



Threats to the Soil Resource Base *of* Food Security in China and Europe

- A report from the SEPLS -

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SEPLS Priority Topics

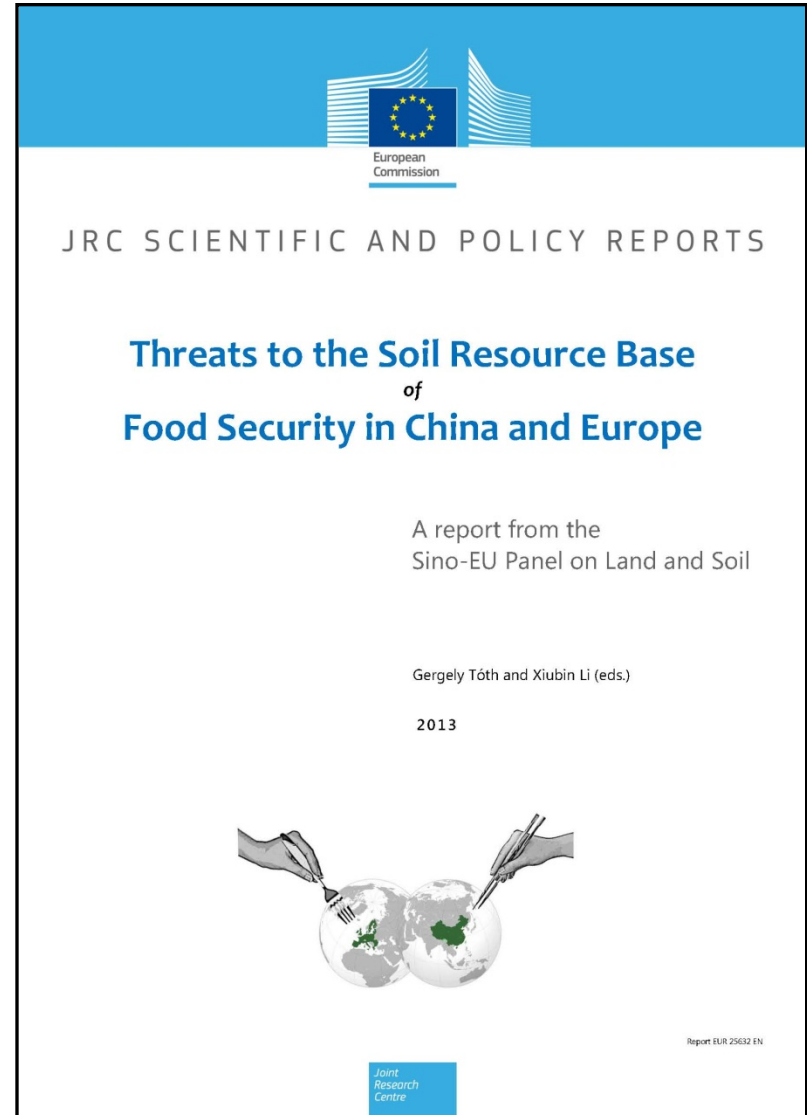


- 1. Food security** (*Nanjing 2012*)
- 2. Land resources allocation** (*Brussels 2013*)
- 3. Ecosystem services**
- 4. Land management practices**
- and pressures on soil resources and water resources -

SEPLS Seminar on Food Security

(07 Febr. 2012, Nanjing)

***Similarities and differences
in the processes in China and
the EU were discussed,
including assessment of key
factors driving the processes
and the identification of
knowledge gaps.***



Contents of the report



Introduction

Socio-economic background, current trends

Assesment methodology (DPSIR)

The impact of urbanization and infrastructural development

Agricultural intensification

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Policies and recommendations

Threats from urbanization and infrastructural development to land resources



	China	European Union
Driving forces	D*: urbanization and infrastructural development ID*: population increase and economic development (industrialization)	D: urbanization and infrastructural development ID: economic development (industrialization)
Pressures	urban built-up land expansion (infrastructure construction, sealing) contamination, compaction, erosion, landslides	urban built-up land expansion (sealing), contamination, compaction, erosion, landslides
State	loss of soils (soil sealing), contaminated and compacted soils	loss of soils (soil sealing), contaminated and compacted soils
Impacts	D: farmland loss; increased (urban) water runoff; urban heat island effect; less biomass production decrease of green coverage and carbon stock, contaminated food chain ID: food security and food safety flooding, polluted air and water resources	D: farmland loss; increased (urban) water runoff; urban heat island effect; less biomass production decrease of green coverage and carbon stock, contaminated food chain ID: food security and food safety flooding, polluted air and water resources
Responses	primary farmland protection, research for new concepts for urbanization and industrialization, new legal instruments	research for new concepts for urbanization and industrialization, new legal instruments

Threats from agricultural intensification and water use to land resources



	China	European Union
Driving forces	D: maximizing resource utilization ID: Increasing demands for food and fiber, diet change (economic growth, population increase)	D: maximizing resource utilization ID: Increasing demands for bioenergy (fuel, wood)
Pressures	Increased fertilizer and pesticide application (expansion of horticulture), compaction, erosion (deforestation; soil management)	Intensive use of fertilizers, pesticides, compaction, erosion (soil management)
State	eroded and degraded soils soil contamination; soil eutrophication,	eroded and degraded soils
Impacts	river, lake and ground water pollution; salinization aquifer depletion, contaminated food, air and water pollution, productivity decline on a long term (erosion)	contaminated food, air and water pollution, productivity decline on a long term (erosion)
Responses	research , capacity building incentives legal regulations, increased investment in integrated land management (including lake and river pollution control)	research, capacity building, incentives

Soil degradation threats and land resources



	China	European Union
Driving forces	D: urbanization and industrialization, agricultural intensification ID: economic growth with high resources and energy consumption lack of adequate legal instruments	D: urbanization and industrialization, soil management practices, ID: socioeconomic changes, need for biofuel lack of adequate legal instruments
Pressures	D: erosion, desertification, sealing, contamination, compaction, salinization, loss of soil organic matter and biodiversity ID: industry/ energy mining; infrastructure construction	D: sealing, contamination, erosion, compaction, salinization, loss of soil organic matter and biodiversity, nutrient mining
State	loss of productive soils, altered functional capacities, degraded soils	loss of productive soils, altered functional capacities, degraded soils
Impacts	deforestation (loss of grassland; landslides and debris flow; flooding – social conflicts) decrease of food production, soil-,air- and water pollution and contamination	decrease of food production, food contamination, soil-,air- and water contamination
Responses	research and legal regulations, incentives	research and incentives