



# Towards a Proactive Soil Security

## A Strategy for a Sustainability Transition by combating desertification, land degradation and drought for poverty reduction and sustainable development

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### Methods used and partnership set up

The methodological approach of this paper is threefold:

- Conceptual:** It aims to develop the concept of a “proactive soil security” further since it was presented in a report for UNCCD (2009) and in an scientific chapter (2011). While a continuation of business-as usual policies and measures on climate change may result in international, national & human security consequences, the proposed “Proactive Soil Security Concept” may counter a militarization of global environmental change problems, especially on desertification, land degradation and drought.
- Empirical:** The paper focuses on the potential of renewable energy sources (solar, wind) in drylands & deserts that could contribute to alternative livelihoods and sources of income by reducing poverty and enhancing the prospects of sustainable development. The empirical focus is on the DESERTEC concept with a special focus on projects in Morocco. The relevance of this economic and ecological project will be discussed for the deserts of Mexico (Sonora, Chihuahua) and for the drylands of the Northeast of Brazil (Ceara) that have experienced repeated severe droughts.
- Praxeological:** In a policy analysis the emerging international cooperative **renewable energy projects in Morocco** will be contrasted with the economic and political **pressure for new hydrocarbons** (Canadian tar sands, fracking of natural gas) in NAFTA and the **lack of policy discussion in Mexico and Brazil to use the energy potential of the deserts and drylands** as a key element of a sustainable energy transition policy.

### New Soil Security Concept:

**Conserving** land and water = **Securing** our common future

**Soil security** that can be analysed from the perspective of state and human, gender and environmental security refers to a

- loss of soil capacity to regulate & store water
- the depletion of aquifers for drinking and irrigation that puts in extreme cases the survival of affected people at risk.

**Soil security is threatened by**

- the **spatial expansion of existing deserts**,
- the **severe degradation of soils** and related fertility and biodiversity losses due to processes of geophysical, wind and water erosion and
- **drought resulting in bad harvests and crop yield declines**. In developing countries DLDD has triggered severe and extended periods of famine affecting several billion people during the 20th century and causing the death of millions of people.

**Soil security is achieved** when efforts succeed

- **to conserve soil fertility: contain land degradation and combat desertification and**
- **when the consequences of drought are reduced by improving livelihood and human well-being of the people.**

### Results and Outcomes:

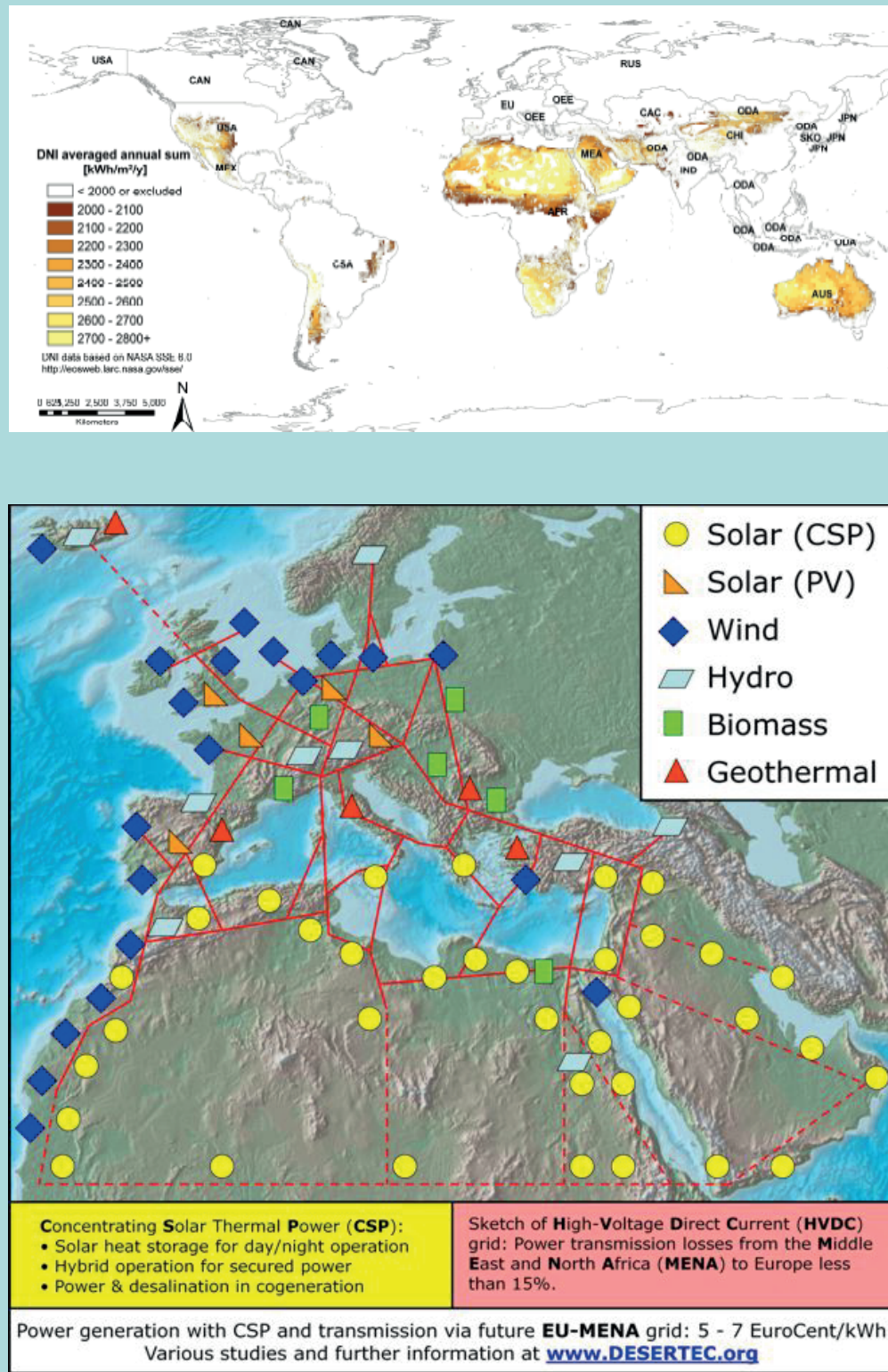
#### Case Studies on Sahara & Morocco,

- UN Secretary General (2009)** pointed to security impacts of global climate change (**‘threat multiplier’**) and potential of policies of sustainable development (**‘threat minimizer’**). In the policy debate on alternative goals, coping strategies and on the scientific research on sustainability transition this papers discusses alternative livelihoods in drylands for exploiting technical energy potentials of renewables for Morocco, Mexico and for Brazil.
- Policy developments in North Africa** have increased the interest to move towards a sustainable energy policy, especially in Morocco that relies on energy imports. A previous chapter discussed possible policy responses for addressing climate change in the MENA region up to 2100.
- It called for **improving the knowledge base** by calling for a fundamental **change in paradigms, in world views of scientists & in the mindsets of policymakers to cope with the multiple projected security challenges**.
- Since 2009, partly in the framework of the **DESERTEC** concept and the **DESERTEC university network**, the scientific and economic cooperation on renewables between Morocco and its European partners has increased.

### Results and Outcomes:

#### Case Studies on USA, Mexico and Brazil

- While **research & development efforts on renewables** have increased both in **Mexico** and in **Brazil**, so far there **exists no strategic policy discussion in the USA & Mexico to exploit the solar and wind potential of its deserts** (Sonora, Chihuahua)
- and of the **drylands in the Northeast of Brazil (Ceara)** for developing **alternative livelihoods & new sources of income** for the people in both regions.
- Manifold constraints and obstacles** exist that have prevented a **long-term oriented strategy for exploiting these significant theoretical potentials** (in contrast to China, India, Europe).



### Sources on Soil Security

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