A Lebanese case study
SUSTAINABLE LAND MANAGEMENT IN THE QARAOUN CATCHMENT PROJECT
LAND DEGRADATION
A Root Cause Analysis

Impacts
- Wastage and livelihoods depressed
- Economic downturn
- Loss of biodiversity
- Poverty

Consequences
- Reduced soil fertility
- Soil pollution and scarcity
- Water pollution
- Stagnation and loss of topsoil
- Reduced ecosystem services
- Loss of productive land
- Reduced incomes

Proximate causes
- Encroachment by development
- Weak enforcement
- National plans strategies not implemented
- Overuse of agrochemicals
- Ineffective irrigation methods
- Overstocking in rangelands
- Fuel wood and firewood
- Low compliance
- Deforestation for farmland or urban expansion

Root causes
- Institutional
  - No effective Integrated Land Use Management Plan
- Governance
  - Lack of clear policy and direction
  - Weak or ambiguous legal frameworks
  - Unclear mandates, roles and responsibilities
- Technical
  - Low awareness
  - Lack of know-how
  - Unaware of alternative practices
- Socioeconomic
  - Poverty and lack of choice
  - Market forces

The Problem
DEGRADED LAND
UNSUSTAINABLE LAND USE
The SLMQ project:

- To alleviate land degradation,
- To maintain ecosystem services, and
- To improve livelihoods

<table>
<thead>
<tr>
<th>Budget</th>
<th>USD 3,487,671</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding source</td>
<td>GEF and UNDP (cash)</td>
</tr>
<tr>
<td>Project duration</td>
<td>4 years (2016-2020)</td>
</tr>
<tr>
<td>Implementing Agency</td>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>Executing Agency</td>
<td>UNDP</td>
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</tbody>
</table>
Geographical Coverage

• The Bekaa Governorate (1570 km²)
• At highest risk of desertification
• Population: >763,000
• Deprived Lebanese: >65,000
<table>
<thead>
<tr>
<th>Beneficiaries</th>
<th>Count/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>114 shepherds and their households</td>
</tr>
<tr>
<td>Shepherds</td>
<td>2 women cooperatives in Rachaya and West Bekaa; 1 shepherd cooperative in Rachaya</td>
</tr>
<tr>
<td>Cooperatives</td>
<td>32 women targeted through dairy production and 35 targeted through beekeeping trainings</td>
</tr>
<tr>
<td>Women and youth</td>
<td>32 women targeted through dairy production and 35 targeted through beekeeping trainings</td>
</tr>
<tr>
<td>Local communities</td>
<td>7 Unions and over 60 municipalities</td>
</tr>
<tr>
<td>Municipalities and Unions</td>
<td>7 Unions and over 60 municipalities</td>
</tr>
<tr>
<td>NGOs</td>
<td>Ministries &amp; Public institutions, Academic institutions, Natural resources managers/specialists, Donor agencies</td>
</tr>
</tbody>
</table>
## Project Outcomes and links to territorial Governance

<table>
<thead>
<tr>
<th>Food security and agriculture.</th>
<th>Inclusive local development and territorial governance;</th>
<th>Resilient urban services &amp; infrastructures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural resources and environment</td>
<td>REDUCE PRESSURES ON NATURAL RESOURCES FROM COMPETING LAND USES</td>
<td>STRENGTHEN INSTITUTIONAL CAPACITY IN SLM</td>
</tr>
</tbody>
</table>

AVOID AND REDUCE LAND DEGRADATION THROUGH SLM AND DELIVER ECOSYSTEM AND DEVELOPMENT BENEFITS
Outcome 1
Reduction of land degradation

Measures to restore and rehabilitate degraded forests identified, demonstrated and integrated into existing Forest Management Plans.

Techniques and management mechanisms for rangelands management developed and tested, and appropriate infrastructure established.

Implementation of sustainable agriculture management regime that integrates SLM considerations.
Baseline assessments

→ Guidance for rehabilitation works
(Type of activity, Budget, Location, etc.)

Data Inputs | Unit | Definition | 2016
---|---|---|---
Population | Total men | % The percentage breakdown of the national population as per the gender | Zahle 50.22
| Total women | % | Rachaya 49.78

Age Brackets | % The percentage breakdown of the regional population as per the different age brackets identified | West Bekaa
---|---|---
| 0-14 years | 24.65
| 15-24 years | 16.73
| 25-54 years | 44.44
| 55-64 years | 7.54
| 65+ years | 6.64

B. Economic Indicators

Agriculture and Forestry Contribution to GDP | Agriculture and forestry USD | Agriculture and forestry contribution to GDP in USD 993,029,840 | Percentage contribution of agriculture and forestry contribution to the total national GDP 4.04%
---|---|---|---
Agriculture and forestry (% of GDP) | % | 4
Agriculture, forestry & fishing | % | 11
Manufacturing, mining, quarrying & utilities | % | 3
Construction | % | 11
Commercial trade & motor vehicle repairs | % | 8
Transport, catering information & con | % | 15
Financial services | % | 42
Real estate | % |
Other | % |

GDP breakdown per vertical (% of GDP) | % | Percentage contribution of the main economic sectors to the overall national GDP
---|---|---

Unemployment | Total unemployment rate (% of total labor force) % | Total unemployment rate as a percentage of total labor force 6.8
Rate among men (% of men labor force) % | Total men unemployed as a percentage of total labor force 5.4
Rate among women (% of women labor force) % | Total women unemployed as a percentage of total labor force 11.0
• Baseline socio-economic assessment focused on:
  • Assessing core economic verticals and
  • Identifying new business cases potential

**A. Existing Core Economic Verticals**
- Assess current status, key challenges and opportunities among the three core economic verticals in the examined regions:
  1. Agriculture
  2. Livestock
  3. Forestry

**B. New Adjacent Business Opportunities**
- Assess potential for new adjacent business opportunities, by assessing viability of business cases
- Among examined business cases, key examples include:
  1. Beekeeping
  2. Rural tourism
  3. Grape molasses
  4. Keshek
  5. Dried fruits
The following business case highlights the effects of an increase in production of honey in West Bekaa on both the social and economic level.

**Some Key Enablers:**
- Support from local authorities in management and supervision of reforestation areas
- Implementation of breeding programs by the Ministry of Agriculture to produce productive queen bees

### Beekeeping

#### Honey profits and Cost (Million USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>3.37</td>
<td>-</td>
</tr>
<tr>
<td>2017</td>
<td>3.39</td>
<td>-</td>
</tr>
<tr>
<td>2018</td>
<td>3.32</td>
<td>-</td>
</tr>
<tr>
<td>2019</td>
<td>4.48</td>
<td>-</td>
</tr>
<tr>
<td>2020</td>
<td>4.54</td>
<td>-</td>
</tr>
</tbody>
</table>

### Grape Molasses

#### Cost, Revenues and Profits

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Revenue</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>669</td>
<td>2,567</td>
<td>1,897</td>
</tr>
<tr>
<td>2017</td>
<td>776</td>
<td>3,216</td>
<td>2,440</td>
</tr>
<tr>
<td>2018</td>
<td>1,028</td>
<td>4,574</td>
<td>3,547</td>
</tr>
<tr>
<td>2019</td>
<td>1,174</td>
<td>5,784</td>
<td>4,610</td>
</tr>
<tr>
<td>2020</td>
<td>1,528</td>
<td>8,126</td>
<td>6,597</td>
</tr>
</tbody>
</table>

The following business case focuses on the impact that an increase in the number of processors, in production per processing facility, and in demand can have on the social and economic status of Rachaya.

**Some Key Enablers:**
- Increased awareness of health benefits of grape molasses among urban communities
- Interest of distributors and retailers to market the product locally and internationally
The purpose of this case is to forecast the economic benefits of increasing demand for rural tourism in Zahle by a feasible estimation of increase of 20% year on year based on Euromena’s assumptions and analysis, through the promotion of rural tourism locally and internationally.

Some Key Enablers:
- Willingness to invest in guest houses and obtaining accreditation from the Ministry of Tourism
- Increased interest of wineries to attract visitors through designing different activities and programs

Dried fruits have been identified as one major opportunity to focus on since they can be linked to the existing line of products (fresh fruit production), thus providing additional sources of income for several target groups of farmers as well as women processors.

Some Key Enablers:
- Long shelf life (around 2 years)
- Trend for a healthier lifestyle and increased consumption of healthy snacks
Traditional kechek has been identified as being a potential market to develop since first, it is one of the value added dairy product typical of the Bekaa region as well as showcasing an increase in its demand over the last couple of years.

Employment in this sector is dominated by women cooperatives in general and women who produce from their homes and who have the ability to charge premium prices for their products since they are considered to be naturally and traditionally made.

Some Key Enablers:
- Increased demand from diaspora
- Increased demand for traditional Lebanese products
- Increased demand for organic and natural products
Overview of activities and linkages to livelihoods

Forests
- Management
- MoA-MoE FM guidelines
- General FMP: Identification of Gr1: Forests for conservation: 8,005 ha
- Detailed FMP for 765 ha
  - Gr2 Wood production, Gr3 Wood production & stand improvement; Gr 4 Wood production & grazing,
    Gr 7 Restoration of shrub lands (with trees) into forests
- Rehabilitation
  - Delineation of Green and Blue corridors
    - Identification of:
      - Public locations for reforestation
      - Species and seed collection
      - Mixes
    - Reforestation of 114 ha of governmental lands
    - Rehabilitation of a 25 km riparian strip

Rangelands
- Management
  - MoA-MoE RM guidelines
  - Establishment of the 1st national rangelands map for Lebanon
  - Detailed RMP for 1755 ha
  - Establishment of a seed bank and seed propagation unit at the LARI
- Rehabilitation
  - Rehabilitation of 465 ha using a specifically designed tool enhancing water retention and natural regeneration of rangelands

Agriculture
- Management
  - Land Leasing contracts based on SLM
- Capacity Building
- Rehabilitation
  - Implementation of structural, vegetative, agronomic and/or management measures for thru revival of old local varieties of grapes along with companion medicinal, aromatic and meliferous species
Linking Rangelands Management to livelihoods
Outcome 2
Reduction of pressure on natural resources

- Land Use Information Management System (LUIMS) established including SLM principles
- Piloting of LUIMS in West Bekaa and Rachaya
- Land Use Monitoring System developed and implemented
- Compliance and enforcement capacity heightened where necessary
Outcome 3
Policy & regulatory reform

Recommendations to remove barriers to SLM in Lebanon integrated into relevant policies, legislation, procedures

Economic incentives and disincentives to promote adherence by the agriculture industry

Institutional and human capacity enhanced for professionals, administrators, NGOs and community leaders

A knowledge management and outreach programme for SLM developed and implemented
Insights and recommendations

• Youth make up for more than 40% of the Bekaa population → pillars to the demographics but also to the economy of the region.

• Agriculture and forestry are major contributors to the local economy and subsequently inherent to local development

• Substantial potential for improved livelihoods $$$ through sustainable management of natural resources
  • Agriculture: Reduction of costs, improved yield, long-term benefits for the land, improved leasing conditions, etc.
  • Forestry: Production of timber and non-timber forest products, reduction of costs of fire (mitigation and response), higher return from leasing of woodlands for grazing, etc.
  • Rangelands: Higher return from leasing of municipal lands outside of forests for grazing, etc., reduction of costs for fodder (reliance on fodder vs. open field grazing along with reduced market prince), improved animal health due to higher protein content and variety, longer grazing periods and less travel to winterlands, better and more outputs quality (milk and dairy by-products), etc.
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