Multifunctional landscapes: food, biomass, water, and the SDGs – Insights from the Swedish Agrifose2030 program

Madelene Ostwald
Assoc. Prof., Centre for Environment and Sustainability, University of Gothenburg/Chalmers University and Climate Science and Policy Research Linköping University, Sweden

Workshop on “Examples of Positive Bioenergy and Water Relationships”
30 November 2016, Rome
Multifunctional landscapes: food, biomass, water, and the SDGs – Insights from the Swedish Agrifose2030 program

Madelene Ostwald
Assoc. Prof., Centre for Environment and Sustainability, University of Gothenburg/Chalmers University and Climate Science and Policy Research Linköping University, Sweden

Workshop on “Examples of Positive Bioenergy and Water Relationships”
30 November 2016, Rome
Multifunctional landscapes: food, biomass, water, and the SDGs – Insights from the Swedish Agrifose2030 program

Madelene Ostwald
Assoc. Prof., Centre for Environment and Sustainability, University of Gothenburg/Chalmers University and Climate Science and Policy Research Linköping University, Sweden

Workshop on “Examples of Positive Bioenergy and Water Relationships”
30 November 2016, Rome
Multifunctional landscapes: food, biomass, water, and the SDGs – Insights from the Swedish Agrifose2030 program

Madelene Ostwald
Assoc. Prof., Centre for Environment and Sustainability, University of Gothenburg/Chalmers University and Climate Science and Policy Research Linköping University, Sweden

Workshop on “Examples of Positive Bioenergy and Water Relationships”
30 November 2016, Rome
Multifunctional landscapes: food, biomass, water, and the SDGs – Insights from the Swedish Agrifose2030 program

Madelene Ostwald
Assoc. Prof., Centre for Environment and Sustainability, University of Gothenburg/Chalmers University and Climate Science and Policy Research Linköping University, Sweden

Workshop on “Examples of Positive Bioenergy and Water Relationships”
30 November 2016, Rome
Landscape = multifunctionality

• Characteristics of the landscape concept from different scholars:
  • Challenge the ’one-place-one function’ concept – specialization
  • A way to interpret socio-ecological systems
  • Function rather than form
  • By default = ecosystem services and products
  • ...has been useful in relation to climate change and LULUCF – liked by policy makers
  • ...hence, increased use in recent years - 29 journals, a majority started after 2000
  • Can easily be linked to several of the immature/hallow SDGs
Climate-smart Landscapes: Multifunctionality in practice

Source: Minang et al. 2015 ‘Climate-smart Landscapes: Multifunctionality in practice’
Agriculture for Food Security 2030
translating science into policy and development

• Science-based approach for supporting better policies and improved practices – hence not a regular research project

• Modalities:
  • Research exchange
  • Training courses, for example - ‘Science to policy and practice’ in January 2017 Nairobi, Kenya for young researchers
  • Synthesis assessments

• Sida-funded started 2016
AgriFoSe2030: Targeting smallholders

• Mainly in Africa and Asia
• Targets those smallholders that are deemed to have potential for transformation from self-subsistence farming to producing a surplus of food for sale

• Through cross-cutting focus: i) sustainable intensification ii) increased participation from women and youth iii) improved access to markets and development of value chains
1. **Social and economic dimensions** of smallholder agriculture - Lund University
2. **Multifunctional landscapes** for food security - University of Gothenburg
3. **Increased productivity and diversity** in smallholder cropping systems - Sw Univ of agriculture
4. Smallholder **animal farming** for a nutritious diet and increased food security - Sw Univ of agriculture
AgriFoSe2030: Four themes

1. Social and economic dimensions of smallholder agriculture **Lund University**

2. Multifunctional landscapes for food security **University of Gothenburg**

3. Increased productivity and diversity in smallholder cropping systems **Sw Univ of agriculture**

4. Smallholder animal farming for a nutritious diet and increased food security **Sw Univ of agriculture**
Example of a synthesis assessment
What does science tell us about food and homegardens in Sri Lanka?

Homegardens: A multifunctional land use system
- Garden in close connection of a home
- Usually <0.5 ha
- 13% of Sri Lanka
- Perennials, cash crops, animals, multi-story
Scientific and policy relation to homegardens

- Agroforestry systems are viewed as good alternatives = intensive, resilient and climate smart land use systems (Bustamante et al. 2014; van Noordwijk et al. 2014; Santika et al. 2015)

- Sri Lankan Govt promotes homegardens – goal of 2.5 million homegardens for self-sufficiency (Diva Neguma)
Some results (n-90 scientific articles)

- 28 % quantified food products
- 52 % identified indirect impact of food security (soil status, climate, decreased vulnerability to prices)
- 21 % did qualitative or conceptual analyses of homegardens and food
- Snap-shots in time
- Narrow in discipline
- Seldom compared with other land-use systems
- Site specific
- Little of gender
- Nothing on added value of expanding along the value chain or access to markets
Multifunc, landscape and SDGs: Too complex for research and policy?

Research
• What research is ‘multifunctional/landscape/SDG research’ – biomass production, household survey, soil samples, vegetation assessment via remote sensing, political polls...one or all?
• When is multifunctional landscape helpful as a scientific concept and what are the alternatives?
• How to avoid pitfalls – ranking, integrated models with results leading to analytical ambiguity, narrow assumptions contradicting the concept...?

Policy
• Who to include?
• Snapshot or scenarios?
• Accountability of decisions?
• How is it practically used?