

Environmental vulnerability factors of Moroccan development model

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1) The Sustainability of Moroccan development model

Two major phases marked the development model followed by Morocco since independence

- the first qualified import substitution or "protected development";
- The second, which began during the 80s was marked by economic openness.
- Development of a model generating growth configurations less sensitive to environment;
- A development model which is less tenable.

Environmental vulnerabilities of Moroccan development model

- Field of water;
- Field of waste management;
- Field of natural resources;
- In the environmental field;
- Field of Energy.

Field of water

- Morocco is now at the voltage threshold limit, rated at 950 m³/habitant / year;
- Possibility of decrease to 500 m³/inhabitants/year in 2030;
- Current situation of water stress exacerbated by drought, various forms of pollution and waste.
- Agriculture, which uses 85% of water resources and whose efficiency is only 50% because of waste and poorly maintained irrigation systems;
- Degradation of water quality has reached critical levels in some basins often, aggravated by the absence of treatment and recycling of wastewater
- Degradation generated by intensive irrigation: surface erosion, soil stalinizations, destruction and loss of soil fertility.
- Pollution of surface and groundwater due to the intensive use of fertilizers and pesticides, especially in agriculture.
- around 600 million m³/year of wastewater is collected at the level of urban network sanitations;
- Most of these effluents is discharged into natural receiving places with no precedent treatment nor reused at the raw stage for the purpose of irrigation;
- A tourist sector that deserves to be accompanied by the establishment of efficient systems of water management on a generalized scale (recycling, treatment ...)

Field of waste management

- The socio-economic development of the country has not been accompanied by measures to protect environment, including the area of solid waste management.
- Improper collection which engenders problems of public health and causes significant health risks.
- A collection which affects the poor sewerage of the city.
- The presence of dumps within the urban and suburban areas prevents development of economic activities and tourism degrades the quality of people's lives.
- Multiplication dumps around the cities (300 units);
- The dumps that pollute ground water and adjoining rivers.
- More than 70% of industrial waste discharges in land-fills.
- Only 70% of solid waste is collected and only 2% are recycled or land-filled

Field of Environmental (continued)

Rich Biodiversity but vulnerable and threatened ecological balances

- More than 2,000 plant and animal species are threatened (Eurostat (2008));
- Degradation of ecological sites due to pressures from economic development that does not take into account the environmental component;
- Ecosystems threatened by pollution reducing their rich biodiversity.
- environmental degradation Cost to 4.6% of GDP
 - ✓ Cost of environmental damage is estimated at 3.7% of GDP in 2000 (World Bank (2003) in the Kingdom of Morocco: Evaluation of the environmental degradation cost);
 - ✓ Cost of global environmental damage estimated at around 0.9% of GDP.
- Only 0.7% of GDP is allocated annually for the preservation of environment (1.8% of GDP is needed according to the World Bank)
- Emissions of greenhouse gases are measured at:
 - ✓ 54.6 million of CO₂ tons-equivalent in 1999;
 - ✓ 75 million of CO₂ tons-equivalent in 2004, representing 2.5 tons of CO₂ per inhabitant/ year.

- Climate Change
 - ✓ Anticipation of an increase in the frequency of droughts in the south and the east, and thunderstorms on the Atlas, and a reduction in the duration of snow in the Atlas.
 - ✓ Decrease of water resources and desertification worsening;
 - ✓ Decrease of cereal crops and disappearance of certain crops;
 - ✓ Loss of biodiversity;
 - ✓ Elevation of sea level

Field of Natural resources

- Natural resources whose exploitation is not always compatible with stocks and biodiversity conservation;
- Rate of degradation of forests has reached an annual average of 30,000 hectares, 600,000 hectares of forests will disappear by 2025

Field of Energy

- Heavy dependence on imported fossil fuels with 95% of needs in 2009 and 97.5% in 2008;
- Low base of commercial energy consumption per inhabitant and 0.48TEP/inhab/year and 710 kWh / inhab / year in 2009, leading to an energy intensity of about 0.30, although disparities exist between categories of consumers with the potential high growth.
- Increase of investment needs (more than MAD 10 billion per year);
- binding access costs due to weight of petroleum compensation provided by the State (7 billion in 2005 to MAD 24.7 billion in 2008 and MAD 7.35 billion in 2009);
- High Weight of the energy bill, more than MAD 50 billion in 2009 (MAD 69.7 billion in 2008);
- urban / rural system of equalization rates pulling electricity costs upwards;
- Electric load curve which becomes high peak demand in the evening (4375 MW in 2009).
- impact on the environment, particularly in terms of greenhouse gas emissions (60% of energy-related emissions);

- Pressure on forest resources with consumption of biomass for heating and cooking in rural areas estimated at 3.3 MTOE, generating loss of about 30,000 hectares of forests annually, and reflecting a still limited access to modern energy services in these areas.

OBSERVATION

- Moroccan development model is based on the "catching up" using high fossil energy;
- Environmental constraints are less or not considered;
- important cost associated with environment degradation;

● What Solution to be adopted?

Strategic option of green economy

- Suggest the strategic option of green economy for Morocco;
- Implement policies and sustainable practices in the long term and do not damage the environment;
- Find levers to transform the economy into a long-term "green economy."
- "An economy leading to improvement of human well-being and reduction of inequality in the long term without exposing generations future risk environmental and major ecological shortages "(UNEP)
- Green economy is therefore aiming at promoting growth by reducing pollution and greenhouse gas, and possibly limiting the production of waste and waste of natural resources, preserving biodiversity and strengthening energy security.

Opportunities for Morocco

- The opportunity to develop new products and new markets;
- Development of renewable energy
- Reduction of energy dependency;
- Improvement of energy efficiency;
- Reduction of GHG emissions;

- Creation of new jobs;
- New perspectives in terms of training (field of energy);

Actions to implement

- Develop prevention and adaptation policies;
- Mitigate transitory effects of environmental change;
- Anticipate social consequences of transition towards a green economy.
- Encourage technology and innovations respectful to environment;
- Implement policies and measures allowing for economy to involve in in a long-term path in green growth and therefore in a real perspective of sustainable development
- suggest measures to develop markets and green instruments.

A Strategy to adopt

- Adopt the theory of "short-circuiting" And not the "Catching up"

Thank you for your attention