

Resource Use in Food Systems

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1. Problem Definition

Resources required for the production of food are water, energy and land. Today, resource use of food is large:



Land Use = 40% of global land area



Energy Use = 20% of household energy use in western countries



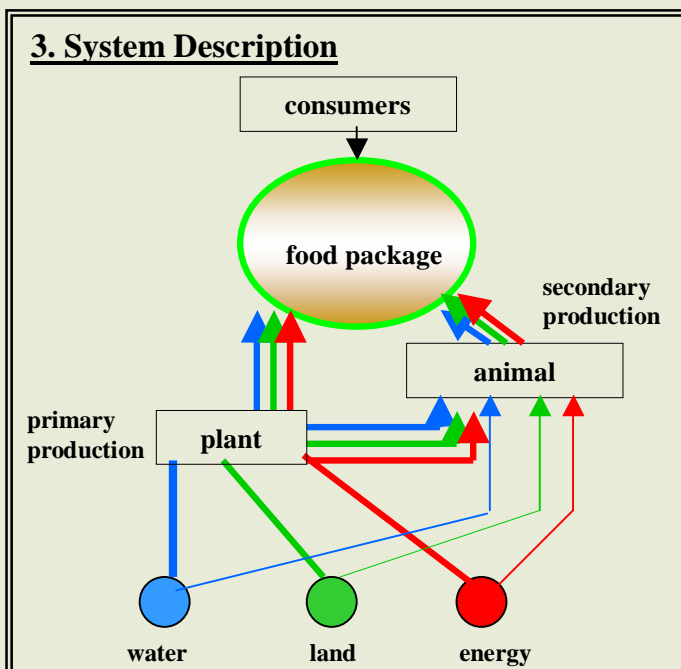
Water Use = 70% of human fresh water use

In the coming decades, a doubling of global food demand is expected. If a doubling of production goes along with a doubling of input, available resources will not suffice.

2. Research Questions

- Is it possible to feed the growing world population using existing resources?
- What is the resource use of different food packages?
- What are the trade-offs among resources for different food production systems?

3. System Description



4. Food Packages

To comply to nutritional constraints, a large variation of food packages is possible.



5. Food Production Systems

Primary and secondary production systems show large variation in the use of water, land and energy.

6. Preliminary Conclusions

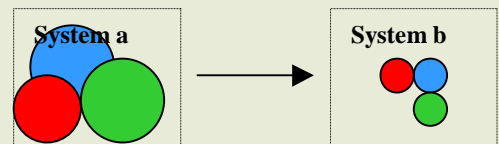
- Food package type is an important variable for resource use.
- Food production systems determine the use of resources.

Publications:

Agriculture, Ecosystems and Env., 90, 47-58, 2002
Ecological Economics, 42, 185-199, 2002
Ecological Economics, 46 (2), 231-248, 2003

7. Further Research

- Are there options to reduce the use of land, energy and water for food packages?
- What are the options to reduce resource use by changing production systems?



- Are there trade-offs among resources?

