



**USAID** | **MOROCCO**  
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Ministère de l'Agriculture,  
du Développement Rural  
et des Pêches Maritimes

Integrated Agriculture & Agribusiness

# IMPROVING SUSTAINABLE COMPETITIVENESS IN MOROCCO



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The views expressed by the authors of this publication do not necessarily reflect those of the United States Agency for International Development or the United States Government.



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## EXECUTIVE SUMMARY

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### 1. Background

Morocco's agriculture sector is at the crossroads of an unprecedented and merciless globalization of trade. The Government of Morocco has engaged in a set of trade liberalization and investment policy reforms which offer the promise and challenge of new or improved positions within export markets. Multilateral free trade agreements with the European Union and bilateral trade agreement with the United States will reduce trade distortions and slowly force Moroccan producers and traders to compete -- both domestically and internationally -- on product quality, price, and other defining features. Consumers and value chains increasingly include traceable assurances of consumer safety and sustainable production systems as important branding features.

These trade agreements and membership to WTO also require that commodity price supports be reduced and that implicit subsidies offered through water, agrochemical, and energy pricing be phased out. Specific language in trade agreements and other EU Directives require signatories to actively enforce and improve environmental laws and implementing regulations and provide specific procedures to identify, disclose and cure unsustainable production systems and improper waste management.

There is no doubt that the net result of increased competition will cause serious upheaval in commodity markets and Moroccan farming systems. Inevitable structural changes in production and price supports will lead to broad land-use shifts and increased interest in participating in highly competitive non-cereal, niche markets. Forecasting how trade liberalization and competition will effect the management of natural resources and land-use will be important particularly for smallholder producers and value chains dependent on high-quality, traceability and sustainable production.

The purpose of USAID's five year Integrated Agriculture & Agribusiness (IAA) program is to improve the ability of targeted Moroccan agribusiness sectors to successfully compete in domestic and international markets. In order to stimulate improved organizational management and production systems IAA uses a balanced approach integrating support for agriculture market information, improving agribusiness organization and the supporting services environment, and attention to strategic policy interventions. The purpose of this two-week assessment was two identify methods and tools to ensure the integration of market-based requirements for product quality, food safety, and environmental management.

### 2. Conclusions

Project interventions which can address market concerns, the exigencies of US and Moroccan law, and the disadvantage of selected supply chains within the geographic areas require both sector specific and Cross cutting support. Brief environmental reviews and consideration of market forces suggest that successful filières must have the capacity to apply international standards, comply with applicable laws and regulations, and routinely and systematically identify ways to improve management systems and reduce costs. Composite success in all three of these will be consistent features of competitive enterprises while failure in anyone of these areas is likely to ensure the firms relegation to domestic markets at best. The following table identifies each filière and the standards currently in use

This assessment offers an overview of methods and tools for the project to support environmental competitiveness for selected filières by four types of interventions that should be carefully integrated from the beginning and on which detailed specific recommendations are provided within the body of the report:

- Benchmarking and improving agro-processing efficiency and quality management
- Accelerating capacity to meet emerging international production standards
- Improving systematic compliance with applicable environment, health, and safety regulations.
- Enhancing information and industry wide uptake of food safety and phytosanitary work by piloting market-based interventions.

The following table summarizes information on applicable voluntary standards and regulatory requirements as well as areas where efficiency can be improved through pollution prevention and/or clean production technologies.

**Table 1. Summary table of filières, environmental production challenges, conformance standards, regulatory requirements, and targets for cost reduction thru CP/P2/EMS.**

Filières	Environmental Production Challenges	Importance of		
		Applicable International Standards	Environmental Regulations	Environmental Production Costs
<b>Olive processing</b>	Irrigation delivery, erosion control, drought resistance	HACCP, ISO 9/1400, CODEX, EurepGAP, IFOAM, BRC	Environment, Health & Safety, Labor	Water, Solid Waste
<b>Clementines &amp; blood oranges</b>	High dependence on agrochemicals, soil erosion, fertility decline, surface water contamination	HACCP, CODEX, EurepGAP, IFOAM, BRC	Environment, Health & Safety, Labor	Water, Waste Agrochemicals
<b>Aromatic &amp; medicinal plants</b>	Dependence on a wild harvest, unsustainable forest mgt, ability to meet intl standards	ISO 9/1400, CODEX, IFOAM, FSC	Environment, Health & Safety,	Harvest Systems, Energy
<b>Beef fattening</b>	Over grazing, biodiversity loss	HACCP, EurepGAP, IFOAM	Environment, Health & Safety	Grazing, Waste
<b>Lamb Fattening</b>	Over grazing, biodiversity loss	HACCP, EurepGAP, IFOAM	Environment, Health & Safety	Grazing, Waste
<b>Dried Fruit</b>	Irrigation, soil fertility, fuel	CODEX, EurepGAP, IFOAM,	Environment, Health & Safety,	Water, Waste, Agrochemicals
<b>Soft Fruit</b>	Reliance on agrochemicals, surface water contamination	CODEX, EurepGAP, HACCP, IFOAM	Irrigation Water, Health & Safety	Energy, Water, Agrochemicals

### 3. Recommendations

Project interventions which can address market concerns, the exigencies of US and Moroccan law, and the disadvantages of selected supply chains within the geographic areas require both sector specific and Cross cutting support. Brief environmental reviews and consideration of market forces suggest that successful filières must have the capacity to apply international standards, comply with applicable laws and regulations, and routinely and systematically identify ways to improve management systems and reduce costs. Composite



success in all three of these will be consistent features of competitive enterprises while failure in anyone of these areas is likely to ensure the firm's relegation to domestic markets at best.

Suggested recommendations to ensure that project clients are better able to access and compete in both international and domestic markets fall into three broad categories.

- **Building In-House Capacity**
  - Conduct Internal Standards and Certification Workshop - given the importance and strategic nature of standards and certification work is important that all staff members, subcontractors, and principle partners understand the types of standards to be supported, how certification works and improves value chain integration, and what the project role should be in supporting standards and conformity assessment work.
  - Hire Certification Engagement Manager - in order to service training and implementation support in certification and standards to all filières is recommended that AAI hire a qualified mid-level manager to manage training, organize workshops, and develop strategic pilot certification in selected filières
  - Deploy Active Environmental Screening – routinely and systematically identify the environmental impacts of firm and value chain level activities, assess to what extent their actions conform to market standards, and determine which P2/CP interventions could improve efficiency and reduce costs. The project should 1) install the Quality, Workplace Environmental Safety, and Traceability Tool ('QWEST') 2) identify a staff member who will be responsible for implementing the system 3) develop and manage the QWEST database 4) hold occasional seminars on the results and common best practices.
- **Cross-Cutting Initiatives**
  - **Conduct Standards Awareness Seminars for Decision Makers** – 2-3 hour working seminar series to expose key stakeholders to 1) key standards and certification practices 2) ongoing challenges in audit and verification systems 3) retailer and international agrifood processor concerns (year 1-2).
  - **Conduct Standards & Certification Familiarization Workshops for Filières** – 1 day professional workshops for agrifood executives to 1) identify costs/benefits of various certification systems 2) best practices for certification cost reduction and quality assurance 3) methods to encourage integration of certification requirements throughout filière 4) branding, labeling and marketing certification (year 1-3; ongoing).
  - **Develop Training of Trainers Course and Manual for Certification & Standards** – Making Cents will organize ToT course develop to build measurable improvements in awareness and use of certification systems by 1) identifying and selecting BDS or commercial training providers in selected regions and filières 2) work with BDS' to assess customer market and price points 3) organize development of training service plan including immediate and in-service requirements (year 1; refinement ongoing).
  - **Execute Pilot Certification Interventions in Industry Leaders** – develop strategic, high visibility pilot interventions by 1) identify key filière leaders within effective associations 2) identify most strategic standards for improved

competitiveness 3) obtain commitment and cost sharing for implementation support services 4) schedule and implement pre-assessment support 5) obtain certification 6) support firm level marketing assistance to maximize certification value and 7) organize filière-wide seminars around lessons learned and best practices (year 1-3; annual assessment).

- **Implement a Joint Certification Scheme** – work with key associations to 1) inventory common certification interests 2) identify 4-6 members willing to “clusters” together to implement selected standard(s) 3) install standard elements with BDS consulting support 4) share results amongst cluster 5) obtain certification 6) have consultant(s) develop best practices fact sheets, measure cost reduction and accelerate uptake.
- **Produce Certification Extension Materials** in order to facilitate up and down stream traction within filières.
- **Develop GIS-based modeling instrument** - As a method of engaging decision makers in policy dialogue and helping them to understand the impacts of international trade and product pricing on cultivation practices, land use changes, demographic shifts, and possible environmental consequences.
- **Value Chain-Specific Interventions**

Specific technical interventions are provided in Section V which include attention to particular waste streams, health and safety concerns, and ability to add value to cost reduction and marketplace conformity. More general recommendations for specific value chains which act to many of the above recommendations include:

- Develop competitive short list of environment management systems, clean production, and pollution prevention service providers
- Conduct routine environment and social audits of all value chain interventions using the QWEST system
- Provide key value chain associations with awareness training and skill development and quality, traceability and environmental management systems with attention to cost reduction and competitiveness
- Integrate certification requirements into the program’s market information systems to ensure continual upgrading of operators’ capacity to comply with evolving standards in destination markets.

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## SECTION I. **BACKGROUND & PURPOSE**

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Vast economic and social changes are on the horizon for Morocco as it liberalizes its economy by engaging the United States, the European Union and Turkey in trade agreements. The Moroccan government has put forth reforms that will promote economic openness, particularly with regard to labor, trade, and investment finance. These developments bring both opportunity and challenges for the domestic and export markets. This section provides some background on the project setting and the rationale for including sustainability as a cornerstone of the Agriculture and Agribusiness Integration (AAI) Project's interventions.

### **I.1. Competitiveness and the Environment**

Chief among the challenges to agricultural competitiveness faced by Morocco, is the need to diversify production, boost efficiency, and systematically add value along the production-to-export supply chain to compete in global agrifood markets. This will require improving Moroccan agriculture enterprise management capacity, attention to quality and traceability, and market information dexterity. As tariff barriers are reduced, and Moroccan producers face increasing competition for both exports and import markets, they will need to install market information systems and production technologies which can compete with more efficient producers.

It will also mean that Moroccan producers and processors meet proliferating international requirements set by other countries, agrifood industries, and retail associations. The emerging 'voluntary' standards for food safety, environment management, and occupational safety are now joining the fundamental quality requirements to effectively create technical barriers to Moroccan exports. Integrating improved production efficiencies through management systems which anticipate and correct waste and hazards will be essential.

The AAI project seeks to improve market information and efficiency and carefully identifying sectors and regions in which it believes that it can improve comparative advantage. Organizing producers and processors into more coherent production chains which can deliver high-quality product on time and in adequate volumes to ensure continued markets presence will be key. Beyond the *sine qua non* of offering quality produce, this will require improved production and product transformation efficiencies. Many of these efficiencies must be realized by optimizing use of land, agrochemical use, energy and water resources management during processing.

An essential part of the Integrated Agriculture & Agribusiness program is to promote the environmental conformity of Morocco's agricultural sector with internationally recognized environmental standards and, in particular, the specific compliance requirements of the USAID mission in Morocco. The AAI program's approach to environmental matters consists of the following primary sets of activities:

- Benchmarking and improving the efficiency with which natural resource and industrial inputs into agricultural production agro-processing are used in Morocco (e.g. water and energy use, soil management and agrochemical applications, processing loss and waste generation).

- Accelerating Moroccan capacity to meet emerging standards for organic production, food safety, and environmental management (e.g. EUREPGAP for fruit and vegetable safety, IFOAM requirements for organic produce, HACCP for processed food safety, and ISO 9002:2000 and ISO 14001:2004 for quality and environmental management in processing industries, respectively).
- Identifying and systematically complying with Moroccan and United States regulatory requirements by identifying, routinely screening, and carefully documenting all production and processing interventions to ensure compliance with applicable environment, occupational health and safety laws and regulations.
- Collaborating closely with US and Moroccan government officials to improve information and industry wide uptake of food safety and phytosanitary work by piloting market-based interventions to improve compliance with the provisions of recently signed trade agreements.

## **I.2. Assessment Purpose and Methodology**

In addition to traditional support for production technology and organizational enhancements the project has a crosscutting intent to improve the “environmental competitiveness” and sustainability of selected Moroccan filières by ensuring conformance with international market standards, carefully complying with applicable Moroccan and United States environment and regulations, and routinely identifying methods to reduce operating costs through the use of clean production and pollution prevention technologies.

The purpose of this first assessment, and the intent of this accompanying report, is to provide the project with a concise roadmap for specific interventions to improve the “environmental competitiveness” of selected Moroccan filières. The two week assessment included site visits to selected production facilities, interviews with public and private sector stakeholders, and participation in three regional workshops designed to identify and prioritize project activities.

## SECTION II. OVERVIEW OF SELECTED VALUE CHAIN ENVIRONMENTAL ASPECTS

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Trade protocols, an array of standards imposed by international retailers and processors, and a variety of laws, require that project interventions support improved environmental performance and reduced health and safety risk for workers and surrounding communities. Each of the selected value chains have different environmental aspects of their operations and potential environmental consequences. These are summarized in this section as a foundation for following sections on trade requirements, applicable laws, and options for improving efficiency. Cross-cutting suggestions and specific recommendations for each “filière” are provided in Section V.

### II.1. Olive Production & Processing

It is estimated that some 560,000 has. of olive trees are spread over more than 800,000 plots which produce some 637,000 mt of olives per year. This represents a low average yield of approximately 1 ton per hectare per year due to aging, low vigor and alternating planting stock. Poor management techniques and high post harvest losses also contribute significantly to lower production as well. Roughly 25% of the production goes into table olives (“conserverie”) with the balance pressed into a variety of grades of oil. Morocco exports 14% of the world’s table olives and has commanding presence in France and the US. However, Morocco consumes nearly all of its valuable oil which represents a significant erosion of potential value added. Very little Moroccan olive oil is ever labeled as such.

When planted and managed correctly, olive trees provide important environmental services including drought-resistant ground cover, soil erosion control, and return important organic matter. Olives require fewer soil amendments than other crops and respond well to organic farming practices. Many smallholders farm olives as windbreaks guarding precious soil moisture and occasionally olives are planted along contours slowing erosion. Farmers often intercrop cereals with young olive trees for secondary crops, which may reduce olive yields.

However, many large plantations and smallholders farm olives against contours causing accelerated runoff and gully erosion. Although it is generally knowledge that few agrochemicals are used in all olive tree husbandry, some operators using drip irrigation report using inorganic amendments and there is evidence of aerial fungicide application in some regions. There appear to be few extension materials available for the proper purchase, storage and application of agrochemicals for all producers. As a result, practices vary widely.

Probably the most significant safety problem and most negative environmental impacts of olive production occur at the processing stage. Table olives are washed, pickled in a sodium hydroxide solution, rewashed and subsequently packaged in barrels, jars or cans with salt or a seasoned vinegar brine. It is estimated that a ton of olives requires approximately 10 m<sup>3</sup> of water for the washing and pickling operations. Sodium hydroxide (caustic soda, soda lye) is a dangerous corrosive that can cause serious burns, permanent eye damage, and can be extremely harmful by ingestion or inhalation. Site visits suggest NAO2 is stored in poorly ventilated areas with other less harmful chemicals. It was also noted that workers were not routinely provided with personal protection equipment (masks, gloves, goggles). There was

no written mixing procedure, no warning or accident instructions were posted, nor was there eye wash capability in the mixing area.



The spent sodium hydroxide (caustic soda) float is very high in organic matter and exchangeable bases which can significantly alter receiving water chemistry and reduce available oxygen. The stress on intermittent stream ecology can be significant. Suspended solids and organic matter should be dewatered through sedimentation ponding and effluent aeration. Chemical denaturing of the caustic soda float should be encouraged prior to discharge when municipal treatment is unavailable. Pitted olives produce large quantities of olive seeds which are normally dried and used as a fuel added that for a variety of artisanal industries including ceramics and baking. Localized air pollution often results.

Most olive oil in Morocco is cold pressed using ripe and washed olives. The process produces a large amount of organic matter and oil residues which should be dewatered, properly composted, and protected from storm water accidents. Oil traps should be used in processing areas to reduce nonsoluble oil discharge from washing water.

Evidently many of Morocco's all of exporters are moving quickly towards food safety systems using the HACCP protocol. Exporters appear to be improving their conformance with food safety and traceability but there remains much to do to improve worker safety and reduce easily mitigated contamination issues. It is unlikely that many of the olive exporters would pass integrated environmental, health and safety, and food safety protocols. Since many of them have management systems improving their conformance with other standards should not pose significant obstacles.

## II.2. Dried Fruit

Dried fruit production and processing (prunes, apricots, and figs) is a growing sector in Morocco. Drying the fruit extends shelf life and transportability and allows small holders to participate in diversified production systems and done correctly. Most of the fruit drying and any subsequent processing are conducted in either very small artisanal operations into the domestic markets or concentrated at five or six medium sized facilities located in the Sais region for export markets.

Upon receipt at the drying facility processing generally includes cleaning, trimming, and peeling prior to drying using either bunker fuel or propane fired drying systems. Water requirements for dried fruit are likely to be in the five to 10 m<sup>3</sup> per ton fresh produce. Currently, it is estimated that energy costs for drying up for can be as high as 2.5 DH/ton (\$0.30) wet fruit. Waste streams generated generally include large amounts of organic matter (peels, stems, rejects can reach 100-150/kgs/ton) and effluents containing high organic loads, suspended solids, and some pesticide residues.





Waste treatment generally including reductions at source (e.g. better grading, sorting and cleaning prior to reception), concentrating organic loads and reducing wash water through recycling, dewatering and composting of organic loads, separating and reducing solids from liquid effluents, and improving efficiency of drying operations to eliminate localized air pollution. The project team will need to routinely evaluate dried fruit production facilities to identify methods to reduce costs and downstream environmental impacts. It is also suspected that many of the through drying operations would also benefit from risk assessments and pollution prevention audits to improve worker conditions and minimize environmental footprints. As most operators are beginning to think about food safety and traceability requirements the addition of environmental reviews that could reduce energy costs and minimize solid wastes would be beneficial.

### **II.3. Aromatic and Medicinal Plants**

**Aromatic and medicinal plants are a broad grouping of generally “wild harvested” or non-cultivated plants in Morocco. Although an estimated 25 to 30 species are commercially harvested most of the market is concentrated in rosemary, wormwood (Armoise), sage, mint, thyme, niorma (paprika), and oregano exports of essential oils harvested in the Oriental and Sais regions. There has been limited growth in cultivated essential oils in recent years including bitter orange, geranium, Jasmine, verbena, saffron and rose oil. The Moroccan market depends on wild harvested products.**

Formal and informal markets for harvested and cultivated aromatic and medicinal plants are poorly structured with little if any vertical integration. While harvest concessions on national forest lands administered by the Direction des Eaux et Forêts (DEF) are auctioned to midmarket traders -- who either distill themselves or sell in bulk to one of the few large industrial distillers -- actual harvesting is conducted by local villagers who are paid at spot market prices at roadside pick-up. The broad variety of brokers, agents and packers that operate between processors and collectors effectively reduces producer prices (generally less than 50% of the distiller gate price<sup>1</sup>) and discourages quality control and rational extraction management practices. More than 90% of Morocco's exports are still sold to France where it competes with Egypt and Turkey.

The most significant environmental consequences of current production and processing are associated with localized over harvesting and attendant decline in biodiversity, and waste streams generated during the distillation process. Quota collection methods tend to maximize yields from the most easily accessible areas causing significant local over-harvesting and damage to the residual stand. Proper pruning methods, height requirements, and seeding source rules are seldom respected. There is little experience in ‘area-based’ management systems. Moreover, grazing permits are most often managed by another agency (Direction de Elevage) resulting in over grazing and further reduction in aromatic yields.

There is little if any extension support for harvest technology or methods to improve natural regeneration that are available through DEF. While the National Institute of Agriculture Research (INRA) is currently working to establish a germ plasm bank for aromatic and medicinal plants, there is no public research currently underway supporting cultivation nor is there any support for enrichment planting in wild populations. Whereas similar

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<sup>1</sup> Grant, W. and A. Abdoukassimi et al. 1995. Herbs, spice, medicinal plants and essential oils subsector study. DAI for USAID.

Mediterranean ecosystems produce a wide range of products and services most of Morocco's public lands for which the vast majority of its aromatic and medicinal products derived are seriously under managed and threatened. Raw material still represents less than 1% of total production costs and less than 0,5% of the market value<sup>2</sup> and doubling investments in land management would yield handsome returns.

Almost all essential oil production occurs by simple steam based (Alambic) distillation conducted at either the small artisanal level using iron drums heated with a blend of wood fuels and passive water condensation or more modern stainless steel technology with petroleum heat sources and compressed refrigerants. The small cottage industries generate localized air pollution from heating and evidently have caused groundwater contamination from improper disposal of post distillation solid and liquid waste. Improvements in distillation operations can be achieved through better solids waste and liquid effluent management, improved efficiencies in heating operations, and attention to the use of Montréal Protocol-approved<sup>3</sup> refrigerants.

During the workshops several buyers and producers indicated significant interest in certifying aromatic and medicinal plants to international organic standards. The current production and processing systems pose challenges to any of the predominant organic standards (EU, NOP, IFOAM) largely due to inadequate internal control systems, document control, and management review. Another significant issue for organic certification is current dependence on wild harvested raw materials which must originate from areas certified free from inorganic chemical contamination . Moreover, many organic protocols require assurances that over harvesting is not occurring and that high-value biodiversity and riparian zones are protected. This requires that harvest areas be under some form of documented management which does not yet exist.

#### **II.4. Sheep Fattening & Finishing**

The project anticipates supporting sheep fattening operations through stable feeding support in the Oriental Region. Currently Morocco has a significant deficit in red meat production due to rising demand and very low production per unit of area. Although stocking rates are well below carrying capacity, cyclical drought, poor pasture management, and low quality genetic material combine to keep yields low. It is believed that fattening operations prior to slaughter are economically effective ways to add value at several points along the value chain.

Concentration and fattening programs have important costs and benefits that the project will need to evaluate on a case-by-case basis. Small-stock and beef production are fairly concentrated in the Oriental region of Morocco through a mix of free ranging and more intensive production techniques. Numerous constraints were identified during the workshop in Berkane including poor genetics, need for integrated management of common land pasture management, and the ability to finish livestock prior to slaughter. Livestock finishing operations offer an opportunity to support improved range management on one end and the ability to concentrate and add value at the slaughterhouse and secondary products (e.g. hides and leather, tallow, fertilizer) if properly managed.

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<sup>2</sup> ibid

<sup>3</sup> Morocco signed the Montréal protocol governing the use of ozone producing refrigerants. Many of the agrifood industries throughout Morocco are noncompliant and AAI project beneficiaries should be routinely screened to ensure compliance.

At the same time, fattening operations encourage concentration of effluents which contain high concentrations of dissolved sugars, proteins and fats which collectively have significant biochemical oxygen demand on ground and surface water if not properly treated. Collecting and segregating solid and liquid waste and managing storm water runoff can greatly limit the environmental footprint of feeding operations and the project should engage local engineering support to ensure that water quality is not compromised and that any associated structures should be built to help consolidate wastes. In as much as the fattening operations may encourage value added up the value chain as well, there may be opportunities to look at slaughtering and rendering facilities to improve value added (or reduce loss) at those points through training and limited material support for hide removal and preparation. Improvements in range management systems and product traceability could offer improvements in quality, food safety, and environment.

Current rangeland practices stimulate over grazing and compete directly with yields from aromatic plants which are concentrated in the same areas. Improved integrated management planning and development of co management operations which encourage more active ownership and economic incentive for herders are laudable targets. In addition, the current slaughtering operations that are indirectly stimulated by fattening activities have significant environmental impacts on ground and surface water, potentially dangerous accumulations of biological waste, and affects on local communities surrounding abattoirs. If fattening operations are intended to ultimately lead to entry in quality meat exports fattening must be integrated into the slaughtering and rendering operations using a total quality and food safety approach. Determining how the project can most effectively enter this complex filière will be key. The project will need to carefully consider its entry point in the scope of its involvement in the overall value chain given resources.

## **II.5. Citrus**

More than 30,000 of the 76,000 hectares of irrigated citrus in Morocco are found in the Gharb, Moulaya, and Loukkos regions significant implications for employment and economic development. Clementines, Naval oranges, and La-Maroc Late compose nearly 90% of fresh fruit exports. Bulk fresh juice, concentrate, and frozen juice are the most significant processed exports (in that order) with secondary markets for essential oils, jams and flavorings.

It is estimated that water and agrochemical inputs represent more than 50% of total production costs, even with current water subsidies. Stable global demand for citrus products and increasing production in several countries (e.g. Brazil, Mexico, India, China) will make competition in bulk products more competitive than ever. Reducing agrochemical and irrigation costs, improving product diversification and development, and establishing up-market branding capability will be important features for enhanced competitiveness.

The clean farming methods and dependence on large quantities of agrochemicals to control pests and fungus are direct environmental concerns of citrus production. According to several sources citrus is one of the biggest user of pesticides on a per unit area basis, possibly exceeded only by bananas. In Brazil it is reported that oranges consume 6.5% of all pesticides used and the clearing of natural forest and tropical areas has often earned citrus the wrath of the environmental community<sup>4</sup>. Reduction in soil carbon and increasing dependence on inorganic amendments creates increasing dependency on herbicides and

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<sup>4</sup> Neves, M.A., M. O. do Val et al. 2001. The orange network in Brazil. Journal for the food processing and chief producing European and overseas industry. Germany

mechanical cultivation practices resulting in contamination of adjacent waterways from irrigation water release<sup>5</sup>. Reducing the use of expensive agrochemicals and moving towards drip irrigation schemes will help reduce the overall ecological footprint. Consideration for organic production systems once thought incompatible with citrus production<sup>6</sup> are now quickly growing in the United States, Japan and Europe and numerous producers at the recent workshops expressed interest “BIO” systems.

Depending on the blend of fresh fruit to processed fruit exports the generation of waste can vary from year-to-year. Morocco's predominantly bulk fresh juice exports routinely generate significant quantities of peel and pulp with very limited secondary product markets and fouling of ground and surface waters. Several people interviewed suggested that composting technologies are only applied in the largest processing units and that development of dewatering and simple storm water retention structures were not often used ensuring high levels of organics are inadvertently discharged from processing areas.

Most citrus production and processing is fairly well controlled and many larger operations are capable of meeting food safety and traceability requirements. However, out grower based juice processors suffer from poor documentation and internal control systems which holds them to bulk sales prices, prevents traceability and precludes them from local packaging for export. Reducing middlemen and improving the integration of producers and processors will require that management systems in quality control - including food safety and working conditions - be improved. Many of the large buyers selling to EurepGAP certified buyers are also looking toward third-party assurances of better farming practices, clear documentation of agrochemicals use, and management of processing waste.

## II.6. Capers

Capers are the unopened green flower buds of a bush (*Capparis spinosa*) native to North Africa and now found in all Mediterranean countries including France, Italy, Algeria, and Morocco. Although capers are wild harvested almost exclusively in Morocco and Algeria, they are now being cultivated in France, Italy and California. The wild harvested capers from the dry intermountain areas of Morocco around Fes and Meknes are high in Methyl isothiocyanate which gives the caper its strong flavor. Nearly 14,000 tn. are harvested annually in concentrated sales points. The buds are manually harvested daily during flowering season and must be carefully screened for size and tightness. After the buds are washed and air dried they are packed in plastic barrels with vinegar brine or salted and sold in bulk (80%) adding little value. Certified organic caper production is now occurring in several countries with some exporters from Morocco showing interest in obtaining certification.

Caper production and processing is an interesting blend of some of the harvest issues found in medicinal and aromatic plants and some of the general processing issues related to all filières. Concession permits for caper harvest or evidently not well coordinated with permitting for aromatic or medicinal plants, or for livestock grazing. Fortunately, the plant is quite hardy and not grazed by domestic animals. Since caper does not seed easily, there is

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<sup>5</sup> Jason Clay. 2004. World agriculture and the environment: a commodity by commodity guide to impacts and practices. Island Press.

<sup>6</sup> Iqual, J. and Izquierdo. 2001. Economic and financial comparison of organic and conventional citrus growing systems. FAO. Rome

little new wild recruitment and aging rootstock shows decline in vigor and yield. Improved production and producer prices could stimulate integrated and collaborative management plans involving local communities and improved organization and collection to reduce middlemen, add value closer to production, and possibly enriching struggling natural recruitment with cuttings.

Capers are collected several times a week in season at regional markets by buyers who sell to agents which represent the eight large export companies, half of which are located in Fes. The capers are quickly trucked to processing points where they are washed and air dried prior to being packed into vinegar brine or salted in 5 gal. buckets for export. Grading waste collects at packing sheds and wastewater for washing operations can be as high as 4-5 m<sup>3</sup> per ton. Evidently the industrial exporters (Association of Caper Exporters and FICOPAM) are well organized, whereas the harvesters and middlemen are not. There is plenty of potential to stimulate wild production through better and integrated management techniques and development of medium intensity cultivation through cuttings. There was also interest in certified organic sales which face many of the same constraints described above in aromatic medicinal plants.

## **II.7. Soft Berries**

This value chain is currently dominated by semi-intensively cultivated strawberries although there are indications that blueberries and raspberries could be equally viable. Most of the current production is concentrated in the Gharb and Loukkus region with the latter producing more than 50% of national counter season production exported largely into European markets. Water is provided through fertigation and plastic mulching is used for weed control yielding 40-50 tons/hectare. The crop is dependent on more than 20 types of inorganic chemicals applied either through fertigation or foliar applications. While small producers service domestic markets, most exports are concentrated in 'large' producers of 50 hectares and larger.

Approximately 75% of total production is exported in the form of fresh fruit to Europe during the December to January season and flash frozen to Europe during the March to June harvest. Owing to intensive cultivation techniques there is little waste and application of herbicides is limited. However the dependence on fertilizer "cocktails" are used to control pests and fungus and represent a threat to shallow groundwater tables and workers. There are currently several companies beginning to purchase and recycle spent plastic mulching which represents largest single waste product. It is suspected that most medium scale operators in some of the large exporters use refrigerant which is not compliant with the Montréal protocol which the Moroccan government has signed and ratified which could ultimately limit market access.

Helping the soft berry industry to more accurately and systematically evaluate agrochemical application régimes using targeted fertigation and monitor groundwater quality would help reduce and invert environmental impacts from conventional production. Enhancing the acquisition, storage, and application of agrochemicals to ensure conformance with market standards and export regulations offers another target. Improving quality management and traceability systems will also help Moroccans compete in conventional markets. Market information for organic soft berry markets could assist the filière absorb additional labor and access niche markets. There was additional interest in certified organic production within soft berries which have some agronomic constraints that have been overcome elsewhere. The management systems and document control could easily build on the traceability and quality systems which have now been established in several large export houses with integrated packing facilities.

## II.8. Summary

The table below provides a summary of the major environment a production challenges in each value chain. It also identifies the most significant solid, liquid, and airborne waste streams. Project implementers will need to be mindful of these waste streams as cost factors as well as concerns for buyers and consumers. By adopting higher quality standards and incorporating model management systems will help producers and product transformers to more routinely identify food safety and worker exposure issues as well as maintain better relations with neighboring communities.

Table 2. **summary of environmental challenges and the most significant waste streams identified with each value chain.**

Filières	Environmental Production Challenges	Major Processing Waste Streams		
		Solid	Liquid	Air
<b>Olive processing</b>	Irrigation delivery, erosion control, drought resistance	Pulp, pits, dewatered sludge	Sugars, suspended solids, NAOH, salts, colloids	Fumigants
<b>Clementines &amp; blood oranges</b>	High dependence on agrochemicals, soil erosion, fertility decline, surface water contamination	Peel, pulp, packaging material	Sugars, suspended solids, agrochemical residues	Noxious odors, refrigerants, fumigants
<b>Aromatic &amp; medicinal plants</b>	Dependence on a wild harvest, unsustainable forest mgt, ability to meet intl standards, organic system requirements	Denatured organic material, suspended solids,	Distillation effluent, Organics, suspended solids, solvents	Odors, Off-gassing distillates, CO2
<b>Lamb &amp; Beef fattening</b>	Over grazing, biodiversity loss	Manure,	Nitrates, suspended solids, organics,	Methane, odors, CO2, refrigerants
<b>Dried fruits</b>	Irrigation, soil fertility	Manure, pruning	Nitrates, suspended solids, organics	Methane, odors, SoO2, CO2, refrigerants
<b>Soft fruit</b>	Reliance on agrochemicals, surface water contamination,	Plastic mulching	Suspended solids, agrochem leachate	Refrigerants, fumigants

## SECTION III. CONFORMANCE WITH INTERNATIONAL TRADE STANDARDS

As agricultural value chains in Morocco face increased competition for international markets they must also successfully challenge lower-priced imports within domestic markets. Consistent quality, competitive pricing, and volume production ultimately determine competitiveness.

Improving competitiveness will require that Moroccan value chains become increasingly competent in their understanding and application of international norms and standards for a dynamic range of product features. This will require skill building to:

- Ensure there is basic enterprise management systems are in place
- Build interest and application in quality management approach
- Improve understanding and best practices in traceability
- Apply clean production technologies which improve efficiency in water, energy, agrochemicals, and waste management

**Table 1. applicable standards currently or potentially in use for selected value chains.**

<b>Filières</b>	<b>Applicable Market Standards</b>
<b>Olive processing</b>	HACCP, ISO 9/1400, CODEX, EurepGAP, IFOAM
<b>Clementines &amp; blood oranges</b>	HACCP, CODEX, EurepGAP, IFOAM
<b>Aromatic &amp; medicinal plants</b>	ISO 9/14000, CODEX, IFOAM, FSC
<b>Beef fattening</b>	HACCP, EurepGAP, IFOAM
<b>Lamb Fattening</b>	HACCP, EurepGAP, IFOAM
<b>Soft fruit</b>	CODEX, EurepGAP, IFOAM,
<b>Irrigation technology</b>	ISO 9/14000,

Generally speaking, the supermarket retail sector no longer contents itself with the official controls. The certification systems being imposed by the supermarket retail sector and more specifically by EurepGAP transfer the technical support and control costs that they formerly assumed upstream in the sector, toward the grower and the exporter. EurepGAP certification results in placing the technical and financial burden of proof of compliance with the growers and exporters. The retail supermarket sector and other buyers, who are not yet or will not become EurepGAP members, will state practically identical requirements, or, in the best case, will recognize national systems or those from the sector (standards or protocols) which cover noticeably the same demands than EurepGAP certification demands.

The dominance of European markets and Morocco's comparative geographical advantage have accelerated the awareness and application of a variety of international standards and insured growing attention for European Commission directives affecting imports into EU member countries (see *text box on EC Food Law, below*). Inadvertent introduction of insect pests, viruses and weed species also continue to raise concerns and the consequences of pandemics such as BSE, foot and mouth, avian flu virus raise public sector admissibility concerns. European retailers and grocers are liable for accidents and see food adulteration and improper labeling as real threats. Coupled with growing consumer concerns about environmental and social impacts of agrifood production and processing conditions, European markets, in particular, are increasingly turning to the use of auditable, third party standards to ensure broad quality conformance, social equity, and routine traceability.

The basic standards most important to Moroccan producers include the following. These are treated in more depth in Annex XXX (Triple Standards For Supply Chain Integration).

### **III.1. Quality**

Quality management systems are the base from which all other standards are derived and measured. The management framework or “backbone” of environmental management, food safety, traceability and social impact standards uses the “plan-do-act-check” and “continuous improvement” elements of the quality systems. The best known of these systems is the International Organization for Standards quality series commonly known as ‘ISO 9000’ which is well known in many of Morocco’s industrial sectors (e.g. cement, automotive, chemical, pharmaceutical) but not well applied in agroindustry. Basic quality systems are well defined and documented and must include management responsibilities and specific authorities for system maintenance, monitoring and documentation to insure continual improvement and timely corrective actions. The elements of quality management systems provide a necessary, and oftentimes sufficient, basis for grafting on food safety and environmental health and safety requirements. Beginning with the establishment of quality management systems in Moroccan agrifood operations is the most logical way to proceed. However, establishment of certified organic capacity and complying with food safety requirements similarly provide management systems structure for specific reasons.



## III.2. Food Safety

### Elements of the HACCP System

1. Assemble HACCP team
2. Describe product
3. Identify intended use
4. Construct flow diagram
5. On-site confirmation of flow diagram
6. List all potential hazards associated with each step, conduct a hazard analysis, and consider any measures to control identified hazards
7. Determine Critical Control Points
8. Establish critical limits for each CCP
9. Establish a monitoring system for each CCP
10. Establish corrective actions
11. Establish verification procedures
12. Establish Documentation and Record Keeping

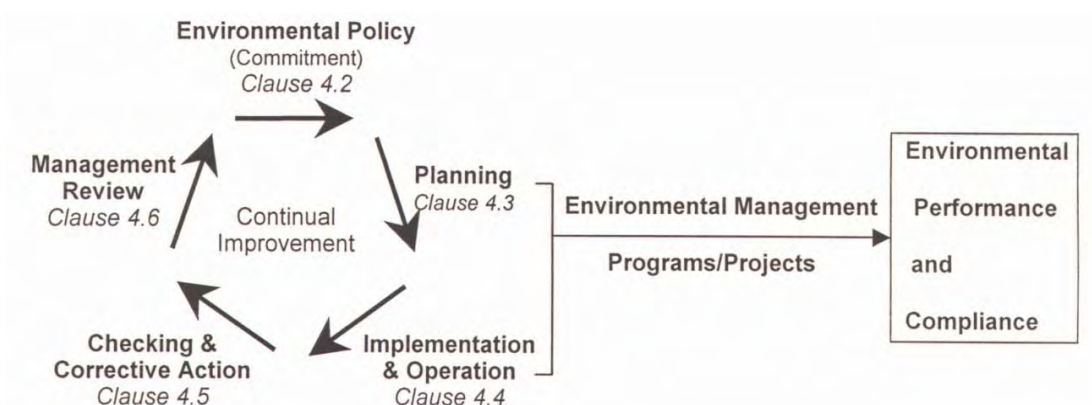
There are several standards for insuring consumer safety of agrifood products. The oldest of these systems has been the Codex Alimentarius. There are general standards to be adhered to and specific standards for a large number of individual food products. Codex is designed to ensure that food is correctly labeled, correctly presented, and not adulterated. The Codex standards are the basis for individual national food safety standards for specific products. The standards are designed to be accepted by WTO member countries to ensure food safety and facilitate trade. Codex certified food products must be disease-free, good quality, labeled correctly, and packaged and transported in a sanitary fashion.

HACCP - Hazard Analysis Critical Control Point – is an analysis and control method for food safety risks and whose application has been demanded by legislation in practically all countries since the mid '90s. The official version of the HACCP method has been published by the Codex.

EUREPGAP is another food safety standard used to provide a verification framework over a range of agricultural products in Morocco. The standards were developed by a group of European representatives from all stages of the agribusiness supply chain. They were born out of food scares in Europe and a public outcry to know the source and safety of food purchased in Europe. EUREPGAP applies to products purchased by a wide range of European suppliers, though it has been adopted as a quality, social, and environmental benchmark for products imported and sold throughout the European Community. EurepGAP address seeds and shoots, soil and water management, fertilizer and pesticides, harvest, post-harvest treatments, waste management, worker safety, and environmental management.

### III.3. Environment Management

The most applied voluntary standard for Environmental Management Systems (EMS) in Morocco is the ISO 14000 series which requires the development of an environment management policy, environmental management plan, implementation plan, and a system for checking and taking corrective action. ISO 14001 is an environmental management system based on ISO 9001 quality system and can easily be “piggy packed”. Conformance to the standard - self-declaration or third-party auditing by ISO-accredited certifying - does not assure good environmental performance. There is no established labeling system. Several manufacturing firms (cement, paper products, automotive) have certified to this standard. The basic elements and requirements for the ISO 14001 standards are below:



### III.4. Social Accountability

Social Accountability International’s SA8000 is a voluntary standard that is auditable by third-party verification. It address child labor, forced labor, health and safety, freedom of association, discrimination, disciplinary practices, working hours, and remuneration. SAI is a nonprofit organization dedicated to the development, implementation, and oversight of voluntary, verifiable social accountability standards. SAI is committed to ensuring that standards and the systems for verifying compliance with such standards are highly reputable and publicly accessible. SAI's social accountability system, SA8000, is a way for retailers, brand companies, suppliers, and other organizations to maintain just and decent working conditions throughout the supply chain. It is known in Morocco’s textile and apparel industry but not yet used within agrifood industries. There is a growing use of SA 8000 and its guiding principles throughout Europe and Dole and Coop Italia now make audited conformance a primary supplier requirement.

### III.5. Agrifood Traceability

Traceability systems have grown out of food safety issues and have been recently reinforced by country origin labeling requirements stemming from post- 9/11 concerns about introduction of viruses and food pathogens. Most traceability systems grow out of quality and food safety management systems and are designed to facilitate the provision of quality signals to consumers. However, many of the emerging traceability systems for food products are unlikely to provide credible ex ante quality signals to consumers. Traceability systems may identify specific credence attributes that relate to perceived food safety issues, such as enhanced food safety practices on the farm or in the processing plant, or they may add value to consumers concerned with the country or origin or sustainability of farming practices.

However, most traceability requirements are now being foisted upon producers and processors and there is not yet indication that consumers are willing to pay for the added costs which can be significant. Traceability systems have become more important for Morocco as members of the EU recently passed the General Food Law (see text box) that requires members to trade only in safe and traceable food products. This has stimulated enormous interest in traceability in Morocco and the Moroccan government is completing its own traceability/food safety standards which will become a regulatory requirement for all producers<sup>7</sup>. The standard and conformance norms for this new standard have been developed within the Ministry of Agriculture with limited support from the national Bureau of product standards (SNIMA) and does not well integrated into other management systems used for export quality management throughout Morocco. Verification of conformance will evidently be conducted by the national export control agency (EACCE) which is prepared to help agrifood producers and evidently well equipped<sup>8</sup>

Most Moroccan producers are unaware of the standard and there is significant confusion as to how it should be implemented. Virtually every workshop attended suggested that there is no communications or extension support readily available for small and medium producers implicated in certification requirements. Although there is support for the establishment and maintenance of food safety and traceability and certification through national agency for promotion of small and medium enterprises (ANPME), most support has been for large manufacturing exporters thus far<sup>9</sup>.

#### **REGULATION (EC) N° 178/2002 ON GENERAL FOOD LAW ARTICLE 17**

1. Food and feed business operators at all stages of production, processing and distribution within the businesses under their control shall ensure that foods or feeds satisfy the requirements of food law which are relevant to their activities and shall verify that such requirements are met.
2. Member States shall enforce food law, and monitor and verify that the relevant requirements of food law are fulfilled by food and feed business operators at all stages of production, processing and distribution.  
For that purpose, they shall maintain a system of official controls and other activities as appropriate to the circumstances, including public communication on food and feed safety and risk, food and feed safety surveillance and other monitoring activities covering all stages of production, processing and distribution. Member States shall also lay down the rules on measures and penalties applicable to infringements of food and feed law. The measures and penalties provided for shall be effective, proportionate and dissuasive.

<sup>7</sup> Personal communication with Mekki Kabbaj and Naima Akouri, Direction de la Normalisation et de la promotion de la Qualité. MCI

<sup>8</sup> Personal communication. Najib Mikou, Directeur du développement. Etablissement Autonome de Control et de Coordination des Exportations (EACCE).

<sup>9</sup> Personal communication. Mohamed Ziati, Chef de département relations extérieures et communication. Etablissement Autonome de Control et de Coordination des Exportations (EACCE).

### **III.6. Organic Production & Processing**

The IFOAM Basic Standards are largely considered the benchmark for most national programs for organic standards. IFOAM represents a worldwide network of organic practitioners. This grassroots-oriented organization seeks to establish universally accepted standards for organic production and processing. Because organic agriculture adheres to globally accepted principles that are implemented locally, IFOAM works to develop self-sufficient systems at the local and regional levels. The IFOAM requirements address not only agrochemical and processing use but also ecosystem management (water, soil, biodiversity), genetically modified materials, pesticides and fertilizers, worker conditions, and transport. There is a general set of standards for agricultural products, with separate standards for animal husbandry, beekeeping, aquaculture, processing and handling, textiles, and sustainable forest management. A new set of standards for wild harvested products is under development.

The costs of organic certification vary according to the size of the farm and complexity of processing. In the United States certification costs for the first year vary between \$579 for small farms (up to 10 has.) to \$3600 for a large farm (up to 200 has.) but these dropped two \$327 and \$2400 in the second year respectively. It should be noted that these are only the costs of certification and do not reflect the majority of costs (more than 80%) which are in the development of the management system itself.

The use of quality, food safety and traceability, and specialty certifications such as organic and environmental are growing quickly in importance through out Morocco and very clearly with in agrifood industries. There is little doubt that only the few large exporters are operationally compliant and that many of the small and medium producers will be relegated to bulk sales until they are able to ensure quality and traceability for packaging and labeling stages. While the citrus and berry exporters seem to be better organized to meet this challenge, olive and dried fruit producers will require significant training, implementation support, and access to affordable but credible certification. Aromatic, medicinal plant, and caper producers will require more fundamental support to improve conformance and will likely need more attention to specialty standards including organic.

## SECTION IV. COMPLIANCE WITH MOROCCAN, US AND OTHER TRADE REGULATIONS

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Multiple sets of environmental, health and safety laws and regulations will guide project interventions. Project partners, grantees and value chains are required to be cognizant of compliance with applicable laws due to legal requirements. As importantly, most voluntary international trade standards now stipulate - and audit for - measurable compliance with local environment, health and safety, and phytosanitary laws. This section briefly outlines the applicable laws and identifies the nature and extent to which project interventions must be considered.

### IV.1. United States Government Environmental Regulations

The disbursement of United States Foreign Assistance must be compliant with special environmental provisions spelled out in several American laws (22 CFR 216; ADS Chapter 204) and accompanying legislation which guides USAID's assessment of natural resources and impact on biological diversity and tropical forests (FAA 117, 118 and 119, respectively). An Initial Environmental Examination of proposed project activities was conducted prior to project award. The Examination determined that most project activities were unlikely to have any significant and negative impact on the environment. However, it stipulated that conditions be placed on the project implementers to routinely screen activities and report on unforeseen environmental impacts and develop timely mitigation responses. Specific mitigation measures suggested included:

Environmental screening— Implementing contractor(s) are responsible for identifying potential adverse environmental impacts and correcting them with appropriate mitigation and monitoring measures. The implementing contractor is responsible for developing a process for the environmental screening and review of all projects/grants to local NGOs/contractors. This process will require a checklist and training for all applicable projects to be completed and approved by the contractor prior to the approval of the project, and should be applicable to construction within the Moroccan setting. The SO team and MEO will review this process before the implementing contractor approves any projects.

#### USAID Initial Environmental Examination

- Development and application of an environmental screening and environmental review process for recipients of sub-grant funding,
- Compliance with all Moroccan federal and local laws,
- Adherence to “Best Practice Guidelines”, and
- The use of pesticides, fertilizers, or GMOs should be carefully reviewed on an ongoing basis

The environmental screening requirements have been directly delegated to the AAI project implementers who will need to carefully develop and deploy an active screening system that will help identify, document and mitigate environmental impacts of activities directly

supporting production and processing. In the recommendations section it is suggested that the Quality, Workplace Environment and Safety Traceability Tool (QWEST) be deployed and adapted to insure proper tracking, documentation of impacts and mitigation strategies, and benchmark improvements.

Meeting USAID requirements for the screening and documenting of activities is not discretionary. Developing such a system should be aggressively pursued. Associated improvements in market access, reduction in costs through process and workflow improvements, and enhanced compliance with applicable environmental and labor regulations provide other important benefits. The project should quickly move to deploying and adapting the QWEST tool which will not only help in meeting regulatory requirements but also identify voluntary conformance issues and areas where more efficient use of water and energy resources can contribute to improve financial returns.

## **IV.2. United States - Morocco Free Trade Agreement (FTA) Provision**

All three of the project's major components -- policy, production and processing upgrades and improved market integration, producer organization support, -- have the potential to effect positive and lasting environmental change in Morocco.

The US final Environmental Review found that the FTA will provoke few changes in the pattern or amount of trade flows in/outside of the US since US tariffs are relatively low and Morocco already benefits from special tariff treatments due to the Generalized System of Preferences. The Review did, however, note the obvious possibility that FTA investment provisions could stimulate land use changes by strengthening investment in competitive agriculture sectors with environmental consequences.

Provided appropriate policy signals are transmitted to land users, extensive monoculture farming and inefficient irrigation systems could make way for more diversified and sustainable tree crops. Identifying the costs and benefits of such changes in land use, helping to identify policy tools to stimulate more sustainable farming systems, and stimulating the use of international voluntary standards will inevitably help all along the value chain. Assisting the GoM to appreciate the impacts of these changes (see cross cutting recommendations below) will help guide interventions and public support toward more remunerative products and sustainable cropping practices.

The FTA Agreement calls for the establishment of a Joint Committee to handle agricultural trade issues and stipulates that both countries will comply with the WTO Sanitary and Phytosanitary (SPS) Measures. The Joint Committee is also supposed to be a forum for discussion of SPS issues. In addition, a Joint Statement on Environmental Cooperation established a Working Group on Environmental Cooperation. This group will be made up of government representatives appointed from both countries and will develop an action plan and set priorities for future environment-related projects. Such a working group will also be established to deal with SPS issues. It was not apparent that any of these groups have yet been formed.

Key environmental features of the trade agreement are covered in Chapter 17 "Environment" (Annex B). The environmental aims of the FTA are quite specific and need to be considered by AAI project implementers:

- ensure that trade and environmental policies are mutually supportive, to promote the optimal use of resources in accordance with the objective of sustainable development;

- ensure that its own environmental laws and policies provide for and encourage high levels of environmental protection;
- recognizes that it is inappropriate to encourage trade or investment by weakening or reducing the protections afforded in domestic environmental laws and agree to effectively enforce its environmental laws;
- provide appropriate and effective sanctions or remedies for a violation of its environmental laws;
- recognize that incentives and other flexible and voluntary mechanisms can contribute to the achievement and maintenance of high levels of environmental protection;
- encourage development and exchange of information on methods for achieving high levels of environmental protection including voluntary environmental auditing and reporting, ways to use resources more efficiently or reduce environmental impacts, environmental monitoring, and collection of baseline data; and
- develop incentives, including market-based incentives to encourage conservation, restoration, enhancement, and protection of natural resources and the environment.

In short, the FTA requires that each government enforce its environmental regulations and ensure that trade is not stimulated by unsustainable environmental, phytosanitary or safety subsidies. It also creates a framework for publicly identifying and resolving environmental transgressions and leaves the door open for legal action when either party, or a third party, is not properly enforcing environmental regulations to the detriment of public or private interests.

It is also worth noting that the FTA provides encouragement and ample room to allow the private sector to play an important role in environmental management and restoration through voluntary initiatives, including the use of international standards and the development of environment and social auditing schemes. The opportunities to move away from purely compliance based environmental management toward development of value chain conformity offers promising solutions to connect producers with discerning consumers. The use of voluntary certification schemes that improve environmental performance are clearly of keen interest to private and public sector project partners.

Just as important as FTA environmental safeguards are some of the issues emerging within the WTO and elsewhere. There have been numerous WTO cases recently where trade derived from unsustainably managed natural resources, or public exposure to hazardous materials, has been successfully challenged. In addition, new directives issued by the European Commission require EU members to reduce water subsidies for agriculture, ensure expanded trade does not reduce biodiversity, and make certain that pollution is cleaned up by the offending industry or enterprise. It is important that the transition period to fully liberalized trade be used to install management and market information systems that will ensure that agriculture production systems are defensively sustainable. The AAI project has excellent opportunities to support market information development and install voluntary certification capacity to meet these goals.

The AAI project team should carefully review FTA and EU FTA requirements and insure familiarity with expected norms. Seminars for decision makers and executives, workshops and extension materials for supply chain insertion, and certification implementation support should carefully communicate changing trade agreement expectations and impacts.

### IV.3. Government of Morocco Environmental Requirements

The Moroccan Parliament approved three important environmental laws: a general, framework law on environmental protection; a law requiring environmental impact assessments; and an air pollution law. These laws have entered into force and implementing decrees for regulatory procedures governing impact assessment, regulating water discharge and waste management, and disposal practices are all awaiting passage in the Moroccan Parliament. Project interventions must meet several sets of Moroccan legal requirements including the following:

- Morocco's Environmental Framework Law<sup>10</sup> spells out the broad context of environmental services and management requirements
- Morocco's Environmental Impact Assessment law<sup>11</sup> provides specific guidance on how the nature and scale of environmental impact should be measured
- Morocco's Irrigation<sup>12</sup>, Drinking Water<sup>13</sup> and Surface Water<sup>14</sup> Statutes spell out specific parameters for measuring water quality for agriculture use and processing discharge

The Moroccan Framework Environmental Law provides a general context for the goals of sustainable resource management. It includes attention to broad qualitative parameters and establishes the context for assessing environmental impacts and laying the foundation for the determination and regulation of pollution. The Environmental Impact Assessment law identifies the extent to which environmental review must occur on all public and private sector projects and prescribes series of specific steps for conducting environmental review. Whereas the framework law provides context and the impact assessment law procedures in for review specific limits for pollution are established in the irrigation, drinking water, and surface water laws spell out acceptable tolerances for major pollutants. Solid waste and air quality laws are still in development and specifications for waste stream tolerances and measuring methodologies are not yet in place. Weaknesses in regulatory authorities are matched by weak enforcement capacity in the field.

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<sup>10</sup> Bulletin Officiel n° 5118 du Jeudi 19 Juin 2003 Dahir n° 1-03-59 du 10 rabii I 1424 (12 mai 2003) portant promulgation de la loi n° 11-03 relative à la protection et à la mise en valeur de l'environnement.  
[http://www.minenv.gov.ma/dwn/Dahir\\_n%B0\\_1-03-59%20.pdf](http://www.minenv.gov.ma/dwn/Dahir_n%B0_1-03-59%20.pdf)

<sup>11</sup> Bulletin Officiel n° 5118 du Jeudi 19 Juin 2003 Dahir n° 1-03-60 du 10 rabii I 1424 (12 mai 2003) portant promulgation de la loi n° 12-03 relative aux études d'impact sur l'environnement.

<sup>12</sup> Arrêté conjoint du ministre de l'équipement et du ministre chargé de l'aménagement du territoire, de l'urbanisme et de l'habitat et de l'environnement n° 1276-01 du 10 cabane 1423 (17 octobre 2002) portant fixation des normes de qualité des eaux destinées à l'irrigation.  
[http://www.minenv.gov.ma/index.asp?param=2\\_cadre\\_juridique/textes\\_juridiques.htm](http://www.minenv.gov.ma/index.asp?param=2_cadre_juridique/textes_juridiques.htm)

<sup>13</sup> Bulletin Officiel n° 5062 du 30 ramadan 1423 (5-12-2002). In Arrêté conjoint du ministre de l'équipement et du ministre chargé de l'aménagement du territoire, de l'urbanisme et de l'habitat et de l'environnement n° 1277-01 du 10 cabane 1423 (17 octobre 2002) portant fixation des normes de qualité des eaux superficielles utilisées pour la production de l'eau potable.

<sup>14</sup> Bulletin Officiel n° 5062 du 30 ramadan 1423 (5-12-2002). Arrêté conjoint du ministre de l'équipement et du ministre chargé de l'aménagement du territoire, de l'urbanisme, de l'habitat et de l'environnement n° 1275-01 du 10 cabane 1423 (17 octobre 2002) définissant la grille de qualité des eaux de surface.  
[http://www.minenv.gov.ma/index.asp?param=2\\_cadre\\_juridique/textes\\_juridiques.htm](http://www.minenv.gov.ma/index.asp?param=2_cadre_juridique/textes_juridiques.htm)



**Table 3. Effluent discharge from agrifood processing must meet national standards to comply with laws and international value chain standards.**

Quality	Dissolved O <sub>2</sub> mg/l	BOD mg O <sub>2</sub> /l	COD mg O <sub>2</sub> /l	NH <sub>4</sub> mg NH <sub>4</sub> /l	TSS mg P/l	CF /100 ml
<b>Excellent</b>	>7	<3	<20	≤0,1	≤0,1	≤20
<b>Good</b>	7-5	3-5	20-25	0,1-0,5	0,1-0,3	20-2.000
<b>Average</b>	5-3	5-10	25-40	0,5-2	0,3-0,5	2.000-20.000
<b>Poor</b>	3-1	10-25	40-80	2-8	0,5-3	>20.000
<b>Very Bad</b>	<1	>25	>80	>8	>3	-

The project team should insure that agrifood firms and associations which receive project support are keenly aware of these tolerances and requirements through extension materials and seminars. The project should also engage a local engineering company to conduct spot assessment of waste streams to determine compliance and communicate directly with senior management and appointed population prevention officers to mitigate such impacts. Lastly, the project should work hard to ensure that management systems which routinely identify problems and encourage employee involvement in finding solutions be encouraged. Such a management system is key to providing the information about performance and helping benchmark performance and justify continual improvements.

## SECTION V. **MANAGING EFFICIENCY IMPROVEMENTS AND COST REDUCTIONS**

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Another central component of environmental competitiveness stool is the development of management systems which systematically and continuously identify inefficiencies resulting in unnecessary resource use and/or increased waste generation. In this section we describe how the project can support the development and implementation of environmental management systems which will foster “cleaner production” through value chain interventions.

### **V.1. Current Environmental Costs**

Historical protection provided to Moroccan agribusinesses has stimulated systematic inefficiency and waste in most sectors. Water subsidies have discouraged investment in more efficient irrigation delivery systems; price supports have ensured overdependence on expensive agrochemicals; fractured value chains have depressed interest in reducing or recycling waste and pursuing energy alternatives in processing.

The current yields of the filières supported by the AAI project are well below international averages and most unit production costs are uncompetitive. For example bunker oil costs for fruit drying operations -- 2.5 DH/kg finished dried fruit product – are more than 1/3 of delivered unit cost<sup>15</sup>. Moreover, many of the long-term economic costs of such inefficiency (e.g. surface water contamination, exposure to toxic pesticides, air pollution from waste incineration) result in long-term social consequences which further reduce competitiveness.

It is also well acknowledged that current irrigation practices are untenable under actual cost recovery scenarios (for example central pivot irrigation of low-value crops in the Gharb further depleting scarce ground water reserves).

Waste stream management practices illustrate great financial inefficiencies and economic inequities. Direct discharge of untreated caustic soda from olives threatens public water systems; release of organic-laden effluent from citrus and dried fruit operations threatens lakes and already strained River systems; and contamination of groundwater from expensive overuse of fertilizers and pesticides are real issues in Morocco. Given that more than half of Morocco's surface water is considered contaminated and that per capita potable water availability is expected to have declined by 50% over the 1990-2020 period the cost of water will rise<sup>16</sup>. Recycling of irrigation water, now practices on only 7,000 has. across the country, will need to increase dramatically as water costs and competition with urban populations rise.

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<sup>15</sup> Ahmed Oukabli, INRA/Meknes, pers. com.

<sup>16</sup> Ministre of the Environment. 2001. Chapitre 11. Rapport sur l'Etat de l'Environnement du Maroc. Rabat

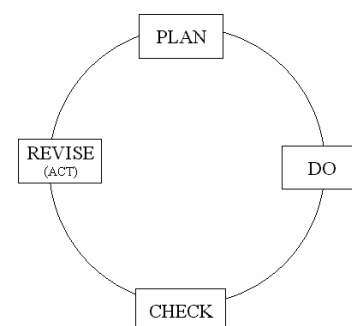
The project team has decided to carefully review the opportunities to reduce costs and waste through a variety of interventions described below.

## V.2. Cost reduction through environmental management systems

The environmental aspects and impacts of all project filières can be broken down into either production or processing. Table 2 summarizes the most significant environmental aspects in value chains and identifies where efficiencies can probably be realized most quickly. Easy inefficiency targets include waste stream separation, improved composting, recycling or selling of spent plastic mulch, identifying energy loss and alternative energy sources, recognizing water leakage and improved distribution systems, and organizing supply chains for strategic investments in drying or packaging.

But rather than simply grabbing hold of the “low hanging inefficiency fruit“ it makes better sense to develop management systems which will help firms and clusters continuously identify and improve their production efficiency. It has been repeatedly proven that individual pollution prevention or process engineering changes become singular and isolated events unless they are surrounded by a management system which allows them to be evaluated by management and financially quantified, thereby improving the probability of replication and continued interest in change.

Within Morocco’s agrifood sector, particularly at the producer and primary processing levels where technology is quite simple, many of the improvements will be in systematizing procedures and improving specific practices which will result in labor savings. Increasing management responsibilities, written procedures and practices, establishing clearer authorities, and improving signage and general management direction can have big improvements. Properly introduced management improvements can affect our growers, supply vendors, and migrate up words by improving overall credibility with primary buyers. As middlemen are reduced and value chains look to enhance value added through improved processing and packaging, these kinds of workflow improvements will become vital.



These improvements should pay particular attention to authorities and at broad participation in identification and stemming of waste, workplace hazards, and ergonomic enhancements. These should be reinforced through support for the drafting and implementation of management policies and review structures, plans and training that build capacity to understand and implement changes, and written procedures to accelerate use and reduction of hazards. Project interventions should be careful to stick to the three essential elements of a working Q/EMS:

- top management commitment and involvement;
- the environmental policy of the enterprise;
- environmental management programs (action plans, projects, initiatives).

## **SECTION VI. CONCLUSIONS AND RECOMMENDATIONS**

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There is little doubt that the recently signed fair trade agreements with the European Union and the United States, and Morocco's participation in the WTO GATT process will ultimately result in major changes within the agriculture sector. Most cereals and major commodities will come under renewed pressure from cheaper imports; small and medium producers will be forced to abandon previously protected markets in search of higher value options. Farmers will be forced to retreat from cereal production on marginal lands and pursue higher value, often tree-based, crops or resort to grazing. This could result in localized forest recovery but will also result in increased pressure on already stressed bottom lands while simultaneously increasing water demand for processing facilities.

Rural displacement will be significant and the consolidation of harvesters and mid-stream producers by favored agro industries moving out of large commodities can be expected. The AAI project has a significant set of challenges in order to improve production organization, accelerate the introduction of new technologies and better management practices, installed market information systems at the useful level, and help enterprises install management systems that allow them to trace production and meet buyers' dynamic specifications. The role of quality, price and ultimately smallholder organizations will determine the extent to which Morocco can compete in nontraditional and higher value agrifood products.

### **VI.1. Building Our In-House Base**

The systematic incorporation of environmental management, international norms and standards for benchmarking environmental performance, and adherence to US and Moroccan laws in project activities are important tenets of project success. Echoed throughout the workshops in Fez, Oujda and Meknes the project team will need to become more than casual observers of these practices. Building our own appreciation of these systems' construction and common elements will be important. The following activities will improve our ability to:

- Conduct a one day staff seminar to familiarize staff and principal partners with: (1) environmental management systems and applicable standards; (2) Moroccan environmental laws, regulations and impact assessment methods; and (3) introduce the quality, workplace environment and safety, and traceability (QWEST) tool for screening project interventions (Gibson, Lambert, MINENV, SNIMA; December '05)
- Hire Certification Engagement Manager - in order to service training and implementation support in certification and standards to all filières is recommended that they have qualified mid-level manager be hired 1) manage training and training of trainers activities 2) organize stakeholder and filière workshops 3) support development of strategic pilot certification in selected filières 4) manage subcontracting of cluster certification programs and 5) manage grants and subcontracts for certification extension material support -
- Deploy Active Environmental Screening – routinely and systematically identify the environmental impacts of firm and value chain level activities, assess to what extent their actions conform to market standards, and determine which P2/CP interventions

could improve efficiency and reduce costs. The project should 1) install the Quality, Workplace Environmental Safety, and Traceability Tool ('QWEST') 2) identify a staff member who will be responsible for implementing the system 3) develop and manage the QWEST database 4) hold occasional seminars on the results and common best practices and 5) Insure compatibility between overall M&E system that allows project to track interventions geographically (Rachid Bouabid, QWEST team, project M&E Officer)

- Adopt and adapt the Quality, Workplace Safety, Environment, and Traceability (QWEST) to systematically identify, track and document the environmental consequences (positive and negative) of all project interventions.

## VI.2. Cross cutting initiatives

The development of routine and systematic screening of all activities to ensure that requested interventions are cognizant of evolving international trade standards will be key to helping Moroccans stabilize production systems and make necessary investments and management and production. Within the agrifood sector there is little doubt that improved attention to quality management systems such as ISO 9002 for food processors and environmental management systems such as ISO 14001:2004 for integrated operations will be key to securing the basic fundamentals of production systems.

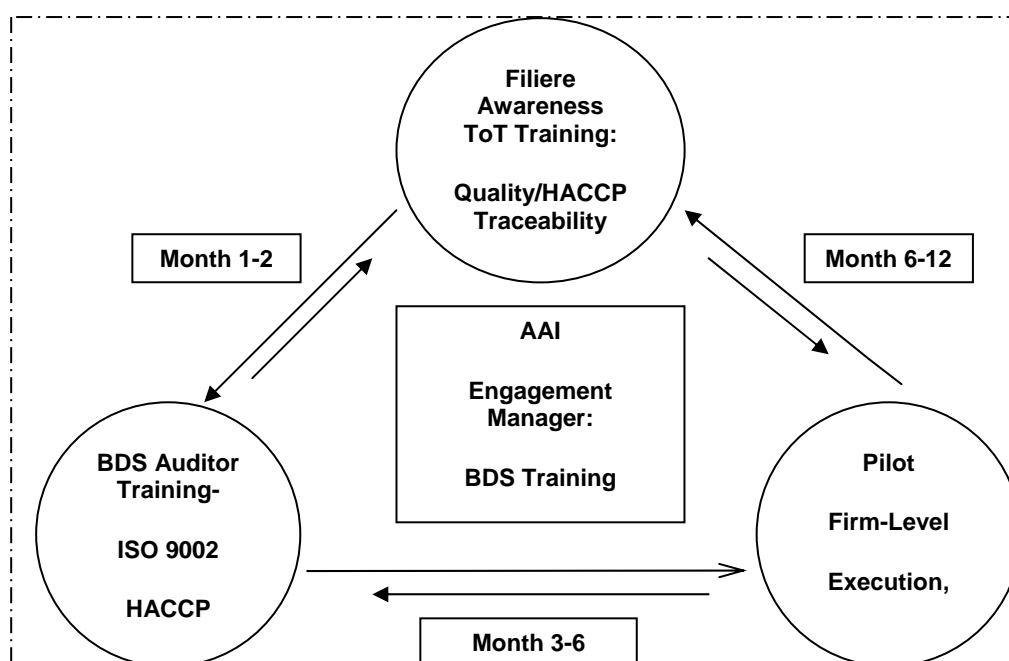
It goes without saying that the filières ability to accurately trace and document the chain of custody from farm to markets will be important for any commodity. Additional attention to occupational health and safety systems (e.g. OHSAS 18001, BSI 880) will be important as worker safety becomes a reputational risk for importers and exporters. Attention to specific agrifood requirements such as EurepGAP for fresh fruits and vegetables and niche commodities aimed at the consolidating grocery chain in Europe will also be important, as will be market information systems that allow producers to discern and trace additional features and buyers/consumers' desires for organics and FSC certified products. Building a cognitive capacity into small and medium producers' management infrastructure through market information and hands on certification training can make a big difference.

The most important output of the project will be to identify in each filière the apex leaders who can be counted on to become and remain active in support activities and ensure that supported changes cascade up and down the value chain.

- **Conduct Standards Awareness Seminars for Decision Makers** – 2-3 hour working seminar series to expose key stakeholders to 1) key standards and certification practices 2) ongoing challenges in audit and verification systems 3) retailer and international agrifood processor concerns 4)
- **Conduct Standards & Certification Familiarization Workshops for Filières** – 1 day professional workshops for agrifood executives to 1) identify costs/benefits of various certification systems 2) best practices for certification cost reduction and quality assurance 3) methods to encourage integration of certification requirements throughout filière 4) branding, labeling and marketing certification (year 1-3; ongoing)
- **Develop Training of Trainers Course and Manual for Certification & Standards** – Making Cents will organize ToT course develop to build measurable improvements in awareness and use of certification systems by 1) identifying and selecting BDS or commercial training providers in selected regions and filières 2) work with BDS' to assess customer market and price points 3) organize

development of training service plan including immediate and in-service requirements (year 1; refinement ongoing)

- **Execute Pilot Certification Interventions in Industry Leaders** – develop strategic, high visibility pilot interventions to 1) identify key filière leaders within effective associations 2) identify most strategic standards for improved competitiveness 3) obtain commitment and cost sharing for implementation support services 4) schedule and implement pre-assessment support 5) obtain certification 6) support firm level marketing support to maximize certification value and 7) organize filière-wide seminars around lessons learned and best practices (year 1-3; annual assessment )
- **Implement a Joint Implementation Certification** – work with key associations to 1) inventory common certification interests 2) identify 4-6 members willing to “cluster” together to implement selected standard(s) 3) install standard elements with BDS consulting support 4) share results amongst cluster 5) obtain certification 6) have consultant(s) draw up best practices fact sheets, measure cost reduction and accelerate uptake.



- **Produce Certification Extension Materials** – In order to facilitate up and down stream traction within filière’s extension material support through 1) work with

Activities	Project Year 1				Project Year 2				Project Year 3				
	Units	1	2	3	4	5	6	7	8	9	10	11	12
Quality & traceability training for filières	Courses offered	1	2										
Lead auditor for BDS providers	Traders trained		15	15									
Pilot and cluster implementation support	Clusters engaged				2	4							
Certification of first pilot firms	Pilot firms certified							2	4	6	12	24	

### **VI.3. Specific Recommendation By Filières**

In addition to the crosscutting initiatives described above several specific recommendations are provided below with regard to particular value chains. The intent of the recommendations is to help producers and processors respond to particular environmental, food safety, and industrial hygiene of selected value chains.

#### **a. Olive Production & Processing**

- Engage knowledgeable consultant to inventory, review and improve olive production BMP extension materials with particular attention to soil conservation methods, fungicide application, and successful intercropping messages.
- Work with one or more selected olive producer associations to develop a comprehensive training package including ToT manuals, course materials and extension materials to extend BMP's
- Using a service provider from Sais to conduct workshops with key filière stakeholders to extend BMP's and obtain feedback on obstacles for their implementations.

#### **b. Dried Fruit**

- Conduct review of fruit drying technologies and heating systems to identify alternatives to current bunker oil fired operations in Sais.
- Develop one or more pilots using appropriate technology for drying and water recycling installing management system to measure and document performance improvements.
- Consolidate and assess available information for composting technologies and develop short course and training of trainers curriculums to improve composting at small and medium processors
- Develop curriculum for quality and traceability interventions within dried fruit in order to improve food safety and eventual certification

#### **c. Aromatic and Medicinal Plants**

- Inventory and assess available information on best practices for wild harvest technologies of medicinal and aromatic plants. Developed series of simple technical guidelines for improved management and harvest aimed at local level collectors.
- Develop pilot program with Eaux et Forêts and the Association of medicinal and aromatic plants for improved land management of medicinal and aromatic plants. Ideally this would be done jointly with the small stock fattening operation.
- Identify one or more candidates from prominent PAM Association to attend the IFOAM seminar and training on organic wild land harvest to be conducted in Bosnia in May 2006
- Support for PAM Association to organize and conduct field visit to Spain or Portugal to observe land husbandry and management practices for wild harvested aromatics
- Engage local consultant to work with significant medium PAM processors to determine the financial constraints to PAM cultivation and lay the foundation for a possible DCA intervention or similar loan guarantee.

#### **d. Sheep Fattening:**

- Inventory and assess rangeland management technology information to identify key elements of pre-fattening practices. Identify key gaps in development of training of trainer modules for livestock and herding associations
- Identify collaborative management capacity on public rangelands and determine if and how better management practices could be installed and more participatory and accountable rangeland management could be serviced
- Develop one or more pilots integrating rangeland management with management for medicinal and aromatic plants through integrated management planning and support for integration through quality, traceability, and increased access to markets.
- Conduct an analysis of the opportunities and constraints to piloting a certified organic small-stock program

#### **e. Clementines and Blood Oranges**

- Engage a local agribusiness BDS provider to conduct an analysis of the financial and economic costs of current irrigation practices for these crops and identify logical shifts in industry focus as water subsidies are removed
- Work with one of the citrus associations (e.g. ASPAM, ASPEM, FICOPAM) to conduct a cost-benefit analysis of current irrigation practices and hold a seminar on shifts in water pricing as market liberalization occurs
- Using similar associations, identify member requirements for finance to shift toward more realistic irrigation costs and develop fiches techniques to extend alternative irrigation methods
- Organize one or more study tours to other citrus growing countries in order to identify best management practices and cost-reduction methods. The United States in Brazil offer reduced input farming examples, organic production farms, and state-of-the-art packing houses
- Engage a local enterprise management firm to work with ASPAM or FICOPAM to conduct a cost-benefit analysis of current certified organic fresh juice and concentrate markets and determined price points for consideration. Organize a one-day seminar to review results adjacent to a two day IFOAM organic production and certification course

#### **f. Capers**

- Work with caper and medicinal plant associations to identify two or three pilot projects where collaborative management plans which integrate extraction with improved collaborative management planning at the local level - including collection and concentrating - in order to improve price points and sell directly to bulk exporters
- Using a grant with Hassan II University or INRA consolidate information available on best management practices for harvest of wild grown capers and develop technical notes and materials for a training of trainers course aimed at rural harvesters
- Contract local food safety and organic production consulting firm to identify the quality and traceability parameters and management practices required to bring two to three Moroccan wild harvested operations up to organic certification (EU and NOP)



- Engage production consultant to work with Association of caper exporters to review cultivation practices in other countries and develop plans for a model production farm.

**g. Soft Berries (Strawberries, Blueberries, Raspberries, Blackberries)**

- Contract a local BDS provider to review and benchmark medium producers' cost structures and identify potential areas for savings in irrigation, energy utilization, and agrochemical management
- Support associations and export promotion organizations to review production management and traceability systems in order to identify areas for improvement in production and transformation
- Provide hands-on training and quality control and traceability systems for small and medium producers including explicit attention to the procurement, storage, and application of appropriate agrochemicals
- Engage a local engineering company to identify small and medium producer conformance to international refrigerant standards and develop alternative methods and financial packages which would support improved conformance
- Conduct a market analysis for certified organic soft berry exports

## SECTION ANNEXES

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### Annex A – Scope of Work

#### Scope of Work for a TDY on Environmental Compliance

##### Project Background:

An essential part of the Integrated Agriculture & Agribusiness program is to promote the environmental compliance of Morocco's agricultural sector with internationally recognized environmental standards and in particular the specific requirements of the USAID mission in Morocco.

The program approach to environmental matters consists of the following primary sets of activities:

- Monitor the efficiency with which natural resource and industrial inputs into agricultural production agro-processing are used in Morocco (e.g. water use, soil conservation, agrochemical use and industrial input use).
- Review current Moroccan capacity to meet rapidly emerging standards for organic production, food safety, and environmental management (e.g. EUREPGAP for fruit and vegetable safety, IFOAM requirements for organic produce, HACCP for processed food item safety, and ISO 9000:2000 and ISO 14001 for quality and environmental management in processing industries).
- Develop a decision-support tool to routinely screen and document all production and processing interventions to ensure compliance with Moroccan laws and environmental regulations and to comply with USAID's own requirements under 22 CFR 216 and other applicable texts of the Foreign Assistance Act.
- Collaborate with USAID/ U.S. government staff involved in phytosanitary work, as well as the Ministries of Agriculture, commerce and Industry, SNIMA and professional associations, to identify pilot and market-based interventions.

Mr Dave Gibson is the program environmental consultant and will be fielded in September 2005 to assist with the implementation of the program's environmental component.

Mr Gibson will perform the following tasks:

- Review the proposed pilot project activities for their environmental implications. This will include the following sector interventions that are currently being planned:
  - Olive sector development with a wide variety of planned interventions
  - Development of production and trade in clementines and blood oranges
  - Water saving irrigation technology
  - Aromatic and medicinal plants, whose sector planning event takes place on September 20-22 in Fez and which Mr Gibson will visit.

- Mutton sector development, initially through a lamb fattening scheme in the Oriental region.
  - Beef sector development with a fattening exercise in the Saïs region.
  - Soft fruit (raspberry, blackberry, blueberry) production and export development
- 
- Visit the program focus areas to familiarize himself with the program's context and meet with producers, processors and officials involved in agricultural development and / or environmental management (at least one regional workshop of those being planned for late September will be attended).
  
  - Review the current regulatory framework for agriculture from the perspective of environmental management and prepare an analysis of its implications for the program's proposed activities.
  
  - Assist the program team to address the environmental implications of agricultural modernisation in the context of the US-Morocco free trade agreement.
  
  - Prepare and present in-country to USAID a brief report on his findings and recommendations.

The duration of Mr Gibson's input in-country will be 14 days between September 18 and October 1, 2005.

## **Annex B – Chapter 17 – Environment, US – Morocco Free Trade Agreement**

### **Déclaration conjointe du Maroc et des Etats-Unis d'Amérique**

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#### **sur la coopération dans le domaine de l'environnement**

1. Le Gouvernement du Royaume du Maroc (« le Maroc») et le Gouvernement des États-Unis d'Amérique (« les États-Unis ») coopèrent de longue date à l'appui du développement économique et social du Maroc, y compris dans le domaine de la protection de l'environnement.
2. Reconnaissant l'importance de protéger l'environnement tout en promouvant un développement durable de concert avec l'élargissement des échanges commerciaux bilatéraux et des liens d'investissement accompagnant l'Accord de Libre Échange entre le Maroc et les États-Unis, ces deux pays affirment leur intention de poursuivre les efforts visant à renforcer la coopération bilatérale dans le domaine de l'environnement.
3. L'Annexe à la présente Déclaration conjointe met en exergue les domaines actuels et futurs de la coopération en matière d'environnement dans lesquels les deux Gouvernements concentreront leurs efforts. Comme première étape concrète, le Maroc et les États-Unis lancent un nouveau programme d'activités de coopération, dont l'objectif est de faire progresser l'élaboration et la mise en œuvre du cadre marocain de la protection de l'environnement.
4. Les deux Gouvernements peuvent coopérer dans le domaine de l'environnement en :
  - a. facilitant l'échange de professionnels, techniciens et spécialistes, y compris les visites d'étude, en vue de promouvoir l'élaboration de politiques et de normes relatives à l'environnement ;
  - b. organisant des conférences, séminaires, ateliers, réunions, séances de formation et programmes de vulgarisation et d'éducation conjoints ;
  - c. appuyant des projets et activités démonstratives réalisés en collaboration, y compris des projets pilotes, des projets relatifs aux petites entreprises ainsi que des projets, études et rapports de recherche conjoints ;
  - d. facilitant l'établissement de liens entre représentants des secteurs universitaire et industriel et des pouvoirs publics en vue de promouvoir l'échange des meilleures pratiques et des informations et données relatives à

l'environnement, qui peuvent présenter un intérêt pour les deux Gouvernements ;

- e. partageant les informations ayant trait aux programmes nationaux de protection de l'environnement ; et
  - f. se livrant à toutes autres activités que les deux gouvernements considèrent comme étant appropriées.
5. Afin d'élargir et d'approfondir leur coopération effective en matière d'environnement, le Maroc et les États-Unis créent un Groupe de travail sur la coopération dans le domaine de l'environnement («le Groupe de travail»), composé de représentants gouvernementaux nommés par le Maroc et les États-Unis. L'intention de deux Gouvernements est que le Groupe de travail se réunisse au moins une fois par an alternativement dans chaque pays, et ils s'attendent à ce que sa première réunion ait lieu à un endroit qui sera déterminé dans les trois mois suivant sa création.
6. Le Groupe de travail s'attellera à:
- a. élaborer un Plan d'action suivant la description plus détaillée figurant au paragraphe 7 ci-après ;
  - b. passer en revue et évaluer les activités de coopération dans le domaine de l'environnement qui auront été entreprises conformément au Plan d'action et recommander des moyens visant à les améliorer ; et
  - c. entreprendre toute autre activité que les Gouvernements peuvent juger appropriée.
7. Les Gouvernements s'attendent à ce que le Groupe de travail mette au point un Plan d'action lors de sa première réunion. Il y identifiera les projets prioritaires pour une coopération dans le domaine de l'environnement en suivant les sujets stipulés à l'Annexe. Reconnaisant que, à la lumière de l'évolution de la situation, les deux Gouvernements peuvent déterminer de nouvelles priorités en matière de coopération, le Groupe de travail devra mettre à jour son Plan d'action en fonction des besoins.
8. Les Gouvernements reconnaissent les obligations devant être assumées aux termes du Chapitre sur l'environnement de l'Accord de Libre Échange, ainsi que le rôle de la Commission conjointe, ou de toute sous-commission pour les affaires environnementales pouvant être créée dans le cadre de celle-ci, et qui portent sur la supervision de l'application de ces dispositions. Les deux Gouvernements recherchent les moyens par lesquels la Commission conjointe et le Groupe de travail peuvent s'informer sur leurs travaux respectifs.
9. Dans le cadre de ses activités, ce Groupe de travail devrait tenir compte de toute opinion et recommandation émise par la Commission conjointe ou toute autre sous-commission pertinente pouvant être créée aux termes de l'Accord de Libre Échange. Chaque Gouvernement devrait aussi demander l'avis du public, et bien en tenir compte lorsque cela s'avère approprié, au sujet du Plan d'action.

10. Chaque Gouvernement devrait désigner un Coordinateur principal qui fera fonction de point de contact général pour tout ce qui concerne les activités du Groupe de travail et l'application du Plan d'action.
11. Les Gouvernements reconnaissent qu'il est important de rendre les ressources disponibles en vue de la mise en œuvre des activités de coopération dans le domaine de l'environnement qui ont été approuvées par le Groupe de travail. Toutes les activités de coopération entreprises dans le cadre du Plan d'action du Groupe de travail dépendent de la disponibilité des fonds qui y sont affectés et sont sujettes aux lois et règlements applicables au Maroc et aux États-Unis.
12. Les réunions du Groupe de travail peuvent être suspendues sur demande de l'un ou l'autre Gouvernement, qui devrait le notifier à l'autre par écrit six mois à l'avance ou de toute autre manière acceptable pour les deux Gouvernements. Dans ce cas, les Gouvernements se consultent pour déterminer toute action restant à mener en ce qui concerne les activités de coopération figurant dans le Plan d'action.

Pour le Gouvernement du  
Royaume du Maroc

Pour le Gouvernement des  
Etats-Unis d'Amérique

Mohammed ELYAZGHII

Thomas T. RILEY

Ministre Chargé de  
l'Aménagement du Territoire,  
de l'Eau et de  
l'Environnement

Ambassadeur des Etats-Unis  
d'Amérique au Royaume du  
Maroc

Rabat

28 juin  
2004

## ANNEXE

### DOMAINES DE COOPERATION EN MATIERE D'ENVIRONNEMENT

Les domaines indiqués ci-après reflètent les priorités de la coopération entre les États-Unis et le Maroc en matière d'environnement. L'objectif des efforts de coopération dans ces domaines est d'améliorer la protection de l'environnement au Maroc en renforçant les capacités humaines et institutionnelles relatives à la gestion et à la conservation des ressources naturelles.

#### Lois et infrastructure relatives à l'environnement

Renforcement des capacités à élaborer, mettre en œuvre et appliquer des lois et règlements relatifs à l'environnement.

Accroissement de la base d'expertise marocaine en matière d'environnement et modernisation de l'infrastructure destinée à la gouvernance en matière d'environnement

Renforcement des capacités des secteurs public et privé au Maroc en vue de mener à bien des évaluations d'impact sur l'environnement.

#### Mesures d'incitation et programmes volontaires portant sur l'environnement

En complément à la mise en application des lois et règlements relatifs à l'environnement, encouragement de l'élaboration de mesures d'incitation et de mécanismes volontaires contribuant à atteindre et à maintenir des niveaux élevés de protection de l'environnement.

#### Renforcement de la sensibilisation dans le domaine de l'environnement

Promotion à la fois du développement d'occasions permettant la participation du public aux efforts visant la protection de l'environnement et de l'amélioration de l'accès de celui-ci à l'information et aux instances judiciaires en matière d'environnement.

Promotion de bonnes pratiques nationales au niveau des entreprises afin d'arriver à une gestion durable de l'environnement.

Travail de concert pour la promotion d'intérêts environnementaux communs dans les forums régionaux ou multilatéraux.

#### Protection des côtes et préservation des pêcheries

Protection de l'environnement des zones côtières et des estuaires et prévention de la surexploitation des ressources halieutiques.

## Conservation des ressources naturelles et des zones protégées

Sauvegarde des ressources naturelles importantes, telles que l'eau, et des zones protégées du Maroc.

## Technologie environnementale et entreprises

Promotion de la croissance du secteur des entreprises faisant appel à la technologie environnementale.

Renforcement de la sensibilisation des petites et moyennes entreprises aux possibilités d'accès aux marchés mondiaux par l'amélioration des technologies, pratiques et techniques environnementales.



**Annex C – USAID Initial Environmental Examination**

**INITIAL ENVIRONMENTAL EXAMINATION  
OR CATEGORICAL EXCLUSION**

**PROGRAM/ACTIVITY DATA:**

<b>Program/Activity Number:</b>	608-0234		
<b>Country/Region:</b>	USAID/Morocco		
<b>Program/Activity Title:</b>	SO 11: "Increased Economic Growth and Job Creation"		
<b>Funding Begin:</b>	2004	<b>Funding End:</b>	2009
<b>LOP Amount:</b>	\$38,400,000 USD	<b>Sub-Activity Amount:</b>	N/A
<b>IEE Prepared By:</b>	Jeffrey L Rosenblum		<b>Date:</b> 21-May-2004
<b>IEE Amendment? (Y/N)</b>	N	<b>If so, original filename/date:</b>	N/A

**ENVIRONMENTAL ACTION RECOMMENDED:** (Place X where applicable)

<b>Categorical Exclusion:</b>	X
<b>Positive Determination:</b>	

<b>Negative Determination:</b>	X
<b>Deferral:</b>	

**ADDITIONAL ELEMENTS:** (Place X where applicable)

<b>CONDITIONS:</b>	X
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<b>PVO/NGO:</b>	X
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**SUMMARY OF FINDINGS:** (please limit to this page whenever possible, or at most two pages without clearances)

This SO will help Morocco respond to the challenges and opportunities of a more liberalized trading environment, which is expected to result, in part, from the Free Trade Agreement with the US. It will assist in the creation of jobs and investment opportunities in agriculture, agribusiness, rural tourism, and other sectors to help offset anticipated losses from reduced protection on domestic agricultural production. It will accomplish this through the following Intermediate Results (IRs): IR 11.1: Increased Productivity in Agriculture and Agribusiness; IR 11.2: New Business Opportunities Outside of Agriculture and Agribusiness Expanded; IR 11.3: Business Environment Improved.

Categorical Exclusion is recommended for most activities under IR 11.1 and IR 11.2, and all activities under IR 11.3, except to the extent that the activities directly affect the environment (see below).

Negative Determination With Conditions is recommended for projects involving the use of seeds, pesticides, and/or fertilizers; projects involving small-scale demonstration projects for improved water management technologies and irrigation projects including well digging (IR 11.1), pursuant to: 22CFR216.3(a)(2)(iii). Mitigation measures include: (1) development and application of an environmental screening and environmental review process for recipients of sub-grant funding, (2) compliance with all Moroccan federal and local laws, (3) following “Best Practice Guidelines”, and (4) that the use of pesticides, fertilizers, or GMOs require further environmental examination.

Negative Determination With Conditions is recommended for projects involving small and medium-sized enterprise development and rural tourism (IR 11.2), pursuant to: 22CFR216.3(a)(2)(iii). Mitigation measures include: (1) development and application of an environmental screening and environmental review process for recipients of sub-grant funding, (2) compliance with all Moroccan federal and local laws, (3) following “Best Practice Guidelines”, and (4) implement a Cleaner Production training workshop for project recipients.

Additional Conditions are recommended, and include: (1) adequate monitoring and reporting by the contractor to ensure compliance, (2) ensuring contractors have the human capacity and budget for compliance with this IEE, and provision of capacity development as needed in the application of the environmental screening and review process, and in best management practices; and (3) budgeting and providing for adequate follow-up to ensure that mitigation measures have been or are being implemented.

NOTE: It should be noted that a Programmatic Environmental Assessment was conducted under the “Morocco Urban Infrastructure, Land Development and Financing Program HG-IV (608-0221) in 1993. This Programmatic Assessment concluded that there would not be significant impacts to the environment as compared with the “no-project” alternative for activities relating to the “Cities Without Slums” initiative. The major issue raised by this report was the shifting of the sewage problem to another location without adequate provision for wastewater treatment facilities because of the excessive financial burden on the municipalities. It is expected that over time, wastewater treatment facilities will be upgraded to remedy this situation.

Any grants or other fund transfers (e.g., sub-grants) made to organizations/contractors receiving USAID funds to support this program’s activities must incorporate provisions that the activities to be undertaken will be within the envelope of the environmental determinations and recommendations of this IEE. This includes assurance that the activities conducted via those transfers fit within the description of activities described in an approved IEE or IEE amendment covering this program, and that any mitigating measures required for those activities be followed.

If the activities in this program are materially modified, or additional activities added, the SO team is responsible for assuring that this IEE document is amended appropriately. In accordance with 22 CFR 216, however, specific activities have yet to be defined and will require further application of USAID Environmental Procedures once these enter the design stage.

**APPROVAL OF ENVIRONMENTAL ACTION RECOMMENDED:** (Type name under signature line)

**CLEARANCE:**

<b>Mission Director</b>		<b>Date:</b>	
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**CONCURRENCE:**

<b>Bureau Environmental Officer</b>		<b>Date: Approved?</b>	
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<b>Filename:</b>	
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**CLEARANCE:**

<b>General Counsel</b>		<b>Date:</b>	
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**ADDITIONAL CLEARANCES:** (Add as appropriate)

<b>Mission Environmental Officer</b>		<b>Date:</b>	
<b>SO Team Leader</b>		<b>Date:</b>	

## INITIAL ENVIRONMENTAL EXAMINATION

<b>Program/Activity Number:</b>	608-0234
<b>Country/Region:</b>	USAID/Morocco
<b>Program/Activity Title:</b>	SO 11: "Increased Economic Growth and Job Creation"

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### 1.0 BACKGROUND AND PROGRAM DESCRIPTION

#### 1.1 Purpose and Scope of this Initial Environmental Examination (IEE)

The purpose of this IEE is to provide the necessary environmental documentation, pursuant to 22 CFR 216 (Regulation 216) and ADS 204 for the USAID/Morocco program. The aim is to ensure that the necessary environmental compliance requirements are in place, so as to permit the implementation of the program activities in accordance with USAID Environmental Policies and Procedures.

**NOTE:** It should be noted that a Programmatic Environmental Assessment was conducted under the "Morocco Urban Infrastructure, Land Development and Financing Program HG-IV (608-0221) in 1993. This Programmatic Assessment concluded that there would not be significant impacts to the environment as compared with the "no-project" alternative for activities relating to the "Cities Without Slums" initiative. The major issue raised by this report was the shifting of the sewage problem to another location without adequate provision for wastewater treatment facilities because of the excessive financial burden on the municipalities. It is expected that over time, wastewater treatment facilities will be upgraded to remedy this situation.

This IEE provides a basis for relevant Threshold Determinations for various program activities for ensuring environmental compliance in accordance with Regulation 22 CFR 216 and ADS 204. It allows for future amendments of the IEE, as new activities are included or existing ones are extended or cancelled. SO team leaders and activity implementing contractors are responsible for the implementation of continuous monitoring and evaluation activities for the recommended adverse environmental impact mitigation and monitoring measures. The aim is to ensure that they remain as "Categorical Exclusions" or within the bounds of "Negative Determination with Conditions."

If the activities in this program are materially modified, or additional activities added, the SO team is responsible for assuring that this IEE document is amended appropriately. In accordance with 22 CFR 216, however, specific activities have yet to be defined and will require further application of USAID Environmental Procedures once these enter the design stage.

## **1.2 Description of Activities Under SO 11**

This SO will help Morocco respond to the challenges and opportunities of a more liberalized trading environment, which is expected to result from the Free Trade Agreement with the US, other similar accords, and complimentary Moroccan reform efforts. It will do so by helping to create jobs and investment opportunities in agriculture, agribusiness, rural tourism, and other sectors to help offset anticipated losses from reduced protection on domestic agricultural production. Trade liberalization in Morocco will lead to major transformations in agriculture and the rural economy. Most notably, cereal production (notably wheat) and oil seed production will be reduced. Offsetting these losses will require a shift toward higher value-added production and the creation of new businesses and job opportunities in both rural areas and smaller towns and cities.

Agriculture accounts for 15-20% of GDP and almost half of employment. Agriculture also has strong linkages to the rest of the economy, and is strongly rooted in the cultural heritage of Morocco. Although rain-fed agriculture accounts for the majority of cultivated area, it contributes to less than half of the total value of crop production because of low productivity, large fluctuations in production resulting from highly variable rainfall, and intensity of labor.

Shifts in cropping patterns toward crops that have export potential and away from cereals could add further pressure on water resources, as higher-value crops typically demand better water management. In addition, there are inefficiencies in the use of water in agriculture, particularly by small and medium-sized farmers (practices include: irrigation by flooding, wasteful pivot irrigation systems, elevated evaporation losses from open canals, poor timing of water release, inadequate demand management). Both irrigation delivery infrastructure and water valuation need to be reconfigured.

Additional jobs will be required in the industry and services sectors to adequately absorb workers displaced from agriculture and new entrants into the labor force. The Moroccan private sector will need to develop new markets and new products and improve quality and productivity. Tourism is an example of an under-exploited sector, having not yet tapped into the market for eco/adventure tourism. In rural areas, the workforce lacks the behavioral and job skills to promote successful tourism activities.

### **IR 11.1: Increased Productivity in Agriculture and Agribusiness**

Assistance will be provided to the Moroccan agricultural sector to increase productivity by shifting cultivation to higher value-added crops and by improving the use of limited capital and human resources. Activities will include:

- Formulating policies and programs related to agricultural transformation in collaboration with the Ministry of Agriculture
- Assistance to enterprises and supporting institutions in better understanding laws and regulations governing entry of exports into the American market, sanitary and phytosanitary standards, other import market requirements, and responsible implementing authorities
- Assistance for enterprises in identifying export opportunities in the American Market and in developing appropriate product and promotional strategies
- Assistance to enterprises in improved management practices, technical, commercial, and financial partnerships, and environmental protection
- Working with the Ministry of Agriculture and Rural Development to make water allocation policy decisions based on the economic demand of water and its opportunity cost
- Developing better and timelier systems for providing information on water supply within irrigation systems to help improve water delivery when and where it is needed by farmers
- Assisting small-holder farmers and water user associations to invest in more efficient on-farm irrigation such as drip irrigation

#### **IR 11.2: New Business Opportunities Outside of Agriculture and Agribusiness Expanded**

This IR will promote opportunities in the manufacturing and service sectors in rural areas and nearby market towns and cities. Selection criteria for sectors will include high growth potential, labor insensitivity, and the potential for backward and forward linkages with the rest of the economy. Information and communication technology businesses opportunities will be examined. Activities will include:

- Developing new business opportunities in labor-intensive manufacturing and service sectors
- Assistance to enterprises and supporting institutions in better understanding of laws and regulations governing the entry of exports into the American market, foreign investment and commercial exchanges, and the authorities responsible for their implementation
- Assistance for enterprises in identifying export opportunities in the American Market and in developing appropriate product and promotional strategies
- Completing work begun under a prior agreement to assist the private and public sectors on the development and marketing of new tourism products, especially in rural areas and smaller cities and towns, which complement traditional beach and imperial cities packages.

### **IR 11.3: Business Environment Improved**

This IR will foster an improved business environment by helping the Government of Morocco comply with the requirements of the Free Trade Agreement, promoting more simplified and transparent trade and investment procedures, and improving access to finance. Activities include:

- Assisting both national and regional authorities to help Morocco better market the country and specific regions as primary investment locations
- Helping regional investment centers to create public-private partnerships that address regional constraints to investment and growth
- Updating existing laws, procedures, and improving legal and judicial practice in key commercial law areas that enhance transparency for investors
- Updating laws, regulations, and business practices so as to reduce the systematic risk of small business lending
- Strengthening the ability of financial institutions to access the credit risks of small business lending
- Working with private sector financial institutions to help them introduce and/or scale up their lending for housing so that loans are available to slum dwellers who want to improve their housing
- Working with private sector financial institutions including banks, insurance companies, and pension funds to broaden their investment portfolios into municipal infrastructure financing.

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## **2.0 COUNTRY AND ENVIRONMENTAL INFORMATION**

### **2.1. General Background**

Separated by Spain by less than 20 km of sea, the kingdom of Morocco has had a long history of political, economic and cultural interaction with Europe. The country has one of the larger economies in Africa. Morocco was a French protectorate from 1912 to 1956, when Morocco gained its independence and Sultan Mohammed became king. He was succeeded in 1961 by his son, Hassan II, who ruled for 38 years. After his death in 1999 he was succeeded by his son, who became King Mohammed VI and was seen as a moderniser who would press on towards establishing a constitutional monarchy.

The official language is Arabic and various Berber dialects are spoken. French is widely spoken in business, government and academic circles and Spanish is also spoken in the north. Morocco has a free market economy that has grown by an average of 4% a year since 1983.

The population of Morocco is about 34 million people, and occupies a land area about 500,000 sq km (slightly larger than California) including a coastline of about 2,000 km. Approximately 20 percent of the land is arable. The northern coast and interior of the country are mountainous with large areas of bordering plateaus, intermontane valleys and rich coastal plains.

In 2002, Morocco's gross domestic product (GDP) was \$37 billion (approximately \$1,200 per capita), and about 67% of exports go to the EU (mostly France and Spain). A US/Morocco Free-Trade Agreement currently nearing completion will require implementation of additional trade liberalizations which will have a significant impact on the agricultural sector, requiring a transition from cereals to more export-quality crops.

### **Major Problems Facing Morocco**

Poverty: One of Morocco's biggest challenges is the high incidence of poverty, currently at about 20 percent. Poverty continues to be typically a rural phenomenon, with more than 25 percent of the rural population living below the poverty line (urban population poverty is 12 percent). The depth and severity of poverty is also much higher in rural areas, and has increased significantly since 1991.

Education: Despite significant public spending on education (6 percent of GDP), both the quality and coverage remain perceptibly weak. Illiteracy rates remain alarmingly high (50 percent). 2.5 million children still do not attend school—a majority are rural girls. Quality is also an issue as evidenced by poor retention rates: 25 percent of schoolchildren drop out before the fifth grade, and only 10 percent make it to 11th grade. University students, who take an average of eight years to finish a four-year program, all too often find their skills unsuited to the labor market.

Health: The health system also lags behind most regional comparators. Whereas life expectancy increased to 70 years and vaccination is widespread, many indicators, such as maternal and infant mortality rates, remain disturbingly high. In addition, there is limited access and poor quality of services in rural areas. Morocco has one of the lowest health insurance coverage rates in the region reaching 15 percent of the population.

Gender: Gender disparity is especially stark in rural areas, where 75 percent of women are illiterate, and only 47 percent of girls are enrolled in primary school. In urban areas, there is 23 percent illiteracy for women and a 83 percent enrollment rate. Improvements have been made in the makeup of the labor force, in which 35 percent of women.

Water: (see next section)



## Environmental Issues

Morocco faces environmental challenges common to many developing countries experiencing economic growth: pressure on natural resources and the environment that are the consequence of population growth, urbanization, limited funds available for natural resource management and a nascent legal and regulatory framework for environmental protection. Since the 1980's, Morocco has developed and started to implement action plans and programs to protect its environment. Most of the early programs were very general and addressed primarily water management issues. Morocco is currently in the process of updating its environmental regulatory regime through development of additional and more detailed environmental legislation.



Although Morocco has demonstrated an increasing commitment to environmental protection and sustainable development, it still faces major environmental challenges. Land degradation, caused by a variety of factors including overgrazing, destruction of vegetation and unsustainable farming practices, also is an environmental concern and results in loss of biodiversity as well as soil erosion. Morocco has a low rate of deforestation relative to other African countries, however, with only 0.04 percent (1990–2000) of its forests destroyed each year. Forests cover 6.8 percent (2000) of the country's area.

The country uses more than 90 percent of its fresh water for agricultural production. Available drinking water has been further limited by pollution of freshwater sources with raw sewage and industrial waste. Periodic droughts contribute to water shortages in some areas of the country, and the problem of water scarcity is expected to worsen as Morocco's population continues to grow.

The inclusion of environment-related commitments as an integral part of the FTA is expected to increase awareness of environmental issues in Morocco and help support Morocco's environmental development priorities.

### Water

The quality and quantity of water present challenges for the country, which experiences recurring and severe droughts. Water pollution is a nationwide problem and, in addition to the health risks, creates social, environmental and economic problems.

Water availability per person will have been cut in half by 2020 given current usage rates and the current population growth rate of 1.6 percent. This disturbing trend in water scarcity reflects the lack of an effective national strategy. The agricultural sector is partly to blame, with its trade restrictions, tax exemptions, and price support and subsidies schemes. These

measures have resulted in an inefficient allocation of scarce water resources—irrigated agriculture currently uses 92 percent of all mobilized water in the country, with the remainder left for all household and industrial use. What is more, frequent droughts often aggravate shortages. Developing a new national approach to water management is critically necessary, characterized by a more balanced distribution of water use, adequate pricing, and cost recovery to ensure sustainability.

### Issues Relating to Tourism

Tourism has the potential to create opportunities for sustainable development as well as to introduce new environmental stresses. Tourism is an integral element of Morocco's efforts to diversify and strengthen its economic base. The Moroccan government has outlined an ambitious plan to increase its tourism sector, with the primary goal of bringing 10 million tourists to Morocco annually by 2010 (currently the number is 2 million). Currently, Morocco averages about two million visitors per year. The most significant tourism-related threats to the environment include land development (affecting terrestrial and especially coastal ecosystems), pressure on marine resources and habitats, air pollution, water pollution and solid waste disposal. Coastal development contributes to soil erosion, land degradation and loss of wildlife habitats and water demand for hotels and swimming pools adds pressure on limited supplies of fresh water. Further threats to wildlife result from souvenir trade.

At the same time, Morocco's environment is an important factor in attracting tourists to the region and thus justification and motivation for conservation. Miles of beaches (on both the Mediterranean and Atlantic coasts), the Atlas Mountains and Morocco's imperial cities attract the majority of visitors to Morocco. However, Morocco has just begun to tap into the fastest growing component of world tourism – eco/adventure tourism. While eco-tourism activities can cause degradation of marine ecosystems through physical damage, pollution and commercial harvesting for sale to tourists, eco-tourism can also contribute to environmental conservation and preservation as well as economic development. If eco-tourism is implemented correctly, it can minimize the negative impact on the environment and improve the awareness of the unique ecological attributes of the country. In addition to increasing interest in eco-tourism, the concept of sustainable tourism is attracting the attention of both the private sector and the Moroccan government.

### **Environmental Regulatory Milestones**

1992— National Action Plan for the Environment (PANE): Created with the support of the United Nations Development Program (UNDP) and the UN Fund for Population, the goal of PANE is to design tangible, concrete actions that reflect the objectives stated in Morocco's national environmental strategy and ensure their continuing development. The PANE is structured around seven broad priorities that reflect Morocco's environmental needs: 1) Protection and sustainable management of water resources, 2) Protection and sustainable management of soil resources, 3) Air protection and promotion of renewable energies, 4) Protection and sustainable management of natural surroundings, 5) Prevention of natural disasters and major technological risks, 6) Improving urban and urban-related areas and 7) Environmental management and communication.

1995— Ministry of Regional Development, Urbanism, Habitat and the Environment: The Moroccan government reorganized its environmental protection and regulatory agencies, which had previously been dispersed, into one central entity. Within the Ministry, the Department of Environment is responsible for the coordination of environmental activities and for implementation of the national environmental strategy, including drafting of Morocco's environmental laws and regulations. Among the Department's priorities is establishing a regulatory framework for the protection of Morocco's environment.<sup>2</sup>In addition to the Department of Environment, several other ministries now include special offices concerned with environment matters, including the Ministries of Agriculture, Fisheries and the Interior. Morocco also created a National Environment Council, chaired by the Prime Minister, where all ministries are represented.

1995—Water Law: To address water issues, Morocco enacted and is implementing a water law, which is much more detailed and prescriptive than prior water-related measures. The law creates nine river basin agencies to manage water at the local level and regulates water use in an integrated manner. Water quality norms were also established.

2003— Important Environmental Laws Passed: The Moroccan Parliament approved three important environmental laws: a general, framework law on environmental protection; a law requiring environmental impact assessments; and an air pollution law. These laws have entered into force and implementing decrees are expected to be issued later this year. A bill concerning waste management and disposal practices is awaiting passage in the Moroccan Parliament. There are also a number of additional laws under development within the Department of Environment, including laws concerning management of coastal zones.

2004—Free Trade Agreement Under Consideration: A Morocco-US Free Trade Agreement is close to completion, which would significantly open markets in the US for Moroccan products and services, but this comes with significant domestic challenges for the Moroccan agricultural sector which will no longer benefit from protections. The "Draft US-Morocco Joint Statement on Environmental Cooperation," April 2004, (<http://www.state.gov/g/oes/env/tr/2004/31136.htm>) facilitates cooperation on environmental protection. The "Interim Environmental Review, US-Morocco Free Trade Agreement," 2003, (<http://www.ustr.gov/environment/tpa/morocco-environment.pdf>) aims to present potential adverse effects on the environment of Morocco resulting from the FTA.

### **International Environment-Related Agreements**

Convention for the Protection of the Mediterranean Sea against Pollution (1980); Convention for the Protection of the Ozone Layer (1985); Montreal Protocol on Substances that Deplete the Ozone Layer with Annexes (1987); Geneva Convention for Reducing Nitrogen and Sulphur Oxide Waste (1979); Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1995); Convention on Biodiversity (1995); United Nations Framework Convention on Climate Change (1996); United Nations

Convention to Combat Desertification (1997); Convention on International Trade in Endangered Species of Wild Fauna and Flora (1975); Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter with Annexes International Commission for the Conservation of Atlantic Tunas (1969); Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships Ramsar Convention on Wetlands (1980); International Convention for the Prevention of Pollution of the Sea by Oil; International Whaling Convention.

### **Selected Recent Environmental Cooperation Activities**

USAID— Souss-Massa Integrated Water Management (SIWM): By helping to establish a River Basin Agency (RBA) in the Souss-Massa region, the SIWM Project supports decentralization, economic development and improved environmental quality. The RBA's broad-based management council will enable local decision-making on the use and availability of a scarce resource that affects people's everyday lives. USAID is financing technical assistance and training and is funding pilot activities in irrigation efficiency, wastewater treatment and reuse, erosion control, pollution prevention, coastal zone management and other improved practices of water management.

USAID— Water Resources Sustainability (WRS): This project aims to improve Morocco's water resource management in the agricultural, urban and industrial sectors by introducing policies, technologies, new water management processes and expanded community participation. Key components focus on pilot and demonstration activities and on water resources management in three areas

USAID— Urban Environmental Credit Program and Urban Environmental Services (UES): This Program seeks to provide access to affordable shelter for low-income households. One purpose of the program is to increase the capability of the National Shelter Upgrading Agency (ANHI) and the Municipal Finance Bank (FEC) to improve urban environmental infrastructure and shelter in Moroccan cities. Loan guarantees of \$100 million, as well as grant funding, has helped ANHI and the FEC move toward self-sufficiency. Urban environmental protection will be emphasized throughout the program.

USAID— Tadla Resources Management (TRM): The goals of this project were to increase the efficiency, economic yield and environmental sustainability of irrigated areas of Morocco's Tadla Basin. These goals have been achieved through an integrated program of technology transfer, research and demonstration, institutional and private sector strengthening and policy analysis. The project improved irrigation system management and on-farm water control, and will serve as a model for other major irrigated areas. The project ultimately seeks to ensure the long-term competitiveness and environmental sustainability of Moroccan irrigated agriculture.

USAID— Rural Tourism: In 2003, a USAID contractor (Chemonics International) began to implement a \$3.1 million program to support local public and private organizations in developing and marketing dozens of new rural tourism packages to complement existing beach and cultural destinations. Three circuits have been selected (southern High Atlas Mountains, Mid-Atlas Mountains and Northern Rif Mountains) for development and marketing in the 2004 tourist season. All new tourism packages will respect and reflect the principles and criteria for eco-tourism and sustainable tourism development, including such principles as conservation and management of natural resources and protected areas and preservation of local and traditional culture.

USEPA— Regulatory assistance: In October 2003, the U.S. Environmental Protection Agency, in cooperation with USAID, will initiate a program in Morocco to enhance Morocco's capacity to protect the environment through the development of laws and other environmental policies and programs. The program will include seminars and training courses to discuss elements of effective environmental regimes, including enforcement. EPA will also provide information regarding the use of environmental impact assessments and economic incentives to help achieve environmental objectives.

USDOE— "Clean" Energy: In June 2002, the United States Department of Energy and the Moroccan Ministry of Industry, Commerce, Energy and Mines signed an agreement to promote development of "clean" energy sources. Morocco's National Office of Electricity (ONE) is considering expanding the use of hydroelectric pumped storage, solar power (widely used in many remote, rural areas of the country) and wind power parks.

Trade and Development Agency— Infrastructure Assistance: Over the last several years, TDA has supported several environment-related projects in Morocco and the north African region, including technical assistance for the siting, construction, and operation of controlled landfills in Fez and Casablanca; wastewater treatment facility feasibility studies in the city of Azzemour and Bou Regreg; and desalination at Jorf Lasfar.

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### **3.0 EVALUATION OF ACTIVITY/PROGRAM ISSUES WITH RESPECT TO ENVIRONMENTAL IMPACT POTENTIAL**

Below is an evaluation of SO 11 activities with respect to environmental impact potential.

### **IR 11.1: Increased Productivity in Agriculture and Agribusiness**

A number of activities under IR 11.1 are not expected to have adverse impacts on the environment, because they provide training and technical assistance, as well as coordination assistance.

Activities that require attention include those involved with providing grants to local NGOs to implement projects involving technical assistance for small-scale demonstration projects for improved water management technologies and irrigation projects including well digging. A change in water use for an area may have an adverse impact on the environment (such as water table drawdown) if not properly planned.

It is possible that some technical assistance projects will involve the use of seeds, pesticides, and/or fertilizers, which if used improperly can have both short and long-term adverse impacts on the environment. It is not expected that any GMO crops will be investigated because they are currently banned by Moroccan federal law.

### **IR 11.2: New Business Opportunities Outside of Agriculture and Agribusiness Expanded**

A number of activities under IR 11.2 are not expected to have adverse impacts on the environment, because they provide training and technical assistance, as well as coordination assistance.

Activities that require attention include those involved in providing technical assistance/grants to support the development of new small- and medium-sized industrial enterprises, and the improvement of the productivity of existing ones. Industries, when improperly constructed or managed, can have an adverse impact on the environment. Water, air, and land pollution are common problems.

Additional activities that require attention include the support of rural tourism projects. The increase in the demand on resources, the potential for construction of facilities in sensitive natural areas, and the increased level of human traffic resulting from tourism projects have the potential for adverse impact on the environment. Effects include habitat degradation, stress on water resources, and pollution. These are often longer-term effects that require adequate consideration in the planning stage.

### **IR 11.3: Business Environment Improved**

Activities under IR 13.3 are not expected to have adverse impacts on the environment, because they provide training and technical assistance, as well as coordination assistance.

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#### **4.0 RECOMMENDED THRESHOLD DECISIONS & MITIGATION ACTIONS (INCLUDING MONITORING AND EVALUATION)**

Recommended threshold decisions, as well as recommendations for mitigation and monitoring of adverse environmental impacts are presented below.

Sub-grants— Any grants or other fund transfers (e.g., sub-grants) made to organizations/contractors receiving USAID funds to support this program’s activities must incorporate provisions that the activities to be undertaken will be within the envelope of the environmental determinations and recommendations of this IEE. This includes assurance that the activities conducted via those transfers fit within the description of activities described in an approved IEE or IEE amendment covering this program, and that any mitigating measures required for those activities be followed.

SO Team Monitoring— As required by ADS 204.5.4, the SO team will actively monitor ongoing activities for compliance with approved IEE recommendations, and modify or end activities that are not in compliance. If the activities in this program are materially modified or new activities are added that are not described in this document, the SO team is responsible for assuring that the active environmental documentation is amended appropriately.

#### **4.1 Threshold Decisions**

### **IR 11.1: Increased Productivity in Agriculture and Agribusiness**

Categorical Exclusion is recommended for activities under IR 13.2 except to the extent that the activities directly affect the environment (projects involving the use of seeds, pesticides, and/or fertilizers; projects involving small-scale demonstration projects for improved water management technologies and irrigation projects including well digging), pursuant to: 22 CFR 216.2(c)(2)(i), for activities involving education, training, technical assistance or training programs; 22 CFR 216.2(c)(2)(v), for activities involving document and information transfers; 22 CFR 216.2(c)(2)(xiv), for studies, projects or programs intended to develop the capability of recipient countries and organizations to engage in development planning.

Negative Determination With Conditions is recommended for projects involving the use of seeds, pesticides, and/or fertilizers; projects involving small-scale demonstration projects for improved water management technologies and irrigation projects including well digging, pursuant to: 22CFR216.3(a)(2)(iii).

### **IR 11.2: New Business Opportunities Outside of Agriculture and Agribusiness Expanded**

Categorical Exclusion is recommended for activities under IR 13.2 except to the extent that the activities directly affect the environment (small and medium-sized enterprise development and rural tourism projects), pursuant to: 22 CFR 216.2(c)(2)(i), for activities involving education, training, technical assistance or training programs; 22 CFR 216.2(c)(2)(v), for activities involving document and information transfers; 22 CFR 216.2(c)(2)(xiv), for studies, projects or programs intended to develop the capability of recipient countries and organizations to engage in development planning.

Negative Determination With Conditions is recommended for projects involving small and medium-sized enterprise development and rural tourism, pursuant to: 22CFR216.3(a)(2)(iii).

### **IR 11.3: Business Environment Improved**

Categorical Exclusion is recommended for all activities under IR 11.3 except to the extent that the activities directly affect the environment, pursuant to: 22 CFR 216.2(c)(2)(i), for activities involving education, training, technical assistance or training programs; 22 CFR 216.2(c)(2)(v), for activities involving document and information transfers; 22 CFR 216.2(c)(2)(xiv), for studies, projects or programs intended to develop the capability of recipient countries and organizations to engage in development planning.

## **4.2 Mitigation and Monitoring Measures**

Contractor Reporting— Implementing contractors' annual reports and, as appropriate, progress reports shall contain a brief update on mitigation and monitoring measures being implemented, results of environmental monitoring, and any other major modifications/revisions in the development activities, and mitigation and monitoring procedures.

Capacity— USAID/Morocco is responsible for assuring that implementing contractors have the human capacity necessary to incorporate environmental considerations into program



planning, implementation, and reporting and to take on their role in the Environmental Screening Process. Capacity development should also be provided as needed for both the environmental screening process and in best management practices.

Follow-up— In addition, adequate resources must be budgeted to the project for the mitigation and monitoring measures included in this IEE, and to provide for project follow-up and evaluation to ensure that mitigation measures have been or are being implemented.

Mitigation and monitoring measures specific to each IR are presented below:

### **IR 11.1: Increased Productivity in Agriculture and Agribusiness**

The following monitoring and mitigation measures apply for projects involving the use of seeds, pesticides, and/or fertilizers; and for projects involving small-scale demonstration projects for improved water management technologies and irrigation projects including well digging.

Environmental screening— Implementing contractor(s) are responsible for identifying potential adverse environmental impacts and correcting them with appropriate mitigation and monitoring measures. The implementing contractor is responsible for developing a process for the environmental screening and review of all projects/grants to local NGOs/contractors. This process will require a checklist and training for all applicable projects to be completed and approved by the contractor prior to the approval of the project, and should be applicable to construction within the Moroccan setting. The SO team and MEO will review this process before the implementing contractor approves any projects.

Local Laws— All projects must be carried out in compliance with all Moroccan federal and local laws and regulations, including environmental impact assessment, zoning, and health & safety.

Best Practice— The implementing contractor is responsible for following best engineering practices with qualified professional expertise. Provisions for the appropriate operation and maintenance of the facilities must be taken into consideration. Appropriate sections (e.g., Agriculture and Irrigation, Safer Pesticide Use, Integrated Pest Management) of the USAID ANE document, *Environmental Guidelines for Small-Scale Activities*, and other applicable guidance documents should be used.

Pesticides— This examination does not cover pesticides, including their procurement, use, transport, storage or disposal. Any pesticide activity considered under this program would

necessitate the preparation of a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP). At this time, ANE does not have its own PERSUAP; it is therefore recommended that the AFR Bureau guidance be followed (<http://www.encapafrika.org/docs/pest-pesticide%20mgmt/PERSUAP%20Guidance.doc>) in fulfilling all analytical elements required by 22CFR216.3(b), USAID's Pesticide Procedures. Activities that entail the promotion or use of pesticides for activities involving controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas (< 4 ha) and carefully monitored, shall be within the parameters of 22 CFR 216.3(b)(2)(iii) (Exceptions to Pesticide Procedures). All activities that fall outside of the category of controlled experimentation exclusively for the purpose of research and field evaluation under 22 CFR 216.2(c)(2)(ii) and entail the procurement or use, or both, of pesticides shall be analyzed in accordance with USAID Pesticide Procedures (22 CFR 216.3(b) and no funds shall be obligated or expended for the procurement or use of pesticides unless they are specifically approved through an amendment to this IEE in accordance with 22 CFR 216.3(b).

**Fertilizers**— Only fertilizers that are approved by both the Moroccan government and the USEPA can be introduced and utilized. Further, because of the environmental risks inherent in improper handling, storage, use and application, implementing partners must assure that potential users are trained in proper handling, storage, use and application techniques.

**GMOs**— This examination does not cover genetically-modified organisms (GMOs) or life-modified organisms (LMOs). Any support for laboratory- or field-based research, multiplication, or dissemination of GMOs or LMOs shall be subject to review under the Agency's Biosafety procedures.

## **IR 11.2: New Business Opportunities Outside of Agriculture and Agribusiness Expanded**

The following monitoring and mitigation measures apply for projects involving the use of seeds, pesticides, and/or fertilizers; and for projects involving small and medium-sized enterprise development and rural tourism.

**Environmental screening**— Implementing contractor(s) are responsible for identifying potential adverse environmental impacts and correcting them with appropriate mitigation and monitoring measures. The implementing contractor is responsible for developing a process for the environmental screening and review of all projects/grants to local NGOs/contractors. This process will require a checklist and training for all applicable projects to be completed and approved by the contractor prior to the approval of the project, and should be applicable to construction within the Moroccan setting. The SO team and MEO will review this process before the implementing contractor approves any projects.

Local Laws— All projects must be carried out in compliance with all Moroccan federal and local laws and regulations, including environmental impact assessment, zoning, and health & safety.

Best Practice— The implementing contractor is responsible for following best engineering practices with qualified professional expertise. Provisions for the appropriate operation and maintenance of the facilities must be taken into consideration. Appropriate sections (e.g., Ecotourism, Guidelines for Micro and Small Enterprises) of the USAID ANE document, *Environmental Guidelines for Small-Scale Activities*, and other applicable guidance documents should be used.

Cleaner Production training— A Cleaner Production Workshop would be very constructive to inform better practices in small and medium enterprise promotion.

### **IR 11.3: Business Environment Improved**

No monitoring or mitigation measures are recommended.

## **Annex D – Triple Standards**

**See separate file in .pdf format: 022-c\_ Annex D**

## **Annex A – Consolidated Scope of Work**

### **1. Assessment Objective**

Review the proposed pilot project activities for their (1) compliance to applicable environmental, health and safety (EH&S) regulations, (2) competitiveness from resource use efficiency and waste management, and (3) conformity with voluntary market requirements for food safety, environmental management, and worker welfare.

### **2. Tasks to be completed**

- a. Review proposed project sector interventions currently being planned including:
  - Olive sector development
  - Development of production and trade in Clementines and blood oranges
  - Water saving irrigation technology
  - Production, processing and marketing of aromatic and medicinal plants
  - Mutton sector development, through a lamb fattening scheme in the Oriental region.
  - Beef sector development with a fattening exercise in the Saïs region.
  - Soft fruit (raspberry, blackberry, blueberry) production and export development
- b. Visit the program focus areas to familiarize himself with the program's context and meet with producers, processors and officials involved in agricultural development and / or environmental management (at least one regional workshop of those being planned for late September will be attended).
- c. Review the Moroccan environment, health and safety (EH&S) regulatory framework for agriculture interventions and USAID requirements stipulated in the contract and the IEE Threshold Decision to propose a methodology for identifying, mitigating, and tracking project interventions for compliance.
- d. Identify methods and tools for the program team to comply with applicable environmental requirements contained in the US-Morocco free trade agreement.

### 3. Deliverables & Duration of assignment

The consultant will prepare and present in-country to USAID a brief report on his findings and recommendations. Furthermore, he will complete a short report outlining findings, conclusions and specific recommendations for the project interventions in EH&S compliance, competitiveness and conformity as outlined above. The report is to be submitted to the Chief of Party within ten days of the completion of the assignment. The duration of this assignment is 16 days including 2 travel days. This LOE includes one day to prepare for the field work and three days after the assignment in Morocco to complete his report in the United States.



## Scope of Work for a TDY on Environmental Compliance

### Project Background:

An essential part of the Integrated Agriculture & Agribusiness program is to promote the environmental compliance of Morocco's agricultural sector with internationally recognized environmental standards and in particular the specific requirements of the USAID mission in Morocco.

The program approach to environmental matters consists of the following primary sets of activities:

- Monitor the efficiency with which natural resource and industrial inputs into agricultural production agro-processing are used in Morocco (e.g. water use, soil conservation, agrochemical use and industrial input use).
- Review current Moroccan capacity to meet rapidly emerging standards for organic production, food safety, and environmental management (e.g. EUREPGAP for fruit and vegetable safety, IFOAM requirements for organic produce, HACCP for processed food item safety, and ISO 9000:2000 and ISO 14001 for quality and environmental management in processing industries).
- Develop a decision-support tool to routinely screen and document all production and processing interventions to ensure compliance with Moroccan laws and environmental regulations and to comply with USAID's own requirements under 22 CFR 216 and other applicable texts of the Foreign Assistance Act.
- Collaborate with USAID/ U.S. government staff involved in phytosanitary work, as well as the Ministries of Agriculture, commerce and Industry, SNIMA and professional associations, to identify pilot and market-based interventions.

Mr Dave Gibson is the program environmental consultant and will be fielded in September 2005 to assist with the implementation of the program's environmental component.

Mr Gibson will perform the following tasks:

- Review the proposed pilot project activities for their environmental implications. This will include the following sector interventions that are currently being planned:
  - Olive sector development with a wide variety of planned interventions
  - Development of production and trade in clementines and blood oranges
  - Water saving irrigation technology
  - Aromatic and medicinal plants, whose sector planning event takes place on September 20-22 in Fez and which Mr Gibson will visit.
  - Mutton sector development, initially through a lamb fattening scheme in the Oriental region.
  - Beef sector development with a fattening exercise in the Saïs region.
  - Soft fruit (raspberry, blackberry, blueberry) production and export development
  
- Visit the program focus areas to familiarize himself with the program's context and meet with producers, processors and officials involved in agricultural development and / or environmental management (at least one regional workshop of those being planned for late September will be attended).
  
- Review the current regulatory framework for agriculture from the perspective of environmental management and prepare an analysis of its implications for the program's proposed activities.
  
- Assist the program team to address the environmental implications of agricultural modernisation in the context of the US-Morocco free trade agreement.
  
- Prepare and present in-country to USAID a brief report on his findings and recommendations.

The duration of Mr Gibson's input in-country will be 14 days between September 18 and October 1, 2005.