

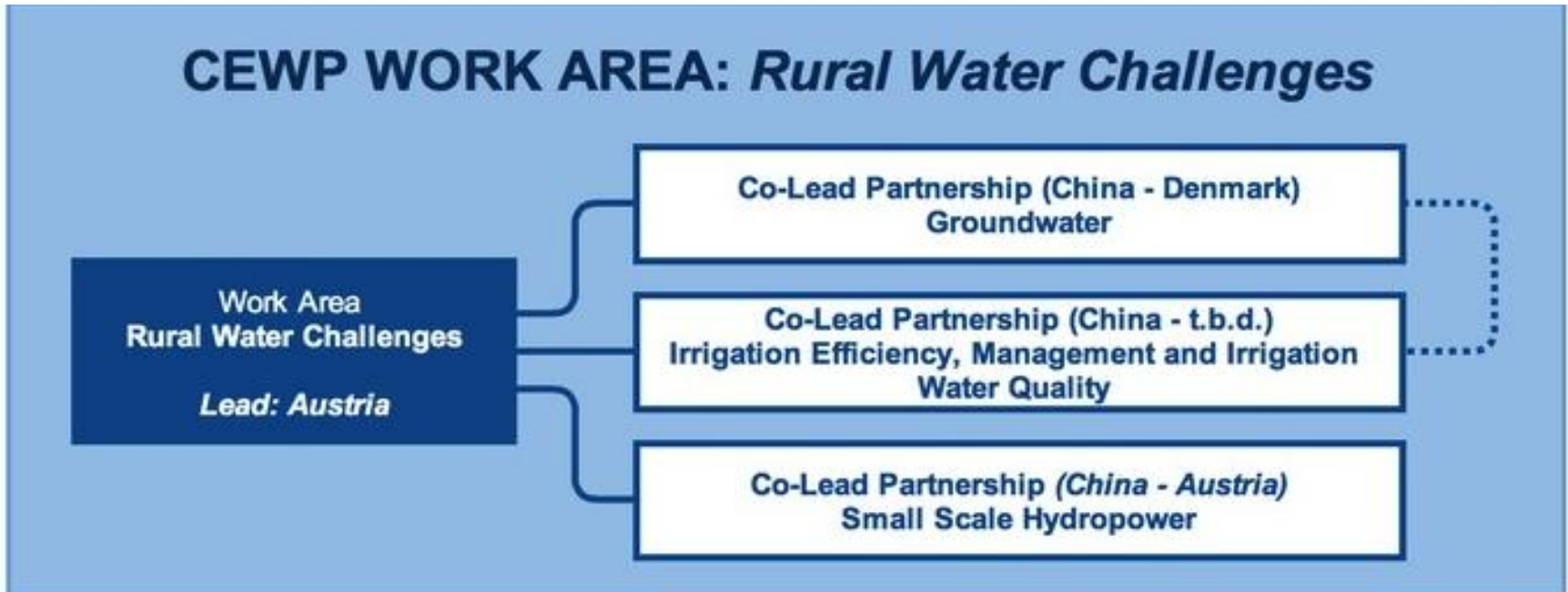
# Common Challenges and Opportunities for Innovation regarding Rural Water Resources Management in China and the EU

**Inception Workshop**  
**China Europe Water Platform**  
**5 – 6 March 2014**  
**Beijing (China)**

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**Short Term Expert**  
**to the CEWP Secretariat**  
**Rural Water Challenges**



# CEWP Work Area Rural Water Challenges



- ⊙ Irrigation is currently attached to Co-Lead on Groundwater Management
- ⊙ Determine Co-Lead Partnership within this workshop
- ⊙ Identify cooperation activities



# Co-Lead Partnership Groundwater Management/Irrigation (China – Denmark)

## Facts and Challenges - Europe

- ⊙ Several EU countries rely 100 % on groundwater for water supply
- ⊙ Several EU Directives steer groundwater management and irrigation
  - ⊙ e.g. EU WFD, EU Groundwater Directive, EU Urban Wastewater Directive
  - ⊙ Aim: Achieve good qualitative and quantitative groundwater status by 2027
- ⊙ Several challenges regarding
  - ⊙ Pollution through point and diffuse sources (nutrients, hazardous substances)
  - ⊙ Water scarcity in some regions
  - ⊙ Over abstraction of groundwater resources for irrigation purposes
  - ⊙ Groundwater recharging



# Co-Lead Partnership Groundwater Management/Irrigation (China – Denmark)

## Facts and Challenges - China

- ⊙ Surface water resources are becoming scarce in some regions of China
  - ⊙ Groundwater has become important water supply source
- ⊙ North China: groundwater is main source of irrigation water supply
  - ⊙ GW irrigated areas = 70 %
  - ⊙ GW water levels decrease locally 1m/year since 1960s
- ⊙ South China with high precipitation
- ⊙ Irrigation/abstraction potential not yet fully exploited
- ⊙ Engineering related water supply shortages
- ⊙ Many challenges related to groundwater and irrigation management
  - ⊙ Ensure food security through efficient agricultural practices, groundwater and irrigations management



# Co-Lead Partnership Groundwater Management/Irrigation (China – Denmark)

## Cooperation Opportunities and Activities

- ⊙ Several bilateral activities on-going (see Background Document)
  - ⊙ Denmark – China; Other European countries – China
- ⊙ Tackle water scarcity/water supply: effective water use & irrigation management
- ⊙ Innovative approaches & technologies in groundwater management
- ⊙ Hydrogeological modelling related to groundwater assessment
- ⊙ Improved operation of groundwater monitoring technologies
- ⊙ Groundwater treatment technologies for improved water quality
- ⊙ Approaches/technologies for irrigation efficiency and water saving
- ⊙ Related capacity building



# Co-Lead Partnership Small Scale Hydropower (China – Austria)

## Facts and Challenges - Europe

### ⊙ Directive on Renewable Energy Resources (Res-e)

- ⊙ Aim: 20% of its total energy consumption from renewable sources by 2020
- ⊙ Includes large and small hydropower

### ⊙ EU Water Framework Directive

- ⊙ Aim: Achieve good water status for all waters by 2027 at the latest
- ⊙ Requirement of *no deterioration* of water status
- ⊙ Hydropower can impact negatively on water status
- ⊙ Coordinated implementation in order to achieve both aims



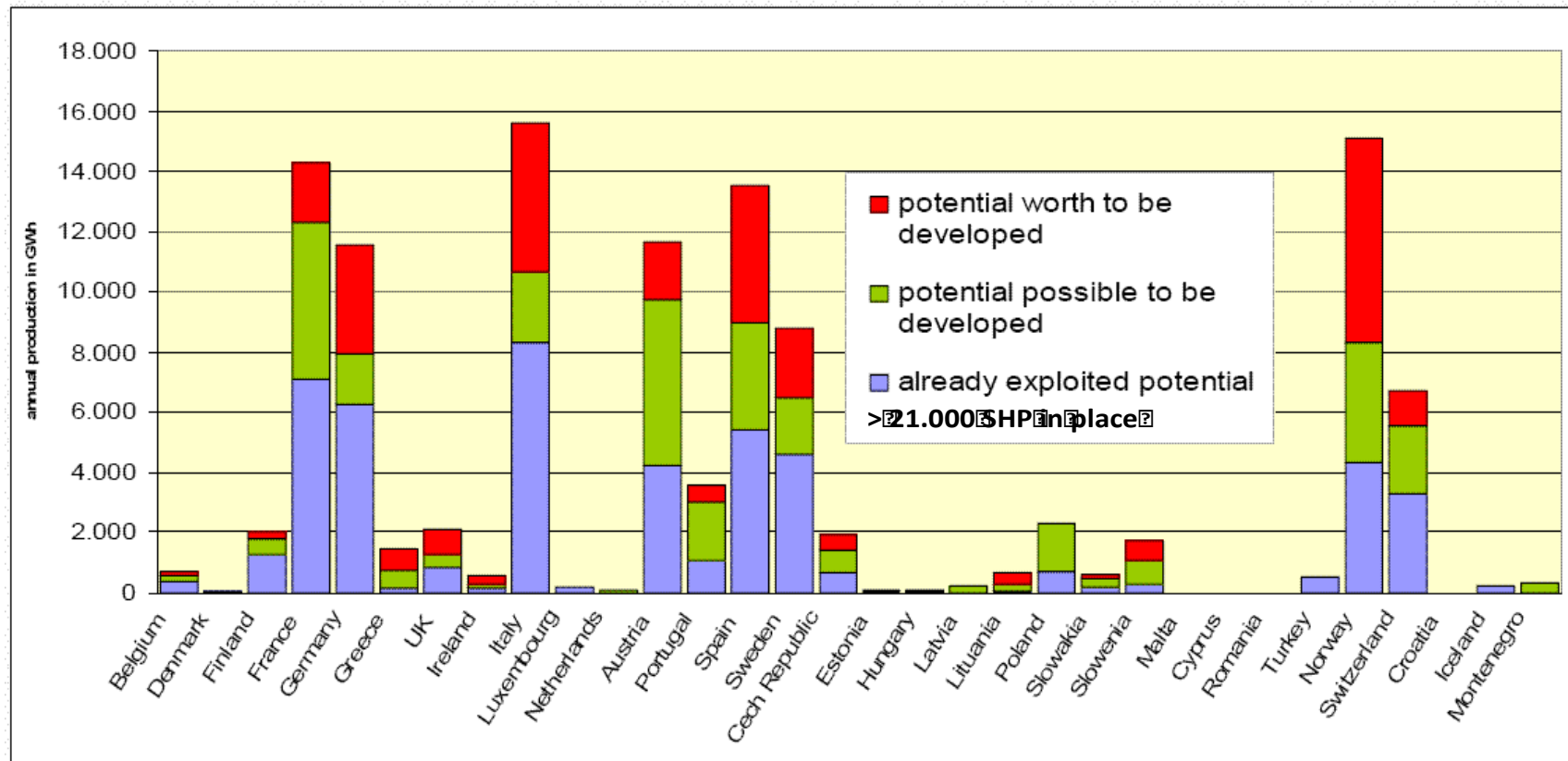
# Co-Lead Partnership Small Scale Hydropower (China – Austria)

## Facts and Challenges – Europe

Installed Capacity: 17,827 MW (78%)

Potential: 28,149 MW (22%)

Exploited & future potential (GWh) regarding small hydropower (>10MW) in Europe



# Co-Lead Partnership Small Scale Hydropower (China – Austria)

## Facts and Challenges - China

- ⊙ China is world leader in large hydroelectric dam construction and operation
  - ⊙ 249 GW installed capacity
- ⊙ Half of the world's small hydropower installed capacities are located in China
  - ⊙ Definition: Small scale hydropower in China < 50 MW
  - ⊙ 45,000 schemes in operation
  - ⊙ 25 % of China's hydropower installed capacity and electricity generation
- ⊙ China holds highest potential for small hydropower in world

**Potential Capacity SHP < 50 MW**

128,000 MW / 65,860 already installed

**Potential Capacity SHP < 10 MW**

63,492 MW / 36,889 already installed





# Co-Lead Partnership Small Scale Hydropower

## Cooperation Opportunities and activities

- ⊙ Small hydropower development
  - ⊙ Governance
  - ⊙ Sustainable planning and management
- ⊙ Increase of efficient electricity generation
- ⊙ Optimisation measures for small scale hydropower schemes
- ⊙ Mitigation measures to reduce adverse negative impacts on environment
  - ⊙ Technical retrofitting measures (e.g. fish bypass facilities; ecological flow)
  - ⊙ Integrative planning approaches



**Thank you!**

