



**ECONOMIC AND SOCIAL
COUNCIL**

Economic and Social Commission for Western Asia (ESCWA)

Expert Group Meeting on Sustainable Land Management
as a Best Practice to Enhance Rural Development
in the ESCWA Region
Beirut, 25 – 27 March 2009

**Lessons Learned from Pilot Projects for Promoting Sustainable Livelihoods
through Sustainable Land Use Management in South Lebanon**

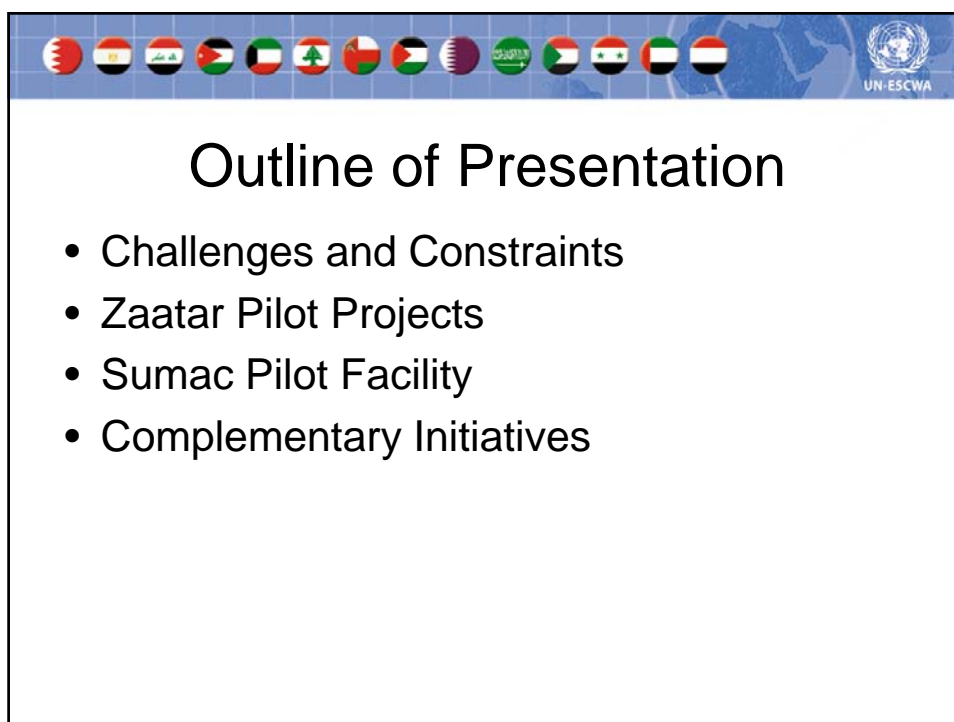
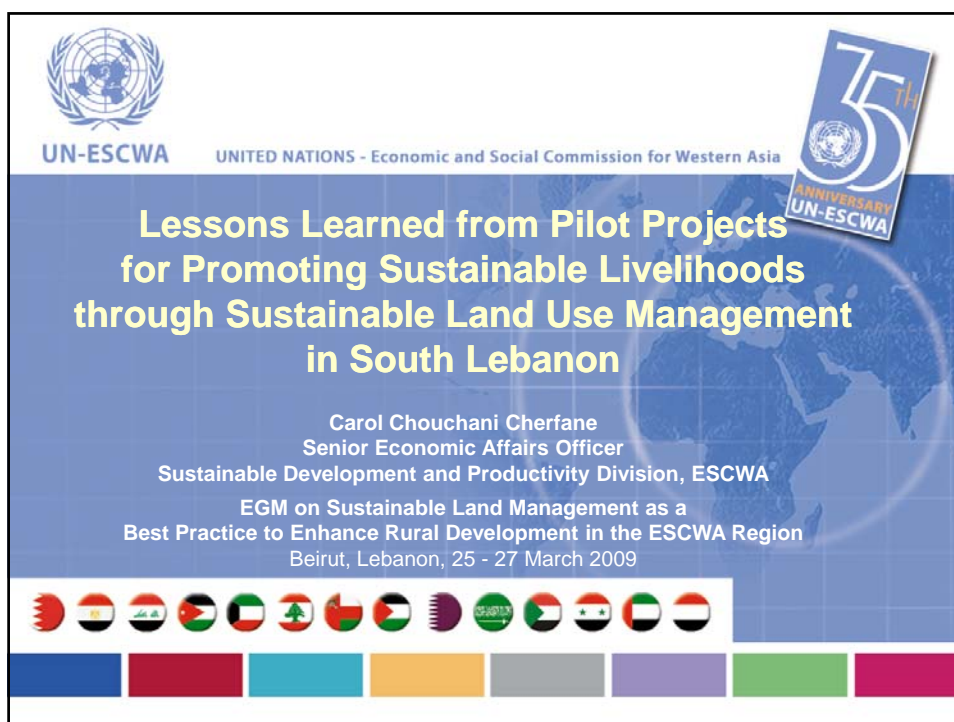
by

Ms. Carol Chouchani Cherfane

Sustainable Development & Productivity Division
Technology and Enterprise Development Team

UN-ESCWA

Note: This document has been reproduced without formal editing.



Challenges and Constraints



- **Water Scarcity**
 - Limited quantity
 - Over-use
 - Mismanagement
 - Poor pricing
 - Reduction in annual precipitation levels
- **Land Degradation**
 - Urban encroachment
 - Loss of terraces
 - Land abandonment
 - Informal ownership arrangements
 - Parcelization of land
- **Technology Constraints**
 - Poor agricultural extension
 - Apprehension about investment risks, due to insecurity and instability
 - Limited capacity for organics & long-term cultivation plans
- **Skewed Market Signals**
 - Limited market information
 - Price distorting subsidies for tobacco
 - Import competition

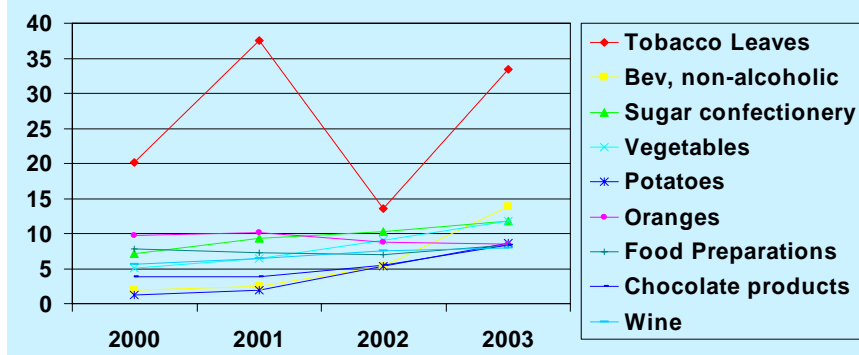


Bint Jbeil, South Lebanon

Volatility of the Tobacco Market



Lebanon: Selected Agricultural Exports
(US\$ million)



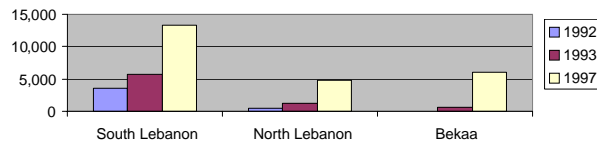
http://www.fao.org/es/ESS/compendium_2005/pdf/ESS_LEB.pdf

Volatility in Agricultural Output Levels; Export Levels; Subsidies contributes to Uncertainty

Despite Market Fluctuations, Tobacco Output Increasing



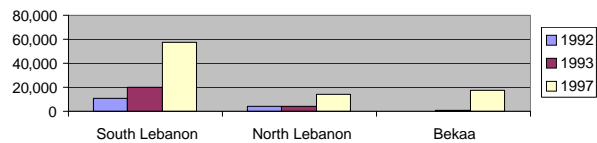
Figure 4: Change in number of farmers engaged in tobacco production over time in selected cazas



Tobacco cultivation nutrient-depleting for soils

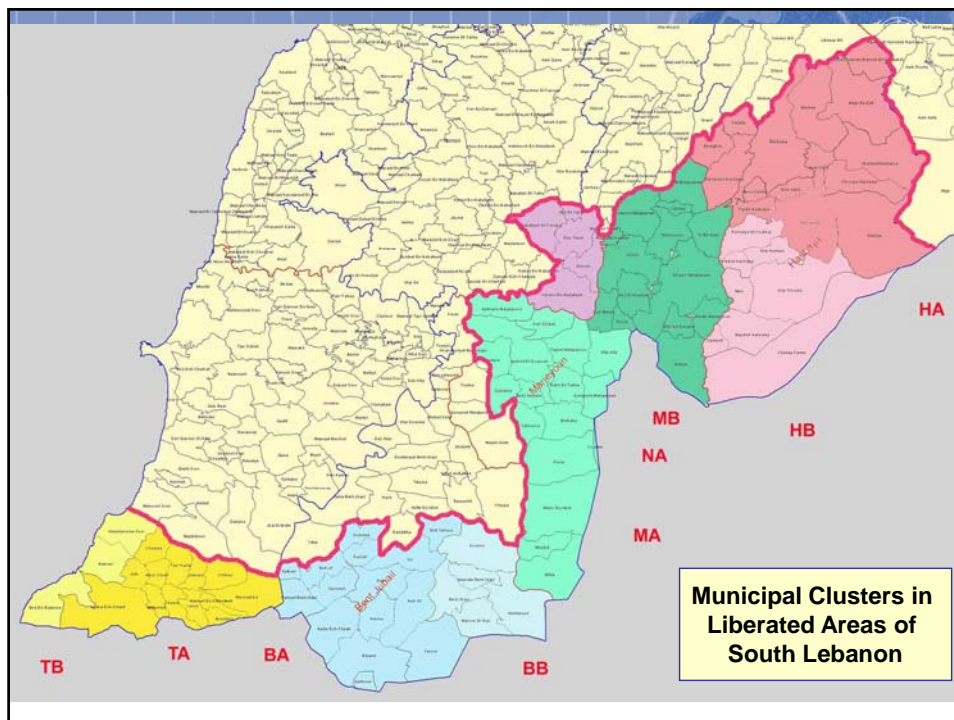
Source: International Labor Organization (ILO), International Programme on the Elimination of Child Labour (IPEC), *Child labour on tobacco plantations: a rapid assessment*, number 17, Geneva, May 2002.

Figure 5: Change in area allocated to tobacco cultivation over time in selected cazas (dunums)



Farmers are risk-averse and continue cultivating tobacco

- In South Lebanon, tobacco cultivation has been concentrated in Bint Jbeil
- Sector growth due to the subsidized price of sorted tobacco leaves sold to the Regie (state-owned monopoly)
- Subsidies continue to be given despite the fact that Regie regularly experiences annual losses and loss of market share
- Source of income is unsustainable in the long-term due to the growing national budget deficit, the increasing supply of tobacco from other regions of Lebanon (which also benefit from tobacco subsidies), and the decreasing demand for tobacco products in traditional markets due to changing consumer preferences
- Regie prohibits farmers from processing tobacco into value-added products, such as tobacco used in water pipes (*argileh*).



SWOT Analysis of Zaatar & Zaatar By-Products



Strengths

1. Low risk for plant diseases
2. No need for mechanization
3. No stringent standards or norms
4. It can be harvested 3 times/year if irrigated
5. Possible to dry and conserve the product for a longer shelf life
6. Production practices easier than tobacco
7. Particularities of the area: zaatar products well known in the South and has reputation of high quality as compared to other areas in Lebanon
8. Does not require highly skilled human resources

Weaknesses

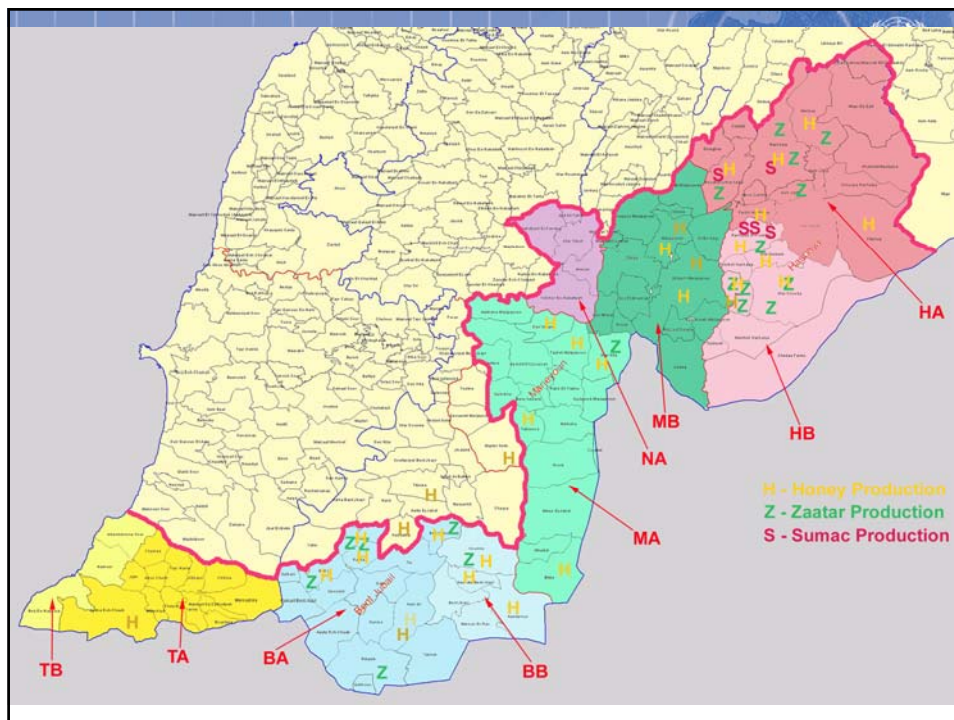
1. Production is mainly wild
2. Need to introduce cultivation and propagation methods through seeds and/or seedlings
3. Lack of good quality seeds available locally (prior to start of pilot projects)
4. Farmers are not sufficiently aware of the market opportunities of zaatar and its by-products
5. Water and irrigation networks required if to be harvested three times a year

Opportunities

1. Possible to produce several types and varieties
2. Zaatar has several uses: cosmetics (creams), perfumes (essences), Medicinal use
3. Can replace tobacco as zaatar is more profitable (and this has been demonstrated)
4. Nurseries to grow the seeds/seedlings
5. Possibility of packaging the product to increase its value
6. There may be synergy with the production of honey and sumac


Threats

1. Random harvesting from Bedouins and local population who sell them for low prices not caring for the reproduction
2. Lack of enforcement of government regulations regarding the early harvesting of wild zaatar
3. Poor quality zaatar sold on the market due to weak standards and lack of enforcement




Zaatar: Three Pilot Projects


for Income Generation & Employment Creation



- **Debel 1 Cluster (Bint Jbeil)**
 - Launched in August 2005
 - 14.5 dunums on rocky soil
 - Greenhouse for propagating seedlings
 - Partners: ILO, UNIDO
- **Debel 2 Cluster (Bint Jbeil)**
 - Launched in June 2008
 - 8.5 dunums of land previously cultivated with tobacco
 - Led to justification to establish post-harvest facility
 - Partner: AFESD, ADR
- **Ein El Deleb Cluster (Outside of Saida)**
 - Launched in October 2007
 - 6.5 dunums surface area
 - Inter-cropping between olive trees
 - Partners: ILO, WorldVision



Approach has been to foster clusters not cooperatives to generate economies of scale (during production & marketing)

<div style="display: flex; justify-content: space-between; align-items: center;"> Cultivated Zaatar v/s Wild Zaatar  </div>		
	Advantages	Disadvantages
Cultivated Zaatar	<ul style="list-style-type: none"> Targeted varieties cultivated Best planting material selected Harvesting period planning Homogeneous harvest, which is preferred by wholesalers and vendors Irrigation in case of reduced rainfall Quality and quantity of the yield are secured Perennial plant with long-term income yield 	<ul style="list-style-type: none"> Misperceptions about quality of zaatar not harvested from the wild
Wild Zaatar	<ul style="list-style-type: none"> Popular belief that wild Zaatar is healthy and natural 	<ul style="list-style-type: none"> Productivity of Wild Zaatar depends on climatic variations Some wild Zaatar is collected in polluted areas Wild Zaatar is heterogeneous in quality (species varied within a harvest) Low quality when harvest is done before blooming.

Zaatar: Lessons Learned



Profitability

- Zaatar can be effectively cultivated in dry, rocky soils
- Final products as marketable as zaatar harvested from the wild, if not more
- Profitability surpasses that of tobacco, even with tobacco subsidy
- **1 kg dry zaatar = \$10**
(LP13,000 - LP20,000)
- **1 kg (stems) = \$4.50**
(LP6,500 - LP7,500)
- Debel 1 Results (with water constraints and post-war impacts):
400 kg/dunum x \$5 =
\$2,000 / dunum



*1 dunum can produce 1 tonne
of dry marketable zaatar (leaves & flowers)*

Debel, Bint Jbeil, May 2008

Zaatar: Lessons Learned



Irrigation needed

- Zaatar perennial plant with increasing productivity (estimated up to year 7)
- Productivity can be high, provided that there is sufficient irrigation
- Drip Irrigation schemes highly recommended
- Fertigation results in greater yield than organic agriculture
- Investment risks associated with uncertainty and insecurity (see damages to Debel 1 Pilot Project from July 2006 War)



Zaatar: Lessons Learned



Weeding

- Weeds are a major problem
- Weeding is highly labor-intensive and thus increases production costs
- Nevertheless, the advantages of reduced weed growth from applying plastic mulching were found to be off-set by increased mold and rodent infestation under plastic sheath
- Manual weeding thus remains necessary
- Weed growth less during second year



Zaatar: Lessons Learned



Inter-cropping

- Inter-cropping shows potential at Ein El Deleb pilot project
- Allows for dual productivity gains with effective land use management
- Possible dual benefits associated with irrigation and fertigation
- Weeds still a problem.
- Productivity findings still pending since it is a new project. However, productivity strong since there is an ample water source (World Vision pipe).
- Cluster planted in March 2008 & was able to harvest in late June 2008 & make a profit.



Zaatar: Lessons Learned



Propagation & Biodiversity Links

- Depending on scale of production, propagation of seedlings in greenhouse to cultivate field is cost-effective
- Greenhouse can generate secondary income sources through sale of seedlings
- Drip-irrigation installed in greenhouse increased productivity and quality
- Greenhouse also allows for propagation of targeted species of zaatar
- Positive implications for biodiversity by preserving local species; harvesting from wild without training damages plant
- Positive implications for marketability, i.e., responding to market preferences by cultivating certain species: wholesalers look to weight and color/final consumers prefer different flavor intensities



Greenhouse (Debel)
March 2006 to May 2006

Sumac: Pilot Facility



- **Cultivation**
 - Sumac traditionally harvested from the wild
 - Not cultivated
- **Propagation**
 - No pre-established propagation protocols
 - Different propagation techniques thus being tested (from cuttings, seeds, suckers)
 - Mother field sowed (supported by drip irrigation network)
- **Training Facility**
 - Rehabilitated greenhouse and established training program for teaching small farmers and students about sumac cultivation techniques, since there is no existing knowledge base



Objective: To cultivate sumac on marginal lands and around zaatar fields to serve as a long-term, secondary income source for local farmers (particularly women)

Sumac Pilot Facility



- Traditionally harvested from the wild & found on marginal lands, drylands
- ESCWA conducted national survey of Sumac varieties in Lebanon, with testing conducted at USEK
- Targeted cultivation could reduce land degradation and soil loss
- Good potential for domestication, but propagation methods being tested



Sumac Pilot Facility



- ESCWA worked with ADR/CASUR (Tyre) to rehabilitate greenhouse destroyed during July 2006 war.
- Greenhouse will serve research and training purposes
- Greenhouse will also provide area for later propagating seedlings for sale.
- Mother field provides living resource for propagation of uniform species of sumac taken from the wild, thus protecting biodiversity



Sumac Pilot Facility



- Training program launched January 2009
- Theoretical and Hands-on components
- Members of local cooperatives for medicinal and aromatic plants and Nabatieh Agricultural School attended first workshop
- They will be the first invited to take planted seedlings for cultivation



Training Facilitated by
Dr. Jihad Noun for ESCWA
at ADR/CASUR Training Site

Complementary Initiatives



Financing

- Revolving Micro-Credit Fund for Small Agro-businesses in South Lebanon (ESCWA, AAAID, ADR)
 - \$210,000 revolving fund since May 2007 fully disbursed and reissuing loans.
 - Includes training of training component in business skills capacity building and technical assistance to assist borrowers in business planning associated with agriculture and agro-business.



Biodiversity and Biotechnology

- Memorandum of Understanding with Secretariat of the Convention on Biological Diversity (CBD)
- Cooperation with LAS and UNEP/ROWA on biodiversity
- Study and Expert Group Meeting planned for 2010-2011
- Focus of CSD Cycles 20 & 21 (2012-2013)

