Lessons Learnt and Best Practices of the Regional Initiative on Strengthening the Capacities in the Arab Region to Support Green Production Sectors

Development of the National Strategy for Green Economy in Tunisia

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Introduction

✓ Presentation of some programs conducted in Tunisia to develop green economy during recent years

✓ Study on behalf of the Tunisian government to develop a strategy for green economy in Tunisia.

Highlights of this study and its preliminary results.
Situation in Tunisia
Major programs and projects in Tunisia (1/4)

The concept of green economy appeared recently. But the environment policy existed early in Tunisian Public Programs.

Various actions taken since the 1990s:

• Energy Management Fund (ANME): now called: “Energy Transition Fund”:
  It aims to develop actions in favor of energy saving: Example: solar water heating; roof insulation; installation of photovoltaic panels to produce electricity…
  The fund is financed through a tax on imports of air conditioners and high power cars.
  It supports programs like PROSOL:
  This program involve all the sector stakeholders including the banks. It gives
  ✓ a loan mechanism for domestic customers to purchase Solar Water Heaters, which is paid back through the electricity bill
  ✓ a capital cost subsidy provided by the fund
  ✓ a discounted interest rates on the loans
  ✓ a training program
  ✓ incentives to local manufacturing
Major programs and projects in Tunisia (2/4)

- **Solar Plan**

  2009: First Plan, 2013: Second plan: This plan sets a goal of reaching 30% of renewable energy in the production of Tunisian electricity. Investments will be public and private.

  It is also expected that domestic production takes an important part in the equipment being installed.

- Act to allow the production of renewable energy by the private sector and to sale a part to the national electricity company
Major programs and projects in Tunisia (3/4)

- Industry Modernization Program: “Mise à niveau” (upgrading program) to improve the competitiveness of Tunisian industry

  *Financed by a tax on imports and local production*

  It gives a grant for any action taken by an industry in the field of environmental protection, innovation and energy saving:

  *In recent years, this program pushes companies to move towards a green economy. It has forced companies to conduct a diagnosis of their environmental situation, energy saving and innovation.*

- RFR: Rapid Rail Network (Réseau ferroviaire Rapide)

  *It is a big project of urban transport in Tunis using fast train: 86 Km – 20,000 passengers/hour for a cost of 2 Billions €, financed by AFD, KFW, BEI*

  *It aims to increase the share of public transport. This will help to reduce private cars transport, reduce energy consumption and pollution (50,000 T of Carbon dioxide/year)*
### Major programs and projects in Tunisia (4/4)

- **CITET:** An International Center for Environmental Technologies of Tunis: created in 1996 to ensure the development and transfer of environmental technologies and the training of technicians and experts.

- **Pollution Fund (FODEP):**
  
  *It finances activities in favor of the environment: waste treatment plant.*

- **Subsidies for organic agriculture**
  
  *It gives a grant for organic certification, or for water saving.*

- **Project for clean production (since 2010):**
  
  *This project has assisted companies to implement actions in favor of clean production. For example, energy saving, water saving, material saving.*

- **Other actions:** recycling of waste, management of water resources, conservation of natural resources.

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*Sectorial initiatives, to be unified under an integrated national strategy.*
Issues of GE in Tunisia

Despite these achievements, there is still a lot to do.

Issues:

• Over exploitation of resources and decreasing natural resources (especially water)
• Increasing of pollution (industry and cities)
• Under-employment of human resources
• Production inadequate to the needs of particular international market
• Need to review the Tunisian development model in order to incorporate principles of social and regional equity

4 groups of stakeholders:

• Government
• Private Sector (entrepreneurs, professional organizations)
• Organizations of Civil Society
• Technical and Financial Partners
Current study to develop a strategy for GE in Tunisia
Objectives of the study

- Make an inventory of Green Economy programs and initiatives in the world and locate Tunisia in this global context.
- Identify activities that have the most potential in Tunisia.
- Develop a strategy and an action plan for the transition of the Tunisian economy towards a Green Economy.
- Prepare a bill on Green Economy in Tunisia.
Phases of the study

**Phase I**
The emergence of Green Economy in the world and at the regional level

- Concept and definition of Green Economy
- Presentation and analysis of international experience
- Priority sectors in the World and mode of implementation
- Results and impacts achieved
- Tracks for Tunisia: Objectives and Approach

**Phase II**
Opportunities and risks for developing a Green Economy in Tunisia

- Macroeconomic model for the analysis of the transition: Comparing cost / benefit scenarios
- Sector analysis: activities to develop GE in TN attractions / assets
- Balance of expected results: Impact Simulation
- Feasibility study and estimation of the impacts and constraints for two scenarios: For selected sectors

**Phase III**
Strategic choices and actions for Green Economy

- Strategic Directions: Objectives on the MLT, impacts
- Action Plan: Actions, Shares, stakeholders, budget, accompanying measures, deadlines, monitoring

**Phase IV**
National law on Green Economy

- Explanatory memorandum and synthesis report
What means Green activity? 2 approaches

**Impact:** Cleaner and less resource-intensive activities

*Example:* Industry that uses procedures to reduce emissions or use less energy input

**Finality:** Activity that aims for environmental protection or management of natural resources = Eco-Activity

*Examples of Eco-activities:* protection of ambient air and climate, wastewater management, waste management, renewable energy, etc.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Finality</th>
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<tbody>
<tr>
<td>Low pressure on the environment</td>
<td>R &amp; D in energy efficiency</td>
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<tr>
<td>High pressure on the environment</td>
<td>chemistry of new fertilizers</td>
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<td></td>
<td>education, tertiary sector</td>
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<td></td>
<td>heavy industry, mining, power generation</td>
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</table>
What means Green Jobs

**Green jobs:** Business whose purpose is to measure, prevent, control, or correct the negative environmental impacts.

*Examples:* maintenance of natural areas, water distribution, cleaning urban spaces…

**«Greening » Jobs:** Business whose purpose is not environmental but incorporates skills to take into account the environmental aspect

*Examples:* architecture, installation of sanitary and heating equipment, promoting local tourism, public transport, industrial design…
Between 2004 and 2010, the number of green jobs (full-time equivalents) increased by just over 20% at an average annual rate of 3.4%, much higher than that of all branches of economy (0.5%).
Conclusion of the Benchmark

GE requires a fundamental rethinking of the current approach to the economy

Requirements:

- A proactive policy
- A new economic model to measure growth and economic progress
- A reorientation of public and private investment towards green investments
- To have the legislation and standardization to facilitate this transition
- To rethink incentives and subsidies to GE
- Investment in Human Capital: administrative and technical skills to ensure transition
- An appropriate funding mechanism (green funds)
Sector Analysis

- List of activities that could be considered as development opportunities of green economy

- Detailed analysis of these sectors:
  - Attractiveness / assets analysis
  - SWOT analysis
Sectors with high potential in Tunisia

- The "traditional" sector of the environment (water, waste, treatment of local pollution)
- Improving energy efficiency and process in the sectors of industry, buildings and transport
- Renewable energy
- The agricultural sector: eg:
  - Promotion of organic farming and certification of agricultural products.
  - Saving water ...
- The opportunities for Tunisian eco-companies to position themselves on emerging markets.
Macroeconomic model for analysis of the transition

2 Approaches:
- Approach: Cost – benefit
- Approach recommended to the administration: T21 Model

1/ Approach used by the study: Cost – benefit model (when possible)

- Costs: investment, incentives, grants ...
- Benefits: GDP, reducing the costs of environmental degradation, job creation, impact on natural capital ...

Using this model, comparison of two scenarios:
- Business as usual scenario
- Green Economy scenario

- Analysis the effects of stresses and brakes that can oppose the development of the Green Economy (ex of stresses: non-availability of skilled labor/ ex of brakes: administrative and legal constraints, etc.)
Threshold 21 model

2/ T21 model

• It models the impacts of national development policies, integrating social, economic and environmental dimensions

• Comparison between two scenarios: with an investment of 1% or 2% of GDP in the GE (GE scenario) or in traditional economy (BAU scenario)

3/ Multi-criteria approaches

There is also a third model, based on a multi-criteria analysis. It is called SMART model, and can also be used when we mostly have qualitative data.
## Scenarios constructed by this model

<table>
<thead>
<tr>
<th>Sector and objectives</th>
<th>Statu quo</th>
<th>Green scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong> (Increase of crops)</td>
<td>Use of chemical fertilizers</td>
<td>Use of organic fertilizers</td>
</tr>
<tr>
<td><strong>Energy</strong> (Increase of production capacity)</td>
<td>Thermal generation (fossil energy)</td>
<td>Renewable energy</td>
</tr>
<tr>
<td><strong>Fishing</strong> (increase of production)</td>
<td>Increase in the fleet for short-term operation</td>
<td>Reduction of the fleet and resource management for long-term operation</td>
</tr>
<tr>
<td><strong>Forestry</strong> (increase of production)</td>
<td>Increase of deforestation</td>
<td>Reduce of deforestation + reforestation</td>
</tr>
<tr>
<td><strong>Water</strong> (Manage resources and demand)</td>
<td>Increase of resource exploitation</td>
<td>Invest in water saving and desalination</td>
</tr>
</tbody>
</table>
Some difficulties: how to estimate the number of jobs

1. **Investissement**
   Jobs during invest. (year*jobs)

2. **Industry**
   - Studies
   - Components manufacturing
   - Development

3. **Installation Projet Management**
   - Ingénierie: Civil work,…
   - Equipments installation
   - Monitoring

4. **Operation Maintenance**
   (permanent jobs)

**Direct jobs**

**Indirects Jobs**

**Inducted Jobs**

- Raw material
- Studies (wind measure)
- Lawyers,
- Advisors.
- R&D
- Training

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_The wealth created by previous jobs are spent in the economy in general: This will create inducted jobs._
Scenarios Results

Comparison between BAU scenario and "green" scenario (investment of 2% of world GDP in the greening of the economy)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2015</th>
<th>2020</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statu quo</td>
<td>Vert (%)</td>
<td>Statu quo</td>
<td>Vert (%)</td>
<td>Statu quo</td>
</tr>
<tr>
<td>GDP (constant USD)</td>
<td>69,344</td>
<td>-0,8</td>
<td>92,583</td>
<td>-0,4</td>
<td>119,307</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>9,992</td>
<td>-0,8</td>
<td>12,205</td>
<td>-0,4</td>
<td>14,577</td>
</tr>
<tr>
<td>Total employment (million)</td>
<td>3,187</td>
<td>0,6</td>
<td>3,722</td>
<td>-0,6</td>
<td>4,204</td>
</tr>
<tr>
<td>Calories per capita</td>
<td>2,787</td>
<td>0,3</td>
<td>2,946</td>
<td>0,3</td>
<td>3,050</td>
</tr>
<tr>
<td>Forest land (million ha)</td>
<td>3,94</td>
<td>1,4</td>
<td>3,89</td>
<td>3,2</td>
<td>3,83</td>
</tr>
<tr>
<td>Water demand (Km3/year)</td>
<td>4,864</td>
<td>-3,7</td>
<td>5,792</td>
<td>-7,2</td>
<td>6,784</td>
</tr>
<tr>
<td>Total of landfilled waste (million t)</td>
<td>7,88</td>
<td>-4,9</td>
<td>9,02</td>
<td>-15,1</td>
<td>10,23</td>
</tr>
<tr>
<td>Ecological footprint/Biocapacity ratio</td>
<td>1,51</td>
<td>-7,5</td>
<td>1,68</td>
<td>-12,5</td>
<td>1,84</td>
</tr>
<tr>
<td>Energy demand (Mtoe/year)</td>
<td>12,549</td>
<td>-3,1</td>
<td>15,086</td>
<td>-9,1</td>
<td>17,755</td>
</tr>
<tr>
<td>Primary energy demand covered by renewable energy (%)</td>
<td>13</td>
<td>15</td>
<td>13</td>
<td>17</td>
<td>12</td>
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Results obtained with the Threshold 21 model, UNEP

Limited impacts on the short term, but more beneficial impacts on the Medium and Long-term
Strategic choices

- Strategies
- Action plans
Some Constraints and brakes

Energy subsidies (in Tunisia)

- Technical constraints: unavailability of local industry, R&D capacity
- Human resources Constraints: skills, ...
- Institutional Constraints: regulation, governance, ...
- Financial constraints: the high cost of technology, capital availability, ..
Strategy and Action plan

Strategic orientations
Specify, for each orientation:

• The medium and long-term goals
• The expected impacts and benefits
• The main recommendations for this orientation
• The action plan for the implementation of the orientation

Action plan
Specify, for each action:

• The objectives and expected impacts
• The content
• The budget and possible funding sources
• The stakeholders and responsible for implementing, specifying the role of each stakeholder and nature of the contractual relationship between them
• Deadlines
• Monitoring indicators.
Strategy

At this stage, the expected main strategic directions are:

- Select some large strategic projects
- Create a governance body that will be responsible for developing the strategic projects (with public – private – civil society)
- Define a strategy and technology master's program
- Deploy a large training program
- Create a legal framework to develop GE (eg Building code), and create incentives and subsidies
- Create a green fund to finance the transition period and to give incentives to green activities
- Decentralization: To encourage regions to develop their own regional development plans of GE
- Find a solution to fuel subsidies
Preparation of a national law on GE

National law on Green Economy

- Bill and memorandum
- Support for the development of implementing legislation, if needed
## Schedule

<table>
<thead>
<tr>
<th>Activities</th>
<th>Months</th>
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<tbody>
<tr>
<td><strong>Phase 1: Emergence of green economy in the world</strong></td>
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<tr>
<td>Internationally benchmarking</td>
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<tr>
<td>Lessons for Tunisia</td>
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<tr>
<td>Interim report</td>
<td></td>
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<td>Final report</td>
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<tr>
<td><strong>Phase 2: Opportunities for development of green economy in Tunisia</strong></td>
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<tr>
<td>Sector analysis</td>
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<tr>
<td>Interim meeting</td>
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<tr>
<td>Impact estimates</td>
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<tr>
<td>Indicators</td>
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<tr>
<td>Balance of expected results</td>
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<tr>
<td>Interim report</td>
<td></td>
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<td>Final report</td>
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<tr>
<td><strong>Phase 3: Strategic orientations and action plan</strong></td>
<td></td>
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<tr>
<td>Strategic orientations</td>
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<tr>
<td>Action plan</td>
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<tr>
<td>Accompanying measures</td>
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<tr>
<td>Interim report</td>
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<td>Final report</td>
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<td><strong>Phase 4: Preparation of the national law on green economy</strong></td>
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<td>Bill and explanatory memorandum</td>
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<td>Interim report</td>
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<td>Final report</td>
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Thank you

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