

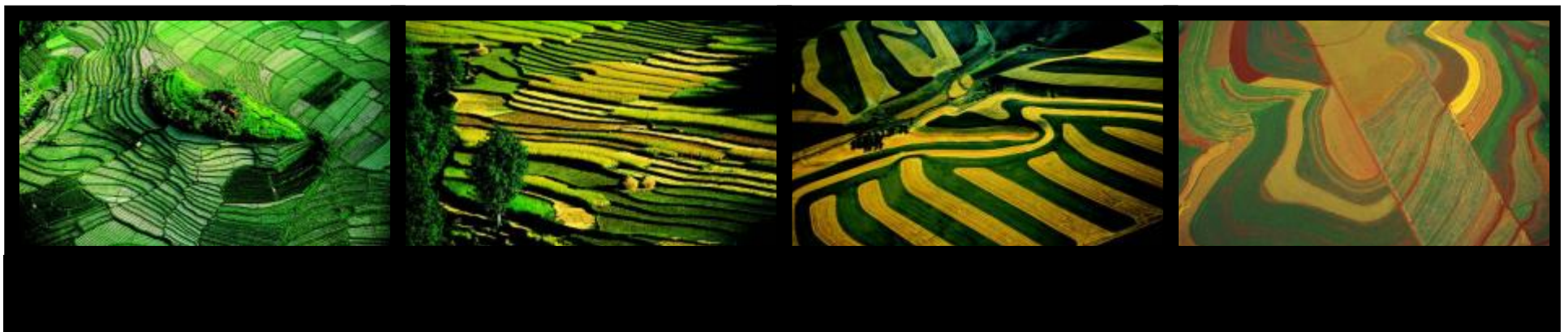


Bioenergy and water: assessments and policies to support improved governance

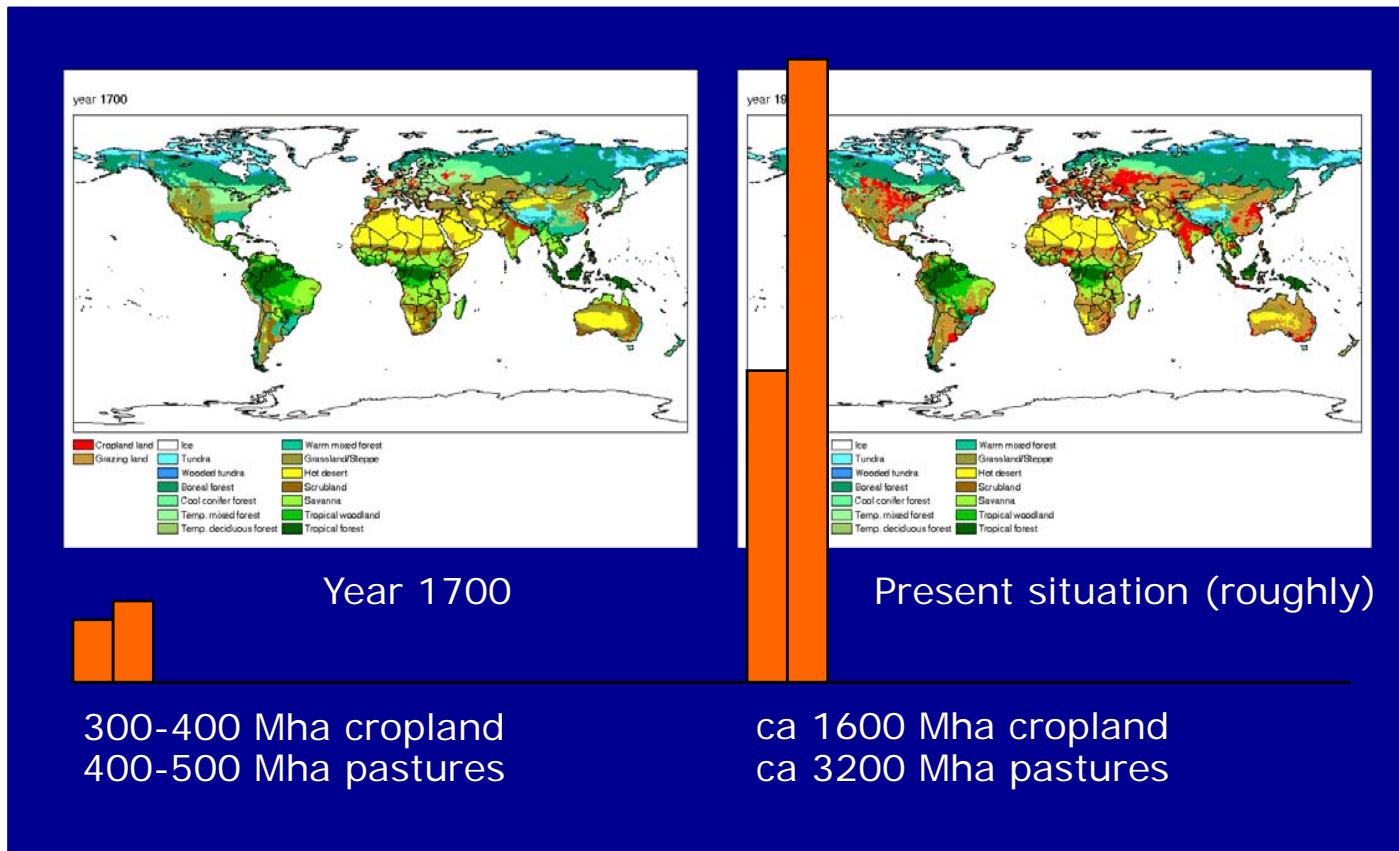
Göran Berndes

IEA Bioenergy Task 43

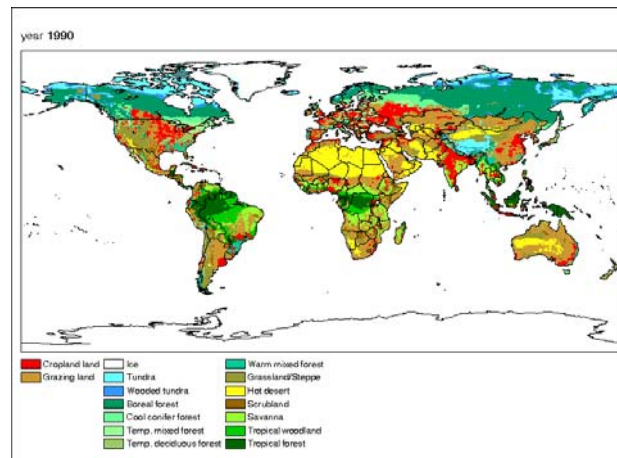
Chalmers University of Technology, Sweden



Context: We already use a significant part of available land and water resources

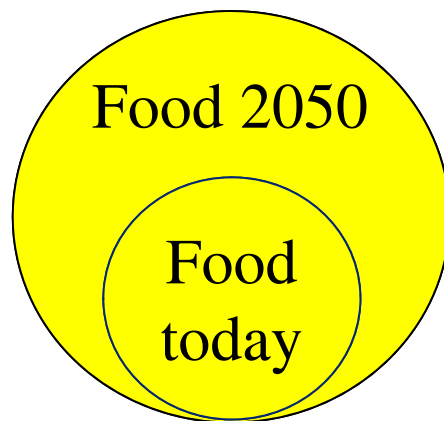
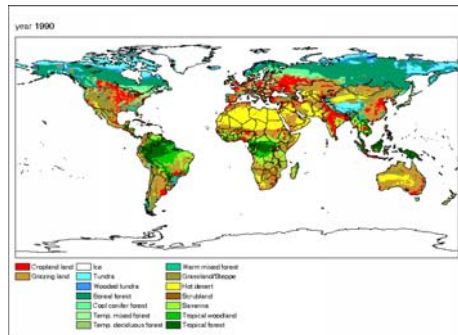


Context: In the future we will likely need to harvest much more biomass than we do today

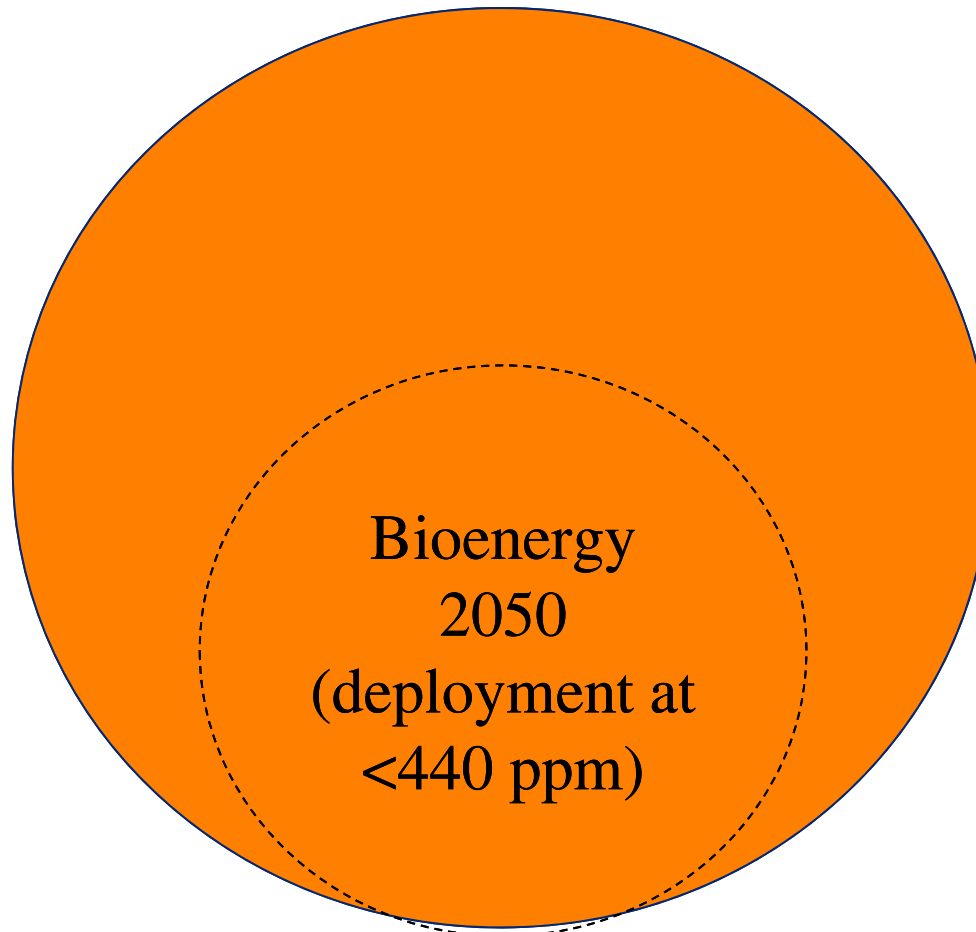
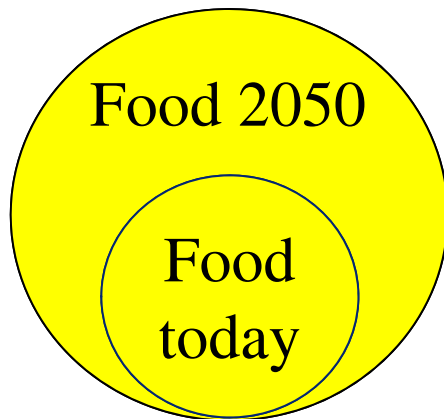
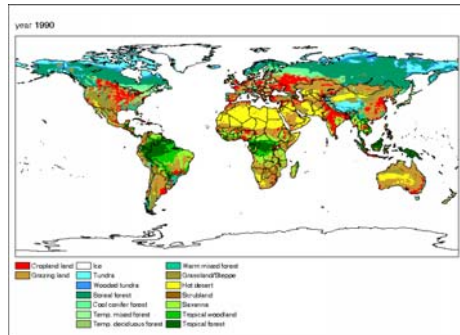


Food
today

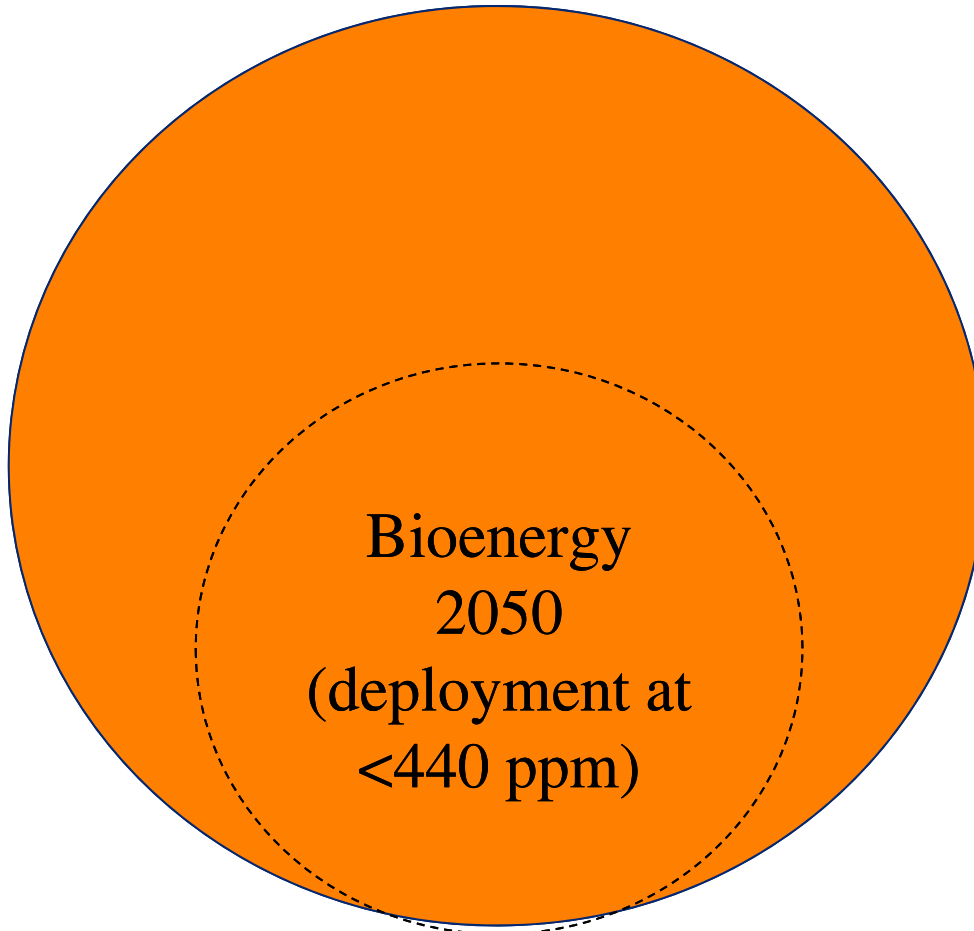
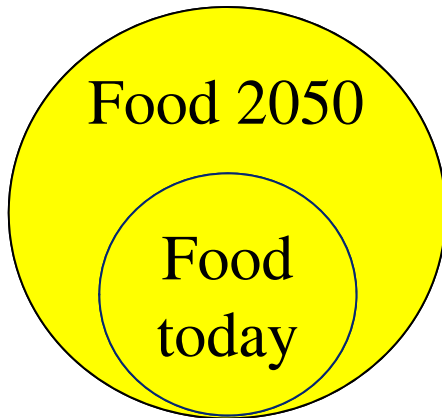
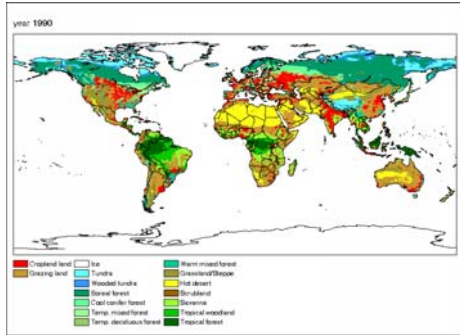
Biofuels today (total bioenergy roughly = food today)



Biofuels today



118-190 EJ/year



118-190 EJ/year

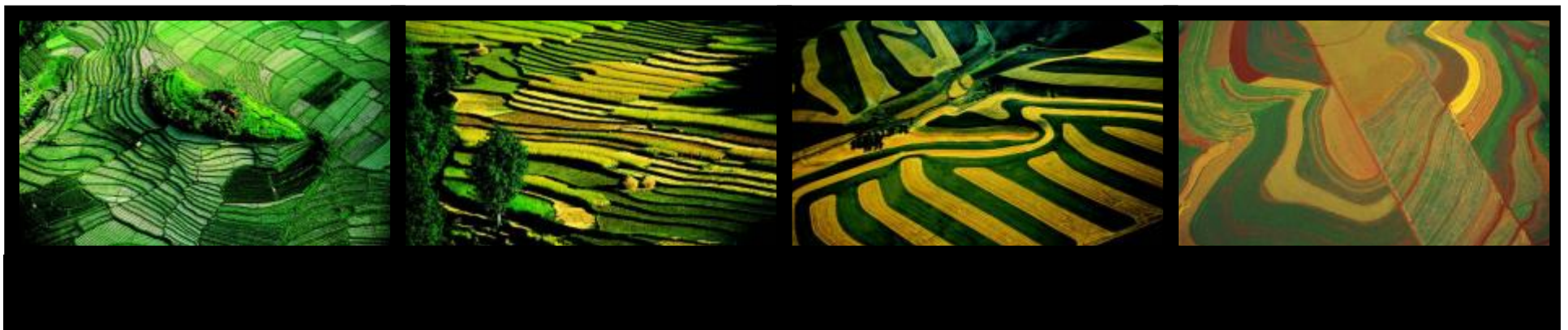
Global industrial roundwood today





The challenge:

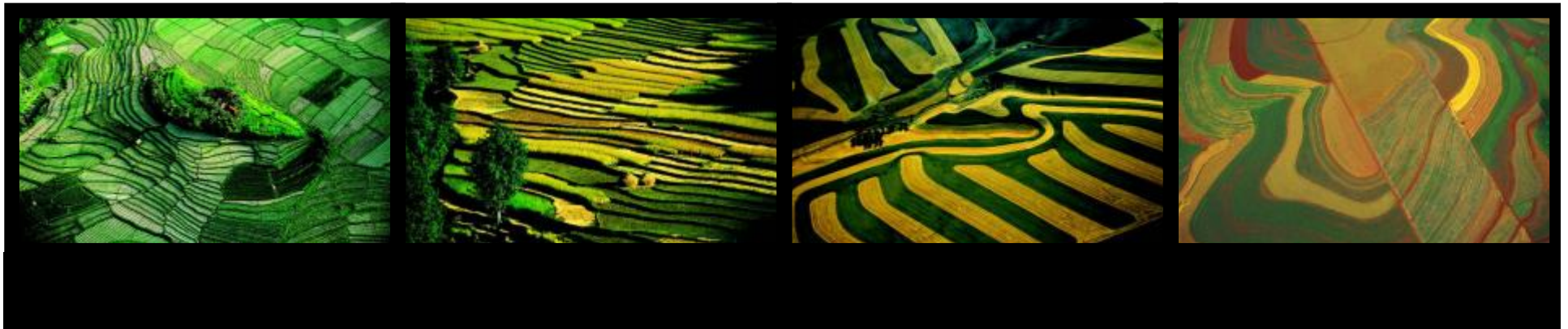
- Address the inefficiencies in the use of land, water and other resources – and also the inefficiencies in the use of harvested biomass
- Develop sustainable biomass production systems that deliver food, bioenergy and biomaterials, while leaving space for nature





The challenge:

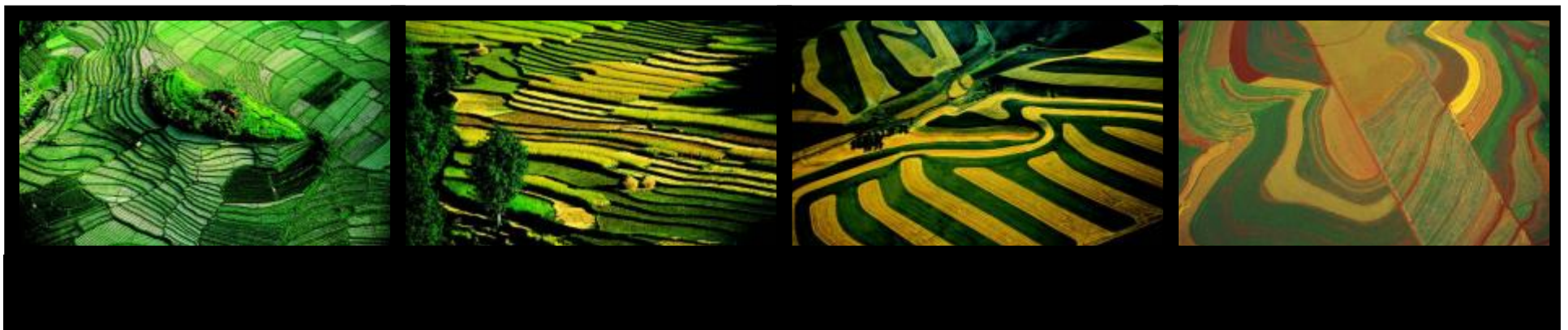
- Address the inefficiency of other production systems that can add new challenges but can also provide new solutions
- ... mass production systems that ... of ... bioenergy and biomaterials, while leaving space for nature





The challenge:

- **How promote bioenergy that contributes positively to energy and climate objectives – and also contributes to progress towards sustainable use of land, water and other resources?**





The challenge:

- How promote bioenergy 41 energy and 42

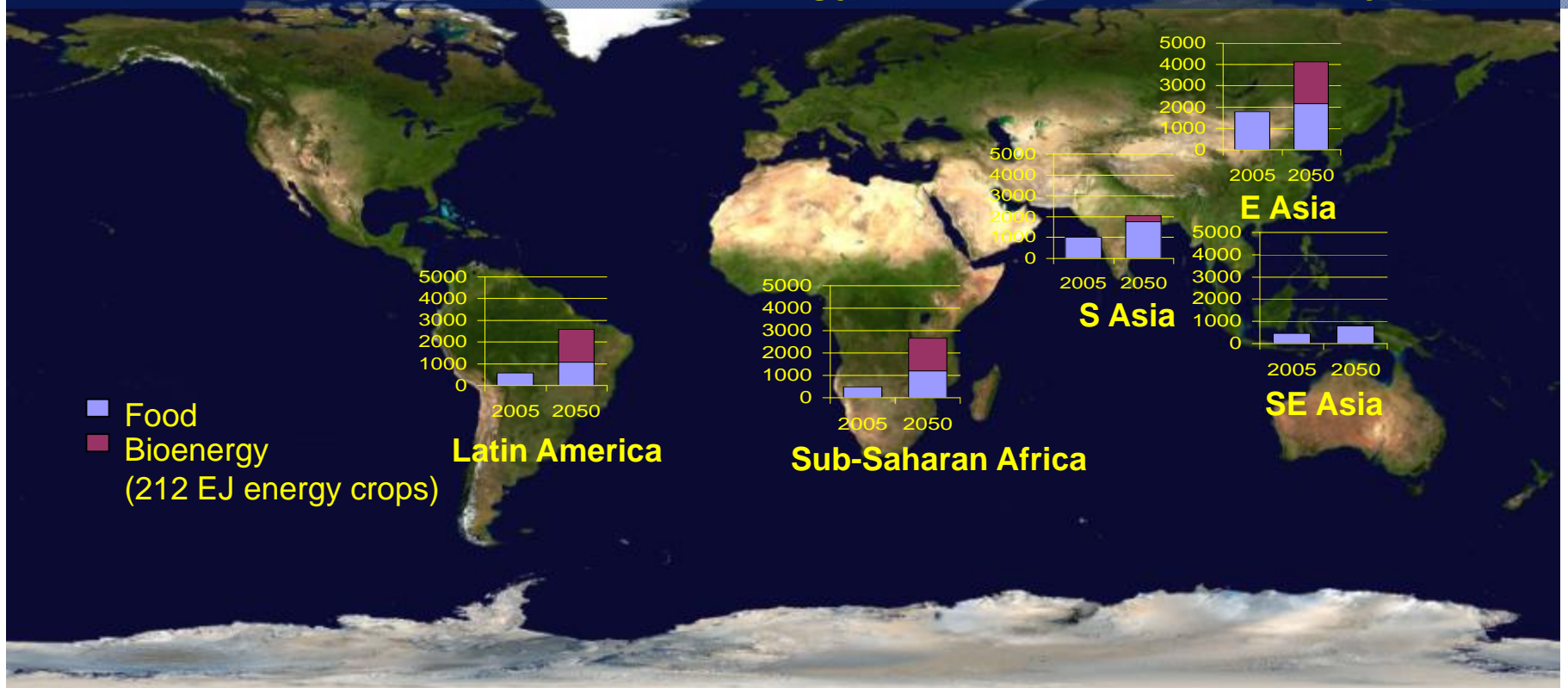
• Other presentations in this session provide some of the answers

• Below, focus will be on water and relevant Task 43 activities

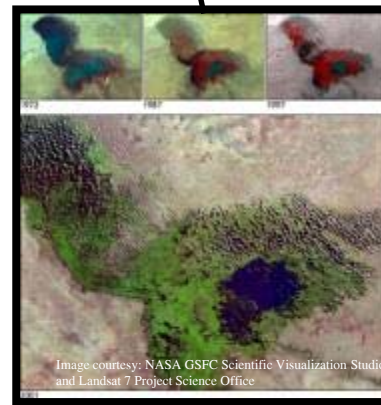
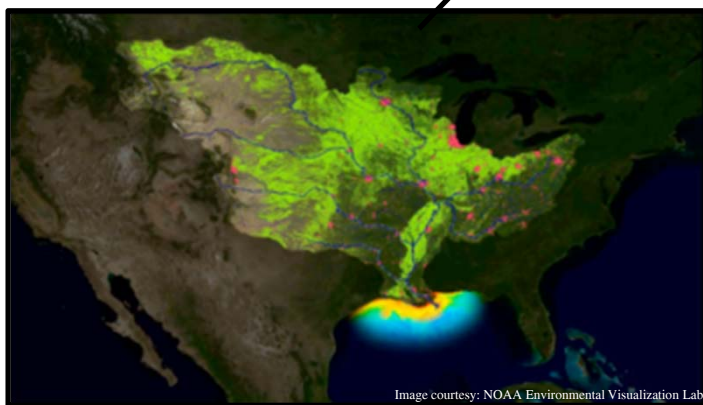
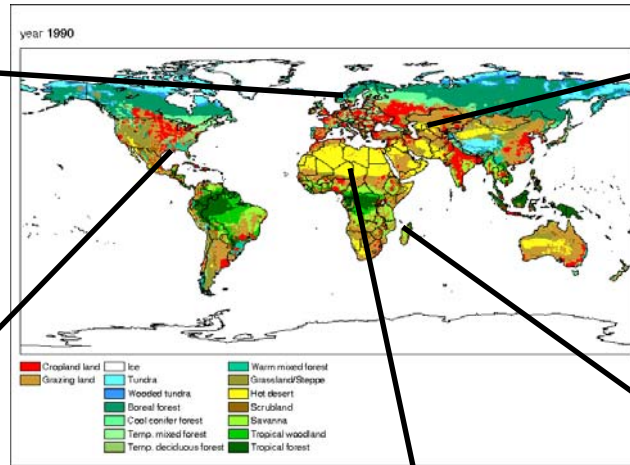


How much biomass (and where) can we produce?

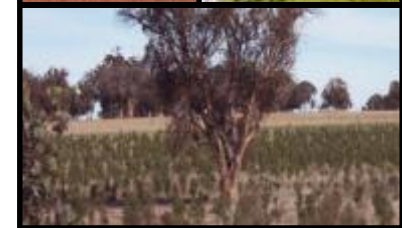
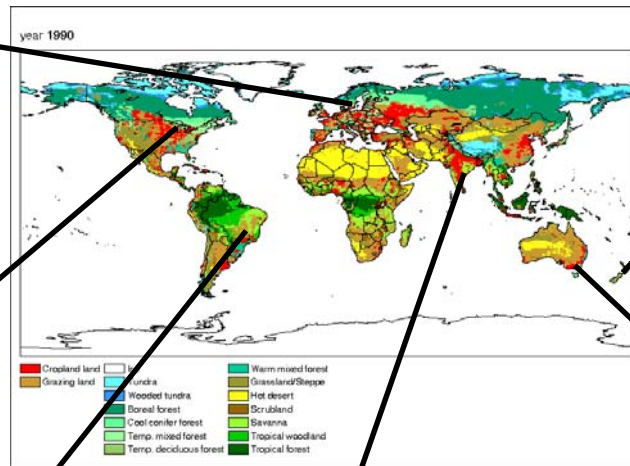
Water use for food and bioenergy, 2050 scenario (km³/year)



In what ways can we produce biomass?

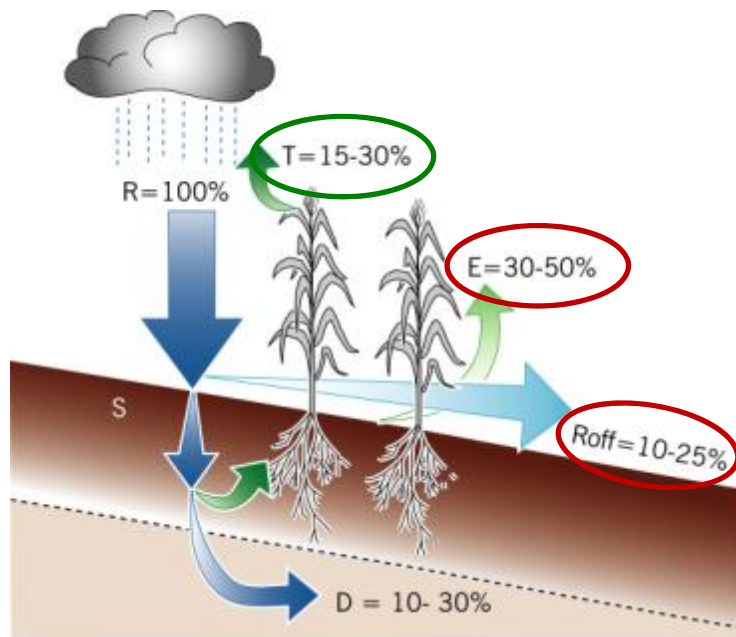


In what ways can we produce biomass?



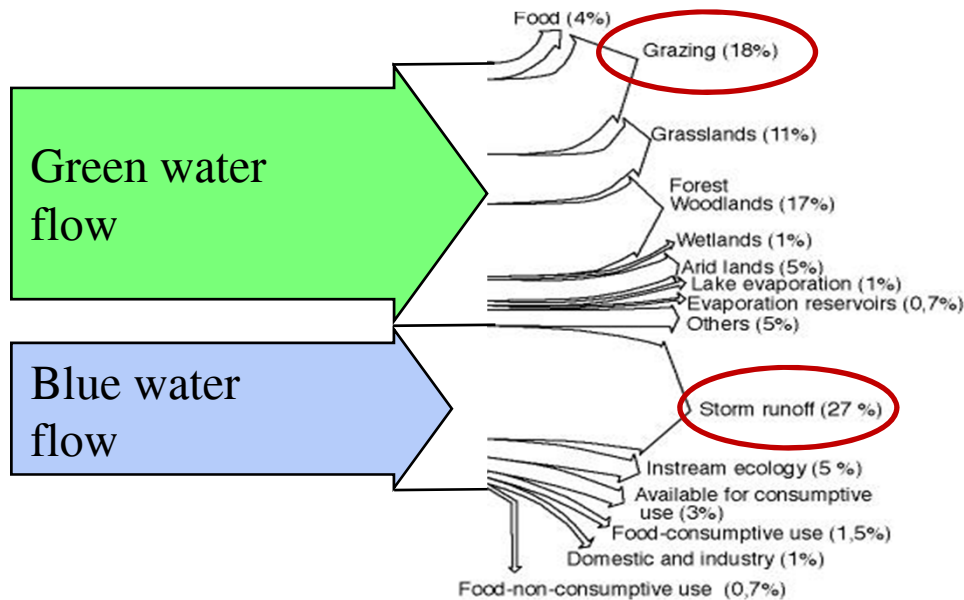
Integration of bioenergy systems into agriculture and forestry landscapes to:

- improve water use efficiency
- mitigate water quality impacts

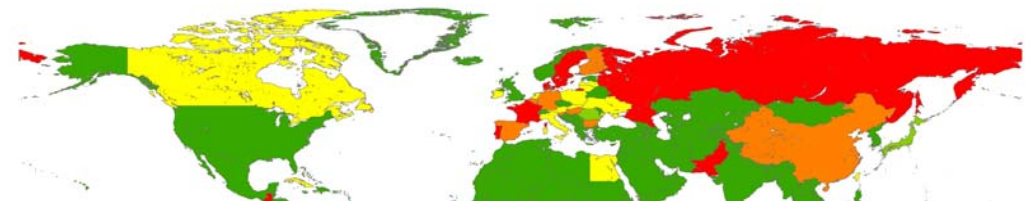
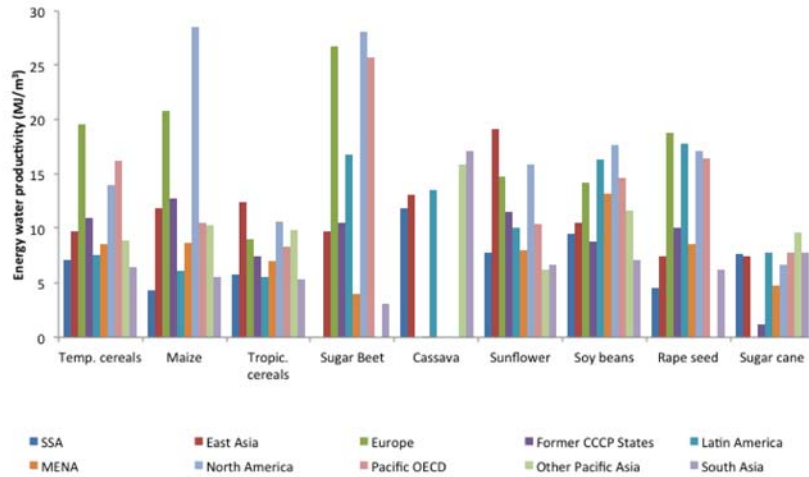


Integration of bioenergy systems into agriculture and forestry landscapes to:

- improve water use efficiency
- mitigate water quality impacts



Assessments and policies to support governance



Example indicators of crop water productivity (Berndes et al. forthcoming)

Task 43 and the bioenergy-water nexus

- Workshops and seminars
 - Paris 2010, Bonn & Sunshine Coast 2011, Marseille & Stockholm 2012
 - **Next:** 1-day conference as part of World Biofuels Markets 2013 in Rotterdam
- Reports, briefs and scientific publications
 - See Library section at www.ieabioenergytask43.org
- Support to political/institutional processes
 - World Water Forum
 - Development of sustainability certification systems and standards
 - Collaboration with major institutions (e.g., FAO, GBEP, UNEP)