

**Building an Enabling Environment for Increasing Investment in Sustainable Land  
Management through Market Access and Trade  
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Opportunities for Promoting Aromatic, Medicinal  
and Non-Ligneous Plants in Arid Regions in  
Tunisia.

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# General Framework

Tunisia boasts of a biologically diverse and natural heritage, which it owes to its wide geographic variety and climate.

Indeed, the Tunisian flora is very rich in plant species which produce natural substances, essential oils and organic and wide- ranging aromas, all of which are vital to the agro food, pharmaceutical and cosmetics industries.

## General Framework

Currently, there are between 200 and 300 species that are mostly used by rural communities for traditional medicine, the production of essential oils, food...

These commodities are mostly found in forest areas (1 million ha concentrated in the North West) and more than 4 million ha of natural countryside. (Southern Tunisia)

The incomes of the rural populations living in these areas are mostly dependant upon the agricultural and agriculture-related activities, in particular, the use of these Aromatic and Medicinal Plants.





# General Framework

Given the capital role that these aromatic, medicinal and non-ligneous plants have in satisfying the forest populations in various areas (property, services, income, jobs...), they could well be the keystone to sustainable planning.

These commodities, that come either seasonally or from occasional picking, are used by the inhabitants of the forest and pastoral areas to either meet subsistence needs or for the running of the farm.

# General Framework

The main aromatic medicinal and non ligneous plants are:

-  Plants intended for food: fruits, condiments, snails, honey, capers;
-  Aromatic and medicinal plants: plants, essences, distilled water, essential oils;
-  Forage and fiber filled plants: plants and fruits meant for forage;
-  Biochemical and ornamental plants.

# General Framework

The marketing of these aromatic and medicinal non ligneous plants is complex:

- Basic local market;
- Industrial sector at national and international levels (in the case of essential oils).

# Cadre général

Farming these plants in a rational manner is very complex :

- Satisfying the needs of the inhabitants;
- Managing rationally and sustainably;

These require scientific knowledge.

Products of high commercial value with a margin of progress: sectors, marketing...



Essential oils

Honey from the forest (organic)



Ecotourism



Sporadic farming has great potential.



Fruits: carob

Esparto and Rope grass



Mushrooms

## Aromatic Medicinal and non-ligneous plants used :

- ✓ Distillation of undergrowth plants (Myrtle, Rosemary, ....);
- ✓ Fruits of forest and semi-forest trees (Caper tree, Carob tree etc.);
- ✓ Farming of roots and bark of a walnut tree (walnut bark: teeth protection).

Diversified products and unequal use

# Methodology

## Preliminary census of yield

- ✓ Data-collection of information at concerned services
- ✓ Analysis of information;
- ✓ Data-collection and analysis of data on traders and businesses.

## Data-collection and data- analysis on traders and users

- ✓ Sampling and selection of communities;
- ✓ Community surveys.

# Methodology

## Census of exports and their economic importance

- ✓ Data Collection at the concerned services
- ✓ Analysis of information
- ✓ Data collection and data-analysis of information taken from traders and businesses

## Data collection and analysis of information on users

- ✓ Sampling and selection of communities
- ✓ Community surveys

## Aromatic and essential oils

- Essential oils (essences) are products obtained from distillation, the extraction of certain plants or parts of plants (flowers, fruits, leaves...) and are used for their aromatic, fragrance and medicinal characteristics.
- These products are used by different industries: perfume, hardware, pharmacy and food...

## I. Main oils produced in Tunisia

- **Rosemary essential oil:** produced in the semi-arid regions (Center and North West)
- **Myrtle oil:** produced in the mountainous regions of the North-West
- **Essential oil of orange flowers:** extracted through steam distillation indirectly from the flowers of a bigarade orange's tree (bitter orange in Cap Bon)
- **Other oils:** Wild mint and white mugwort (common wormwood).

# The case of Rosemary and Myrtle:

## Characteristics

### Weak Supply and Demand:

- Fluctuation of prices;
- The need for substantial capital and storage capacities;
- A controlled management of plant resources;
- Demand for savoir-faire, organization, marketing

# The case of Rosemary and Myrtle:

## Resources

- Potential of Rosemary fields: 100 000 ha
- Farming: 40 000 ha
- Quantity of exported oil : 60 T/year
- Local cost: 21 D/kg
- Uses of the oil: cosmetics, pharmacy, soap making, cleaning products and fabrics, toilet paper;
- The essential oils market in France is still a hub for the entire world



# The case of Rosemary and Myrtle:

## Resources

- Potential of the Myrtle fields: 80 000 ha
- Farming: 40 000 ha
- Price: 48 D/kg
- Myrtle oil is mainly exported to France, the UK and Switzerland.

# The case of Rosemary and Myrtle: Prospects

- Rationalization of the fields' management to secure a sustained and regular yield;
- Equip users with information on development actions in forest and pastoral areas;
- Collaborative development of management and organizational planning of Rosemary and Myrtle fields;
- The setting up of a biomass follow-up system.

# The case of Rosemary and Myrtle: Prospects

- Modernization of distillation techniques;
- Reinforcement of the Tunisian stance on the European market and prospects of new markets;
- Promotion of processing units in getting the final product;
- Initiative for the creation of micro-enterprises specialized in extraction.

## II. Products for Consumption and Processing

- Products for consumption and processing : mushrooms, capers, *pinus pinea* and *Alep* pine seeds, honey, and carobs...

# The Case of Mushrooms

## Edible Sylvestrians:

- The variety of mushrooms found in Kroumerie-Mogods forest, have great economic value. This is due to the possibilities of exporting at very competitive prices.
- Acreage: 45 000 ha
- The most farmed species: chanterelle mushrooms (*Cantharellus cibarius*), moss (*Tricholoma terreum*), boletus (*Baletus edulis*).
- Exports: 20 000T

# The Case of Mushrooms

## Edible Sylvestrians

### Constraints:

- A lack of savoir- faire in terms of economic value and farming techniques;
- Absence of a “users organization” to set up a participative and sustainable management of the resources;
- Inadequate adaptation of the mushroom farming techniques (harvesting...) and transport conditions.

# The Case of Mushrooms

## Edible Sylvestrians

### Orientalizations:

- Inventory of the resources: location, relevance.
- Adaptation of the resources' model of management, involving users and companies:
  - ✓ Group organization;
  - ✓ Companies' involvement in the different levels of management;
  - ✓ Creation of collection centers for sorting and packaging.

# The Case of Capers

- Caper fields (*Capparis Spinosa*): 30 000 ha.
- Capers can be found in natural fields, scattered on the ground or in forests;
- Production: 113 T/year;
- Produced for export, mainly intended for canned foods (a popular condiment in Southern Europe).



# The Case of Capers Constraints

- Acreages and densities are estimations;
- Low production yield of the fields;
- Direct management by the forestry services;
- Degradation of the natural fields;
- Illegal picking;
- Absence of a technical management plan.

# The Case of Capers

## Orientations

- Inventory of the fields and the establishment of management and coordination plans;
- Involvement of the local population in coordinating and in managing;
- Establishment of contracts with groups of users and companies;
- Improvements in quality.

# The Case of Pine Nuts (*Pinus Pinea*)

- Location: Cap Bon, Bizerte, Jendouba and Tabarka;
- A "hot" product for top quality pastry shops;
- The inclusion of pine seeds in the industrial process offers interesting prospects;
- Potential for yield : 160T/year;
- Cost 20D/kg;
- The most significant market is the Mediterranean Basin: confectioneries, pastries.

# The Case of Pine Nuts (*Pinus Pinea*): Orientations

- Set up organization and management plans;
- Set up technical guidelines (glades, pruning...);
- Organization of case studies;
- Creation of a quality label.

# The Case of Pine Nuts (*Pinus Pinea*):

- Acreage: 296 000 ha
- Location: Kasserine, the Kef, Siliana
- Cost : 7DT/kg
- Consumption: pastries (*zgougou*: Tunisian traditional pastry)

# Cluster of the *Pin d'Alep* (*Pinus Pinea*): Constraints

- Include seed production in organization and planning;
- Organization of the case studies.

# Marketing Strategy for the Aromatic Medicinal and Non ligneous Plants

- Make these products stand out on the international market :« LABEL »;
- Preparation of promotional material for these Tunisian commodities;
- Build a directory of Tunisian suppliers;
- Promote these products during trade fairs.

# Marketing Strategy for the Aromatic Medicinal and Non ligneous Plants

- Promote the use of modern equipments for distillation and transformation;
- Encourage vertical integration of production, transformation and distillation;
- Promote analysis and quality checks;
- Reduce imports and encourage goods processed domestically.



Thank you