

ANNEX I

**ECONOMIC VALORIZATION OF OLIVE GENETIC RESOURCES
CREATION OF *PILOT* DEMONSTRATION NURSERIES CENTRES
(QUALITY ENHANCEMENT THROUGH NURSERIES
DEVELOPMENT)**

**Project Proposal
To be submitted to the Common Fund for Commodities**

Through

The International Olive Oil Council

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TABLE OF CONTENTS

<i>Abbreviations and Acronyms</i>	3
<i>Logical Framework</i>	4
<i>Project Summary</i>	5
<i>Previous Support to the Commodity</i>	7

<i>I. INTRODUCTION</i>	
<i>A. Overview of the Commodity</i>	8
<i>B. Project Background</i>	12
<i>C. The Consistency of the Proposed Project with the IOOC Development Strategy</i>	15

<i>II. PROJECT DESCRIPTION</i>	
<i>A. Project Rationale</i>	17
<i>B. Central objective</i>	17
<i>C. Description of Project Components</i>	17
<i>D. Benefits and Beneficiaries</i>	46
<i>E. Project Costs and Financing</i>	66
<i>F. Financial Arrangements, Procurement Disbursement, Accounts and Audit</i>	66
<i>G. Organization and Management</i>	67
<i>H. Project Monitoring and Evaluation, Reporting and Supervision</i>	71
<i>I. Risks</i>	72

ANNEXES

Annex I Summary Cost Tables

<i>Table 1</i>	<i>Summary Cost Table by Component</i>
<i>Table 2</i>	<i>Summary Project Cost by Component and Year</i>
<i>Table 3</i>	<i>Summary Project Cost by Category of Expenditure</i>
<i>Table 4</i>	<i>Detailed Project Cost by category CFC and Counterpart contributions</i>
<i>Table 5</i>	<i>Summary Project Cost by Category of Expenditure</i>
<i>Table 6</i>	<i>Summary Financing Plan by Component and Source</i>

<i>Annex I</i>	<i>Expost evaluation collezione internazionale di Marrakech</i>
<i>Annex II</i>	<i>List of cultivars RESGEN Project</i>

ABBREVIATIONS AND ACRONYMS

CFC Common Fund for Commodities

IOOC International Olive Oil Council

ICB International Commodity Body

PNC Pilot Nursery Centre

PEA Project Executing Agency

SB Supervisory Body

LOGICALFRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Goal To develop pilot nursery centres (PNCs) to enhance the quality of olive plants and increase the range of options in terms of more efficient and adapted varieties with the ultimate goal of increasing farmer income from olives.</p>	<p>Establishment of modern and innovative nursery centres capable of supplying high quality, healthy olive plants. Widespread utilisation by farmers in the target countries of autochthonous olive genetic resources suited to the specific climate and soil proprieties and improved knowledge of their potentialities.</p>	<p>Periodic reports and on-site visits to assess the adequate operation in the nursery centres and the effective propagation and use of adapted olive genetic resources.</p>	<p>Availability of autochthonous varieties adapted to specific environments in the target countries.</p>
<p>Project Purpose To develop PNCs to enhance the annual production of prime quality olive propagation material. Compliance with specific standards will provide farmers with guaranteed top quality, high yielding, healthy olive plants.</p>	<p>Increased production and dissemination of local varieties which, owing to their adaptability and resistance in certain environments, guarantee a mark of distinctiveness and provide the opportunity for rural families to increase their income.</p>	<p>PNC production data. Compliance with standardised procedures about quality olive plant production. Farmers production and yield data.</p>	<p>Demand for olive plants in the target countries. Implementation of national olive growing programmes in the target countries.</p>
<p>Outputs</p> <p>(a) Demonstration of modern innovative propagation techniques and facilities for the production of high quality olive plants.</p> <p>(b) Supply of olive trees complying with quality and genetic standards.</p> <p>(c) Awareness of the potentialities of local olive genetic resources; training in modern nursery techniques for technicians and managers.</p> <p>(d) Sound management of project activities; project monitoring, supervision and technology dissemination.</p>	<p>(a) Establishment of modern and innovative nurseries with a minimum production capacity of 25 000 plants/year for each country, with trained managers and operators capable of disseminating modern technology in plant nursery production.</p> <p>(b) Production of a minimum of 25,000 plants/year for each country for the production period (project years 2, 3 and 4). Selected autochthonous olive genetic resources will be used as plant material.</p> <p>(c) Preparation of training and demonstration programme for intensive nursery management and exposure to modern and innovative olive propagation techniques for extension officers, technicians, olive producers and other stakeholders.</p> <p>(d) Evidence of the attainment of project objectives, technology dissemination workshop, and various technical reports.</p>	<p>(a) Installation and operation of the nursery. Inspection of the nursery site.</p> <p>(b) Nursery production data and project progress reports.</p> <p>(c) Training of at least 50 olive producers and over 75 technicians. Key stakeholders informed.</p> <p>(d) Availability of project documentation, reports and publications.</p>	<p>(a) Sufficient local interest in establishing the nursery and growing demand for olive plants. Agreement by the country to defray civil works costs.</p> <p>(b) Nurseries obtain the required inputs and are managed efficiently.</p> <p>(c) Supporting investment climate in the target country.</p> <p>(d) Support services receive allocated resources and are operated efficiently. Resources and staff are made available and used efficiently.</p>
<p>Inputs: Activities and Required Resources</p> <ul style="list-style-type: none"> - Preparation of the definitive executory programme for the installation of the PNC. Acquisition and preparation of nursery site. Recruitment of manager and operators. - Development of production programme. Data collection, analysis and storage. Monthly performance report by manager to PEA. - Trials and tests of the nursery, once set up, and training of managers, operators, extension officers and olive producers in the application of modern propagation techniques and intensive management of olive orchards. - Preparation and distribution of technical and training manuals. 	<p>Level of Effort/ Expenditure for each activity</p> <p>Component 1. Establishment of Pilot Nursery Centres: USD 684 000</p> <p>Component 2. Pilot Production of High Quality Olive Plants: USD 446 000</p> <p>Component 3. Training and Dissemination: USD 370 000</p> <p>Component 4. Project Monitoring and Supervision: USD 180 000</p> <p>Contingencies : USD 20 000</p>	<p>PNC trials.</p> <p>Periodic reports and on-site visits to assess progress in implementation.</p> <p>PEA project progress report Annual audit reports.</p> <p>Participation in closing workshop.</p>	<p>Financing from all sources is provided on a timely basis in line with proposed activities and the annual work plan/budget.</p> <p>The PEA (Project Executing Agency), National Management Unit and Collaborating Institution and producer groups coordinate and execute the project efficiently and effectively.</p>

PROJECT SUMMARY

1. Project Title: Phase II of Project CFC/IOOC/03
Economic Valorization of Olive Genetic Resources
Creation of *Pilot* Demonstration Nurseries Centres
(Quality Enhancement through Nurseries Development)
2. Duration: Forty eight months.
3. Location: Algeria, Egypt, Morocco, Tunisia.
4. Nature of Project: The identification and characterization of genetic resources in olive has built up a strategic body of know-how that is of great value in boosting the olive sector. The choice among plant varieties is a decisive factor for farmers in terms of achieving a better quality, distinctive product. Supplying olive plants that comply with optimal varietal and phytosanitary standards is the best way to provide farmers with the assurance of a high quality, high yielding and healthy (pest free/resistant) olive plants.
5. Brief description: The objective of this project, considered to be phase II of the *Project for the Conservation, Characterization, Collection and Utilization of Genetic Resources in Olive*, is to develop pilot nursery centres under the supervision of research authorities in each participating country to enhance the annual production of prime-quality olive propagation material. The varieties identified as the best varieties adapted to specific environments, climates and soil proprieties will be propagated and disseminated to farmers with the ultimate goal of increasing their income from olive growing. The establishment of modern and innovative pilot nurseries centres will be a model of excellence in its own right and will support the implementation of national olive growing development plans. In addition, the investment in human resources capabilities through coordinated training programmes will strengthen the technical ability of local personnel, so helping to develop the olive sector as a whole. The proposed project will include the following main components: (i) establishment of Pilot Nursery Centres in each collaborating centre; (ii) pilot production of high quality olive plants; (iii) training and technology dissemination; (iv) project monitoring and supervision. Coordinated training in olive propagation techniques and the promotion of autochthonous olive genetic resources will enhance the capabilities and knowledge of local technicians as well as of local producers and stakeholders.

6. The estimated total cost: USD 1,700,000
7. Financing sought from the Fund: USD 900,000
8. Counterpart contribution:
- | | | |
|---------|-----|----------------------|
| Algeria | USD | 200,000.00 (in Kind) |
| Egypt | USD | 200,000.00 (in Kind) |
| Morocco | USD | 200,000.00 (in Kind) |
| Tunisia | USD | 200,000.00 (in Kind) |
| Total | USD | 800,000.00 |
9. Project Executing Agency: *To be determined*
10. Supervisory Body: International Olive Council.
11. Estimated starting date: Upon approval by CFC.

Previous Support to the Commodity

Title of Project: Pilot Project for Comparing Olive Flowering and Crop Yield in a Mediterranean area (FT)

Amount of Assistance: USD 120,000

CC Approval Date: July 2006

Closing Date: February 2009

Title of Project: Recycling of Vegetable Water and Olive Pomace on Agricultural Land

Amount of Assistance: USD 1,560,000

Board Approval Date: 16 October 2001

Closing Date: 30 April 2008

Title of Project: Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Olives

Amount of Assistance: USD 512,666

Board Approval Date: 29 October 1998

Closing Date: 30 April 2007

Title of Project: Genetic Improvement of the Olive

Amount of Assistance: USD 499,332

Board Approval Date: 7 January 1994

Closing Date: 30 December 2001

Title of Project: Project for Creation of Pilot Demonstration Plants and Training to Improve Olive Oil Quality

Amount of Assistance: USD 1,038,000

Board Approval Date: 19 September 1997

Closing Date: December 2002

Title of Project: Programme for the development and dissemination of sustainable irrigation management in olive growing

Amount of Assistance: USD 799,460

Board Approval Date: 8 October 2008

I. INTRODUCTION

A. OVERVIEW OF THE COMMODITY

1. The olive tree has been cultivated since the beginning of recorded history in its native Asia Minor. Its cultivation spread very early to all the Mediterranean countries, which is still the main area of production because this crop requires very warm average temperatures and a dry climate and it does not tolerate cold. It is now also cultivated in Australia, South Africa, the USA (California) and Latin America.

2. Different cultivars are generally used for oil and table olives. Olive oil is a very versatile product. Long known to many generations in the Mediterranean area as essential to their health and diet, it is now widely appreciated in Europe, North America and Japan and in many other regions of the world for its nutritional, health-promoting and sensory properties.

3. Whilst the EU members lead the world market, accounting for 77% of world olive oil production, production in other regions of the world is not negligible and is rapidly growing.

4. Demand is steadily increasing worldwide, helped by awareness and promotional campaigns supported by several national and international organizations, and is expected to continue to inch upwards.

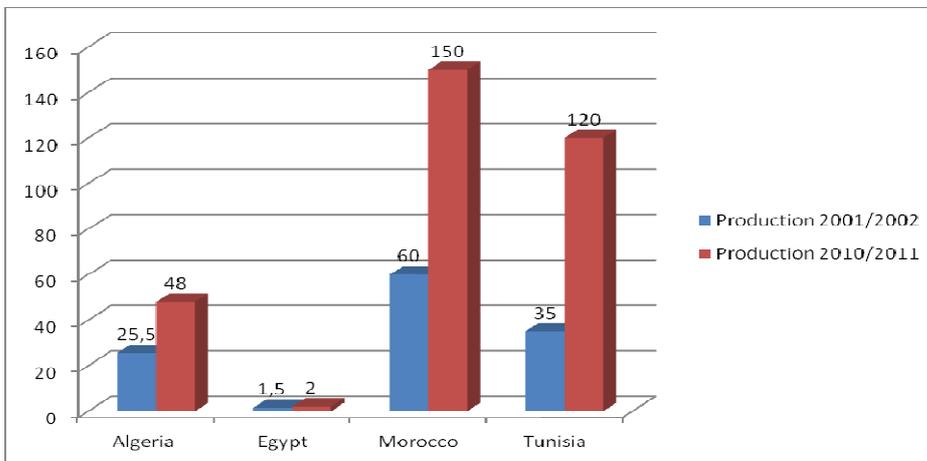
5. Nowadays the olive is a species of major economic importance to many countries. Over the past 25 years in particular, there has been an upsurge of interest in its cultivation and production. Olive oil is appreciated not only for its nutritional value but also as an integral part of the health-promoting Mediterranean Diet, which is an accredited nutritional model both inside and outside the Mediterranean region.

6. Medical research has confirmed the value of olive oil and the dissemination of research findings has stimulated its move into new, high-potential consumption markets. With all these factors coming into play simultaneously, world consumption has increased substantially in the past 15 years, rising from 1.5 million tons in 1990 to 3.0 million in 2010, primarily due to the growth of consumption in non-traditional producing and/or consuming countries.

7. Over the past ten years olive growing area has increased by 22%, expanding from 9 150 000 ha to 11 200 000 ha. This works out at an average increase of more than 200 000 ha per year and gives an indication of the extremely ambitious olive development plans the producing countries have in store for the future. Taking an average planting density of 200 trees to the hectare, this means that 40 000 000 will have to be produced per year. This level of production is far from being met at present.

8. Comparison of the volume of olive oil produced by the project participant countries in 2001/02 with their **expected** production in the 2010/2011 season reveals a surge of almost 140% (see bar chart).

Olive oil production in the project participant countries (x 1000 t)



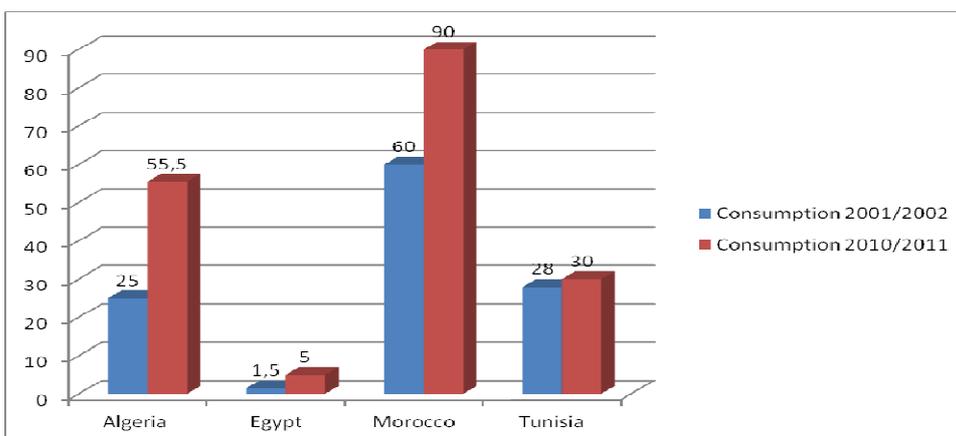
Source: IOC data

9. This scenario clarifies the key role and future development of modern olive nurseries, which will have to supply ‘exclusive’ trees all over the world to guarantee that both producers and consumers receive a quality product.

10. The strong consumer demand for olive oil, which is acknowledged to be essential for human health, has to a certain extent stimulated the intensification of olive growing, not only in the Mediterranean countries but also elsewhere in countries where olive cultivation has been resumed or is being developed for the first time, mainly for oil production.

11. Domestic consumption has likewise been moving upwards in the project participant countries, growing by 52% between 2001/02 and 2010/11 (see bar chart).

Olive oil consumption in the project participant countries (x 1000 t)



12. Clearly, current nursery output will have to cope with the expected expansion of world olive crop area and meet an estimated annual demand of approximately 50

million olive trees in the next decade. Hence, plant production will gradually have to be concentrated in nursery centres equipped with modern mist propagation facilities, which are more efficient and produce self-rooted plants. The adaptation of olive nurseries to more modern propagation techniques will thus have an impact on the economy of the nurseries.

13. Data on nursery size, equipment and propagation techniques show that the management of the facilities often does not generate high yields; consequently, the non-optimal use of production processes is the major source of variability in the nursery economy.

14. The olive nursery industry will have to take up the challenges of the globalized market by taking several necessary measures: optimization of mist propagation performance; application of fertigation; use of alternative rooting substrate to peat; and valorization of autochthonous olive genetic resources.

15. In recent years, efforts to preserve olive genetic diversity have been targeted both at commercial end uses and the protection of other aspects of diversity which could be critical in adapting crops to more marginal agro-ecological conditions. The valorization and use of autochthonous genetic olive resources specifically adapted to particular environments could address the needs of those farmers whose livelihoods depend on a marginal type of agriculture that could be enhanced through the inclusion of more productive olive varieties adapted to specific soils.

16. The demand for “different” plant material has increased considerably in recent years, particularly on the international market. The reason for this demand from farmers is that the varieties they choose to grow are the main factor in improving quality and in obtaining a typical, distinctive product. Attention is focused not only on the varieties found most extensively, but also on local varieties which, owing to their adaptability and resistance in certain environments, guarantee the mark of distinctiveness that is so highly appreciated nowadays.

17. A modern nursery sector which has a dynamic domino effect on the olive industry and which helps to introduce technology is the ideal frame for transferring innovations in olive growing. This will allow the olive tree and its unique produce to serve as a bridge between tradition and innovation, between culture and health, and to secure growth and economic development.

18. The olive growing of the future will have to make greater efforts to supply old-fashioned and modern-thinking farmers alike with quality plant stock by implementing controlled production protocols that ensure the cultivation and distribution of high quality plants and which afford guarantees as to the denomination and healthiness of the variety. Besides providing farmers with full assurances about the plant stock they use, it helps to manage cropping as an agricultural ecosystem and to implement preventive, more environmentally friendly agricultural techniques.

19. Olive nursery production processes and business planning need to be better organised and balanced. In practical terms, it is necessary to take a new productive, commercial and technological approach to nursery production in order to incorporate a strategic role into its overall economic and social functions, to make it capable of

supplying plants adapted to a range of environments, to equip it to provide the ideal frame for expanding olive growing and to make sure that every country derives effective, sustainable benefits from using this natural resource.

20. Nursery production is a strategic link in the olive supply chain and influences the choices and economic performance of the whole production chain. The development of adequate propagation techniques, the identification and safe conservation of genetic stock for plant production, the use of new technologies and the valorization of autochthonous genetic resources are the keys to ensuring that olive nurseries supply suitable olive plants for modernizing olive growing and making it modern and sustainable.

B. PROJECT BACKGROUND

21. The project corresponds to priority intervention 7.6 (*Creation of a pilot olive plant production centre (quality enhancement through nursery development)*) of the 3rd FYAP of the CFC agreed with the IOC in 2007 and approved by the CFC–GC in November 2007 in Kuala Lumpur, Malaysia.

22. The project proposal, entitled *Economic Valorization of Olive Genetic Resources – Creation of Pilot Demonstration Nursery Centres (Quality Enhancement through Nursery Development)*, has been developed by the IOC, the ICB for olives and olive oil, and is submitted for technical appraisal by the Consultative Committee of the CFC in January 2012. The objective of the project is to develop pilot nursery centres under the supervision of research authorities in each participating country to enhance the annual production of prime quality olive propagation material.

23. The project is the second phase of an earlier CFC-financed project for the conservation, characterization, collection and utilization of genetic resources in olive carried out successfully in North Africa (Algeria, Egypt, Morocco, Syria and Tunisia) and which enabled the detection, characterization and conservation of 310 olive varieties specific to the locations of the five olive-growing Mediterranean developing countries participating in the project (see list of accessions in Annex II).

24. In line with one of the key objectives of the project, these 310 accessions are housed in the Marrakech world olive collection, which was created expressly for this purpose (see Annex III for the ex post evaluation of the Marrakech world collection).

25. Work in the sphere of biodiversity is focused on maintaining the genetic scope of wild species to ensure that populations are sufficiently diverse to allow them to adapt to the changing environments and in particular to climate change. In most of the developing Mediterranean countries olive productivity still falls far short of local potential, chiefly because the olive varieties that are grown are not suited to the climate and soil. Native varieties have not yet been properly tapped, mainly because their productivity and quality potentials remain largely unknown.

26. The information generated by the outputs of the project on the conservation, characterization, collection and utilization of genetic olive resources will be of great value to the entire olive industry and will help to consolidate the olive tree as a sustainable crop in the current growing areas, whether they are marginal or suited to olive cultivation, thus increasing rural labour demand in the agriculture industry and service sectors. As a consequence, erosion and desertification will be attenuated in areas where social development is almost entirely dependent on olive growing and rural depopulation will be curbed.

27. The olive biodiversity identified in the completed North African project is of direct use to local research authorities and will be made available to farmers through the creation of pilot demonstration nursery centres. Increasing the availability of a wide range of autochthonous olive genotypes, which have been identified, characterized and certified by internationally recognized research institutions, is likely to improve the

long-term productivity potential of olive orchards in the Mediterranean basin and to provide an effective solution to enhance the competitiveness of small-scale olive farmers.

28. After the recovery of olive plant material, the main issue to be addressed is the strategy for supplying and disseminating genetic olive resources to farmers. This is essential to give farmers access to the olive biodiversity collected, studied and certified by national research authorities; otherwise all the efforts made by scientists to conserve olive biodiversity will have been in vain.

29. The strategy is to create pilot nursery centres – supervised by research authorities – capable of producing top-quality olive plants. The resultant propagation of the genetic olive heritage of each country could help products traded on the domestic market to gain more competitive edge in international trade. The use of different cultivars will make it possible to produce a differentiated final product, thus generating innovation in the industry: totally new product features will mark a radical change that could offer a valid strategy for adapting to the ‘changing environment’ created by globalization.

30. Pilot nursery centres could also help to improve farmers’ technical capabilities and support services at producer level and to establish basic infrastructures in the producing regions. The creation of such centres could be the solution for propagating and distributing olive plants that are optimally adapted to the environmental and climatic characteristics of each participant country. Olive biodiversity could thus be the key to developing the international competitiveness of local producers on world markets.

31. The proposed project views the supply chain concept as an essential element of project design and implementation where the chain consists of a series of activities that create and build value at each link. Olive plant nurseries are a crucially important link in the chain because they relay their field know-how and experience to the olive industry.

32. Bearing in mind the vital role of olive nurseries, the olive industry clearly needs to innovate to reduce costs and to protect and maintain competitive advantage. In advanced agricultural systems, grower performance is closely tied up with nursery propagation efficiency. To respond to the needs of modern olive cultivation, olive nurseries have to combine economic, technological and social functions all in one. Their role as an ‘economic’ undertaking is linked to the products they supply for agriculture and the capital they need to do so. They are ‘technological’ undertakings because they employ facilities and skills used in industrial production processes. They play a ‘social’ role too because they are labour-intensive businesses which are aware of environmental and farmer concerns and they provide an ideal framework for transferring innovations to the agricultural sector that promote regional and community development. Investing in human capacity building is just as important as investing in infrastructure because it creates increased awareness of quality issues, nutritional safety and good production and processing practices in general.

33. Choosing the right facilities and production schedules will generate economic benefits both for the nursery producer, who sells the plants, and the grower who buys them. This approach is a way of ensuring that the olive nursery industry operates efficiently and is capable of responding to the demands of the international market.

34. The creation of pilot demonstration nurseries is the first substantial step of the project. It is aimed at increasing farmers' earnings in the country concerned by: (i) demonstrating modern, innovative methods for the production of top-quality olive plants; (ii) providing coordinated training in olive orchard management; (iii) disseminating, valorizing and promoting the use of autochthonous genetic olive resources. The establishment of such centres is in itself an effective and modern tool for the dissemination of good agricultural practices, modern production technologies and efficient management techniques which will help to make significant and sustainable improvements in the olive sector and so generate higher income for farmers in the region.

35. The training of farmers and other stakeholders in the application of innovative technologies combined with the 'reintroduction' of 'old' traditional varieties will provide sufficient guarantees to enhance olive plant quality and orchard productivity and to establish a solid basis for the sustainable development of the olive sector in the region.

36. Four years have been considered an adequate time frame for full, effective implementation of this project. Regular inspections of the project sites are planned, especially in the start-up phases in order to coordinate the implementation process and promote smooth, harmonious cooperation between the project partners. On-site missions are also considered essential to ensure efficient activity planning and to determine the optimum level of effort required of the work teams. The publication of technical manuals is also envisaged under the project to disseminate the information generated by activities. The planned training sessions will also make a major contribution to stakeholder capacity building. A detailed schedule is provided for the implementation of the Work Plan in order to avoid undue delays.

C. THE CONSISTENCY OF THE PROPOSED PROJECT WITH THE INTERNATIONAL OLIVE COUNCIL (IOC) COMMODITY STRATEGY

37. Millions of farmers, workers and business people are involved in olive farming and the olive oil and table olive industry (including fertilizers, crop health products and oil extraction) and trade. The olive is a ‘social’ crop because it requires a large supply of rural labour. In the five target countries, the rural population accounts for a large proportion of the total population.

The tables below provide statistics on the share of the working population dedicated to agriculture in the rural areas of the participant countries.

ALGERIA	Unit	
Total population	Millions	32.85
Rural population	Millions	13.16
Percentage rural/total population	%	40.10
Total labour force (TLF)	Millions	11.59
Agricultural labour force (ALF)	Millions	2.73
ALF/TLF	%	23.56

EGYPT	Unit	
Total population	Millions	74.03
Rural population	Millions	42.74
Percentage rural/total population	%	57.70
Total labour force (TLF)	Millions	27.11
Agricultural labour force (ALF)	Millions	8.54
ALF/TLF	%	31.49

MOROCCO	Unit	
Total population	Millions	31.48
Rural population	Millions	12.98
Percentage rural/total population	%	41.20
Total labour force (TLF)	Millions	12.67
Agricultural labour force (ALF)	Millions	4.29
ALF/TLF	%	33.83

TUNISIA	Unit	
Total population	Millions	10.10
Rural population	Millions	3.60
Percentage rural/total population	%	35.60
Total labour force (TLF)	Millions	4.11
Agricultural labour force (ALF)	Millions	0.97
ALF/TLF	%	23.50

38. A high percentage of the agricultural labour force is concentrated in the most marginal areas where olive growing is the only means of support preventing rural depopulation and migration to the cities. The use of selected healthy plant material adapted to the environment would be a substantial way of improving the livelihood of olive growing households in such areas.

39. Fluctuations in crop production are a major problem because they lead to irregular market supply and instability in prices and farmer income. The recurrence of such fluctuations highlights the need to adopt the right approach to production by identifying the underlying causes of the oscillations and encouraging action to raise productivity and attenuate the high/low pattern of crop production.

40. Furthermore, competition between developed and developing exporting countries is growing constantly in the oil sector. The drive for product quality and market development therefore needs to be intensified so as to open up new markets at local/national and regional/international level. This creates significant opportunities for import substitution on the one hand and/or export earnings on the other, thereby increasing foreign exchange revenue in developing countries.

41. The project is in the line with IOC objective of increasing the competitiveness of small producers through increased olive productivity. The increased household incomes of small-scale olive producers generated by creation of nurseries centres will also result in producing high quality olive oil, a subject that is central to IOC and that is being pursued in other IOC projects.

42. Finally, the project will aid in enhancing income generation and sustainable development in rural areas.

II. PROJECT DESCRIPTION

A. PROJECT RATIONALE

1. The enhancement of olive orchard productivity and the supply of premium-quality, high-yielding healthy olive plants are the core issues that have to be addressed to increase competitiveness on the world market. The olive nursery industry has to rise to the challenges of the globalized market through innovation aimed at boosting nursery efficiency and lowering nursery costs of production. The pilot centres will be able to obtain the necessary genetic material for propagation purposes from the national collections established under project CFC/IOC/03; this possibility is of crucial importance because the accessions housed in the national collections have been collected and characterized by recognized research authorities. Hence, the plants will be true to variety and, more importantly, the collaborating centres are familiar with the specific characteristics of each accession. The developed countries have technologies that can be shared with the developing countries. It is a question, therefore, of broadening and strengthening technical improvements in the olive industry of the developing countries through collaborative research and development, training, and the transfer of technology. The proposed project seeks to enhance the technical foundation for improving the annual production of prime-quality olive propagation material in the regions concerned through technology demonstrations and training. The outcome will lower the costs of production, boost crop productivity and improve the quality of olive propagation material, thus raising farmer earnings from olive growing and making the supply chain more efficient.

B. CENTRAL OBJECTIVE

2. The central objective of the project is to enhance the annual production of prime-quality olive propagation material and to promote the use of autochthonous genetic olive resources in the participant countries, with an eye to raising tree productivity and the earnings of smallholders in the olive sector. This objective will be met by: (1) demonstrating modern techniques for the production of top-quality olive plants; (2) providing coordinated training in olive plant propagation and olive nursery management; and (3) promoting the valorization of autochthonous genetic olive resources; (4) monitoring and supervising the project.

C. DESCRIPTION OF PROJECT COMPONENTS

3. The proposed project would consist of the following components:

- (1) establishment of one Pilot Nursery Centers in each collaborating country;
- (2) pilot production of high quality olive plants to demonstrate the propagation processes and establish the technical viability of operating modern nursery olive techniques;
- (3) training, technology dissemination and promotion of autochthonous olive genetic resources;
- (4) project monitoring and supervision.

COMPONENT 1: ESTABLISHMENT OF ONE PILOT NURSERY CENTERS IN EACH COLLABORATING COUNTRY.

Objective: To develop Olive Pilot Nursery Centers to enhance the annual production of prime quality olive propagation material.

Output: Establishment of five Olive Pilot Nursery Centers, one in each participant country: Algeria, Egypt, Morocco and Tunisia, with a minimum production capacity of 25,000 plants/year for each country.

Description:

The five Olive Pilot Nursery Centers to be established, one in every participating country, should be located in a national institution, preferably a research or experimental center having participated in the RESGEN Project having determined each autochthonous olive biodiversity. As said above one project on “Conservation, Characterization, Collection and Utilization of the Genetic Resources in Olive” was financed by the CFC and successfully carried out in Algeria, Egypt, Morocco and Tunisia. It enabled the detection, characterization and conservation of 310 olive accessions in these five olive-growing Mediterranean developing countries.

The basic infrastructure of a modern Olive Pilot Nursery Center consists of four main areas: 1) buildings; 2) fields for growing the collections of mother trees; 3) propagation or rooting facilities; and 4) plant growth facilities. The Nursery also needs internal roadways, parking spaces and stores for keeping the materials needed for propagation (perlite, peat, pots, stakes, plastic and shading nets, fertilizers, phytosanitary products, etc). A reliable water supply is a must, as water is needed both for misting the cuttings while rooting and for irrigating the rooted cuttings until their sale to growers. Electricity is also needed, as well as the energy used for heating the rooting medium if different from electricity, either gas or gas-oil.

Area number 1: Buildings.

Building construction has to comply with local regulations. In general they have to be located near the Nursery main gate. The building holding the management, administrative and commercial offices should also have space for a simple laboratory and, eventually, for a micropropagation laboratory, although they should have a direct and separate entrance. Another building is needed for the machinery and its repair and maintenance, also for storing whatever is needed for the normal working schedule along the year, as mentioned right above. The fertilizer and phytosanitary store should still deserve another building unless it may have a separate gate and be provided with all the measures pertaining its adequate use and management, especially from the health and environmental viewpoints. The courses to be taught would need a lecture room.

As referred previously, the building complex will also include the water and electricity connections to the public supplying lines, located as close as possible to the main entrance, always keeping with the local regulating safety norms. The tanks to store

either the gas or gas-oil needed for heating the green-house and/or rooting media in the benches will be also located following the pertaining safety regulations and close to the main entrance and the facilities needing that energy source. A weather station is to be installed in or near the building complex, always keeping with the related rules.

Area number 2: Mother tree collection.

This will be the only source of propagating material to be used by the Pilot Nursery as its purpose is to propagate the autochthonous cultivars selected by their special characteristics, thus diversifying the varietal choice for growers and improving their products, oil or table olives. The trees growing in that collection will be also fundamental for eventually entering a program of certified plants in case their identity and health status is certified before planted. But they must be maintained according to plant protection procedures mandatory for the propagating material and plants supplied by the Nursery suitable for their certification. Although not yet working, IOC has already prepared the norms and procedures for producing certified olive nursery trees. The physical conditions of the plot to be used for planting the collection are discussed under Component 2.

Considering an average rooting ability of 50% and two times per year for preparing the cuttings to be rooted, end of spring and early fall, when rooting percentages are normally higher, the production of 25,000 nursery trees per year may need the plantation of around 500 mother plants. Each one could provide 100 cuttings the second growing season after planting them if this could be done in winter time. The number of cultivars to be propagated in every Pilot Nursery will determine how many trees of each one will have to be planted. One possible choice could be to include 20 cultivars or accessions, including those more used until now, normally 2-3 in each country. This approach will give rise to around 1,250 rooted cuttings per year of each accession, starting at the end of the second year if the project starts at the beginning of one given year. That quantity is considered enough as for supplying the private nursery sector with foundation material to propagate the national needed amount, but will not start to be available until the autumn of the third year. Eventually this mother tree collection will be able to provide larger number of nursery plants per year as the trees will arrive to better canopy development, i.e. they will provide more cuttings each time the operation is done.

A planting arrangement of 4 x 2.5 m is considered advisable as each Pilot Nursery will be located in places characterized by rather long growing seasons. The distance of 2.5 m between trees in the row will provide enough space for good cutting production when they attain its best production size, while 4 m between the rows are considered appropriate for facilitating the collection soil management. If 20 accessions are to be included, 25 will be the number of trees for each one. Therefore, every accession could be planted in a single row of trees, the whole collection block consisting of 20 rows. But every difficult-to-root accession should have two rows of trees; consequently some more rows should be added to the mother plant collection. So, an area of 70 x 115 m (approximately 8,000 m²) will be needed if five of the 20 accessions are rather difficult-to-root and some free space at each side of the mother tree collection is needed for its good management. The plot chosen to receive it should allow for establishing the rows containing the cultivars in a North-South direction, for allowing good illumination to the trees.

The plot should also be preinstalled with drip irrigation as for allowing irrigating along the rows during the first three years and along the center of the streets afterwards, preferably underground. This would save much water by diminishing evaporation losses, also facilitating the collection soil management. The irrigating lines should bear a dripper of around 2 L/hour every 80-100 cm.

In case of the site having a strong dominant wind along the year, a windbreak should be installed to protect the trees. Under that circumstance it would be ideal that this strong wind would follow a direction almost perpendicular to that of N-S chosen for the rows. In case it would run along the streets of the proposed planting arrangement a high green or inert wind-break should also be installed. Protecting nets could also be laid out above the collection if there would be a hail risk, but it would be much better to choose another site for the Pilot Nursery in that case.

Area number 3: Propagation or rooting facility.

It is the core element of the Pilot Nursery, where the rooting of cuttings is going to take place under mist and the best reachable environmental conditions. It is a green-house aimed at protecting the plant material from environmental hazards (snow, hail, rain and wind), also at maintaining the internal climatic parameters (temperature, light and relative air humidity) at the needed values.

The usual green-house is made of different materials (steel, aluminium, plastic rods or more frequently galvanized iron); it is supported by rafters which make the structure stable and carry the green-house covering, which must be resistant to wear-and-tear, rusting, temperature changes and the aggressive action of certain phytosanitary products. It must also ensure low transmittance of thermal radiation, allow the transmission of UVA, UVB and infrared rays and have easy mechanisms for opening and ventilation control. Plastic sheeting is used most commonly for green-house covering; it is thin, flexible and transparent and has top quality radiometric properties. Moreover, it is light and cheap, has a high mechanical resistance to traction forces and its resistance to deformation is excellent.

Other coverings include low-density polythene film (PE), which has optimal mechanical, cost and transmission features, or ethylene vinyl acetate copolymer (EVA). For reasons of fragility and cost, co-extruded or multi-layered films (made by joining up two or three layers, generally expanded PE or EVA, or PVC) are no longer used. It should be kept in mind, however, that most plastic types become opaque, yellowish and brittle with time. The plastic cover therefore has to be changed every 2–4 years depending on the intensity of radiation at the nursery site, quite high at any chosen site in the participating countries.

Shade nets have recently appeared on the scene. These are made of clear or black high-density polypropylene or polythene with a mesh of 10–15/cm². Besides mechanically protecting the olive plants from the entry of insects, they act as a screen providing shade from the sun's radiation. Shade nets should be pre-treated with UV stabilisers to make sure they last longer (at least five years). This type of material should be used if thinking about producing certified plants.

Four rooting benches measuring 7.5 x 1.20 m will suffice for reaching the objective of producing 25,000 saleable plants per year if considering the above mentioned rooting

percentage (50% as average) and a possible loss of 15% during the early stages of plant growth. The green-house room able to receive these four benches will have to measure 80 m² (8 x 10 m) if corridors of 60 cm between and along them and 70 cm from the walls are to be settled. A rectangular space of 8 x 10 m would suffice for holding four of those rooting benches, although the fourth one could be established at the beginning or when eventually needed.

The rooting green-house may have two more rooms, one for preparing and treating the cuttings and the other for holding the needed equipment: mist propagation control system, water purification and softening systems, cooling and heating systems, as well as the automat to determine when to operate each one of the systems helping in controlling its climate. Rolling nets established above the green-house roof can also be set for, mechanically controlled by light and/or air temperature inside it. The space for preparing the cuttings may measure 8 x 4 m and the other 8 x 2 m, therefore the rooting green-house would be 8 x 16 m = 128 m². The wall height should be 3 m, with the ridge a little higher.

Rooting benches must have a good drainage system and can be made of different material (aluminium, concrete or metal sections) mounted on height-adjustable galvanised legs. To facilitate the work when planting the cuttings and taking the rooted cuttings, the legs should be around 70-cm high. The benches should be able to receive a layer of perlite 20 cm thick. Polythene ducts able to efficiently transmit the heating must be placed at the bottom of the benches to heat the perlite uniformly, thus assuring the rooting medium is kept between 20 and 24 °C when needed. The electromagnetic valve controlling the circulation of warm water through the pipes in each bench should be closing and opening at slow speed, for avoiding sudden increases and decreases of the rooting medium. A single thermostat may control the work of all the three electromagnetic valves or one can be used for each one, thus better controlling each bench. When the hot water is not allowed to enter any bench it must be turned back to the heater, thus making it to stop working, as it is also controlled by another thermostat.

The mist system is the core element of the rooting green-house. This rooting method was made possible since the use of intermittent mist allowed for providing high levels of relative humidity, which keep cuttings alive until they form adventitious roots. Mist is produced by letting out pressurised water through various types of atomiser nozzles, made of PVC, stainless steel or brass. The best are those providing the least possible flow of water but the bench should be well and uniformly covered by the mist. They all have anti-drip and automatic cleaning mechanisms. Rotating oil burner nozzles and deflection or baffle nozzles are the most common types. The first type delivers a very finely distributed mist and uses small volumes of water. The second requires more water but operates at lower pressures; it needs fewer nozzles and covers a larger area of the bench. In any case the nozzles are set up at about 70 cm above the cuttings.

The need for that intermittence involves installing a mechanism to regulate the frequency and duration of mist application. One commonly used system includes a small copper circuit pressed on a small plaque, acting as a moisture sensor, which lets water go through a solenoid valve that feeds the nozzles. A more modern one is using just a piece of common filter paper as the moisture triggering the opening and closing of the nozzles. Those sensors, one for the four benches or one for each bench, are connected to a computerized system allowing for setting the frequency and duration of

the mist operations. The off stage of the solenoid valve should allow water flow so that any possible electricity supply failure produce constant watering instead of a total lack of mist, which would be fatal if it went on for few hot hours.

The water used for misting should better be free from impurities, not containing more than 100 mg/L of dissolved salts to prevent the nozzles from clogging. Filters have to be fitted into the misting line and the system should be equipped with specific demineralisation systems if needed. Normal drinking water may be used without problems, although the filter is always advisable.

The two long walls of the green-house will be used for installing the cooling system, fully mandatory due to the climate where the Pilot Nurseries are to be established. That cooling system consists of a wettable pad in the coolest long wall of the green-house during summer time and some exhaust fans in the opposite one, so that the humid air entering the green-house leave it after moving through the room, lowering its temperature while maintaining a higher internal relative humidity.

This cooling system should be set up all along the green-house, 16 m in length, but at least along the rooting room, 10 m. In the latter case a wettable pad of 9 x 3 m will be located along that room and three fans in the opposite wall for expelling the hot air, but they should work at slow speed to make the air flowing smoothly from one wall to the opposite, above the cuttings planted in the rooting benches. Also the turning speed should be automatically increased or decreased at the pace the temperature raises or diminishes inside the green-house, but never at so high speed that it might cause the wind to be too fast and concentrated in funnels originating at each fan. The wettable pad must have a structure able to allow for the incoming air be loaded with the water falling through it. It is normally made of cooling cells (poplar wood-shaving or Kool-Cel pads). The fans are to be set up as for avoiding the flowing wind touching the leafy cuttings planted in the rooting benches. A wettable pad of 3.5 x 3 m should anyway also be set up at the cutting preparation room, with one fan in the opposite wall.

The green-house wall having the wettable pad should be provided with a covering able to be opened and closed automatically. That window must be closed when the green-house needs to maintain a certain temperature, normally not less than 15 °C during nights in autumn and winter. However, a thermostat must open it when temperature raises a certain level to allow for good ventilation every day. That temperature must be learned by trial and error in every location and may change along the year, but it is likely around 24 °C. A second thermostat set up at two degrees above the first mentioned should make the water starting dropping through the lateral wettable pad, in an attempt to increase humidity and to lower temperature. A third thermostat, set up a little higher will make the fans to start working, to expel the hot air.

Ridge windows able to open and close automatically are also advisable but experience says that in hot climates their functionality is quite poor in summer, as they allow for a quick loss of internal humidity, without helping much in keeping the temperature at the desired level. Rolling shading nets established above the roof really help in keeping good lighting and temperature conditions, but must be also managed automatically by a thermostat, i.e. that in charge of making the fans to start working. To paint that roof in white at early spring also helps to allow for a better climate inside the green-house, but its efficiency is not the same.

A heating system is likely not so mandatory in this case, especially as it is foreseen to work in just two seasons. When preparing the cuttings in late spring the green-house will be used approximately since late May to early August, and since late September to late November or early December at maximum when doing it in early autumn. Therefore, heating the air by means of circulating hot water through piping (used as radiators) along the basal parts of the internal walls will be enough for keeping up with the desired temperature conditions in the cold months. A thermostat has to control the work of the heater supplying the hot water, while another one has to open and close the circulation of that water through the piping, allowing for its recirculation back to the heater when not allowed to enter that piping system.

Area number 4: Plant growth facility.

It is intended for growing the rooted cuttings in pots. Two systems are available, either a growth green-house or just a lath-house. The first type allows for better controlling the environmental conditions during the process of growing the nursery trees, but it should not be needed in the areas where the Pilot Nurseries are going to be established. In those hot areas a simple lath-house is going to be enough, as its main purpose is to protect the plants from excessive solar radiation or other damaging conditions like hail or cold. It is very simple to set up because it is normally made of a series of galvanised metal frames, at least 2.5 m high, which are draped with shade nets pinned to the ground. The lath-house soil should be covered with black plastic sheeting to avoid weed growth and then covered with a gravel layer at least 5-cm deep to facilitate the pot drainage after irrigation or rains.

Every Pilot Nursery is to provide 25,000 plants per year, half of them at each of two rooting operations. They can successfully be grown in small plastic pots until reaching about 1-m height in one growing season, therefore the lath-house should be able to harbour around 30,000 trees, in case 20% of them could not be sold on time. So, a lath-house of 500 m² will be enough for growing the annual production and even for keeping 20% of it for next year sale. A lath-house of 36 x 14 m will allow for a central street of 2.5 m wide for vehicle access and two winds of 5.75 m. Each wind is to contain 20 modules of 5 x 1 m, able to receive 12 rows with 62 nursery plants in pots measuring 8 x 8 x 15 cm. Corridors of 80 cm will be among these modules. Therefore that lath-house will be able to grow 29,760 nursery trees at a time. This arrangement will facilitate both the management of the nursery trees (cultivar name, date of rooting, etc) and their availability for workers.

A micro-sprinkler system must be installed in the lath-house for irrigating the plants as needed.

The infrastructure of this Pilot Nursery can therefore produce the minimum established annual production of 25,000 nursery trees starting the second year of the project if propagating material from the selected accessions is provided to the Pilot Nursery two times during the first one. It is so because the mother plants established in collection will not be able to provide cuttings until the second autumn after planting them.

Higher annual production could be achieved with just adding more lath-house surface, i.e. 50% more if rooting cuttings a third time per year or even 100% more if doing it a fourth time. The rooting green-house is able to do it as each the rooting season lasts about two months.

The objective, output, activities, input and timing for the component are presented below.

Activities:

- Activity 1.1** Acquisition of the needed land or better selecting the appropriate area in one experimental Center in each country.
- Activity 1.2** Preparing the lay out of the Nurseries and construction of the buildings or allocating the available ones to the specific objectives.
- Activity 1.3** Purchase and Installation of the needed equipment for each Pilot Nursery: green-house for rooting cuttings, with their cooling and heating systems and rooting benches.
- Activity 1.4** Purchase and Installation of the needed lath-house for growing the rooted cuttings for each Pilot Nursery.
- Activity 1.5** Purchase and Installation of the drip irrigation system for the mother collection of each Pilot Nursery (including pumps, filters, gauges, fertirrigation injectors and tanks, etc.) and of micro-sprinkler irrigation for the lath-house.

Inputs:

- Activity 1.1** Land requirements and characteristics.
- Activity 1.2** Pilot Nursery requirements and characteristics.
- Activity 1.3** Equipment characteristics.
- Activity 1.4** Lath-house characteristics.
- Activity 1.5** Drip irrigation system components and characteristics..

Timing: This task will develop in the first six months of the project

Component	Activity	Description	Y1					
			M1	M2	M3	M4	M5	M6
C1. PNC establishment	1.1.	Land selection and adquisition	■	■				
	1.2.	Lay our preparation and building construction		■	■	■		
	1.3.	Nursery equipment purchase and installation			■	■	■	
	1.4.	Lath-houses purchase and installation				■	■	
	1.5.	Drip irrigation system purchase and installation					■	■

Costs: 684.000 USD

COMPONENT 2: PILOT PRODUCTION OF A SIGNIFICANT NUMBER OF HIGH QUALITY OLIVE PLANTS TO DEMONSTRATE THE PROPAGATION PROCESSES AND ESTABLISH THE TECHNICAL VIABILITY OF OPERATING MODERN NURSERY OLIVE TECHNIQUES;

Objective: Supply of olive trees complying with quality and genetic standards to enhance the annual production of prime quality olive propagation material. Compliance with specific standards will provide farmers with guaranteed top quality, high yielding, healthy olive plants..

Output: Increased production and dissemination of local cultivars which, owing to their adaptability and resistance in certain environments, guarantee a mark of distinctiveness and provide the opportunity for rural families to increase their income.

Description:

Component 1 has covered the need of fully identifying the varietal trees entering the mother collections, also their healthiness status, especially for the case of wishing to produce certified nursery plants. Isolation and distance from other olive orchards has to be secured, too, for avoiding the contamination with pathogens or pathogen carriers. It is also needed to certify that the proposed plot is adequate from the phytosanitary viewpoint by means of carrying out a test to check that its soil is not a carrier of viruses or virus-like agents, nematodes, fungi, bacteria or other plant pathogens. It is also important to check that crops known as being hosts of verticillium wilt (*Verticillium dahliae*) have not been grown in the soil for many years, but much better if never before. Agronomic suitability is determined by the soil uniformity and fertility. Soil texture and structure are the main characteristics to consider, along with the natural drainage ability, as olive trees are very susceptible to waterlogged soils.

In Component 1 it has been also suggested to introduce 20 accessions or cultivars in the mother plant collections. To comply with the objective of the project these 20 cultivars should be selected from the autochthonous material having been characterized by the already mentioned CFC-IOC project on olive genetic resources. It should be up to the local authorities to decide whether this number is appropriate to start with and to choose which of the local olive genetic resources should be selected, but the more commonly nowadays used cultivars should be among them.

The production of high-quality nursery trees by rooting soft-wood cuttings under mist has two phases. First, roots have to be formed at the cutting bases, and then the rooted cuttings must develop a good root system and a small trunk with some shoots at their upper ends. To achieve that objective in one growing season they are grown in pots of enough size and under good environmental conditions. Plant protection is also a must in this growth phase. The intermediate hardening phase is no longer used in modern

nurseries because of involving too much hand labour and needing small pots as well as the help of intermittent mist.

The formation of adventitious roots on the cutting stems is produced in three stages:

Initial root formation, from differentiated cells, already having other roles, but which recover their meristematic activity;

Division of such cells and formation of root primordia;

Development of such primordia and establishment of connections between the vascular tissues in the forming roots and those in the stem, followed by emission of those roots.

The first phase mainly depends of genetic factors under the influence of auxins and other rooting co-factors. The other two are linked to the availability of nutrients, mainly to be supplied by the leaves during the rooting process. This makes that the rooting success/failure is based on the hormonal and nutritional balance required for the above phases to be completed.

The success of the rooting process depends mainly on the cultivar or accession involved. Literature shows great differences among the rooting abilities of cultivars. Many of them do root easily, even up to 80% and higher, while others are very difficult-to-root, showing rooting percentages under 20. Every tried cultivar uses to improve its rooting ability with the help of auxin treatments, but not too much if they are really difficult-to-root. The quality of the propagating material (the soft-wood shoots) is also of paramount importance. Therefore, it is on that aspect where the Nursery has to invest for trying to obtain the best possible results. Anyway, in Component 1 it has also been stated that a rooting percentage of 50% has been taken into account to determine the rooting surface in the green-house: some cultivars may root at 80% and even more some times, while other do not reach 20% even when taking good care during every propagation phase.

The rooting process is performed optimally when cuttings are taken from young trees that are in very active vegetative growth as they have not yet entered into bearing; its success level is lower when they are prepared from shoots coming from productive trees, and still lower when “on” year trees are used. The latter is due to the presence of inflorescences or olives in the shoots up to the time of preparing the cuttings. Success actually becomes zero if the olives remain on the cuttings during rooting. This means that taking material from olive trees grown for this sole purpose ensures successful rooting and prevents the need to eliminate inflorescences or fruits that may be present if using bearing trees. This is another reason for nurseries having to have their own mother plants for supplying the cuttings they need.

In these Pilot Nurseries cutting quality will be always good as the mother plants in the collections will be always kept under vegetative growth by means of the needed pruning so that no flowering will ever occur. On the other hand this practice provides good flushes of vegetative growth, ideal for producing very good cutting quality. The removal of the needed shoots for cutting preparation at the end of spring-early summer is likely to be enough pruning for avoiding too much vegetative growth on the mother trees, which could pose some disease problems. The next cutting crop will be removed

next early autumn, but still a severe pruning may be needed in winter for avoiding flowering next spring.

Irrigation and fertilization are also important, more the first than the second, especially if the soil quality is good. The irrigation schedule has to take into account specific phenological stages, like the start of vegetative growth at late winter, always trying to avoid water stress in the shoots but also too tender shoot growth. Fertilization may be provided through the drip irrigation system, but also by foliar application provided the leaves have got their full size. An important aspect to produce good propagating material is to maintain the mother trees and the developing nursery trees always well protected with a good plant protection programme against the main pests (*Aceria oleae*, *Euzophera pingüis*, *Hylesinus oleiperda*, *Otiorrhynchus cribricollis*, *Liothrips oleae*, *Metcalfa pruinosa*, *Margaronia unionalis*, *Reseliella oleisuga* and *Saissetia oleae*) and diseases (*Pseudomonas Savastanoi* pv. *Savastanoi*, *Alternaria*, *Armillaria mellea*, *Phytophthora* sp., *Botrytis cinerea*, *Fusicladium oleagineum*, *Cylindrocarpon destructans*, *Gloesporium olivarum*, *Leivellula taurica*, *Mycocentrospora cladosporioides*, *Pythium* sp., *Stictis panizzei*, *Verticillium dahliae*) causing problems at nursery level.

Attention as to be paid also to nematodes like *Meleydogyne* sp. and viruses, specially the Arabis mosaic virus (ArMV), cherry leaf roll virus (CLRV), cucumber mosaic virus (CMV) and strawberry latent ring-spot virus (SLRV), but also the Cucumber mosaic (CMV), Olive latent ringspot (OLRSV), Olive latent 1 (OLV 1), Olive latent 2 (OLV 2), Olive vein yellowing associated (OVYaV), Olive yellow mottling and decline associated (OYMDaV), Tobacco mosaic (TMV), Olive semilatif (OSLV), Olive leaf yellowing associated (OLYaV), Spherosis (Olive micro spheroblasts).

The presence of the mother plant collection in the Pilot Nursery is another key issue for assuring success in rooting the cuttings. They should be taken at early morning, when leaves and shoots are turgid, taking good care for not allowing them to desiccate during their transport to the preparation room and while preparing the cuttings. At least, the propagating material must be transported and stored always protected in sealed bags to maintain high humidity levels and protected against air currents and heat. If storing is going to last for a few days it is better to do it at around 2-4 °C. But it is much better not to take more material than that to be used every day. Although the mother plant collection is well protected against pests and diseases, attention is to be paid to the presence of symptoms that would prevent the use of the propagating material to be used. Cuttings may be taken from the current year annual shoots if the operation is performed at the end of the first flow of annual growth (late spring-early summer) or later in the season. Or from previous year shoots if it is going to be performed before the spring growth becomes available. Such cuttings are 12-15 cm long, consisting of at least four internodes, and bear two or just one pair of leaves on their apical part. Therefore, two, three or even more cuttings can be prepared from each shoot. It is important not to remove the buds when doing the same with the leaves different to those to be left in the cuttings.

Once the cuttings have been prepared, it is advisable to treat them with a fungicide solution as a precaution against the outbreak of diseases during the rooting period, mainly olive leaf spot (*Fusicladium oleagineum*, formerly *Spilocaea oleaginea*). This treatment is compulsory when not sure about the plants from which the cuttings have

been taken having been protected against this disease; but should be forgotten in the Pilot Nurseries as they are going to use their mother plant collections and then the trees will be always very well protected against pests and diseases. In any case the cutting bases should be allowed to become dry before applying the auxin treatment to them, but protecting their leaves against that dryness. Usually cutting bases are immersed in an indole-3-butyric acid (IBA) solution at 2 to 4 g/L concentration for five seconds. The solution needs to be prepared with 40-50% ethanol by firstly dissolving the auxin only in the alcohol, because it is not water-soluble. It may be cold-stored in a fridge in a dark bottle for several weeks, but it is better to use a new one every day or at least every week. This treatment may also be applied by mixing the hormone with talcum powder; this is a more stable mix, but a bit tedious to prepare. Commercial formulae are also available at various concentrations, both in liquid and powder form.

The cuttings are then planted in the medium to be used, usually perlite, on the propagation benches explained under Component 1. Using boxes facilitates the tasks of planting and uprooting the cuttings outside the green-house. Perlite is widely considered a good rooting medium because it keeps its volume at different humidity levels, always maintaining a good porosity to provide enough oxygen to the cutting bases and developing roots. It also avoids waterlogging because of its good drainage. It is also free from weed seeds, nematodes and any other noxious organism, provided new perlite is normally used. In any case, it must be laid down in the benches some few days before starting to make cuttings. It should also be levelled, pressed down lightly and watered repeatedly to make it uniform and give it the right consistency to hold the cuttings. The medium has to stick to the cuttings during rooting to prevent large air pockets which inhibit root formation in general and particularly in the basal portion of the cuttings.

The cuttings are inserted up to half their length in the rooting benches, taking care for their bases reaching only about 4-5 cm above the plastic net holding the perlite. The substrate layer needs to be 15 cm thick at least and cuttings should be well irrigated after planting them to help their firmness in the rooting medium. Air pockets around the cutting bases are detrimental to rooting. Cutting spacing should not be excessively close in order to prevent disease outbreaks, mainly fungal diseases. Very high densities also prevent good lighting of cutting leaves, could keep them too moist and somewhat maintain the substrate quite dry. A planting density of 800 cuttings per m² has been used for determining the rooting surface of the Pilot Nurseries.

Recently smaller softwood cuttings, some 7-cm tall, are being used, put to root in alveolar trays filled with a mixture of Sphagnum type peat-moss, coco peat and a special gluing agent that keeps the medium stucked together. This allows to firmly holding the cutting root system. Therefore, the “forgotten” hardening phase can be made in the same trays and benches, with only increasing the environmental temperature and diminishing the mist frequency. This can easily be made in the Pilot Nurseries as they are going to work just twice per year.

During root formation careful management and monitoring of mist propagation is needed to minimise interferences and possible interruptions in the physiological processes of rhizogenesis. The mist system allows for not only maintaining relative humidity at a high level, but it also reduces leaf temperature, due to the water covering the leaves and its subsequent evaporation. This reduces the respiration rate and decreases the vapour pressure within the leaves, thus also reducing their transpiration

rate. However, mist does not affect photosynthesis, thus producing a positive balance of assimilates, needed for root formation.

Mist needs to be intermittent so as not to wet the substrate too much or to diminish the cuttings and rooting medium temperature excessively, as this would have a negative impact. That intermittence also prevents leaf leaching and the resulting nutrient losses or the loss of compounds needed for root initiation. Component 1 has covered how to manage the mist and other environmental control systems needed to get good rooting percentages. During the beginning of the rooting period cutting bud-break should be avoided for saving energy for rooting.

Under these conditions, rooting takes place after a period of approximately two months. In some easy-to-root accessions it can be achieved in just seven weeks if taking the cuttings at the end of spring, but in winter and with other reluctant accessions the process may require more than 60 days.

This technique allows propagating commercially almost all olive cultivars, but it must be stressed that results vary from one year to the next, even for the same material and identical times of the year and conditions. This keeps happening even in plants prepared for experimental purposes. The usual good rooting ability of most cultivated varieties may indicate that one of their main selection criteria was their ease of propagation by simple methods.

Rooting success needs two more treatments also essential for success. The substrate needs to be heated so that the cuttings bases are kept at 20-24 °C and the environment around the cuttings should be very humid and a little cooler; in autumn and winter this is usually achieved by just the intermittent mist. In warmer times of the year, the entire green-house environment needs to be cooled down. In Component 1 these subjects have been discussed. Placing a plastic net beneath the rooting medium and above the ducts circulating hot water is convenient as it will help in avoiding the roots of the cuttings reaching the gravel layer assuring good drainage to the rooting bench. It will also facilitate to “harvest” the crop of rooted cuttings.

Rooting cuttings is going to be done at the two times stated in Component 1: end of spring-early summer, when very good results are normally obtained, and during the autumn, to take advantage of the second period of vegetative growth in olive trees. But the exact time to start each rooting season may change a little bit from place to place and according to the year. Anyway these two times are the best for getting good rooting percentages provided everything is done as explained. Because of the always young stage of mother trees derived from its management, still another third rooting could be tried if needed. Effectively it has been shown that hedgerow mother plants kept in that way by avoiding them from flowering are able to provide high rooting percentages even in winter time. Even a fourth one could be done if adjusting the starting times, as the rooting time is about two months.

Once the cuttings are rooted they are directly planted in rigid plastic pots measuring 8 x 8x 15 cm, where they will be growing during some months in a lath-house, until reaching enough size to be planted in the field. According to the experience a saleable nursery tree should be at least 100-cm high, with some lateral shoots only at its upper end. The root system of this plant type has fully explored all the available space in the

pot without having started to develop in a spiral way, like a corkscrew. And that trunk height is advisable not only for allowing for mechanical harvesting by trunk shakers, but also for good productivity and general orchard management.

It is advised to use pots with a pronounced truncated cone shape, the inner walls ridged lengthwise and large openings at the bottom. Therefore they avoid root spiralling, because the ridges encourage root growth towards the outermost parts of the substrate, and prevent waterlogging, also the roots from emerging from the pots because of the improved aeration at the bottom (usually called air pruning). As a result, the olive trees have a better root system, which grows in balance with canopy development.

In the places where the Pilot Nurseries are to be established this growth phase may be completed in a growing season, with or without the help of a lath-house, if that growth start at the end of winter, so that the plant can reach sufficient height for the incipient canopy to be at one metre above ground when planted, as stated above. The date to start training the plant to a single stem is of vital importance. The technique consists of eliminating all but one (the most vigorous and straight) shoot of those growing from the rooted cutting, keeping the two basal thirds of such stem clean of lateral branches until it reaches about 1 m in height. This is done by manually eliminating the new lateral shoots right when they start sprouting. The permanent lateral shoots will be allowed only when established at more than 100 cm from the ground. It has not to happen necessarily in the nursery, although it is cheaper there than in the orchard. It is essential to use stakes in order to keep the plants growing straight up during this phase.

Taking into account the development of the plants produced and the number of times they need to be pruned to keep their main stem unbranched, the best time to start training in the nursery is when the average height of the better shoots is about 38 cm, which usually happens after 5 months of free growth in a normal growing season. One metre tall plants are obtained after 7.5 months, with pruning restricted to the last two and a half months. From then on, even the quality of the plant obtained can be improved, because the future main branches of the tree will already be growing above one metre when planting it.

Silty sand is a popular substrate although quite poor in nutrients. In any case it is advisable to check that there is no pathogen infestation in the substrate, which could help spread serious diseases such as verticillium wilt or nematode infestation. This will produce a good growth, provided that slow release fertilisers are used, or that at least it is previously fertilised. It has been reported that foliar fertiliser application, combined with amino acids, does not contribute much to plant growth where the plants are grown in this substrate, whether fertilized or not.

To force growth as much as possible it is advisable to use a neutral compost of Sphagnum-type peat-moss, rich in organic matter and slightly fertilised. This makes for excellent development and does not require extra fertilisation. However, it does require more frequent watering than other more compact substrates. It can also be mixed with silty sand, in which case it is advisable to fertilise after the first few months. Other types of peat-moss, like lightly alkaline and low in organic matter and nutrients, used alone or mixed with silty sand, offer slower growth than silty sand by itself. In any case, the use of slow release fertilisers is always advisable. And it is not possible to use some types of

growing medium if certified plants are going to be produced. This subject is not covered here because it is not in the present objective of the project.

Micro-sprinkler irrigation is the most commonly used method in commercial nurseries, but drip irrigation works well and keep soil moisture at near-field capacity levels if properly designed and monitored. It also has the advantage of being used for helping the fertilization if needed. The irrigation frequency has to be determined according to the time of year and the substrate water retention ability.

The objective, output, activities, input and timing for the component are presented below.

Activities:

Period	Activity	Late spring-early summer production of olive nursery trees by rooting soft-wood cuttings
May-June	Activity 2.1.	Preparing the green-house and lath-house.
	Activity 2.2.	Starting to take plant material from the mother plant collection.
	Activity 2.3.	Preparing and treatment of cuttings and planting them in the rooting benches.
June	Activity 2.4.	Continue preparing and treatment of cuttings and planting them in the rooting benches
July	Activity 2.5.	Cuttings start rooting. Monitorage of the process.
	Activity 2.6.	Removal of rooted cuttings from the benches and planting them in pots.
August	Activity 2.7.	Continue/finish the removal of rooted cuttings from the benches and planting them in pots. Replace losses of rooted cuttings in pots.
September	Activity 2.8.	Transfer of the pots with the rooted cuttings to the lath-house.
October-March	Activity 2.9.	Growth of rooted cuttings into the pots until reaching saleable size, around 1 m height and good stem calliper

Period	Activity	Autumn production of olive nursery trees by rooting soft-wood cuttings
September	Activity 2.1.	Preparing the green-house and lath-house.
	Activity 2.2.	Starting to take plant material from the mother plant collection.
	Activity 2.3.	Preparing and treatment of cuttings and planting them in the rooting benches.
October	Activity 2.4.	Continue preparing and treatment of cuttings and planting them in the rooting benches
November	Activity 2.5.	Cuttings start rooting. Monitorage of the process.
	Activity 2.6.	Removal of rooted cuttings from the benches and planting them in pots.
December	Activity 2.7.	Continue/finish the removal of rooted cuttings from the benches and planting them in pots. Replace losses of rooted cuttings in pots.
January	Activity 2.8.	Transfer of the pots with the rooted cuttings to the lath-house.
February- July	Activity 2.9.	Growth of rooted cuttings into the pots until reaching saleable size, around 1 m height and good stem calliper

Inputs:

- Activity 2.1** Green-house and lath-house buildings. Equipment for the preparation of these areas.
- Activity 2.2** Mother plant collection in proper conditions. Equipment for shoot removal operations.
- Activity 2.3** Equipment and products (hormones, fungicide,...) for the preparation of the cuttings.
- Activity 2.4** Equipment and products for the preparation of Propagation benches and medium.
- Activity 2.5** Adequate humidity and temperature conditions. Mist generating system.

- Activity 2.6* Equipment and products for the removal and planting.
- Activity 2.7* Equipment and products (substrate, fertilizers) for the removal and planting.
- Activity 2.8* Lath-house with adequate conditions.
- Activity 2.9* Training of nursery trees (one vigorous shoot). Products (stakes, fertilizers, substrate,...).

Timing: This activity will be developed during the whole timeframe of the project (4 years) after component 1 is finished

Costs: **446.000 USD**

COMPONENT 3: TRAINING, TECHNOLOGY DISSEMINATION AND PROMOTION OF AUTOCHTHONOUS OLIVE GENETIC RESOURCES

Objective: 3. Preparation and implementation of training programs for intensive nursery management and exposure to modern and innovative olive propagation techniques for PNC staff and technicians. Training of technicians and producers in the use and management of quality olive plants. Dissemination and demonstration of the benefits of using quality olive plants among the different stakeholders.

Output: 3. A minimum of 50 olive producers and over 75 technicians from every participating country will be trained.

Description:

The problem that arises from the use of plant material without a varietal characterization defined is one of the main olive growing challenges in participating countries in this project. Thus, it is not surprising that even the new plantations reach a large number of varieties without being correctly identified or that even the farmer is unaware of the variety he is planting. This is coupled by the incorporation of the importation of plant materials, whose behavior under the conditions of the area has not been tested.

This leads to uncertain results, which are often low productivity, low yields and other physiological problems, that adversely affect the economic viability of plantations in these areas.

The availability of quality plant materials that are identified and have a behavior that is known and adapted to the environment implies a need to ensure viability of farms and the development of a modern olive plant in these countries.

The work of characterization and conservation of plant material carried out in North Africa (Algeria, Egypt, Morocco and Tunisia) through the project funded by CFC "Conservation, Characterization, Collection and Utilization of the Genetic Resources in Olive" provides an excellent starting point for the development of a quality plant material propagation program adapted to the particular needs of each area, through the implementation of pilot nurseries.

Thus, the primary objective of the pilot nurseries would be the production of quality plants as well as serve as reference and provide training and support to the various stakeholders (farmers, technicians, administrations). This will result in the adoption of the best practices of olive production, will modernize the olive sector in these countries and will result in an increase in farmers' income.

For the effective implementation of the use of certified quality plants, it is essential to undergo training in technical aspects (propagation, selection and use of plant material) and awareness efforts to convey the advantages of using

certified material (and drawbacks of the current situation) and help overcome barriers set up by a more traditional agriculture.

The training has different levels structured according to the objectives to be achieved for each group of recipients. The characteristics of each level are described in the following table.

Level	Addressee	Training Objectives	Contents	Types of training
Level 1	Personnel of the Pilot Nurseries	<ul style="list-style-type: none"> -Be the reference when it comes to technical knowledge, in both the nursery and the use and management of propagating material and nursery trees, which will enable them to develop their work and help support technicians and producers. -Know the advantages of using quality plant material, to be able to discuss it on any level. -Provide training to other staff. 	<ul style="list-style-type: none"> - Propagation and management of plant material in the nursery -Management of nurseries -Selection, use and plantation of nursery trees -Advantages of the use of quality plant material for propagating and planting 	<ul style="list-style-type: none"> -Classes -Workshops -Demonstrations <p>(theoretical and practical content)</p>
Level 2	Technicians	<ul style="list-style-type: none"> - Get solid technical knowledge regarding the management and use of propagating material and nursery trees that will enable them to develop their work and provide support to producers. -Know the advantages of using quality plant material, to be able to discuss it with the producers - Provide training to producers and other stockholders. 	<ul style="list-style-type: none"> Propagation and management of plant material in the nursery -Selection, use and plantation of nursery trees -Advantages of the use of quality plant material for propagation and planting 	<ul style="list-style-type: none"> -Classes -Workshops -Demonstrations <p>(theoretical and practical content)</p>

Level 3	Producers	-Get sufficient knowledge regarding the use and plantation of such material for the adoption and implementation on their farms. -Provide sufficient information and understanding of the advantages of using quality plant material.	-The usage and plantation of plant material -Advantages of the use of quality plant material	-Classes -Workshops -Demonstrations -Monitoring of operations (predominantly practical content)
Level 4	Other agents (administrative personnel, associates and industrial personnel)	-Provide sufficient information and understanding of the advantages of using quality plant material.	- Advantages of the use of quality plant material	Seminars Conferences (predominantly theoretic content)

Activities:

The training and promotional activities are organized by three interrelated points:

-Documentation

Elaboration and update of support material. Activities focused on generating printed material (guides, booklets,...) and a website with accessible information for the different stakeholders.

Activity 3.1 Manufacture of printed material. This will take place during the first 12 months of the project phase in order to obtain the materials needed for the training phase. This will also occur after the annual meetings. The material will be updated throughout the duration of the project, adding or modifying the contents.

The documents to be created will prevail simplicity and facilitate usage and will be adapted to the target audience.

The material is elaborated according to the classification of established levels and the content taught in each level. Thus, the documents prepared are:

Level 1+2: Advanced technical guide, fact sheets, posters

Level 3: Basic technical guide, fact sheets, and posters

Level 4: fact sheets, posters (these documents will also be used for promotional activities).

Activity 3.2

Creation of a website. Similarly, a multilingual website will be created during the first 6 months to provide support and a meeting place for agents involved. The website will be continuously updated throughout the entire duration of the project. There will be specific sections with the documentation for each group of agents. The creation, development and maintenance of the website will be the responsibility of the PEA, in coordination with project managers in each country.

The site will have an open section where the documents described in Activity 3.1 can be download and where other relevant documents (presentations, technical articles, etc.) can be incorporated. It will also have a private area to facilitate contact and transmission of knowledge amongst the participating technicians.

One example is the project website <http://www.tdcolive.net/>, whose description is included below (taken from the above website):

TDC-OLIVE project (contract no. FOOD-CP-2004-505524) is an initiative included in the Sixth Framework Programme of the European Union, Priority 5, aimed to olive and olive oil SMEs.

Its main target is the creation of a physical and virtual network of Technology Dissemination Centres (TDC) as means of support to enterprises of this sector, as well as a bridge between them and Research and Development institutions.

-Training

Training tasks will be defined in terms of target audiences and structured according to their objectives. The basic format will be the workshops of theoretical and practical content.

Activity 3.3 *Nursery staff training (level 1)*. There will be an intensive training at the end of the phase of establishment of the nursery and during the production phase, to provide the recipients with solid expertise in nursery management and management of plant material.

Training will be done intensively and parallel to the work of establishment in the nurseries.

This activity will focus on mutual understanding between technicians from each participating country, to facilitate further communication.

The activity will consist of two modules:

Module 1. Management of the Nursery. Intended for the tasks to be carried out during the operation of a nursery (and management of the olive dissemination). The technical manual discussed in Activity 3.1 will be used as support material.

Teachers: experts in plant propagation and nursery management.

Duration:

2 weeks (before the completion of the nursery)

1 week (at the beginning of the operation of the nursery)

Organization: PEA

Module 2. Use of plant material and varietal selection

Intended for the tasks related to the use of plant material after its removal from the nursery (handling, transport, and plantation). The technical manual discussed in Activity 3.1 will be used as support material.

Teachers: experts in the management of plant material and olive plantations.

Duration:

2 weeks (before the production of the first plants)

Organization: PEA

Annual Summits

Annual meeting will be held to discuss the progress of the project and update technical skills.

These meetings will be highly technical and will be held in the form of conferences, with duration of 3 days. A representative from each country would participate in these conferences to give their experiences. There will also be international experts who would give lectures and technical reinforcement in the fields requested by the participants.

A limited number of outsider technicians may attend these summits with the objective of deepen their knowledge and expertise.

Organization: PEA

Activity 3.4 *Training of technicians (level 2).* Training will be carried out continuously, which will begin before the production of the first plants and will continue until the end of the project. It will consist of workshops and practical sessions for the technical training of attendees. Its programming is tailored to the needs identified in each case. It will be taught by international experts, nursery staff, and when the training level permits, by technicians with the appropriate level of knowledge.

The training method would be by means of workshops with a combination of theoretical and practical demonstrations.

It will begin once the initial training of nursery staff has been completed

Activity 3.5 *Training of farmers (level 3).* The activities will give priority to the practical aspects and advantages of using quality material. It will be conducted during periods of low agricultural activity to favor attendance. This will be carried out by means of workshops

and field demonstration. This will be handled by nursery staff and, as they undergo training, by the technicians (level 2).

It will be coupled by a follow-up of the farms that adopt certified material, to identify any difficulties that arise and so that these same farmers act as prescribers. Such monitoring shall be conducted initially by nursery staff and, as the project progresses, other technicians.

Activity 3.6 *Training of other agents (level 4).* These activities have the fundamental objective of obtaining information and awareness of stakeholders (administrative personnel, associates and industrial personnel) in the need to use quality material, so that they can demand and support their implementation. It will coincide with the training of the *farmers*, although its content will be more theoretical. Regular contact will be maintained amongst these agents in order to obtain frequent updates regarding the evolution of the project.

-Promotion

Activities aimed at promoting awareness and use of quality plant materials. A positive attitude from the stockholders is essential for the success of the project.

Activity 3.7. Awareness campaign. It will take place during the time of the launch of the nursery, before the production of the first plants. It will occur annually, coinciding with the publication of the annual reports.

The material generated will be used in the activity 3.1 and the website will be used as a source of updated information on the project.

Activity 3.8. Communication of results. It will be held after the annual meeting, wherein all the input from each country is combined and the technical skills of the nursery staff are updated.

This will come in printed format using the progress report prepared by the PEA and incorporating all results found in the website.

Inputs:

- Activity 3.1* Definition of content and format of training material to be distributed to the stakeholders, under the supervision of the PEA.
- Activity 3.2* Definition of web requirements and structure under the supervision of the PEA.
- Activity 3.3.* Preparation of teaching materials for the training courses. Purchasing of the hardware needed for the courses (computers, projectors, furniture, etc). Experts and teachers appointed by the PEA.
- Activity 3.4* Preparation of teaching materials for the training courses. Purchasing of the hardware needed for the courses (computers, projectors, furniture, etc). Specialists and teachers appointed by the PEA.
- Activity 3.5* Preparation of teaching materials for the training courses. Teachers appointed by the PEA.
- Activity 3.6* Printed material. Preparation of teaching materials for the awareness campaign. Speakers appointed by the PEA.
- Activity 3.7* Project results.

Timing: This activity will be developed during the whole timeframe of the project.

Component	Activity	Description	Y1				Y2				Y3				Y4				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
C1. PNC establishment			■	■															
C2. Olive plant production					■	■	■	■	■	■	■	■	■	■	■	■	■	■	
C3. Documentation	3.1.	Support material elaboration	■	■	■	■													
		Support material update					■	■	■	■	■	■	■	■	■	■	■	■	
		Conclusions report																	■
	3.2.	Web creation	■	■															
		Web update			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	C3. Training	3.3.	Nursery management		■	■						■				■			■
<i>Nursery staff</i> Orchard management and varieties selection						■	■				■				■			■	
Annual meetings												■			■			■	
3.4		Nursery management							■	■	■	■	■	■	■	■	■	■	
		<i>Technicians</i> Orchard management and varieties selection									■	■	■	■	■	■	■	■	
3.5		Utilization of quality olive plants							■	■		■	■		■	■		■	
		<i>Producers</i> Orchard monitoring									■	■	■	■	■	■	■	■	
3.6		Use of certified material campaign							■	■		■	■		■	■		■	
		<i>Other stakeholders</i> Regular contact with key stakeholders							■	■		■	■		■	■		■	
C3.Promotion		3.7	Awareness campaign			■	■	■					■			■			■
	3.8	Results communication							■					■				■	

Costs: 378.000 USD

COMPONENT4: PROJECT MONITORING AND SUPERVISION

Objective To monitor and supervise the implementation of project activities and its budget according to the project work plans and to ensure the timely achievement of project objectives.

Output Evidence demonstrating the achievement of project objectives and technical reports.

Description:

The project will be supervised in accordance with normal practices satisfactory to the CFC. The PEA will make sure that the contribution committed to the project is delivered by the participant countries in the correct amount and on time. The CFC will perform its normal project monitoring activities, including visits to the project site as required. Reports on the demonstration activities and training manuals will be produced and disseminated. The objectives, output and activities for this component are presented below.

Activities:

- Activity 4.1* Organise annual meeting of the Project Coordinating Committee.
- Activity 4.2* Preparation of Annual Work Plans and Programme Budgets.
- Activity 4.3* Mid-term and final evaluation of the project.
- Activity 4.4* Submission of six-monthly and annual progress reports; annual financial and independent auditor's report.
- Activity 4.5* Annual monitoring visit and report by the CFC.
- Activity 4.6* Preparation and submission of the final Project Completion Report and final financial and audit report.

Inputs:

- Activity 4.1* Organization of meetings.
- Activity 4.2* PEA activities, supervised by SB and CFC.
- Activity 4.3* CB and other experts' participations.
- Activity 4.4* Appointment of independent auditor, CB input.
- Activity 4.5* Visits by CFC supervisors.
- Activity 4.6* Financial and audit experts.

Timing: This activity will be developed during the whole timeframe of the project.

Costs: 164.000 USD

D. BENEFITS AND BENEFICIARIES

There will be two kinds of benefits generated by the project: immediate benefits and longer-term strategic impacts. Immediate project benefits will accrue from the increased value of olive tree production and increased skills. The project will help to strengthen national certification programs, to improve the nursery capacity to produce high potential and healthy olive trees, and increase the capacity of small producers to grow higher quality fruits. Rural families are expected to improve their diets and increase their incomes.

The Government staff will improve their professional knowledge through training and skills transfer. In the longer run, the project will help to create awareness of using healthy planting material, demonstrate the profitability for producers of using improved and safe material and lay the ground to extend the activities to other countries, taking advantage of other financial resources.

The IOC, after the first phase of the RESGEN project and after seeing what the difficulties were, notes that a key issue is the lack of willingness on the part of producers of olive trees to work with indigenous varieties. This lack of plants and access to producers causes a lack of conservation and protection of such indigenous material and the species that therefore can enrich the olive sector.

Another aspect discussed in the first phase of the RESGEN project was that these indigenous accessions were not known to many local producers, who didn't know what the most appropriate techniques and conditions for efficient production were, and the quality of the plants they had was far from the required standards, so there were strong barriers when marketing the production.

For this reason, one of the clear benefits of this project will be to establish a basic protocol for the conservation and protection of these species and varieties or accessions and to provide availability to producers to grow them, increasing their know-how, taking into account the environments around them and the ecosystems in which they are producing.

Except for the olive production initiatives by specialized companies, with export record and a deep knowledge not only of the olive sector in the domestic market but also in the international market, the rest of the producers in the participating countries are small farmers who don't have the knowledge and training to be able to apply it to their productions, causing an output without the required quality in the markets and low productivity.

There is a low recognition of the different varieties in each country, especially if we consider that in some countries like Morocco with 40 different genotypes, Algeria with 71 genotypes and Tunisia with 81 genotypes. It is this kind of data that shows the relevance and create the need for this project not only to foster the production of these varieties, but also to protect them and make every effort to develop and to bring all this knowledge to the producers.

If we consider that there are no other vegetable production subsector which have this wealth and widespread development on the world map not only in production areas but also in terms of varietal wealth and development that this entails, it is necessary to establish a series of measures to preserve and raise awareness of the importance of preserving these products and include them in the sector either via the production of table olives or for the production of olive oil, to give a wider range of possibilities to the consumer and to cover different demands and tastes in every country in the world.

Plagues are recognized as major problems in many agriculture crops, but especially so in vegetative propagated crops. It is also clear that many programs are in place, particularly in the developed countries, to reduced spread of virus –like pathogens, by making virus free planting stock available to growers at reasonable cost, as well as the need for certified virus –free planting stock and propagating material, especially the vegetative propagated crops. It became obvious during the mid twentieth century as data became available regarding the worldly distribution of viruses in these crops and the losses they were causing to growers. The demand for the certified plant materials has increased considerably in recent years particularly on international markets. All the nursery plant of clone of given variety shall be produced from the foundation stock. The foundation stock (primary origin of propagation materials) must be tested to determine its varietal identity (morphological and genetic traits) and phytosanitary status.

Price of sale of the planting materials to the farmer will be from 0,7 US\$ to 1,7 US\$ depending on the participating country, but these range seems reasonable as a starting point. The main objective of these money is not profit itself, but the possibility to finance future growth and wider services for nursery centers and farmers.

This project, with the clear objective to promote the transfer of technology and know-how among stakeholders in the olive sector in all the participating countries, is the perfect vector to a set of basic skills and knowledge that will spread in all levels of the production chain starting from the technical to the nurserymen and the latter to small producers.

As noted in other parts of the document and in previous developed projects, in this sector is very common that one of the sources of training and information for producers is the observation and the transfer of knowledge between producers, although somehow they are competition. Taking into account this feature of the sector, a clear benefit of the development of this project is the training and transfer of technologies, techniques and knowledge to improve the whole process of olive production in participating countries. Clearly, the most important role in this transfer of technology will be performed by the nursery staff because they are professionals who have access to different variety of species, who should know the more appropriate varieties depending on the environment, ground conditions and the ecosystem where it will occur and therefore the level of priority in training. Furthermore, they do not have a commercial pressure for the short term, but will work with long term goals.

For this reason, when developing this project, it has been taken into account the beneficiaries of the same, knowing what are the characteristics of the country's rural areas, its disadvantages compared to the cities and the corresponding per capita income that are well below the "normal" or average figures.

The reasons why, after studying the participating countries can come to this conclusion are the following:

- (a) An increase of the productivity in rural and underserved areas as a result of improved techniques and technology to improve quality.

Tunisia, for example, considers the olive sector as strategic, because of its economic and environmental importance. The evolution of this sector in recent years has been very positive, reaching 160,000 tons in the last five years.

- (b) Greater use of underutilized surface in these marginal areas, so that there will be job creation and improvement of environmental conditions where these pilot nurseries will be established.

In the case of Tunisia, which holds the second position in the world as a country with the greatest planted area to the olive sector (1.7 million hectares), which is one third of the country's arable land.

In Egypt, European investment has taken part, mainly for the production of table olives, but figures are difficult to specify. In any case, all five countries are betting for this sector as an strategic asset for the future, and production areas are increasing in each five of them.

- (c) The continuity and consolidation of a olive oil as one of the core business in the agricultural sector of each of the participating countries as part of their culture. Furthermore, it is also allowing the generation of employment, literacy and higher living standars in these areas.
- (d) An improvement in production quality of the products resulting from better plant and better seed planting techniques. This quality improvement will enable the production to be able to access the market and in some cases, even to international markets, the most demanding and ready to pay for these products.
- (e) The transfer of technology taking into account new researches and the knowledge of experts in the field, will allow a set of principles when creating the nursery will take into account the most suitable conditions for respect environment, energy efficiency and saving of resources. This is a consequence of the extensive studies on the subject and that thanks to this project will be accessible to a community of producers outside the circuit of this type of information and that will be accessed through the manuals and training they will receive.

This project has a very important feature, which is the multiplier effect on the environment, where there is a scale of beneficiaries who will receive a series of impulses and incentives for improving quality of life, improvement of the ecosystem, and so on.

The creation of the nurseries has a clear impact on the development of employment in these areas, because it is a sector that is not well developed and yet there is a clear niche

in the world of olive oil as already, as it has been demonstrated by the experience of the more advanced producing countries such as Spain, Italy or Greece. Interestingly, it is not an untreated area in these countries, but is not professionalized and without sufficient knowledge, but by the need of the sector, there have been some very minority entrepreneurs who have been seeing the possibilities in very specific areas and where the need was latent.

For this reason, it is considered that this project may allow the creation and consolidation of basic support to the olive sector, supplementing latent needs in the participating countries, which do not have the same professionalism and that need clear support to continue the development of a very influential sector in the regional economy and especially in its more social side.

Presentation of the current status of olive growing in the participant countries, with the focus on the nursery industry, in order to check whether the implementation of a project like that envisaged is warranted and the potential and actual market for the project and its estimated penetration and shall forecast the future demand for olive plants, inter alia on the basis of the olive growing development plans of each participant country.

In each of these countries, a “national” schedule with specific plans for the project has already been presented and they have already begun the early stages of the project such as the decision as to the location and the acquisition of land or personnel for production and maintenance. All participating countries avail of the economic and personal resources to deal with the creation of these projects and have set aside part of their budgets to boost the agriculture sector to support this project. In the case of Morocco, they plan to include it within the framework of ‘ Maroc Vert’, in Tunisia it is the National Office of Oil and ITAF in Algeria with the assistance of Ministry of Agriculture as an example. Tunisia has an ambitious national plan with over 3 million trees to be planted every year.

ALGERIA

The Algerian State, with a clear motivation to turn the olive sector into a strategy, has an ambitious plan for 2014 to plant 1 million hectares of olive-related products. These plantings will occur in the steppe which groups 15 wilayas and currently not being used for any type of planting. It is in this region where they want to place the pilot nursery, so it can supply other nurseries and farmers.

The olive trees of over 80% of the total area are grafted olive trees, directly in the mountains where they are natural population, or transplanted to other more accessible areas, but always at very low densities of the order of 40 olive trees/ha. The 74% of the area is devoted to oil production and 26% to the table production. The 13% is irrigated; the rest is grown on dry land, while the annual rainfall in some areas is very favorable, mostly in Bejaia and Tizi Ouzou.

The Central region of Algeria (Wilayas of Bejaia, Tizi Ouzou and Bouira) cultivates about half of the total area of national olive groves, the East (Jijel Skikda, Guelma, Tebessa) around 25% and the West (Mascar, Ain Témouchent) a 22%. In the western the table varieties prevail, while in Central and east the oilers do. The country has an important genetic olive estimated in 71 varieties. The Chemlal is the most widely planted variety, occupying 40% of the national territory, mainly in central and eastern areas, followed by Sigoise, with 15% planted mostly in the Western area. The group conformed by Azerajd, Blanquette of Guelma, Limli and Hamra represents another 15% of Algerian olive, leaving 30% for other varieties.

Currently, there are 30,000 people living from this sector, mainly in the north part of the country, an area of 310,000 hectares. Their objectives are to reach one million hectares, which will sustain about 100,000 people and a production of 30 million plants a year. To reach this goal they must change their production processes, as currently they are not using seedlings, the plant production period is too long (3 years), while in other countries there are periods of 17 months and the production yield is very low. Most of the production of olive oil and table olives in Algeria goes to the sufficiency of the domestic market, which is a traditional importer of vegetable oil and there is a lack of companies designated to the supporting production industries as might be the packaging, marketing, among other, for these products.

With the Pilot Nursery Project, it is primarily intended to create a basis for the new pole of development in the olive sector, characterized by a modern production system with quality and healthy plants, and to turn it into a common vector of best practices among farmers and other nursery sectors. Currently there are about 300 nurseries, which are not skilled in olive products, they are not using modern production techniques, they have a very small scale production and it does not meet the quality standards. They are individual initiatives, private, little significance and are not fulfilling the role they should in terms of supplying farmers, healthy plants to improve the performance of their land.

Taking into account the conversations with the ITAF, being able to be a part of this project would allow them to introduce new production techniques, more modern, by cuttings and grafted olive trees, which would increase the density of 100-200 olive trees/ha to 100-400 olive trees/ha.

The objectives for this project in Algeria are:

- To receive the transfer of technology, because in terms of the planted area are not being productive in comparison with other countries, representing a problem of knowledge and lack of professionalism from the producers.
- Training of technicians and staff to establish the future nurseries with an adequate skill base for the sector.
- To determine the most appropriate technology based on the objectives established by the Algerian State in collaboration with the olive branch and the ITAF.
- Getting the production of quality plants that can be developed in the new olive planting area so that it can play a multiplier role in this area.
- To be able to have of local plant material, which they are currently importing a 90% of the total.

Following meetings with the ITAF (Technological Institute of Arboriculture of fruits and vine) and the affiliate in the olive sector, there is a clear statement, that it is a barely developed sector, where there is a lack of initiatives on the olive sector, they are generalists and they are led by an ill-prepared team who are not developing modern techniques, which makes the productivity and yield very low.

Currently there are about 300 nurseries with plants of poor quality, obsolete equipment and a staff that is not specialized in the olive sector. During conversations with the ITAF, they have made it clear the need to receive training for both the technicians in nurseries to farmers, because right now despite government efforts in the sector, there is a significant barrier which is the lack of knowledge to reach their goals.

The ITAF team also discussed the importance of understanding and implementing new production techniques by cuttings and not through wild olive grafts, which slows down the process, as well as knowing the most appropriate equipment to carry out the objectives and achieve an integrated system nursery which is so far nonexistent.

Unlike in Tunisia or Morocco, in Algeria this initiative is further delayed, but not with less need for the project and when the Algerian state's priority is the olive sector to reach a cultivated area of 1 million tons in 2014. While noting that the area in which the project will be developed is not treated so far and this project will enable a large number of families can benefit from the income resulting from this investment in the olive sector.

The project has the following features:

- It will be public and managed by the ITAF
- It will be placed in the Wilaya of Tiaret in Mahdia
- It has an area of 20 hectares
- It will have the following facilities:
 - Management Building
 - Warehouse for work materials
 - Availability of irrigation system

Olive varieties which are currently in use in Argelia

REG. N°	CULTIVAR	REG. N°	CULTIVAR
SAA000119	Aaleh	SAA000618	Bouchouk Soummam
SAA000117	Abani	SAA000197	Bouchoukra
SAA000271	Aberkane	SAA000115	Boughenfous
SAA000552	Abeskri	SAA000075	Bouichret
SAA000561	Abouchouk (Setif)	SAA000076	Boukaila
SAA000566	Abouchouk (Tamokra)	SAA000543	Bouricha
SAA000551	Aghchren (Setif)	SAA000601	Chemlal
SAA000273	Aghchren de titest	SAA000619	Chetoui
SAA000231	Aghchren d'el ousseur	SAA000159	Derdi
SAA000195	Aghenfas	SAA000607	Ferkani
SAA000563	Aghenfas (Setif)	SAA000036	Gerboua
SAA000269	Agrarez	SAA000073	Grosse du hamma
SAA000548	Agrarez (Setif)	SAA000620	Hamra
SAA000234	Aguenau	SAA000615	Ifiri
SAA000559	Aguenau (Setif)	SAA000554	Issoual
SAA000591	Aharoun	SAA000077	Khadraya
SAA000578	Ahia ousbaa	SAA000019	Limli
SAA000116	Aimel	SAA000199	Longue de miliana
SAA000549	Aimel (Setif)	SAA000239	Mekki
SAA000558	Akenane	SAA000608	Neb djemel
SAA000193	Akerma	SAA000017	Olive De Guelma
SAA000567	Akerma (Tamokra)	SAA000584	Ronde de miliana
SAA000560	Altifane	SAA000037	Rougette
SAA000550	Atounsi (Setif)	SAA000616	Rougette de mitidja
SAA000580	Azeboudj de Khirane	SAA000191	Selti
SAA000553	Azeboudj de Biskra	SAA000157	Sigoise
SAA000270	Azeradj	SAA000033	Souidi
SAA000565	Azeradj (Tamokra)	SAA000562	Tabelout
SAA000555	Azougagh	SAA000035	Tabouchoukt (Setif)
SAA000617	Balbale	SAA000603	Takesrit
SAA000581	Biskri	SAA000113	Taliani
SAA000605	Blanquette	SAA000579	Tefah
SAA000583	Blanquette de gastu	SAA000237	Zeboudj boudoudane
SAA000013	Blanquette de guelma	SAA000582	Zeletni
SAA000229	Bouchouk guergour	SAA000582	Zitoun
SAA000155	Bouchouk lafayette		

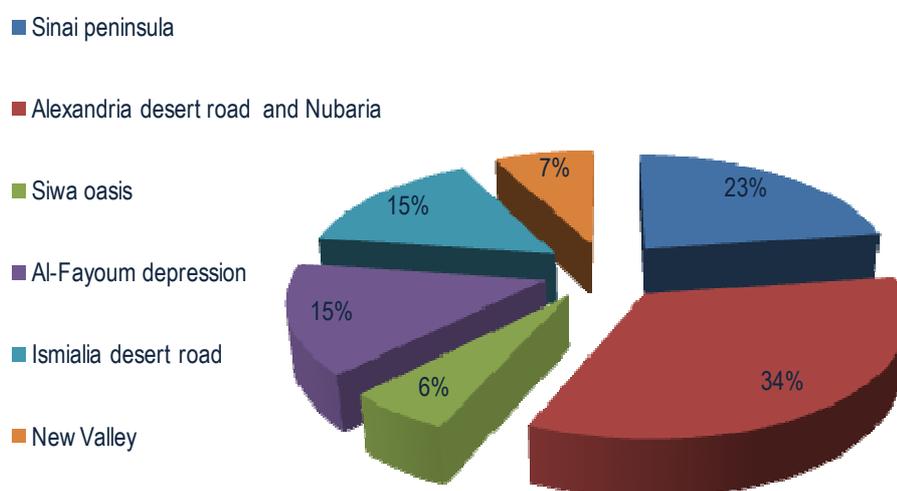
EGYPT

The olive sector represents in Egypt about 13% of the total fruit area. Almost 65% of the current areas cultivated with olives are within reclaimed desert locations. Olive has been traditionally considered as the backbone of the domestic economy in many regions: 80 % of total production for table olive and 20% for oil.

In 2010 Egypt had an olive surface of 71,500 ha, 70% of them already bearing fruit. Thirty years before, in 1980 the olive area was just 3,800 ha.

The distribution of the 35,500 ha of new plantings is located in the newly reclaimed desert lands, irrigated with water brought from the Nile River. The other 32,200 ha are located in the traditional areas. The most important areas are:

Distribution of olive cultivation in Egypt



Horticulture Research Institute

The main varieties are:

- Al-Fayaum: Agizi Shami, Agizi Balady, Agizi Aks, Sinnara, Toffahi, Beid El-yamaim
- Siwa: Hamed, Weteken, Molouky, Siwi and Marrake
- Sinai : Sinawi, Sebhawi, Bez el-Anza and Abou Menkar

These varieties are well suited to pickling and also have the high enough oil contents to make commercial oil extraction worthwhile.

For table olive the most cultivars are Aggizi shami, Dolce, Toffahi and Kalamata, it is important to notice that Kalamata gives excellent quality oil rarely processed for oil due to the high price. However it is In addition, koronieki olives are primarily for high class oil The Coratina, Maraki Contain a high percentage of quality oil and are the most commonly selected for Egypt groves specializing in olive oil production.

Some foreign varieties were introduced to Egypt 20 years ago such as Picual, Manzanilla, Mission, Koronieki, and Coratina. Currently, they are having a good performance in the new cultivated areas like Alexandria desert road (90% Picual) and Al-Fayoum (Picual and Manzanilla).

According to the conversation maintained with the Horticulture Research Institute, for Egypt, the participation in this project would mean:

- To lead to the plant material certification
- To rise up the awareness of nurserymen and producers
- Multiplication and the dissemination of the genetic materials
- To certify mother plants from the project (The certificated olive seedlings products under supervision of the External Agricultural relations)
- To obtain technical supervision

The nursery of the Horticulture Research Institute was founded in 1981 to serve Egypt growing olive industry. It has been a pioneer in producing quality olive trees for commercial growers. Through their experience as leaders in the industry, they have acquired extensive knowledge in growing cultivars olive (table, oil, dual purpose) as well as the ability to supply all varieties to growers of more traditional oil and table varieties. Their main goal is to serve the needs of its grower by having the largest selection of varieties in Egypt in the necessary volume to supply the required quantity of the right variety at the best price.

In Egypt, although the Horticulture Research Institute has been a pioneer, there are not enough public or other private initiatives to cater to all domestic producers.

Currently there is a rising demand among olive growers/farmers for guarantees on varietal identity and it's true to type, plant health and quality and freedom from pests, diseases, nematodes and viruses, therefore establishing and/or enforcing of olive plant standardization, certification schemes and quality production systems are becoming of paramount importance for the further development of the olive industry. In this quality system, the mother plants should be also certified and inspected at intervals to verify that no colonial deterioration has occurred due to frequent cutting of vegetative material; a process which may result in mutilated transplants.

There is also a need to improve potting techniques in order to reduce the possibility of J-roots formation and also to change the pots from round poly bags into square tapered plastic containers to prevent the formation of spiral roots.

Facilities and Equipment to be bought for the project:

- A staff of researcher has publications (thesis and researchers).
- 5 hectares
- Library.
- Computers, lab tops, Telephone, Postage.

Olive varieties which are currently in use in Egypt

REG. N°	CULTIVAR
ARI019	Abou Monkar
GIZ002	Aggizi Akse
GIZ003	Aggizi Oshime
GIZ001	Aggizi Shame
GIZ013	Baid El Hamam
GIZ008	Balady
ARI017	Bez El Anza
GIZ011	Cairo 7
GIZ014	El Lewa
GIZ009	El Salam
GIZ004	Hamed
ARI018	Kossiem
GIZ006	Maraki
GIZ012	Meloky
ARI015	Sebhawy
ARI016	Sinawy
GIZ007	Toffahi
GIZ010	Wardan
GIZ005	Wateken

MOROCCO

The olive sector is the main source of income for about 400,000 farms with 100,000 permanent jobs and is a basic part of the economy for the revaluation of poor areas and the preservation of the environment. Olive plantations occupy 56% of the tree population in the country, which totals 735.000 hectares.

There was a significant increase in oil production, from an average of 46.000 tons in the years 1989-93 to 66,000 tons in the years 2001-2005 and 70,000 in recent years. Currently, there is a total area of 790.000 hectares across the country dedicated to this cultivation, a total production of nearly 1.5 million tons of both olives and olive oil and a sustained growth in the recent years in both acreage and production, which has reached double. Although the presence of other varieties has been determined, most of the olive groves are formed by the Moroccan Picholine variety, considered until now as a variety-population. Also noteworthy are the Haouzia and Menara, like other varieties of interest, only from the point of view of genetic resources such as Hamrani, Boucouika, Dahbia, Meslala, Bakhboukh or Beldi.

The Moroccan olive growing also uses other varieties such as Picholine, Arbequina, Koroneiki or Arbosana.

The following table shows the status of the nurseries in Morocco, separating the official or certified nurseries and those who are not, but are still a source of income for the small farmers. The area with the greatest impact in this aspect is Meknes, characterized by the large area devoted to this crop, followed by the area of Marrakech. It is strange that in the area of Marrakech there is a significant number of unofficial nurseries, even surpassing those in the area of Meknes.

Area in the country	number of nursery center certified	number of nursery center regular
Rabat-Salé-Zemmour Zaer et Gharb-Chrarda-Bni Hssen	1	-
Tanger-Tetouan	3	1
Grand Casablanca	-	-
Oriental	3	6
Taza-Al Hoceima-Taounate et Fès-Boulemane	-	4
Souss Massa-Draâ	1	1
Lâayoune-Boujdour-Sakia El Hamra, Guelmim-Es-Smara et Oued Ed-Dahab-Lagouira	-	-
Marrakech-Tensift-Al Haouz et Tadla-Azilal	9	72
Chaouia-Ouardigha et Doukkala-Abda	-	-
Meknès-Tafilalet	26	14
T O T A L	43	98

Ministry of Agriculture and Fisheries of Morocco

In the following table we see how in areas where nurseries are more present there is a greater number of plants, except in the area of Marrakech, which although has a significant number of incentives in this sector, by not being certified, the production is close to that of other areas with a much lower number nurseries.

From conversations with local experts, in particular with the Director of INRA, the reason behind the problem is the lack of professionalism in these nurseries and the scarce production capacity due to lack of knowledge regarding techniques and the use of technology as well as the inability to select the varieties which are best suited for market to later offer then to small producers.

These are data that illuminate the importance of implementing this project, as there is a clear impact on crop production and consequently in the best performance of the cultivated area, which translates into higher incomes for farmers, who should be the main beneficiaries of this project.

	Number of Nurseries producing plants (2009/10)	
	Certified	Regular
Rabat-Salé-Zemmour Zaer et Gharb- Chrarda-Bni Hssen	24 800	-
Tanger-Tetouan	1 006 000	40 000
Grand Casablanca	0	-
Oriental	2 861 100	1 431 000
Taza-Al Hoceima-Taounate et Fès- Boulemane	0	364 400
Souss Massa-Draâ	2 720 348	30 000
Lâayoune-Boujdour-Sakia El Hamra, Guelmim-Es-Smara et Oued Ed-Dahab- Lagouira	0	-
Marrakech-Tensift-Al Haouz et Tadla-Azilal	5 142 500	1 174 000
Chaouia-Ouardigha et Doukkala-Abda	0	-
Meknès-Tafilalet	12 700 830	1 154 500
T O T A L	24 455 578	4 193 900

Ministry of Agriculture and Fisheries of Morocco

The authorities are hoping to get the following out of the project:

- Knowledge on modern techniques for multiplying olive tree plants
- Supply of authentic plant material and in compliance with national quality standards
- Awareness and knowledge on matters of the potential of local genetic resources.
- Training of technicians and managers of nursery centers
- Rational management of the project activities: project tracking, monitoring and transferring of technology

According to information of the Ministry of Agriculture and Fisheries and the INRA (National Institute of Agricultural Research) as well as fieldwork developed in Morocco, IOC tried to understand and evaluate the reality of the project presented by

them to the IOC for the implementation of pilot nurseries in the area of Meknes, as detailed below.

During these meeting, we could assess that is not a brand new sector, but it is still at a very early stage of development, with few resources and staff on training process. The sector is highly concentrated in the area of Meknes, an area of influence for the olive as well with 26 certified and 14 uncertified nurseries. In the Marrakech area, the number of initiatives amounts to 72 non-certified nurseries according to the data gathered from the Ministry of Agriculture. Taking the above into consideration, this clearly is an area on the first phase of development which has a number of shortfalls that is preventing progress at a rate in accordance with the country's olive oil production.

A reason for this is that they are not familiar with the modern techniques in use for growing olive trees, the basics of maintenance, and the selection of the right varieties according to their environment to be grown in the nurseries.

According to the statements given by officials from the Ministry of Agriculture, this project will enable them to maintain a closer contact with small farmers to help them identify those plants best suited to the climatic conditions of each of the country's marginal areas. They also hope that this project, to which they are assigning funds from their Plan Maroc Vert (For the development of the agricultural sector), will help to trigger an evolution in the production process. In addition, they hope this will allow them to be self-sufficient for domestic demand and to achieve a multiplying effect to take advantage of the surface used in the country's rural areas which would create about 100,000 permanent jobs for families with very low literacy levels.

Their project would be carried out in Ait Harzallah, Haj Kaddour, Wilaya of Meknes:

- Area: 30 ha (extensible).
- Available infrastructures:
 - Multi-span of 2.500m² with atmosphere controlled by computer
 - 30 greenhouses delta 9
 - Mega greenhouse of 20.000m²
 - A laboratory for plant protection for monitoring diseases and pests
 - Laboratory for in vitro cultivation
 - Workshop for the preparation of olive cuttings, vines, etc..
 - Parc à bois 18ha of olive trees, including all varieties listed in the official national catalog.
 - 2 cold rooms.
- Human Resources:
 - A nursery director with a doctorate in biology
 - A head of research and development with a degree in agricultural engineering
 - 4 technicians
 - A technical team from the production of Brahim Zniber (some of which are agricultural engineers)

Olive varieties which are currently in use in Egypt

REG. N°	CULTIVAR
AGA001	Assifigue
ENAMAR057	Bakhboukh Beldi 1
OUEZ00002	Bakhboukh Beldi 2
OUEZ00001	Berimeslal
ENAMAR072	Berri Meslal 3
ENAMAR052	Bouchouika 1
OUEZ00007	Bouchouika 2
AIN000007	Bouchouk
ENAMAR059	Bouchouk Laghild
OUEZ00004	Bouchouk laghlide
OUEZ00005	Bouchouk rkike
ENAMAR053	Dahbia 1
MEN000007	Dahbia 2
ENAMAR058	Fakhfoukha
ENAMAR054	Hamrani
ENAMAR055	Haouzia 1
MEN000003	Haouzia 2
MEN000005	K26
ENAMAR056	Menara 1
MEN000002	Menara 2
ENAMAR051	Meslala 1
AIN000004	Meslala 2
ENAMAR088	OMDZ
ENAMAR087	OT2
ENAMAR070	OZ1
ENAMAR071	OZ2
MEN000001	Picholine Marocaine
ENAMAR081	Pm 2 1202
ENAMAR083	Pm 4 5116
ENAMAR082	Pm 3 5112
	Ronde De La
ENAMAR044	Menara
MEN000004	S19

REG. N°	CULTIVAR
TADLA003	Tadla M14
TADLA004	Tadla M16
TADLA001	Tadla S7
TADLA002	Tadla S8
HAOUZ001	Tamellalet 17
HAOUZ002	Tamellalet 18
HAOUZ003	Tamellalet 22
HAOUZ005	Tamellalet 41
HAOUZ010	Tamellalet 51
ESSA001	Tyoute
ENAMAR089	VS1
ENAMAR090	VS2
ENAMAR091	VS3
ENAMAR069	VS5
ENAMAR093	VS6
ENAMAR060	ZDH1
ENAMAR061	ZDH2
ENAMAR073	ZDH3
ENAMAR092	ZDH4
ENAMAR075	ZDH5
ENAMAR062	ZDH6
ENAMAR063	ZDH7
ENAMAR080	Zitoune DK
OUEZ00009	Zitoune kellal
ENAMAR068	Zmj 1
ENAMAR086	Zms 1
ENAMAR085	Zms 2
ENAMAR084	Zsb 10
ENAMAR067	Zsb 2
ENAMAR076	ZZ1
ENAMAR065	ZZ10
ENAMAR064	ZZ6

TUNISIA

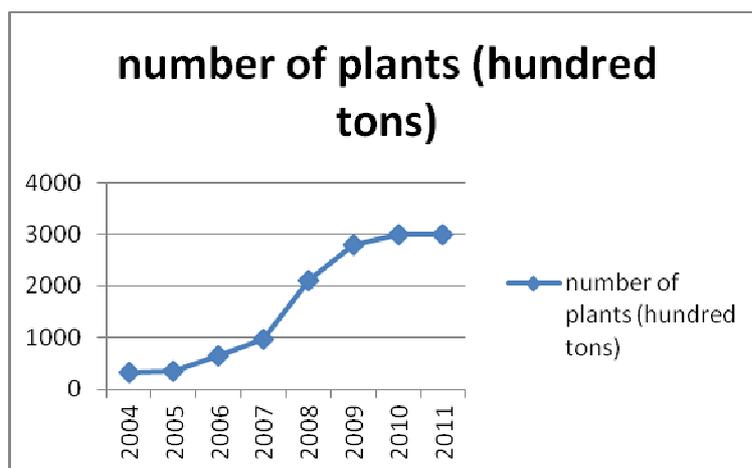
The olive sector in this country is strategic because of its economic and environmental importance. The average oil production has greatly increased since the 80's, from 100,000 to 147,400 tons in 2001-05 and 160,000 tons in the last five years.

The area planted is the second in the world, 1,700,000 hectares, one third of its arable land, almost all dedicated to the production of oil. The current plantation program is 20,000 hectares per year, which corresponds to 35 million plants. They have a brochure variety with 81 varieties that are distributed amongst the three olive-growing areas; North, South and Central, which accounts for 68% of the total olive grove. There are two predominant varieties of oil: Chemlali and Chetoui, with 69 and 12% of olive groves respectively.

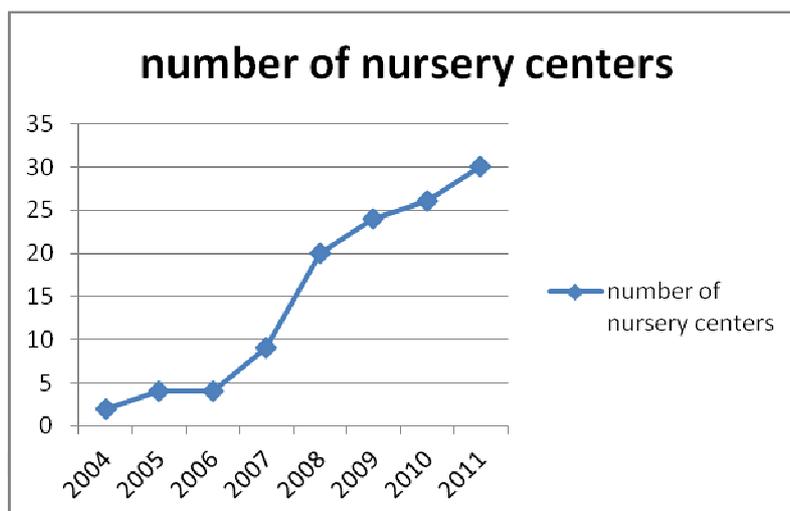
The number of existing nurseries in Tunisia dedicated to olive groves amounts to 26 and has a total production of 4 million plants. In the case of Tunisia, it can be observed in the following graphs how the existing relation between the increase in nurseries and a greater production of plants has evolved following a similar rhythm throughout the past 7 years.

What we expect is that for the following year, the funds and national plantation plans that are being promoted increase production, but above all, we expect that the conditions of the plants and the productivity of the cultivating area greatly improve. Right now, there is a motion for renovation since as the plants in the more rural areas of this crop are old and need to be uprooted and replaced with new plants to recover the productivity lost in this renovation.

Taking into account the conversations with the Olive Oil Agency, being able to be a part of this project would allow them to introduce new production techniques, more modern, by cuttings and grafted olive trees, which would increase the density of 0,75 tons/ha to 1,5 tons/ha.



National Oil Agency in Tunisia



The objectives Tunisia presents for this project are:

- Make higher quality crops available to farmers
- Ensuring the quality of the plants produced according to the specified regulations
- Growing native varieties that are resistant and adapt well to the different regions of Tunisia and with a high yield in order to improve farmers' incomes.
- The transfer and the diffusion of technology on modern production techniques on olive cuttings of high quality which will enable them to supply 26 nurseries in Tunisia.
- Developing the farming of native varieties in the new olive plants.

Agerón Internacional, after its visit to the National Office of Oil, believes it is feasible to include Tunisia among the countries participating in this project. Besides having the means to implement a pilot nursery, there is a proactive interest to further develop this sector and to improve and strengthen the olive sector in a country where this sector is one of the items in the trade balance and has a strong impact on the country's marginal areas.

For this country's team, the project has two clear lines of action, technology transfer and the conservation of native varieties so farmers can use them on their groves. These two lines mean improved yields for the areas intended for this product which can improve the income of small farmers and eliminate part of the problem with the yields that have such an impact on prices.

The project would be carried out in Oued Ellil Bejaoua Delegation (Manouba 25 km from the capital)

- Area: about 22 ha, 11ha and 6ha of forest wilderness
- Available infrastructures:
- 2 glazed greenhouses
- 2200m² of hard plastic greenhouses
- 11.500m² industrial installations
- Buildings:
 - Administration
 - Storage space to store entries
 - Service House

Olive varieties which are currently in use in Tunisia:

REG. N°	CULTIVAR
CNBg 122	Baldi Bel Houla Gafsa
CNBg 303	Baldi Gafsa
CNBg 310	Balhi Sig
CNBg 18	Barouni 1
CSN 6	Barouni 2
CSN 5	Beldi
CSN 7	Besbessi 1
CNBg41	Besbessi 2
CNBg 311	Bidh Hmam
CSN 3	Chaïbi Antha
CSN 12	Chemchali
CNBg 91	Chemchali Gafsa
CNBg 115	Chemlali Balhi
CNBg 070	Chemlali Bent Louzir
CNBg 215	Chemlali Chouamekh
CNBg 306	Chemlali Ghraiba
CNBg 302	Chemlali Meliane

REG. N°	CULTIVAR
CNBg 305	Indouri Jerba
CNBg 138	Injassi Gafsa
CNBg 163	Injassi Hchichina
CNBg 28	Jeddaria Chaal
CSN 17	Jemri
CNBg 228	Jemri Bouchouka
CNBg 216	Jemri Dhokkar
CNBg 307	Kbiret Louzir
CNBg 172	Khchinet Sig
CNBg 157	Mallahi-Kotti
CNBg 301	Mangar Erragma
CSN 4	Marsaline 1
CNBg 106	Marsaline 2
CNBg 011	Meski 1
CSN 16	Meski 2
CNB 199	Meski Zarsis
CNBg 125	Meskyet-Dawla-Gafsa

REG. N°	CULTIVAR
CSN 13	Chemlali Nord
CNBg190	Chemlali Ontha
CNBg 308	Chemlali Ouled Msallem
CNBg 55	Chemlali Sfax
CNBg 065	Chemlali Sig
CNBg193	Chemlali Tataouine
CNBg 33	Chemlali Tunis
CNBg 105	Chemlali Zarzis
CNBg 179	Chemlali-Arbi-Zarsis
CNBg162	Chemlali-Mahares
CNBg 168	Chemlali-Ouled-Youssef
CNBg 19	Chetoui 1
CSN 15	Chetoui 2
CSN 19	Deras
CNBg 185	Dhokar Nafti
CNBg 191	Dhokkar-Tataouine
CSN 18	Dhoukar
CSN 20	Dressi
CNBg 309	Ech-Chahla
CNBg 196	Fakhari
CNBg 121	Fouji Asli Gafsa
CSN 21	Fouji vert
CNBg 223	Gerboua
CSN 1	Gerboui

REG. N°	CULTIVAR
CNBg 135	Mfartah Blettech
CNBg 063	Mlouki Blettèche
CSN 14	Neb-Jmel
CNBg 194	Neb-Tataouine
CNBg 316	Oueslati T
CSN 8	R'khami
CNBg 101	Sahli Gafsa
CNBg 72	Sayali 1
CSN 2	Sayali 2
CNBg 085	Semni Djebeniana
CNBg 312	Souabaa Aljia
CNBg 195	Toffahi
CSN 9	Tounsi
CNBg 120	Tounsi Gafsa
CSN 11	Zalmati
CNBg 128	Zalmati Zarzis
CNBg 136	Zarbout Louzir
CSN 10	Zarrazi
CNBg 200	Zarrazi Douirat
CNBg 304	Zarrazi Injassi
CNBg180	Zarrazi Zarzis
CNBg 90	Zarrazyet-Sned
CNBg 145 Pg	Zeitoun Boubazzoula

E. PROJECT COSTS AND FINANCING

The project cost has been estimated at USD 1,700,000 over four years. The project is proposed to be financed by a grant contribution of USD 900,000 from the Common Fund for Commodities, and counterpart contribution (in kind) of USD 800,000 from the participating countries (USD 200,000 from Algeria, USD 200,000 from Egypt, USD 2,000,000 from Morocco and USD 200,000 from Tunisia). The detailed cost tables indicating the distribution of costs over the standard categories of expenditure and over the project components are given in Annex I.

F. FINANCIAL ARRANGEMENTS (PROCUREMENT, DISBURSEMENT, ACCOUNTS AND AUDIT)

1. Procurement will be in accordance with the Fund's Rules and Regulations for the Procurement of Goods and Services of the Second Account and with the stipulations in the Fund's Financial Procedures Manual for all items financed by the Fund. In accordance with the Agreement Establishing the Common Fund for Commodities, the Fund enjoys exemption from all direct taxes and from customs duties. Contracts with a value exceeding an estimated value of USD 250,000 will be awarded on the basis of international competitive bidding. Contracts with an estimated value between USD 50,000 and USD 100,000 will be awarded on the basis of regional competitive bidding, in accordance with procedures satisfactory to the Fund. For contracts with a value between USD 5,000 and USD 50,000 international shopping procedures will apply. Local shopping procedures will apply for contracts valued at less than USD 5,000. Consultants will be selected and recruited following accepted international procedures.
2. Disbursement against the purchase of equipment, materials, consultancy services, operating expenses costing USD 500 or more will be specifically documented. Disbursement against the purchase of items with a value of USD 500 or more shall be supported by copy documentation like invoices/payment receipts. Other expenditures will be reimbursed against certified Statements of Expenditures (SOE). The Fund will make an initial deposit into the Project Account to be opened by the PEA for the project, in an aggregate amount of USD 175,000 (initial Authorized Allocation). The Project Account will be replenished in accordance with the Fund's procedures for operating a Project Account. Based on an agreed work programme and allocation of responsibilities, the PEA shall provide funds to the Collaborating Institutions for implementation of their part of the programme. Prior to first disbursement of the funds to the PEA, the committed inputs of the PEA and the Collaborating Institutions are confirmed in writing. The PEA has a system where budget codes are opened for each project separately within the center but not separately at the PEA bank account. All disbursement requests will be made by the PEA. All project funds will be held in USD in PEA's bank account. The funds will be assigned a specific budget and donor code, so that they are identified with PEA's accounting records. The PEA can request the CFC to transfer directly the required amount to a specified collaborating institutions' account. The Common Fund shall disburse funds for eligible expenditure in accordance with its internal Financial

Procedures.. The PEA shall submit a financial statement every 6 months seeking reimbursements. Reimbursement can also be sought when the amount available against the Authorized Allocation falls below 25% of the Authorized Allocation..

3. The PEA and collaborating institutions will maintain independent and appropriate financial records and accounts in accordance with internationally acceptable accounting practices. All project accounts, including the Project Account, will be audited annually, unless otherwise agreed by the CFC, by PEA's external auditors..The audited accounts and the Auditor's report, including separate opinions on SOE and utilisation of funds in the Project Account, will be submitted within five months after the end of the related project's fiscal year.

G. ORGANIZATION AND MANAGEMENT

The project will be implemented in five Mediterranean olive producer countries, Algeria, Egypt Morocco and Tunisia. Project management will be based at the PEA headquarters. The project will be managed by a Project Coordinator to be contracted under the project, with funding for the position included in the CFC share of the project budget.

1. The PEA will nominate the Project Coordinator, who will be responsible for overall execution of all project activities according to the project document and subsequent workplans and budgets, for maintaining close consultation with the national coordinators and local partners in the project focus countries, for dissemination of information on project activities, especially to the local farmers, for organizing and implementing regular coordination and planning meetings and workshops, and for preparation of periodic technical and financial reports. The nomination of the Project Coordinator will be cleared by the Fund and the SB.
2. At the beginning of project implementation, a consultative meeting will be organized in order to draft the first annual workplan and budget, to define specific output parameters and determine the relevant monitoring indicators, and to communicate to the project institutions (and project staff) the administrative and financial reporting requirements of the CFC in the course of project implementation.
3. During the implementation period, the PEA, together with the project institutions in the project focus countries, will work together in order to achieve the targets set forth in this document, and in the annual workplans.
4. The PEA Project Coordinator will compile programme and financial reports from the focus countries, in order to prepare annual programme and financial progress reports. The Project Coordinator will be responsible for efficient exchange of information between the national project managers, the PEA and the CFC.

5. Supervisory Body: The International Olive Council

The International Olive Council will serve as the International Commodity Body (ICB) and Supervisory Body (SB) for the project.

Address:

International Olive Council
C/Príncipe de Vergara, 154
28002 Madrid – Spain
Tel.: 0034 91 590 36 38
Fax: 0034 91 563 12 63
E-mail ioc@internationaloliveoil.org
Website: www.internationaloliveoil.org

6. The IOC with headquarters in Madrid, Spain was established in 1959 to administer the International Agreement on Olive Oil, signed in 1956. Supervisory activity will be entrusted to the Unit Technical.

7. The general brief of the Unit Technical is to help the Council Members to find solutions to sectorial problems, to contribute towards the modernisation of olive growing, olive oil production and table olive processing, and to take action to improve and conserve the environment. It does so by:
 - encouraging research and development to devise techniques to:
 - a) raise productivity;
 - b) improve quality;
 - c) lower costs;
 - d) protect the environment;

 - encouraging the transfer of technology and training in the olive sector;

 - providing training and refresher opportunities for technical and managerial staff in subject areas relating to cultivation methods, quality improvement, olive oil tasting, table olive processing technology, crop health care, irrigation, environmental protection, etc.;

 - developing collaborative R&D projects of general interest to the Council Members;

 - drawing up standards for olive oil and olive-pomace oil;

 - providing countries with technical assistance in drawing up and implementing national improvement schemes;

- providing countries with logistic support to create pilot demonstration stations serving as core extension and development centres;
 - building effective cooperative ties between institutes and research and experimental centres in order to encourage technology transfer, to facilitate information exchange and experience-sharing and to speed up the achievement of results through proper task allocation;
 - publishing and disseminating technical documentation.
8. The chief objectives of the International Agreement on Olive Oil and Table Olives 2005, currently in force are to facilitate international cooperation on world problems affecting olive products; promote research and development for the modernization of olive cultivation and the industries processing its products; facilitate the study and application of measures devised to expand the international trade in olive products; seek to balance production and consumption; reduce problems relating to fluctuating market supplies; forestall and oppose unfair competition practices and ensure delivery of goods complying with the contracts signed; foster the coordination of policies covering olive products; enlarge market access; ensure reliability of supplies and devise trade structures, especially by improving consultations and the supply of information.
 9. The Council, from its own resources, provides special funds for meeting its development objectives and procures financial and technical assistance from competent international, regional, or national organizations to supplement its own efforts and resources. IOC has the necessary staff and resources to adequately supervise the proposed project. This capacity has been proven in the ongoing projects, which it has ably supervised.
 10. **Project Executing Agency PEA:** It is proposed that the PEA should be a research centre or institution from one of the project participant countries that has already taken part in project RESGEN CFC/IOOC/03. It is proposed that the choice be made jointly by the CFC and IOC.

11. **Project Executing Agency PEA:** The Project propose that the selection of the PEA will take into account the following criteria

- 10.1. In depth knowledge of the local nursery centers and plant production requirements and characteristics of the participant countries, as well as cultural and economic background of those countries.
- 10.2. Solid technical knowledge of Nursery centers organization and management.
- 10.3. Sufficient knowledge and understanding of the olive agricultural characteristics
- 10.4. Previous experience in the RESGEN CFC/IOOC/03 will be valued as a positive item
- 10.5. Knowledge on the management and development of the projects financed by the Common Fund.

H. PROJECT MONITORING AND EVALUATION, REPORTING AND SUPERVISION

1. The PEA will submit bi-annual (six monthly) and annual progress reports on the results of project implementation. These progress reports from the PEA (as submitted to the IOC and the CFC) will include an assessment of the project results against the targets set forth in the project document and in the annual work plans. Discrepancies between targets and actual results will be substantiated, and remedial actions proposed as required. Major constraints identified in project implementation, and successful achievement of project targets and objectives will be documented, and recommendations for follow up will be provided. The IOC shall provide its comments on each report to the PEA and to the CFC. The CFC will carry out regular monitoring of the project, in coordination with the IOC, which will also carry out supervision in its capacity as Supervisory Body for the project.
2. Annual work plans and budgets will be submitted to the CFC through the IOC no later than two months before the start of the subsequent project year. The comments and suggestions of the ICB and CFC will be incorporated in the final draft of each annual work plan and budget.
3. Upon completion of the project, the PEA will prepare a Project Completion Report (PCR) to highlight the project results and achievements, constraints and lessons learned in the design and implementation of the project. The PCR, along with the final submission of accounts and external audit, will be submitted not later than three months after the completion of the activities of the project to the IOC, with a copy provided to the CFC. The IOC will submit its comments and observations on the PCR to the CFC with a copy provided to the PEA. The CFC may require, as appropriate, a review of the PCR in consideration of its own comments and suggestions, as well as those of the IOC as ICB. At the end of the project, a final evaluation will be undertaken by the CFC, with involvement of the ICB. The PEA,

the ICB, and the CFC shall agree upon the actual timing and details of the final evaluation.

4. The PEA will ensure proper co-ordination of implementation activities for which it may set up a coordination committee with the local bodies, as it sees fit. The project would be implemented on the basis of an annual work plan and budget, as agreed between CFC, the SB and the PEA. The PEA will coordinate the incorporation of the country work plans and budget into the overall project work plan and budget, which shall be submitted to the SB and the CFC at least 60 days before the start of implementation of such programme. The SB will provide its comments and suggestions as regards the work plan and budget to the CFC, as applicable, and the CFC will provide joint comments and suggestions in response, as applicable, to the PEA. Such comments and suggestions will be incorporated into the final annual work plan and budget prior to each project year.
5. A mid-term project evaluation shall be carried out by an independent evaluation team about 18 months (after 12 months, and not later than 24 months), after the start of the implementation. A mid-term evaluation report will be prepared and submitted to the Supervisory Body for comments and CFC for approval. The results of the mid-term evaluation will be used as a basis upon which to make any improvements which may be required for successful and effective project implementation.

I. RISKS

1. The cost-effectiveness of the project, in terms of enhancing the income of olive farmers, is linked to the opportunity for higher productivity and quality of the commodity and is sustained by both the abundance of the raw material in the targeted region and the favourable market trend in olive oil consumption.
2. Successful implementation of the project is predicated on a commitment from the national collaborating institutions and the Government authorities toward the long-term sustainability of project activities.
3. No risks are anticipated in this project, given three sets of information: 1) the significant interest expressed by the countries in the success of the project; 2) the vast international experience of the PEA selected to implement activities and 3) the design of the project, which contains significant details and benchmarks against which the SB and the CFC may check and measure progress at any time through project implementation.

ANNEX I: SUMMARY COST TABLES

TABLE 1
SUMMARY COST TABLE BY COMPONENT (USD)

Project component		Total project cost	CFC contribution
1	Establishment of Pilot Nursery Centres:	684.000,00	300.000,00
2	Pilot Production of Top Quality Olive Plants	454.000,00	228.000,00
3	Training and Dissemination	378.000,00	188.000,00
4	Project Monitoring and Supervision	164.000,00	164.000,00
	Sub-total	1.680.000,00	880.000,00
	Contingencies	20.000,00	20.000,00
	Grand total	1.700.000,00	900.000,00
%	financed	47,06	52,94

TABLE 2
SUMMARY PROJECT COST BY COMPONENT AND YEAR (USD)

Project component		PY1	PY2	PY3	PY4	Total
1	°	684.000,00	0,00	0,00	0,00	684.000,00
2	Pilot Production of Top Quality Olive Plants	113.500,00	113.500,00	113.500,00	113.500,00	454.000,00
3	Training and Dissemination	94.500,00	94.500,00	94.500,00	94.500,00	378.000,00
4	Project Monitoring and Supervision	41.000,00	41.000,00	41.000,00	41.000,00	164.000,00
	Sub-total	933.000,00	249.000,00	249.000,00	249.000,00	1.680.000,00
	Contingencies	5.000,00	5.000,00	5.000,00	5.000,00	20.000,00
	Grand total	938.000,00	254.000,00	254.000,00	254.000,00	1.700.000,00

TABLE 3
PROJECT COST BY CATEGORY OF EXPENDITURE (USD)

Category		Total Cost	CFC Contribution	Counterpart
I	Equipment	300.000,00	300.000,00	0,00
II	Civil works	384.000,00	0,00	384.000,00
III	Materials and supplies	436.000,00	228.000,00	303.000,00
IV	Personnel	113.000,00	0,00	113.000,00
V	Technical assistance and consultancy	58.000,00	60.000,00	0,00
VI	Duty travel	70.000,00	60.000,00	0,00
VII	Dissemination and training	155.000,00	68.000,00	0,00
VIII	Operational costs	64.000,00	64.000,00	0,00
	PEA sub-total	1.580.000,00	780.000,00	0,00
IX	Supervision, monitoring and evaluation	100.000,00	100.000,00	0,00
X	Contingencies	20.000,00	20.000,00	0,00
GRAND TOTAL		1.700.000,00	900.000,00	800.000,00

TABLE 4
DETAILED PROJECT COST BY CATEGORY OF CFC AND COUNTERPART CONTRIBUTION (USD)

Category of Expenditure		PY1	PY2	PY3	PY4	Total Cost	CFC	Counterpart
I	Equipment	300.000,00	0,00	0,00	0,00	300.000,00	300.000,00	0,00
II	Civil works	384.000,00	0,00	0,00	0,00	384.000,00	0,00	384.000,00
III	Materials and supplies	109.000,00	109.000,00	109.000,00	109.000,00	436.000,00	228.000,00	208.000,00
IV	Personnel	28.250,00	28.250,00	28.250,00	28.250,00	113.000,00	0,00	113.000,00
V	Technical assistance and consultancy	14.500,00	14.500,00	14.500,00	14.500,00	58.000,00	58.000,00	0,00
VI	Duty travel	17.500,00	17.500,00	17.500,00	17.500,00	70.000,00	70.000,00	0,00
VII	Dissemination and training	38.750,00	38.750,00	38.750,00	38.750,00	155.000,00	60.000,00	95.000,00
VIII	Operational costs	16.000,00	16.000,00	16.000,00	16.000,00	64.000,00	64.000,00	0,00
	PEA sub-total	908.000,00	224.000,00	224.000,00	224.000,00	1.580.000,00	780.000,00	800.000,00
IX	Supervision, monitoring and evaluation	25.000,00	25.000,00	25.000,00	25.000,00	100.000,00	100.000,00	0,00
X	Contingencies	5.000,00	5.000,00	5.000,00	5.000,00	20.000,00	20.000,00	0,00
Grand total		938.000,00	254.000,00	254.000,00	254.000,00	1.700.000,00	900.000,00	800.000,00

TABLE 5
SUMMARY FINANCING PLAN BY COMPONENT AND SOURCE (USD)

Project component		Counterpart contribution	CFC contribution	Total project cost
1	Establishment of Pilot Nursery Centres:	384.000,00	300.000,00	684.000,00
2	Pilot Production of Top Quality Olive Plants	226.000,00	228.000,00	454.000,00
3	Training and Dissemination	190.000,00	188.000,00	378.000,00
4	Project Monitoring and Supervision		164.000,00	164.000,00
5	Sub-total	800.000,00	880.000,00	1.680.000,00
	Contingencies		20.000,00	20.000,00
	Grand total	800.000,00	900.000,00	1.700.000,00
	financed %	47,06	52,94	100,00

TABLE 6
SUMMARY OF COUNTERPART CONTRIBUTION OF PROJECT PARTICIPANT COUNTRIES (USD)

Permanent local staff (managerial and workers)	Algeria	Egypt	Morocco	Tunisia	USD	
One national leader/country	12.000,00	12.000,00	12.000,00	12.000,00	48.000,00	
Two casual workers/country	6.000,00	6.000,00	6.000,00	6.000,00	24.000,00	
Transport allowances	8.000,00	8.000,00	8.000,00	8.000,00	32.000,00	
Sub-total					104.000,00	Component 2
Vehicles & Transport Cost						
One vehicle/country	8.000,00	8.000,00	8.000,00	8.000,00	32.000,00	
Fuel, insurance, transport expenses	4.000,00	4.000,00	4.000,00	4.000,00	16.000,00	
Sub-total					48.000,00	Component 2
Management						
Civil works	96.000,00	96.000,00	96.000,00	96.000,00	384.000,00	Component 1
Dissemination and demonstration	47.500,00	47.500,00	47.500,00	47.500,00	190.000,00	Component 3
Agricultural field management	18.500,00	18.500,00	18.500,00	18.500,00	74.000,00	Component 2
Sub-total					648.000,00	
Grand total	200.000,00	200.000,00	200.000,00	200.000,00	800.000,00	

TABLE 7
SUMMARY FINANCING PLAN BY COMPONENT AND PARTICIPANT COUNTRY (USD)

Project component	Algeria	Egypt	Morocco	Tunisia	CFC contribution
Establishment of Pilot Nursery Centres:	75.000,00	75.000,00	75.000,00	75.000,00	300.000,00
Pilot Production of Top Quality Olive Plants	57.000,00	57.000,00	57.000,00	57.000,00	228.000,00
Training and Dissemination	47.000,00	47.000,00	47.000,00	47.000,00	188.000,00
Project Monitoring and Supervision	41.000,00	41.000,00	41.000,00	41.000,00	164.000,00
Sub-total	220.000,00	220.000,00	220.000,00	220.000,00	880.000,00
Contingencies	5.000,00	5.000,00	5.000,00	5.000,00	20.000,00
Grand total	225.000,00	225.000,00	225.000,00	225.000,00	900.000,00