Challenges for Resource Efficiency in Urumqi, NW China

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Facts

- **Population**: 1949: 0.088 Mio (Urumqi City)  
  2008: 2.7 Mio (Urumqi City)  
  2013: **3.2 Mio** (Urumqi City) / **4.5 Mio** (URC Agglomeration)  
  (source: figures from Chinese Partners)

- **Population Growth Rate**: ~3.5 % p.a. (source: figures from Chinese Partners)

- **Level of urbanisation**: *high density* within Urumqi City  
  very low density (semi-desert) around the city

- **HDI (Human Development Index) for Xinjiang Province**: **0.774**  

- **Growth Rate of GDP** of Urumqi City per Capita and Year  
  2008: **18%**  
  2009: **5%**  
  **2010**: **20%**  
  **2011**: **25%**  
  (http://www.starmass.com/china-review/city-overview/urumqi.htm)
Semi-arid Environment

Water Scarcity

Gurbantünggüt desert

Bogdan Shan

URUMQI

Western Tian Shan

Ecologically Sensitive Semi Arid Environment
Urumqi River Before Entering the City
Urumqi River After Entering the City
Urumqi River

Former bed of Urumqi River

1949

2000

Urumqi 2005

Water Scarcity
Ecologically Sensitive Semi-Arid Environment
Ecologically Sensitive Semi Arid Environment
Hot Dry Summers
Extremely Cold Winters
Huge Demand for Heating
„Clear Sky“ in Urumqi, Nov. 2005
„Clear Sky“ in Urumqi, Nov. 2005
Rapid Industrialisation
Highly Dynamic Economic Development
Rapid Changes of Consumption Patterns
Material Intensive Consumption
Backside of the New Wealth
Rising Amounts and Varieties of Waste
Objectives

To promote a more efficient use of scarce and polluting resources (energy, water, waste) in order to decrease the environmental impacts of urbanisation in a semi-arid climate.

Selected Solutions

- Construction of the first passive house in Western China
- Extra low-energy renovation of existing buildings
- Development of a Waste Management Software for enterprises in Midong Industrial Park, covering all kinds of waste
- Hydrological analyses and modelling, advice on water information management for political decision-makers in Urumqi Region
- Mass and energy flow analysis in the Chinese PVC industry
- Capacity building for a soil moisture based measurement methodology (Ground Penetrating Radar) as a basis for modelling climate change
Thank you! See more at our market stand:

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