



## **The DESERTEC Concept**

**Energy and Climate Security for a World of 10 Billion People**



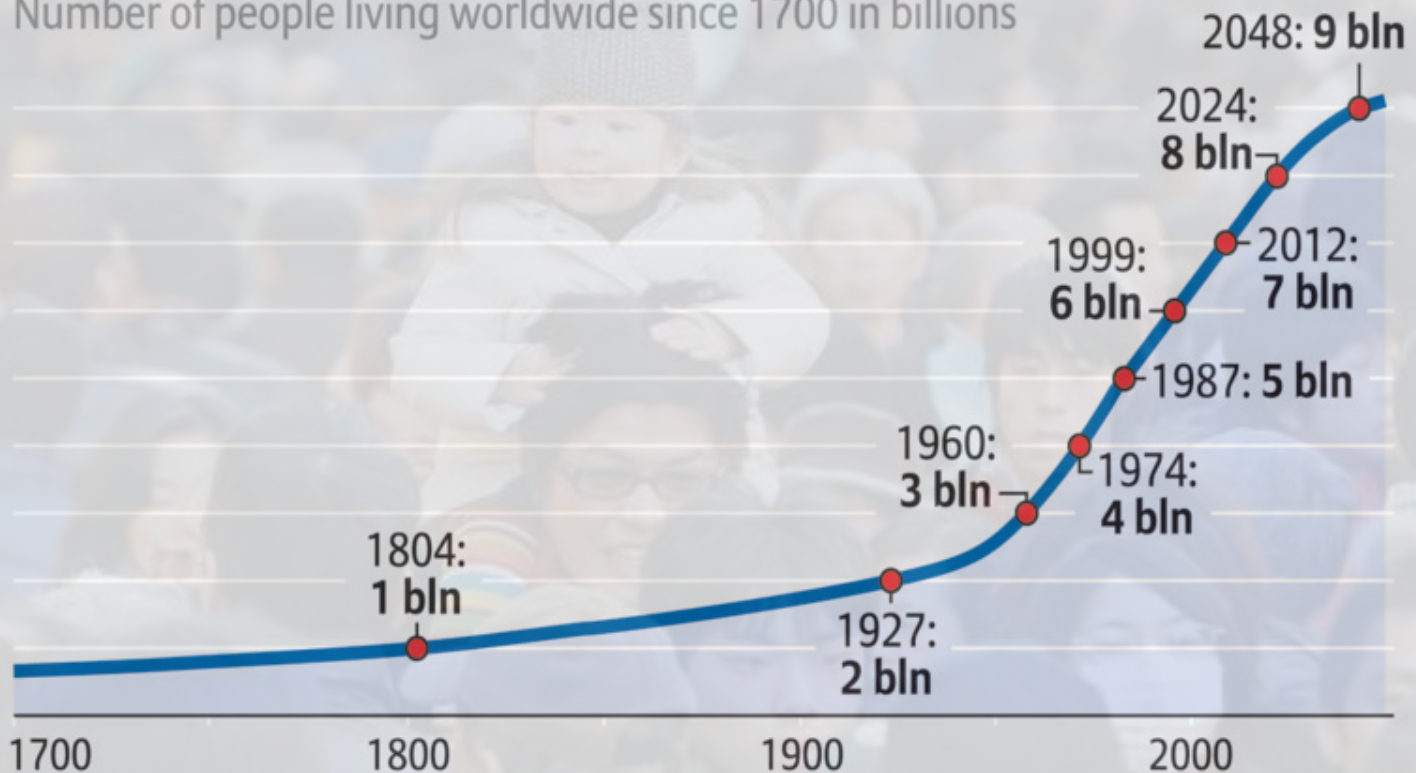
**REvision 2012, New Renewable Direction for Japan**

Tokyo, March 10, 2012

Dr. Thiemo Gropp  
DESERTEC Foundation

# POPULATION OF THE EARTH

Number of people living worldwide since 1700 in billions







1979



2007

# Challenges of the 21. Century

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# Challenges of the 21. Century



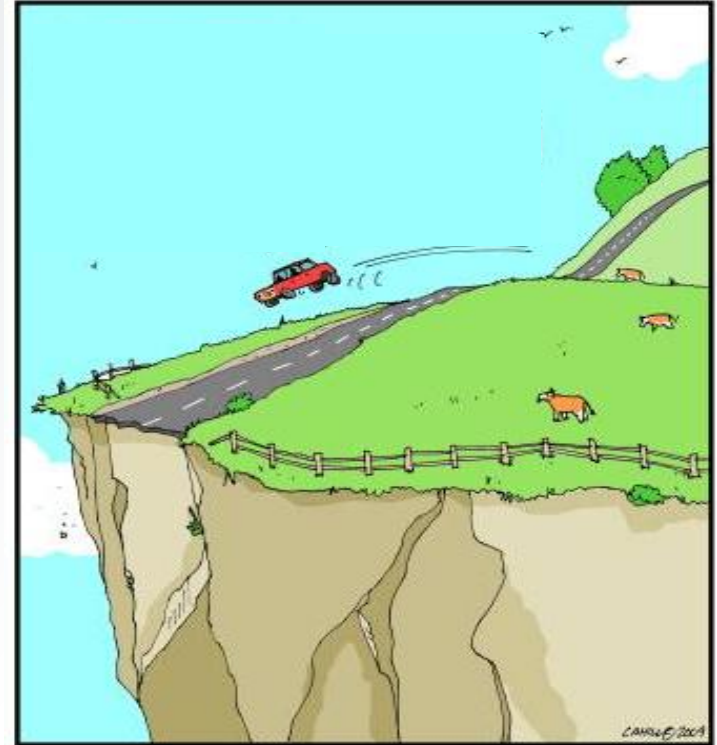
# Challenges of the 21. Century

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# Challenges of the 21th Century

- Energy security
- Supply with drinking water and food
- Migration
- War for resources
- Climate change
  - Extreme weather conditions
  - Rise of sea level
  - Floods
  - Droughts
  - ...



**Are we able and willing to  
find solutions?**



# How can we create sustainable living conditions...



...in view of a world population of ~ 10 billion people in the year 2050?

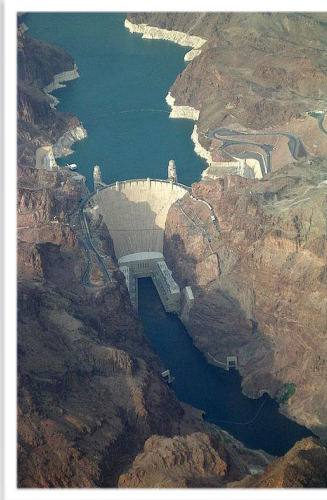
# How can we create sustainable living conditions...



## ...in view of a world population of ~ 10 billion people in the year 2050?

# The necessary technologies are available

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# Solar Energy is highly abundant

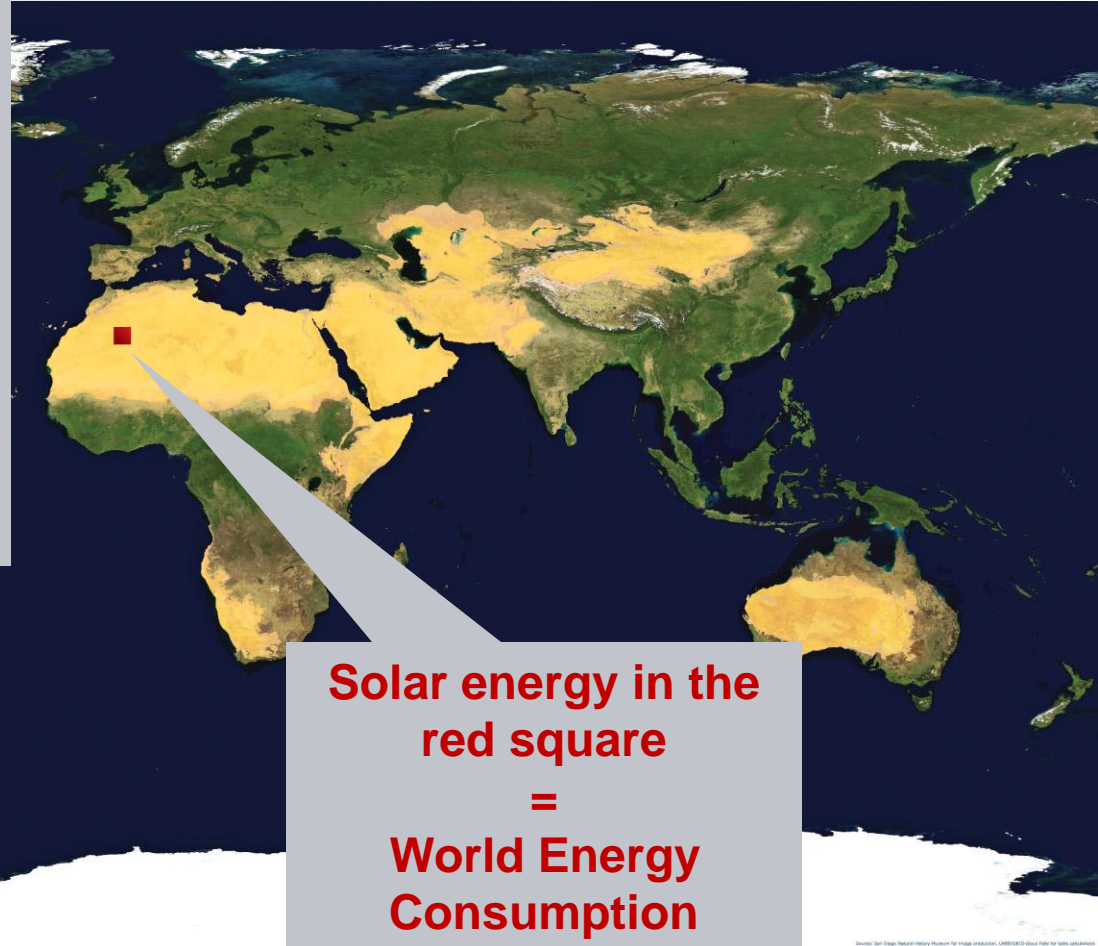
## Energy from deserts compared to fossil and nuclear resources

### All known reserves

gas	2 weeks sun
oil	2 weeks sun
uran	2 weeks sun
coal	22 weeks sun

### All known and to be expected reserves

40 weeks sun



# The DESERTEC concept unifies different clean energy technologies





# Day and night operation with heat storage



Source: Solar Millennium



# DESERTEC is a Global Solution Concept

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- **DESERTEC** is a holistic concept for **energy and climate security**, to secure the supply with energy and water, to support socioeconomic development, political security and peace
- The concept has been developed by people from all over the EUMENA region and combines **all available renewables**
- **DESERTEC Foundation** was founded and is driven by **civil society** and **Club of Rome**
- DESERTEC Foundation is independent in every respect and talks to civil society, politics, industry and scientific community in order to promote and implement the DESERTEC concept
- **Industrial and scientific initiatives:** Dii GmbH and DESERTEC University Network have been founded in 2009 and 2010



# Renewable Energy in Morocco

## Bottlenecks of the moroccan energy strategy

- Competency in wind and solar
- Grid capacity
- functionality of the new established institutions
- Experts and technical personnel
- Need of an appropriate campaign to increase the awarness of the population for RE and EE
- model projects in rural areas

## German federal state Schleswig-Holstein

WEREEMa

- Similar Wind energy conditions
- Core competence in wind energy
- high investment in RE
- >100 companies associated with wind energy
- Experience with repowering projects and with grid expansion
- Established competence centers for wind energy research
- Strong academic focus on renewable energy studies

➤ A cooperation between Morocco and the German federal state Schleswig-Holstein



# DESERTEC Principles for CSP project evaluation

Principle 1  
**Secure provision  
and distribution  
of electricity**

Criteria

- Dispatchability
- Minimized down-time
- Local and national benefit
- Interconnectivity and grid stability

Principle 2  
**Social responsibility  
and economic  
sustainability**

Criteria

- Profound consideration of socio-economic impacts
- Participation
- Maximized involvement of local / regional economy

Principle 3  
**Environmental  
responsibility**

Criteria

- Profound consideration of environmental impacts
- Conservation of rare, threatened or endangered species and habitats
- Minimized waste production.
- Maximized use of renewable energy
- Minimized use of water / optimum; neutral water balance.



# Evaluation of Potential Projects: TuNur

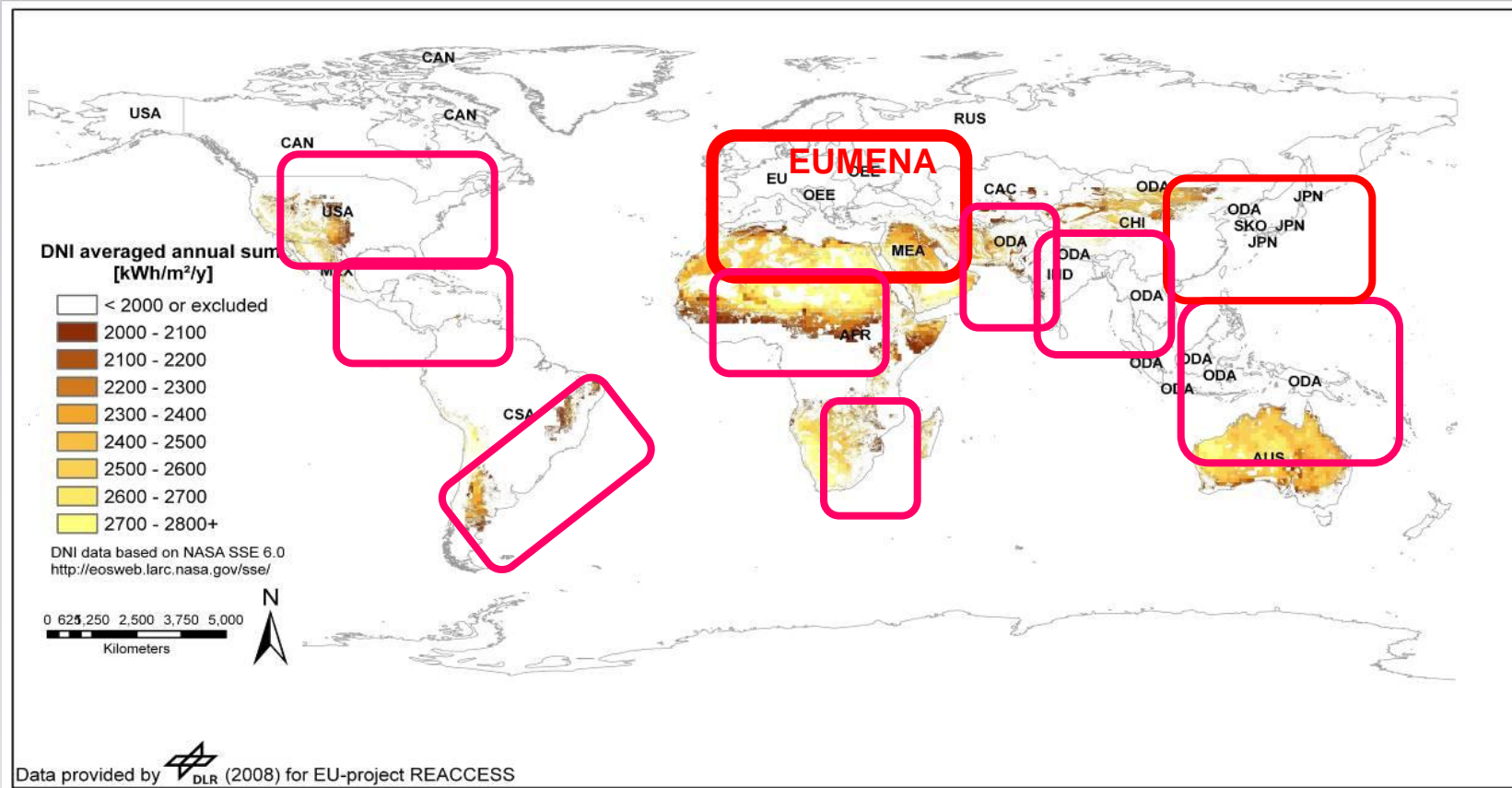


 **DESERTEC**  
FOUNDATION



 **NUR  
ENERGIE**

# DESERTEC is a global concept



With a strategic focus on two regions:

- EU-MENA
- East Asia



**DESERTEC - Become part of the solution!**