and a manual on honey beehives management;
- prepare and submit a project report to TCES describing project activities, results, impact, conclusions and recommendations; and
- perform other related tasks as and when necessary.

Qualifications:

The incumbent should have an advanced degree in apiculture, specialized in management of Mediterranean beehives, handling and processing of beehive products. At least 10 years of experience in apiculture development in Mediterranean regions, experience with women groups is preferred. The incumbent should be familiar with implementation of similar honeybee activities as described in the proposed project, mainly with training of women groups. Excellent knowledge of English is essential and working knowledge of French and/or Arabic is desirable.

Duty station: Nabatiyeh, south Lebanon

Duration: One month in one mission

TERMS OF REFERENCE

International Consultant - External Monitoring and Evaluation Specialist

Under the general supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the FAO Representative in Lebanon and the technical guidance of the relevant technical services at FAO headquarters and in collaboration with the FAO Livestock International Consultant, the NPC and the Division of Animal Production and Health Services of the MoA, the expert will undertake the following tasks:

- conduct visits to participating farmers in the main project localities and assess existing information monitoring system and organization of the project programme;
- assess management information needs at various levels of implementation (dairy, goat, poultry, honey beehives and animal health activities);
- review and standardise M&Ev procedures and build an appropriate system;
- review capabilities of M&Ev staff and identify training needs;
- design M&Ev training programme for staff;
- organize strategic planning training workshop for the people related with the project activities;
- organize strategic planning for the programme's related project activities;
- evaluate all project activities, identify constraints and make recommendations;
- prepare and submit a project report, after each mission, to TCE describing project activities, results, impact, conclusions and recommendations; and
- perform other related tasks as and when necessary.

Qualifications:

The incumbent should have a post-graduate degree in management, with one of the following degrees: Agriculture, Economics or Sociology. S/he should have demonstrated skills in designing M&Ev systems for livestock rural projects and proven ability to assess all project components and to organize M&Ev training, as well as proven skills in Strategic Planning. At least 10 years of experience of evaluation and monitoring agriculture/livestock project activities in developing countries is needed. Excellent knowledge of English is essential and working knowledge of French and/or Arabic is desirable.

Duty station: Nabatiyeh, south Lebanon

Duration: One month in one mission

TERMS OF REFERENCE

Agro-economist/Marketing Specialist

Under the general supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the FAO Representative in Lebanon and the technical guidance of the relevant technical services at FAO headquarters and in collaboration with the FAO Livestock International Consultant, the NPC and the Division of Animal Production and Health Services of the MoA, the expert will undertake the following tasks:

- establish baseline parameters that may be used objectively to measure project impact over time;
- participate in the monitoring and evaluation of the project interventions;
- participate in the environmental monitoring of the programme, including the analysis of the project activities related to the livestock sub-sector in south Lebanon;
- evaluate the contribution of the livestock to the total farming system in the areas and the impact of the project actions;
- ensure that emergency project interventions are in line with the search for the sustainability of the livestock sub-sector in south Lebanon;
- define the best ways for improving the marketing of animal products and on how to get better added value from livestock products with the project beneficiaries;
- advance proposals for livestock intensification having regard to the economic and social parameters in south Lebanon;
- prepare and submit a project report to TCES describing project activities, results, impact, conclusions and recommendations; and
- perform other related tasks as and when necessary.

Qualifications:

The incumbent should have an advanced degree in agricultural economics or marketing, specialised in livestock analysis and marketing. At least 10 years of work experience in livestock development with smallholders farmers in developing countries, mainly in economic, analysis, policy, planning, marketing, monitoring and evaluation is needed. Excellent knowledge of English is essential and working knowledge of French and/or Arabic is desirable.

Duty station: Nabatiyeh, south Lebanon

Duration: One month in one mission

**Specification of milk handling and processing equipment at the farm level
for women communities**

Each unit for dairy cattle milk is composed of:

- 1 small-scale milk pasteurizer (gas heated, capacity 150 litre);
- 1 chilled water tank (capacity 250 litre);
- 1 horizontal refrigerator (capacity 400 litre); and
- 1 milk accessory set including a thermometer, an agitator and a milk filter.

Each unit for goat milk is composed of:

- 1 small-scale milk pasteurizer (gas heated, capacity. 150 litre);
- 1 chilled water tank (capacity. 250 litre);
- 1 horizontal refrigerator (capacity 400 litre);
- 1 milk accessory set including a thermometer, an agitator and a milk filter;
- 1 manual cheese press;
- 1 *Labneh* mixer (capacity 20 kg); and
- 1 kit of starter culture, haemophilic frozen powder, for milk fermentation and cheese making.



PROJECT PROPOSAL

Country: LEBANON

Project title: Emergency assistance for the early recovery of fishing communities

Project symbol: OSRO/LEB/.../...

Project duration: 9 months

Implementing agency: FAO in close cooperation with the Ministry of Agriculture

Budget: US\$1 344 750

PROJECT SUMMARY

The hostilities on Lebanon from 12 July to 14 August caused immeasurable destruction to the lives and livelihoods of the Lebanese people and to the infrastructure of Lebanon. The hostilities claimed over 1 100 civilian lives, left more than 4 000 injured and displaced up to a quarter of the population. The fishing community suffered enormously from the effects of the war, both directly as a result of hostile action and indirectly from loss of income caused by the conflict and its after-effects.

The most serious damage in the port of Ouzaii resulted in the loss of 328 boats with their gear, the auction hall, cafeteria and meeting rooms as well as the workshop and boatyard. Generous donor assistance has provided for some of the early recovery needs but not for the replacement of the buildings. The cooperative in Aabde sustained damage to the roof, walls and concrete surrounds. Targeting of the trout farms at Hermel in the Bekaa Valley caused losses of fish to 40 farmers with an estimated total of about 300 tonne of fish lost from the ponds.

An assessment mission fielded by the Food and Agriculture Organization (FAO) of the United Nations from September to October 2006, at the request of the Minister of Agriculture, made an evaluation of the direct and indirect losses as a result of the war and estimated the cost of early recovery needs to restart fishing activities. This proposed project is based on the report of that mission, which identifies how the Government of Lebanon has moved to provide immediate assistance for the fishing community to alleviate the indirect losses and secure livelihoods and how donors have generously contributed to cover some direct costs. Three areas still require further short-term assistance to meet the costs of their direct needs and it is in these locations that the project will work.

The overall objective of the project is, through the Ministry of Agriculture (MoA), to assist the fishing community to recover from the war by providing for their early recovery needs. The specific objectives are:

- in Ouzaii: to design and construct a modern fish landing and sales complex to replace that destroyed during the hostilities;
- in Aabde: to repair the damage to the cooperative auction hall and retail facilities; and
- in Hermel: to provide fish eggs and feed to enable the fish farmers to resume production.

The beneficiaries of this project are located in the three areas that suffered war damage. In Ouzaii and Aabde they are primarily fishers and their families, but with numerous secondary beneficiaries who are involved in fish marketing as well as in providing services to the fishing industry. In Hermel beneficiaries are fish farmers who lost their crops and livelihoods when their trout ponds were bombed. The total number of potential beneficiaries is around 10 000.

1 INTRODUCTION AND BACKGROUND

1.1 Background and context

The hostilities on Lebanon from 12 July to 14 August 2006 caused immeasurable destruction to the lives and livelihoods of the Lebanese people and to the infrastructure of Lebanon. The hostilities claimed over 1 100 civilian lives, left more than 4 000 wounded and displaced up to a quarter of the population. The scope and scale of the destruction were massive, ranging from direct loss of life to extensive damage to essential infrastructure, including hospitals, schools, roads and bridges. In addition, there was a severe shock to the country's economy, which was showing encouraging signs of recovery after earlier conflicts. The cost of addressing the full range of needs runs into billions of US dollars. The subsequent air and sea blockade, which was not lifted until 9 September, further extended the economic and social distress caused by the war; having a particularly heavy impact on the fishing community.

The fishing community suffered enormously from the effects of the war, both directly as a result of hostile action and indirectly from loss of income caused by the conflict and the after-effects. The direct losses were certainly relatively less than those experienced by the farming community and were scattered but had serious impacts where they happened. During the war and the naval blockade, fishers could not earn an income. Unfortunately, when fishing could be resumed, the public was resistant to consuming fish because of concerns about pollution by the massive oil spill that was also caused by hostile action. As a result, prices were extremely low for a period of time, causing further economic distress.

The most serious damage in the port of Ouzaii resulted in the loss of 328 boats with their gear, the auction hall, cafeteria and meeting rooms as well as the workshop and boat yard. The site has now been cleared with assistance from UNDP (US\$100 000) and the Government of Lebanon. The total damage is estimated at US\$3 million, of which the Government of the United Arab Emirates has already donated US\$1.8 million directly to the fishing community for rehabilitation. The balance of US\$1.1 million is required, particularly for rebuilding the infrastructure.

The cooperative in Aabde sustained damage to the roof, walls and concrete surrounds, but it appears that there is no structural damage. The costs of making the cooperative fully operational, including repairs to the roof and provision of a small ice plant, are estimated at about US\$30 000.

Targeting of the trout farms at Hermel in the Bekaa Valley caused losses of fish to 33 farmers, with an estimated total of about 300 tonne of fish lost from the ponds. This is a direct loss as the fingerlings and feed had been paid for and even if replaced there will be a lengthy period until the fish can be harvested. After the war the market was depressed and the restaurant trade on which many of the farmers with restaurants on their premises depend for their livelihood has been very much restricted. The losses are estimated at US\$900 000.

1.2 Rationale for FAO proposed assistance

An assessment mission fielded by the Food and Agriculture Organization (FAO) of the United Nations, at the request of the Minister of Agriculture (MoA), made an evaluation of the direct and indirect losses as a result of the war and estimated the cost of early recovery needs to restart fishing activities. This project is based on the report of that mission, which identifies how the Government of Lebanon has moved to provide immediate assistance for the fishing community to compensate for indirect losses and secure livelihoods, and how donors have generously contributed to cover some direct costs. Three areas still require further short-term assistance to meet the costs of their direct needs and it is in these locations that the project will work. FAO is well placed to take up this task because of its close relationship with the Department of Fisheries and Natural Resources of the MoA and its ongoing role in coordination of post-war rehabilitation.

The project will address the most urgent early recovery needs of the fisheries sector that have been identified but, as yet, not covered by donor support.

2 PROJECT OBJECTIVES

2.1 Overall objective

The overall objective of the project is to provide assistance, through the Ministry of Agriculture, to the fishing community in order to recover from the hostilities by providing for their early recovery needs.

2.2 Specific objectives

The specific objectives are:

- in Ouzaii: to design and construct a modern fish landing and sales complex to replace that destroyed by the war;
- in Aabde: to repair the damage to the cooperative auction hall and retail facilities; and
- in Hermel: to provide fish eggs and feed to enable the fish farmers to resume production.

3 PROJECT BENEFICIARIES AND TARGET AREAS

3.1 Direct beneficiaries

The beneficiaries of this project are those people directly or indirectly related to the three main areas that suffered war damage. In Ouzaii and Aabde, they are primarily fishers and their families but with numerous secondary beneficiaries who are involved in fish marketing as well as in providing services to the fishing industry. In Hermel, beneficiaries are fish farmers who lost their crops and livelihoods when their trout ponds were bombed.

The primary beneficiaries are all registered with MoA and can therefore be identified and certified. The number of fishers (including boat owners and three crew members per boat) number 1 452. Including their families, assuming an average family size with dependents and children of seven, the total is about 10 000. The cooperative system has accurate records of all the genuine fishers. In Hermel, the primary beneficiaries are the 40 fish farmers who lost their crops and their families, indicating 200 if their average family size is five.

3.2 Indirect beneficiaries

Secondary beneficiaries, i.e., those depending on the marine fishing industry for their income, together with their families, add at least another 1 500. Workers on the trout farms are also indirect beneficiaries. Their number is variable depending on the season but, including their dependents, are at least 1 000.

4 PROJECT RESULTS

4.1 Expected direct outputs by component

- Ouzaii: The first and critical outputs are the finalized architectural design, engineering drawings and tender documents for the building of a new fish landing and sales complex. This should include an auction hall, retail sales area, cooperative offices, meeting room, cafeteria, boatyard and mechanical workshop. The definitive output is the constructed buildings once a tender has been awarded;
- Aabde: Rehabilitated cooperative buildings (by repairs to the roof and other areas followed by purchase and installation of a 1 tonne/day flake ice machine in the premises); and
- Hermel: 40 affected fish farmers provided with the necessary inputs to recover successful production for their next fish crop.

4.2 Expected indirect outputs

The main indirect output is the increased level of commercial activity in the areas receiving assistance that contributes to improved livelihoods for the fishing community and for those engaged in ancillary activities.

5 PROJECT ACTIVITIES

Ouzaii:

- Selection of a national engineering and building consultant company with the capacity to prepare the design, engineering drawings, bills of quantity and tender documentation for a fish landing and sales complex on the available site in Ouzaii. The consultant will take into account the needs expressed by the fishers' cooperative and MoA; and
- evaluation of tenders and selection of the builder followed by supervisory oversight to authorize progress payments until the building has been completed and is accepted.

Aabde:

- Clarification of the administrative arrangements for the operation of the auction and retail sales operations of the cooperative through a meeting with the National Project Director (NPD), chaired by the MoA;
- estimation of works to be undertaken for the rehabilitation of the cooperative premises and selection of a national contractor to execute them; and
- preparation of technical specification of a 1 tonne/day ice plant followed by purchase installation.

Hermel:

- Through meetings between staff of the MoA Inland Fisheries Centre and the producers association, prepare a programme and timetable for technical implementation, including standards to be met; and
- ensure purchase of the requisite quantities of trout eggs and feed (for starters and growing). The eggs will be hatched at the MoA Centre and the fingerlings distributed according to the losses. Monitor survival and growth and distribute feed strictly according to progress to encourage good management.

6 PROJECT INPUTS

- Services of a National Project Coordinator (NPC) for 9 man months to be selected jointly with MoA;
- services of a National Project Officer from the Inland Fisheries Centre to supervise aquaculture activities and monitor feed distribution;
- in Ouzaii: national civil engineering consultants to design fish landing and sales complex;
- in Aabde: a 1 tonne/day flake ice plant;
- in Hermel: fish eggs (theoretical quantity for 300 tonne of 300 g fish is one million. Assuming 80 percent hatching yield and 10 percent subsequent loss implies 1.4–1.5 million eggs);
- in Hermel: feed sufficient for 300 tonne final product; good management should imply feed conversion of 1.2 thus a minimum of 360 tonne will be required; and
- technical backstopping will be provided by the FAO Fisheries Department as required for a maximum total period of 1 person month over several missions in various fields, particularly aquaculture and the hygienic operation of fish landing facilities.

7 PROJECT BUDGET

Account	Description	Total US\$
5013	Consultants	27 000
5543	Consultants – Locally recruited National Project Coordinator (NPC) – 9 person months at US\$2 500/m National Project Officer (NPO) – 9 person months, with salary supplement of US\$500/month	22 500 4 500
5014	Contracts	563 000
5571	Contracts – Services Inland Fisheries Centre – hatching and monitoring	25 000
5572	Contracts – Construction Lump sum contracts Civil engineer for Ouzaii Construction at Ouzaii Rehabilitation of Aabde	24 000 500 000 14 000
5020	Locally Contracted Labour	4 000
5652	Casual labour/Temporary assistance Inland Fisheries Centre – monitoring of hatching	4 000
5021	Travel	16 000
5661	Duty Travel	
5693	Travel – STS Max 4 technical backstopping missions by FI staff	16 000
5024	Expendable Equipment	527 000
5024	Expendable equipment	
5934	Fish feed, 60 tonne starter feed, 300 tonne grower feed	450 000
5936	Fish eggs 1 500 000	75 000
5938	Medical and veterinary supplies Disinfection of hatchery and eggs	2 000
5025	Non-expendable Equipment	15 000
6012	Other non-expendable equipment – Contract for purchase 1 tonne/day ice plant for Aabde	15 000
5027	Technical Support Services	50 500
6111	Report costs	5 000
6116	Evaluation	15 000
6120	Technical Services STS from Fisheries Department for technical backstopping 1 person month	30 500
5028	General Operating Expenses	20 000
6177	Other operating costs	20 000
	SUBTOTAL	1 222 500
5029	Support Costs	122 250
6118	Direct Operating Costs (10% of Net Budget)	122 250
	TOTAL BUDGET	1 344 750

8 BUDGET DESCRIPTION

5543: A National Project Director (NPC) will be appointed for the duration of the project in consultation with the MoA; a national project officer from the Inland Fisheries Centre will receive a salary supplement to assist with implementation and monitoring of the activity in Hermel.

5571: In order to ensure that the eggs are hatched satisfactorily and the feed is stored, monitored and distributed efficiently the Inland Fisheries Centre will have sufficient funds made available through a contract.

5572: Ouzaii – A civil engineering consultant company will prepare the design, technical specifications and tender documents for the construction of the fish landing and sales complex; Ouzaii – Funds for construction of the complex; Aabde – Contracts for the rehabilitation of the cooperative premises.

5562: Casual labour for the labour intensive period of hatching eggs, cleaning, etc.

5693: There will be a maximum of four visits of FI backstopping staff from the required technical backgrounds.

5934: Specifications for trout starter and growers feed to be supplied are in the Annex.

5936: Specification of trout eggs is in the Annex.

5938: Veterinary preparations required are specified in the Annex.

5027: Specification for the 1 tonne/day ice plant is in the Annex.

6111: Reporting costs as per FAO standards.

6116: A lump sum is included for the post-project impact assessment. This would be significantly reduced if the job was undertaken by a national consultant.

6120: STS reimbursement to FI at standard rates.

9 WORK PLAN

Activities	1	2	3	4	5	6	7	8	9
Recruitment of NPC	X								
Selection of civil engineering consultant	XX								
Tender for Ouzaii		X	X						
Building Ouzaii				X	X	X	X	X	
Aabde clarification cooperative admin. Arrangements	XX X								
Selection contractor and implementation of work		XX	X	X					
Purchase and installation of ice plant				X	X	XX			
Organization of facilities in Inland Fisheries Centre	XX	X							
Preparation implementation schedule	XX								
Purchase of eggs and feed		X	X						
Hatching distribution and feed supply				X	X	X	X	X	X
Monitoring growth				X	X	X	X	X	X
Post-project impact evaluation									X

10 PROJECT IMPLEMENTATION ARRANGEMENTS

The project will be implemented by MoA, under FAO arrangements for national execution, and under the overall responsibility of the FAO Representative and the immediate supervision of the Special Emergency Programmes Service (TCES) Emergency Coordinator.

11 MONITORING AND EVALUATION

A post-project impact evaluation will be carried out at the end of the project.

12 REPORTING

Concise monthly updates will be prepared describing project activities, implementing partners' involvement and main constraints faced. A final report will be prepared towards the end of the project by the NPD in the format required by the donor, including achievements and results, main conclusions and recommendations for follow-up work. This final report will be submitted to FAO headquarters for approval and forwarding to the donor.

13 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

The general provisions are detailed in Annex 1.

General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a Government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;

- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

TERMS OF REFERENCE**National Project Coordinator**

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the TCES Emergency Coordinator, the general supervision of the FAO Representative in Lebanon, the technical guidance of the relevant FAO technical divisions at FAO headquarters and in close cooperation with the relevant government authorities, the incumbent will be responsible for project implementation and coordination of project activities, including planning, monitoring and evaluation. In particular s/he will undertake the following duties:

- be responsible for the technical management and day-to-day supervision of the project;
- ensure and maintain good working relationships with other UN agencies, donors, NGOs and local bodies in the field of work;
- establish and maintain good communication with project beneficiaries through contacts with fishers' cooperatives and producer associations;
- prepare submissions for progress payments for project activities and advise the TCES Emergency Coordinator or FAO Representative of any issues arising before signature;
- prepare the monthly and final project reports;
- carry out other related duties as requested by the Emergency Coordinator and FAO Representative.

Qualifications: A higher degree in agriculture, fisheries or a closely related field and at least ten years of progressively responsible relevant experience.

Location: Beirut, Lebanon with travel to project activity sites in Aabde and Hermel.

Duration: 9 months.

TERMS OF REFERENCE**National Project Officer**

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), the direct supervision of the National Project Director, the general supervision of the FAO Representative in Lebanon, the technical guidance of the relevant FAO technical divisions at FAO headquarters and in close cooperation with the relevant government authorities, the incumbent will be responsible for project implementation and coordination of the aquaculture component of the project. In particular s/he will undertake the following duties:

- ensuring that aquaculture inputs are correctly delivered and stored;
- supervising hatching of eggs and fingerling production;
- distribution of fingerlings to beneficiary farmers;
- supervision of on-farm management practices and survival of young fish;
- arranging of feed distribution in relation to survival;
- preparation of a report of activities, including evaluation of the performance of each beneficiary.
- carry out other related duties as requested by the Emergency Coordinator and NPD.

Qualifications: A university degree in aquaculture or a related subject and at least five years experience.

Location: Anjar with frequent travel to the project site in Hermel.

Duration: 9 months.

TECHNICAL SPECIFICATIONS FOR EXPENDABLE EQUIPMENTFish feed:**Starter feed:**

Crude protein: 46-54%
 Crude fat: 16% - 20%
 Crude fibre: $\approx 1\%$ (0.8-1.4%)
 Ash: 10% (max)
 Moisture: 9% (max)
 Ca: 2% (max)
 P: 1-1.6%
 Vitamin A : 20,000 IU/kg
 Vitamin D3: 3,000 IU/kg
 Vitamin E : 400 IU/kg
 Feed size: 1.2 mm pellet

Grower feed:

Crude protein: 40- 45%
 Crude fat: 28- 30%
 Crude fibre: $\approx 1\%$ (0.8-1.8%)
 Ash: 9% (max)
 Moisture: 7% (max)
 Ca: 2%(max)
 P: $\approx 1\%$
 Vitamin A : 3,000 IU/kg
 Vitamin D3 : 3,000 IU/kg
 Vitamin E : 200 IU/kg
 Feed size:
 25% 2.5 mm pellet
 25% 5.0 mm pellet
 25% 7.5 mm pellet
 25% 10.0 mm pellet

All feed to be supplied FOB Beirut, Lebanon

Trout eggs:

Certified and disease free eyed eggs of rainbow trout, guaranteed 90% survival to swim up stage.
 Suitably packed and delivered FOB Beirut, Lebanon.

Veterinary preparations:

Standard preparations for sanitizing hatchery and for the treatment of eggs and fingerlings.

SPECIFICATION FOR NON-EXPENDABLE EQUIPMENT

1t/day self-contained flake ice machine to operate at ambient temperatures of up to 30 degrees Celsius and water inlet temperature of 20 degrees. Fresh water cooled condenser, hermetic compressor R404a, electrical control panel with protection, operating at 230v 50 Hz.

Acceptance to be based on minimum production of 900 kg in a 24 hour operating cycle

Shipping: FOB Beirut, Lebanon



PROJECT PROPOSAL

Country: LEBANON

Project title: Post-war Forest Cover Damage Assessment Study (satellite imagery)

Project symbol: OSRO/LEB/.../...

Project Duration: 3 months

Implementing agency: FAO in collaboration with the Ministry of Agriculture (Rural Development and Natural Resources Directorate)

Project budget: US\$106 674

PROJECT SUMMARY

The armed conflict and the siege that occurred during the summer of 2006 have resulted in direct and indirect damage to the forests and other wooded lands in several areas of Lebanon. Direct damage ranged from tree cutting and removal by military actions to direct shelling by phosphorous burning bombs. Indirect damage was due mostly to forest fires that spread because of the impossibility of extinguishing them during and post war – mainly due to the imposed air blockade and partial destruction of fire-fighting equipment. As post-war satellite images have not yet been analysed, no exact figures on forest-cover damage are available in order to elaborate the details of a possible forest recovery programme. No quantitative assessment of the burned surface area, type of burned species and environmental and socio-economic impact has yet been carried out. However, for the time being, the total burned area was roughly estimated by the Ministry of Agriculture (MoA) as follows: more than 100 ha of forests in Mount Lebanon were burned during the war and more than 900 ha directly after the war. In south Lebanon, more than 800 ha of forests and other wooded lands were burned during the war.

The project proposes to compare the existing pre-war satellite images, maps and studies related to forests and other wooded lands with new post-war images in order to assess the direct and indirect damage caused by the war and post-war consequences. The project also proposes to undertake a rapid socio-economic analysis in order to better understand the losses caused to the local community groups in the affected areas.

The overall objective of the assistance is to help Lebanon recover from the hostilities that occurred in summer 2006, especially the forestry-dependent vulnerable groups whose sustainable livelihoods were severely affected. The specific objectives of the proposed project will be to:

1. assess, from satellite images, the exact locations and extent of forest and other wooded land burned or affected by the hostilities;
2. assess, through field surveys, the magnitude of the damage and its environmental and socio-economic impact on the locations and local communities; and
3. propose site-specific mitigation efforts.

1 INTRODUCTION

1.1 Background and context

The forests cover 136 500 ha, while the ‘other wood lands’ (OWL) extend over about 106 000 ha, or 13 and 10 percent of the surface area of the country, respectively. Other lands with trees (including fruit and olive trees) cover a surface of 113 000 ha or 11 percent of the country. Coniferous forests extend over an area of 43 936 ha, broadleaved forests 77 230 ha and mixed forests 15 282 ha.

The armed conflict and the siege that occurred during the summer of 2006 have resulted in direct and indirect damage to the forests and other wooded lands in several areas of Lebanon. Direct damage ranged from tree cutting and removal by military actions to direct shelling by phosphorous burning bombs. Indirect damage was due mostly to forest fires that spread because of the impossibility of extinguishing them during and post war – mainly due to the imposed air blockade and partial destruction of fire-fighting equipment. As post-war satellite images have not yet been analysed, no exact figures on forest cover damage are available in order to elaborate the details of a possible forest recovery programme. No quantitative assessment of the burned surface area, type of burned species and environmental and socio-economic impact has yet been carried out. However, for the time being, the total burned area was roughly estimated by the Ministry of Agriculture (MoA) as follows: more than 100 ha of forests in Mount Lebanon were burned during the war and more than 900 ha after the war. In south Lebanon, more than 800 ha of forests and other wooded lands were burned during the war.

The magnitude of the damage differs from one site to another: stone pine (*Pinus pinea*) forests are located on sandstone soils, and are unable to regenerate. In such cases, the impact on the environment is severe, and leads to rapid soil erosion, if the original forest formation (i.e., prior to the stone pine plantation) does not regenerate or is not allowed to, and if reforestation is not undertaken. Brutia pines (*P. brutia*) will rapidly regenerate after a fire, although soil is subject to degradation and erosion. Broadleaved forests and other wooded lands will regenerate if the fire is not totally destructive, but in some cases, regeneration is difficult in some stands, due to subsoil fires, land degradation and soil erosion. In some cases, fodder species and grass would regenerate quickly after fire, but any grazing would negatively affect the regeneration of the original vegetation cover. The reconstitution of the latter will take several years, which makes the losses of benefits from certain products and services (e.g., pine nuts, fuel wood, charcoal, honey and ecotourism) persist for a long period of time. Furthermore, shepherds may start grazing in burned areas which might jeopardize the regeneration process of the original vegetation cover.

From the socio-economic point of view, fires and the presence of thousands of unexploded cluster munitions scattered over forest areas, presently undermine the disposal of most of the wood and non-wood products and services that are usually retrieved from forests and other wooded land: charcoal, fuel wood, stone pine nuts, honey, carob pods, medicinal and edible plants, fodder, grazing, hunting and ecotourism activities.

The project proposes to compare the existing pre-war satellite images, maps and studies related to forests and other wooded lands with new post-war images in order to assess the direct and indirect damage caused by the war and post-war consequences. The project also proposes to undertake a rapid socio-economic analysis in order to better understand the losses caused to the local community groups in the affected areas.

MoA is mandated to manage all communal and state lands, along with the concerned municipalities. Furthermore, the Ministry is responsible for all legal aspects related to forest management, range management and tree-cutting licenses. MoA is also responsible for law enforcement through forest guards that are located in all cazas (municipalities). The Civil Defence and the Lebanese army are the major actors in forest fire-fighting. In addition, MoA forest guards are equipped with cars and small material for immediate intervention. Some municipalities and NGOs have an important role in reducing fire extension and extinguishing starting fires.

1.2 Rationale for FAO proposed assistance

After the end of the hostilities, MoA undertook an assessment of the losses that occurred to the agricultural sector. However, the forestry sector was not covered and no accurate data exists on the extent of the damage. Such data is required to estimate the needs for emergency assistance in order to help the most vulnerable affected population groups recover and the affected forests and OWL regenerate, and provide related products and services. With the assistance of the Food and Agriculture Organization (FAO) of the United Nations through a technical cooperation project, the National Forest and Tree Inventory and Assessment of Lebanon (TCP/LEB/2903), Lebanon has just finished the first forest and tree resources inventory. A previous inventory was taken in the 1960s; however, it was based on outdated definitions and standards, and was never updated. All data and figures presented in earlier documents and reports were based on observations that underestimated the real dimensions of the assessed context. The forest cover data currently in use are therefore those obtained through TCP/LEB/2903, recalibrated to meet the UN surface area of Lebanon. A derived forest map was also generated from satellite imagery and was consistent with the field results. A team from MoA was trained on the assessment and mapping techniques.

2 PROJECT OBJECTIVES

2.1 Overall objective

The overall objective of the assistance is to help Lebanon recover from the hostilities that occurred in summer 2006, especially the forestry-dependent vulnerable groups whose sustainable livelihoods were severely affected.

2.2 Specific objectives

The specific objectives of this project are to:

- assess, from satellite images, the exact locations and extent of forest and other wooded land burned or affected by the hostilities;
- assess, through field surveys, the magnitude of the damage and its environmental and socio-economic impact on the locations and local communities;
- propose site-specific mitigation efforts; and
- carry out a rapid assessment of the damage caused to the infrastructure of the forestry sector (nurseries, forest roads, buildings, etc.), institutions (disruption of the institutional set-up and its impact on the management of the sector and on the forest-dependent populations) and forestry personnel.

3 PROJECT BENEFICIARIES AND TARGET AREAS

The direct beneficiary of the assistance is the Rural Development and Natural Resources Directorate of MoA. It will strengthen capacity building of the national experts and provide them with the necessary equipment and tools. The outcome of the project will allow for the identification of the necessary assistance to the rural poor and forest-dependent communities at the country level. A total of 5 000 families in south Lebanon using wood and non-wood forest products and services could potentially benefit directly or indirectly from such an emergency forestry project to be formulated based on the results of the proposed forest damage assessment.

4 PROJECT RESULTS

4.1 Expected direct outputs by component

The expected outputs of this assistance will be:

- i) forest and OWL burned areas, their location and vegetation type are estimated from satellite images;
- ii) the magnitude of the damage and its environmental and social economic impact on the site and forestry-dependent communities are assessed;
- iii) site-specific mitigation efforts are proposed; and
- iv) damage to forestry infrastructure and institutions is quantified.

4.2 Expected indirect outputs/benefits by component

The MoA team and national experts have further capacity building in mapping and GIS techniques, as well as socio-economical analysis.

5 PROJECT ACTIVITIES

- the project team reviews the existing satellite images, maps and studies related to forest and other wooded land;
- the necessary satellite images, hardware and software are purchased for remote sensing and image interpretation;
- the project team generates a map of forest and OWL damaged sites, including the damaged surface, kind of damage and vegetation cover at site scale;
- the field team carries out photo interpretation of the satellite images;
- the project team prepares a field questionnaire;
- the project team undertakes a field survey on affected sites to check image interpretation estimates of losses and the eventual regeneration and assesses the socio-economical impact;
- assessment through direct comparison of satellite images acquired at different dates;
- the project team carries out a rapid assessment of the damage caused to forestry infrastructure, forestry administration, stakeholders' organizations and their operational capacity;
- the project team undertakes the necessary amendments and finalizes the map and results;
- the project team produces a final report including environmental and socio-economic assessments as well as a proposal for site-specific mitigation efforts; and
- the project team disseminates the results and final report to concerned stakeholders (including international organizations, local NGOs, the scientific community, local authorities of affected areas and interested donors).

6 PROJECT INPUTS

Description	Specifications	Unit cost (US\$)	No.	Total cost (US\$)
Hardware	Desktop computers	1 500	2	3 000
	A3 printers	200	1	200
	A4 laser printer	200	1	200
Software	ArcGIS (9.1 version)	1 600	1	1 600
Satellite imagery	*	47 000	1	47 000
Miscellaneous	Stationery, field accessories	lump sum	-	1 000
Total				53 000

* Satellite imagery: satellite images covering all Lebanese territory with a resolution not less than 5m dated after 15 September 2006.

Local transportation and fuel cost: to be provided by MoA.

7 PROJECT BUDGET

Account	Description	Total US\$
5013	Consultants	15 000
5543	Forestry national consultant (90 man days)	9 000
	GIS national consultant (60 man days)	6 000
5014	Contracts (<i>socio-economic impact study</i>)	2 000
5020	Locally Contracted Labour	4 500
5652	Field surveyors (90 man/day)	4 500
5021	Travel	6 000
5661	Duty travel	6 000
5024	Expendable Procurement	53 000
5024	Other expendable equipment	53 000
5027	Technical Support Services	8 676
6111	Report costs	5 000
6120	Technical services	2 476
6116	Evaluation	1 200
5028	General Operating Expenses	7 800
5029	Support Costs	9 698
6118	Direct Operating Costs (10%)	9 698
Total		106 674

8 WORK PLAN

8.1 Project timeframe

The expected timeframe for the project will be three months, starting from December 2006.

8.2 Work plan chart by activity and month

Activities	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Assignment of MoA team and recruitment of national experts														
Input purchasing														
Image processing/interpretation														
Material (maps/questionnaire) preparation for field survey														
Field survey														
Maps amended and produced														
Socio-economic analysis														
Site-specific mitigation efforts proposed														
Preparation of final report														
Dissemination of results to concerned stakeholders (workshop and deliverable material)														

9 GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

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. The government will provide office accommodation and 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.

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 - i) the prompt issuance, free of charge, of any visas or permits required;
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 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;

- vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;
- vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;
- viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

TERMS OF REFERENCE**National Consultant - Programme Coordinator**

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), technical backstopping by the Forestry Division at FAO headquarters, and in close collaboration with the national project staff and the FAO Representative in the country, the national programme coordinator will be responsible for coordinating project activities, including planning, monitoring, and evaluation. In particular, the consultant will undertake the following duties:

- be responsible for technical management, implementation and day-to-day supervision of the project;
- review current project operations and organization, including the field programme, and advise on and implement suitable changes in close collaboration with the directorate of Rural Development and Natural Resources in the MOA;
- analyse the collected data from field survey and from the satellite image processing;
- identify site-specific mitigation efforts;
- prepare monthly and end of project reports in accordance with FAO and donor requirements; and
- perform other related tasks as and when necessary.

Qualifications: Forestry or agriculture engineer with a minimum experience of 7 years in forestry and/or in related fields to forestry, rural development and natural resources management.

Location: Beirut, Lebanon.

Duration: 3 months.

TERMS OF REFERENCE**GIS National Consultant**

Under the overall supervision of the Chief, Special Emergency Programmes Service (TCES), technical backstopping by the Forestry Division at FAO headquarters, direct supervision of the National Programme Coordinator, and in close collaboration with the FAO Representative in the country, the incumbent will be responsible for:

- work in close collaboration with the national consultant and provide inputs for elaboration of the training program for the personnel involved in satellite imagery interpretation and mapping;
- participate in implementing the training program in connection with the remote sensing component for the production of the burned forest map;
- assist the directorate of Rural Development and Natural Resources in purchasing, installing and using the equipment and supplies planned for the project;
- work in close collaboration with the national consultant, prepare a work plan of the mapping activities and identify timely inputs from the project and the Government;
- interpretation of the satellite images and map production;
- report on mapping results; and
- perform other related tasks as and when necessary.

Qualifications: Agriculture engineer with a minimum experience of 7 years in GIS and remote sensing.

Location: Beirut, Lebanon.

Duration: 2 months.

