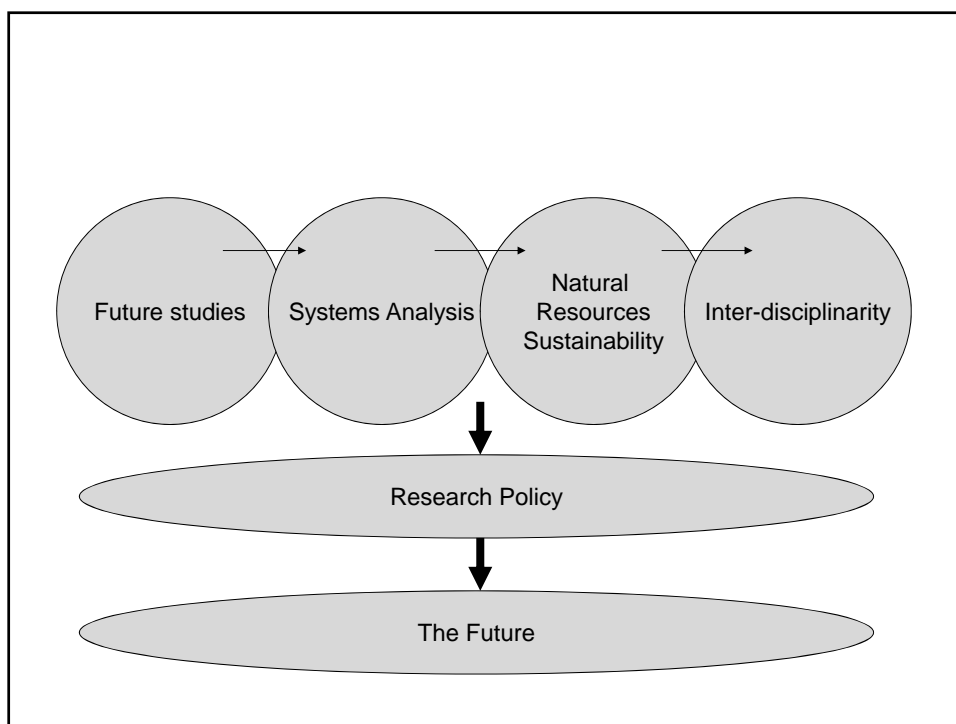


# Systems Analysis, Sustainability and Planetary boundaries

Uno Svedin,  
Professor  
20 February 2013, Uppsala, SLU  
Master Course

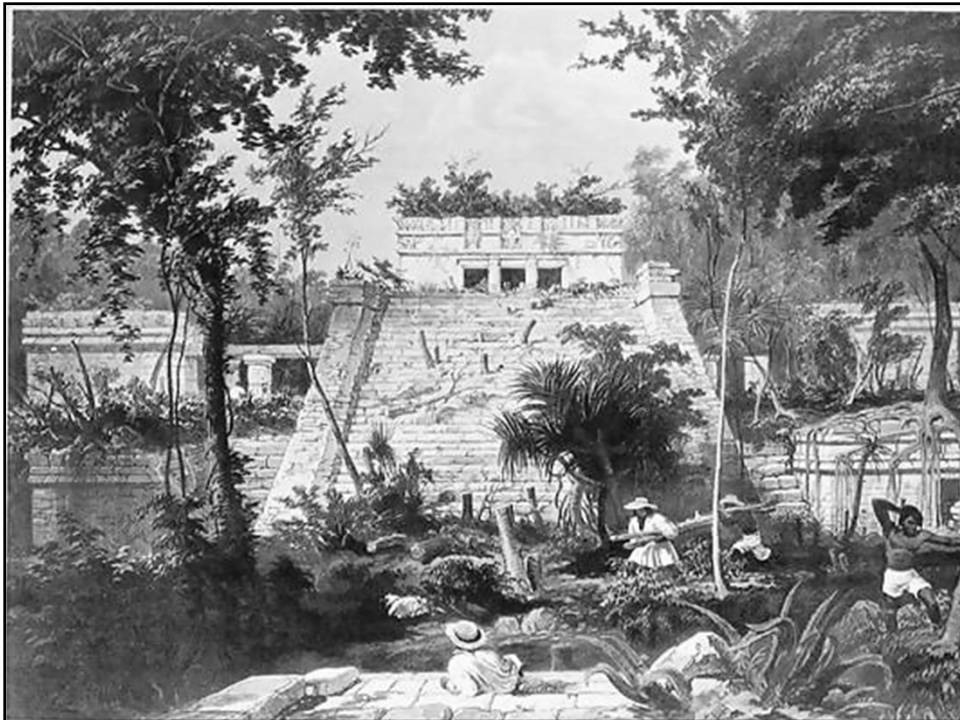
## THE THINKING

- CHANGES IN THE KNOWLEDGE  
PRODUCTION SYSTEM –  
(The interdisciplinary charge)
- RIGHT MIND SET
- UNIVERSITY SYSTEM (The knowledge  
production system)
- RESOURCES IN THE RIGHT PLACES!
- PLANETARY BOUNDARIES AND  
THE ANTROPOCEN





x

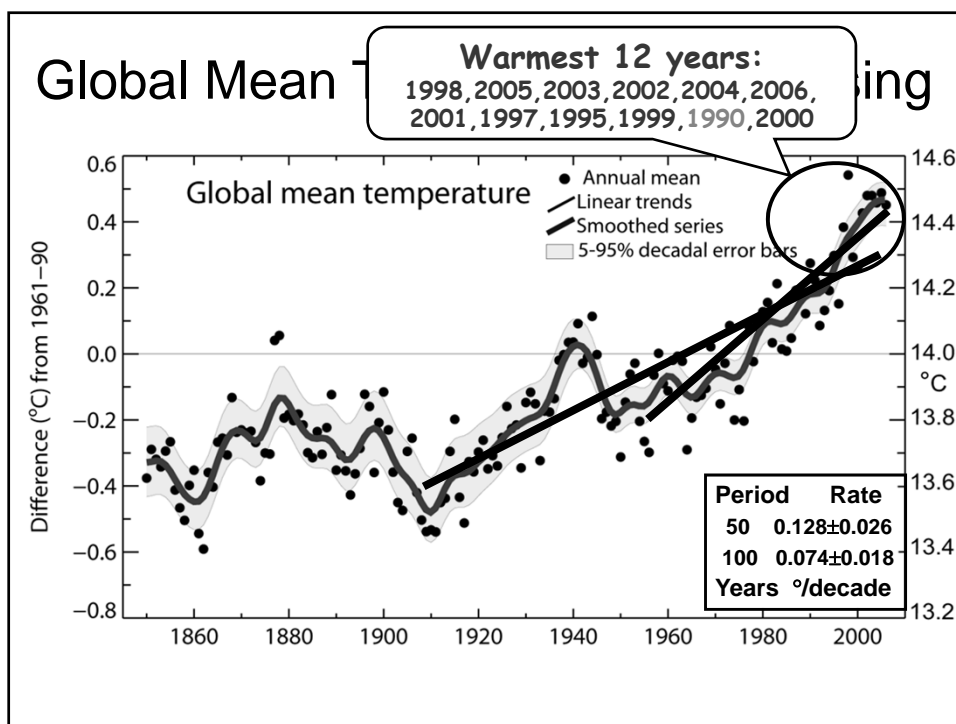
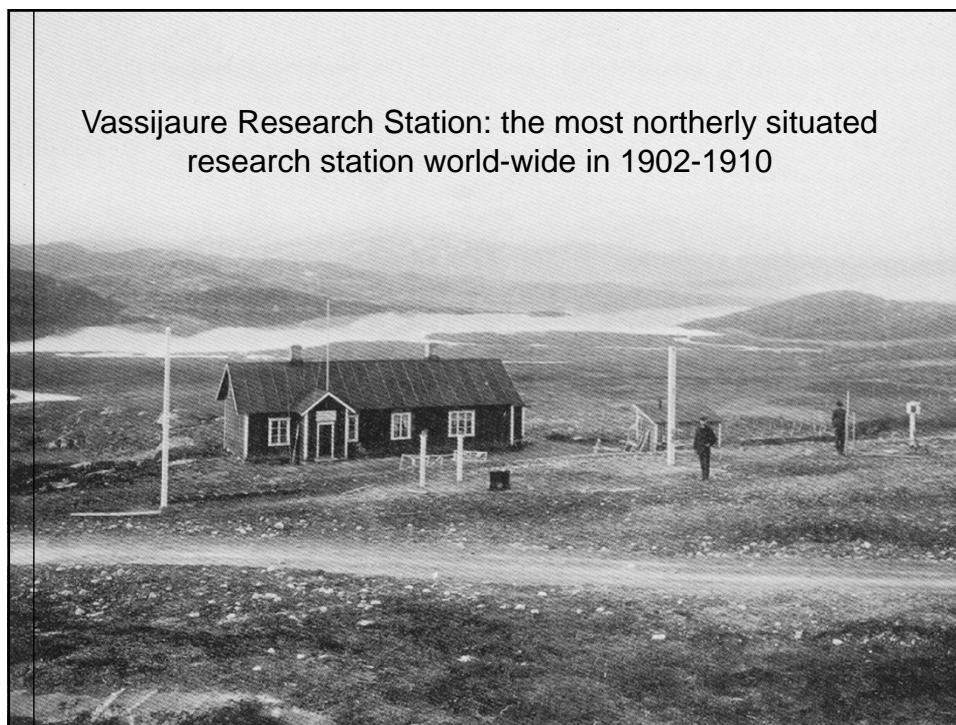


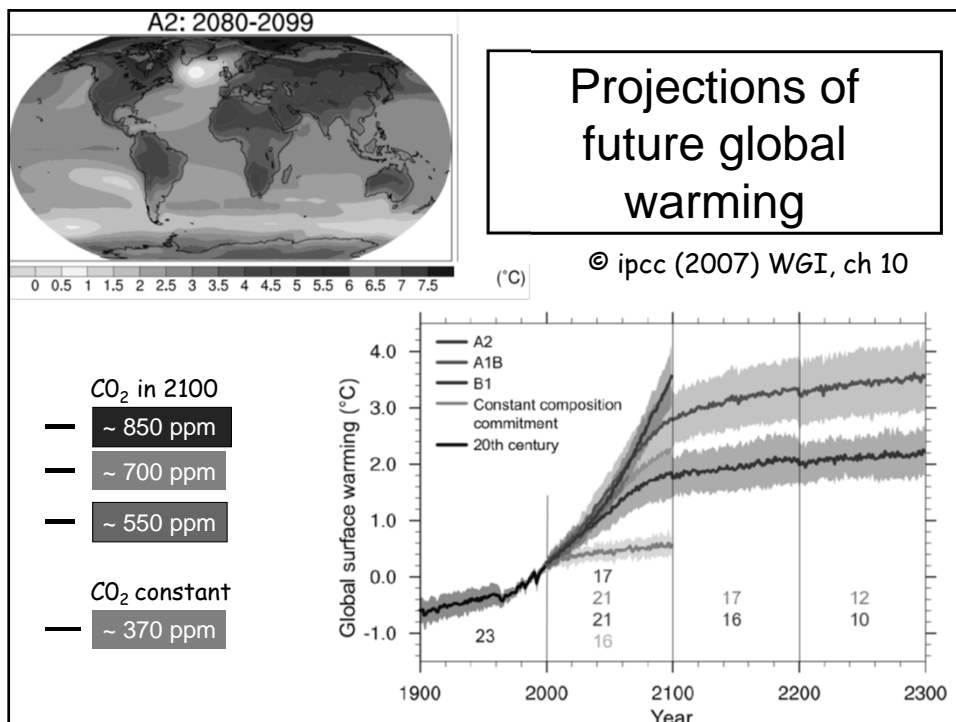
# Torsten Hägerstrand



Ref: <http://www.nhh.no>



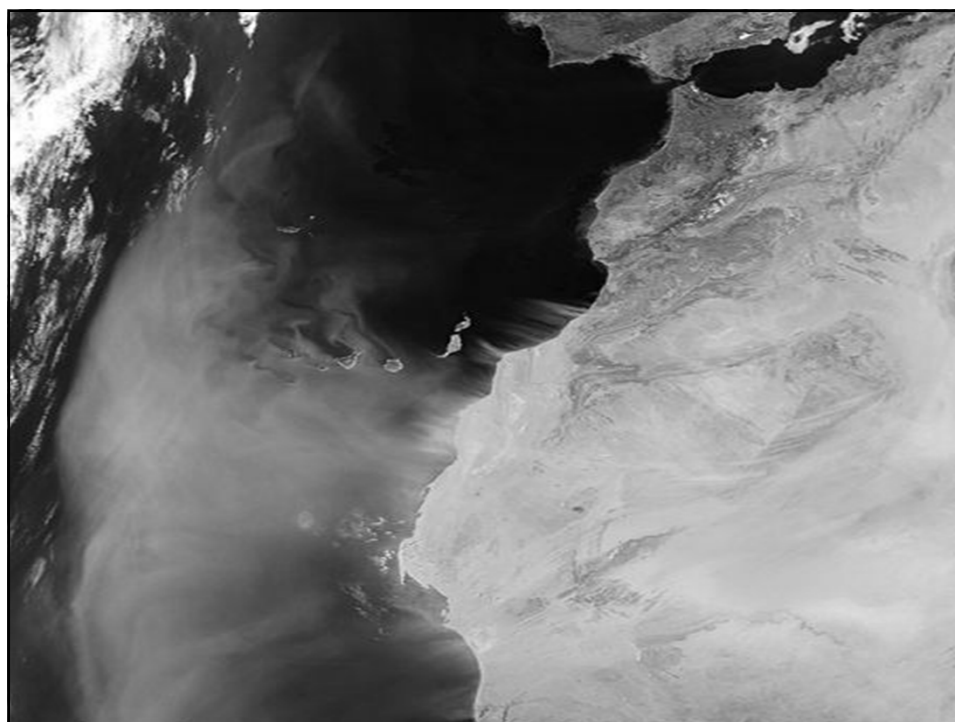
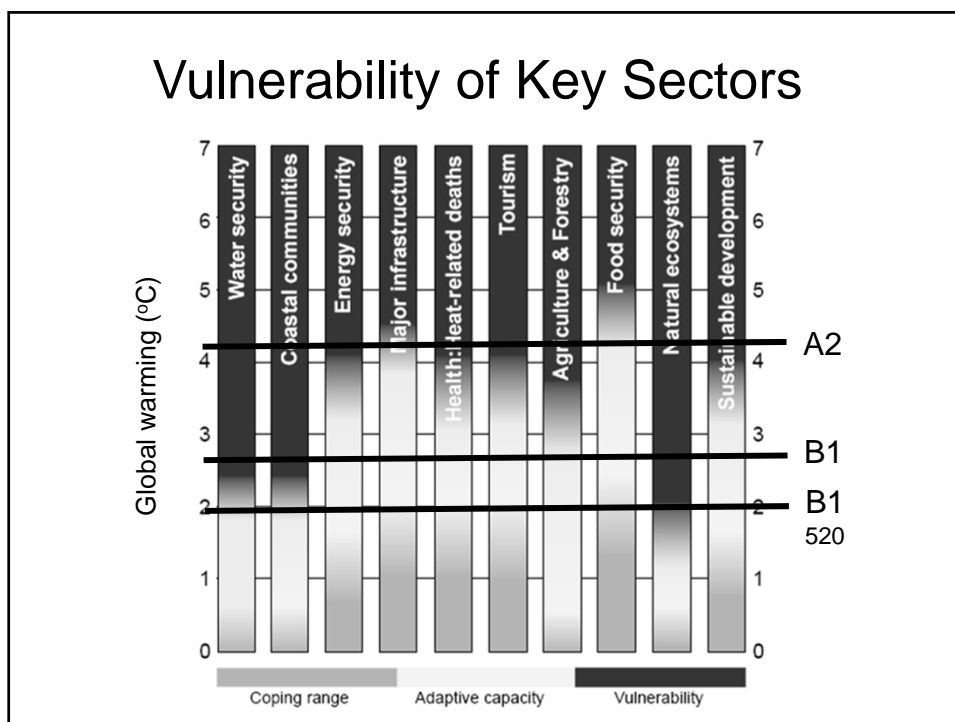




## Bert Bolin



Ref: <http://miljoforskning.formas.se/>



## POINTS TO DISCUSS

# THE NATURAL RESOURCE CHALLENGES

## NATURAL RESOURCES

- ENERGY
- WATER
- MARINE
- LAND USE: FOOD, FEED AND FIBRE
- BIODIVERSITY
- NON-RENEWABLES



## FOOD PRODUCTION



from Wolfgang CRAMER, PIK

## Thomas R. Malthus (1766-1834)



Ref: <http://www.nndb.com>

## THE "MALTHUSIAN" CHARGE

- Fixed resource base
- Constantly more people
- Lesser and lesser food per capita
- Catastrophy





## THE BALANCE

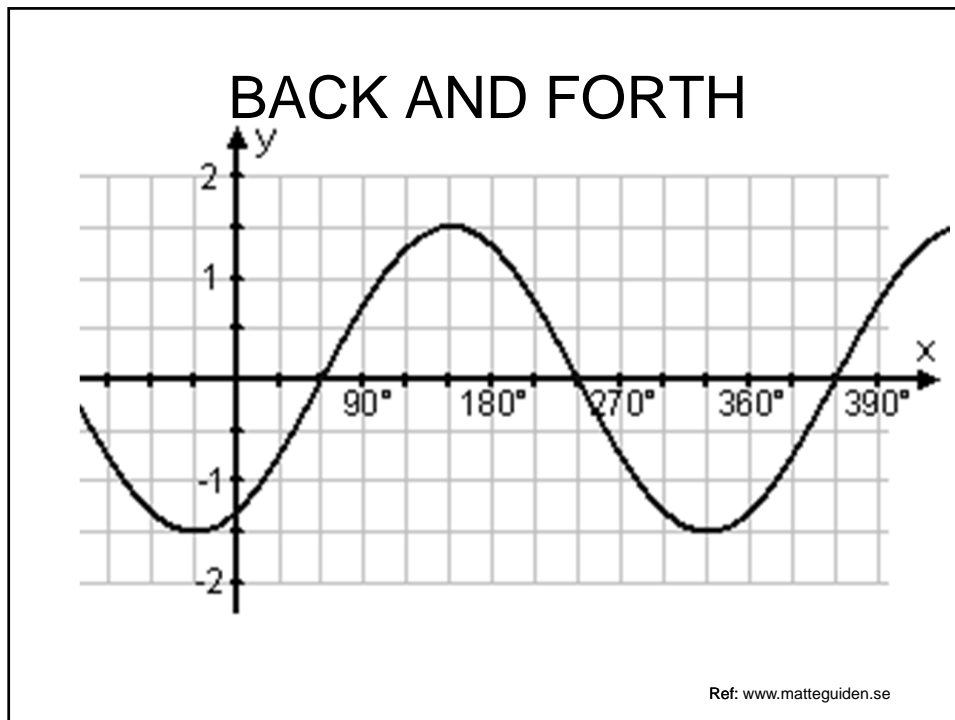
- + USING LESS PER FUNCTION  
*(efficiency gain)*
- + BETTER SYSTEMS SOLUTIONS
- + SLIMMING CONSUMPTION  
*(new norms of "less" is better)*

### IN SHORT:

- The substitution ladder

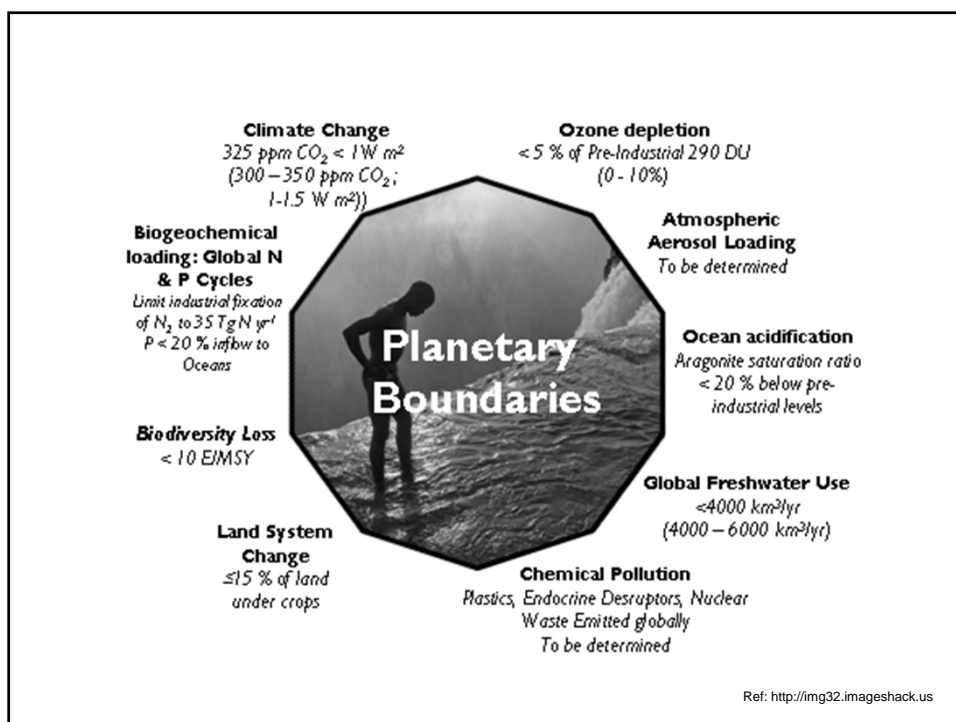
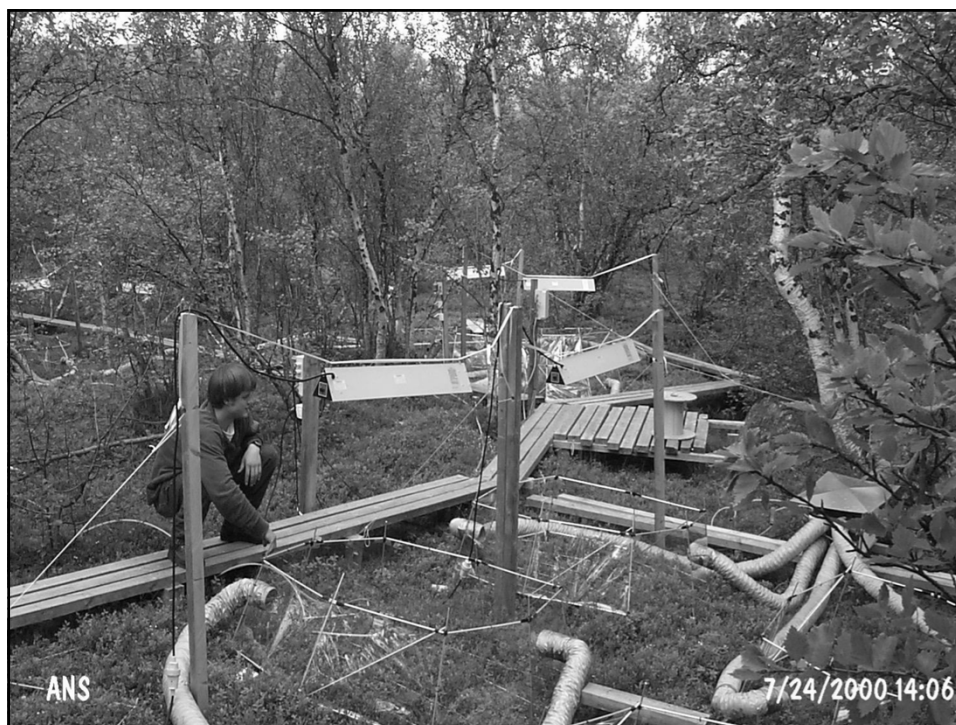
### **THE BIG QUESTION MARK:**

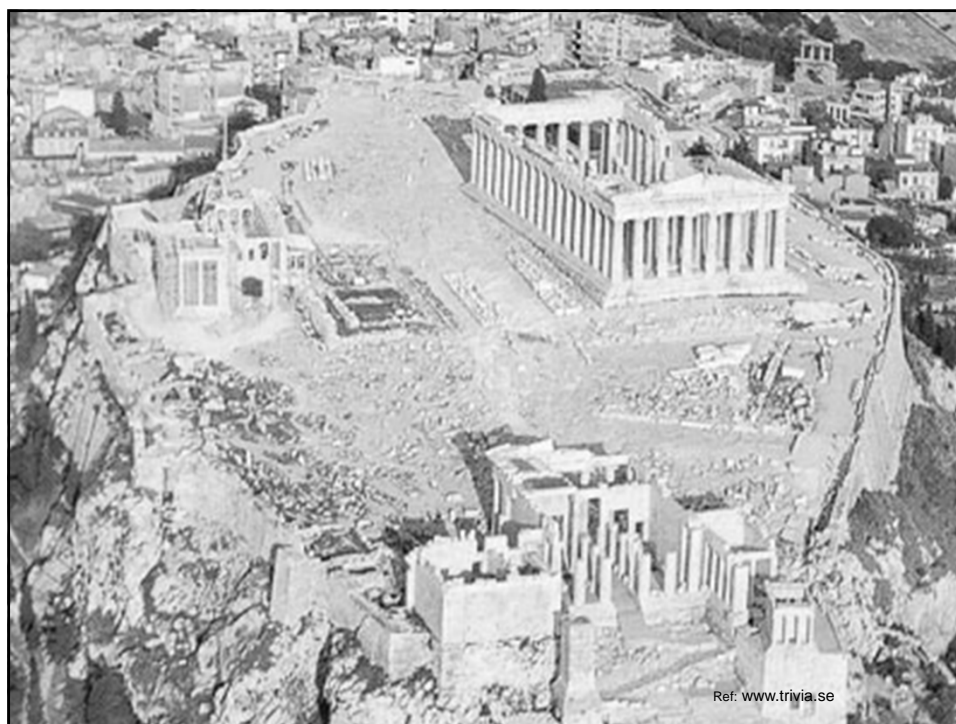
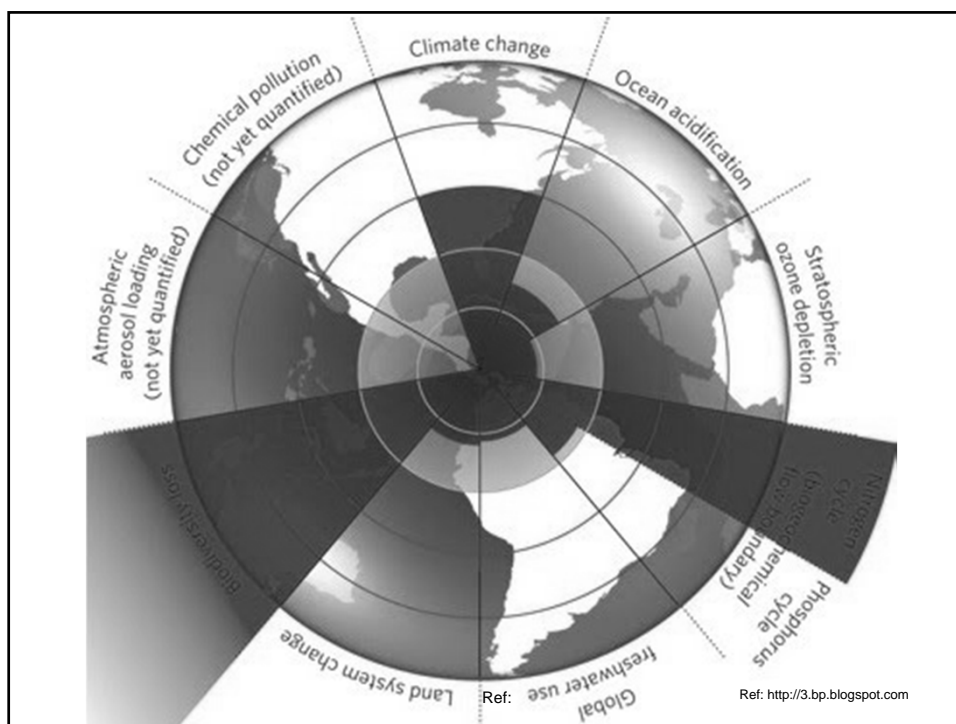
The biosphere capacity to deliver functions



POINTS TO DISCUSS

**THE ENVIRONMENTAL  
"SHADOW" OF THE USE**



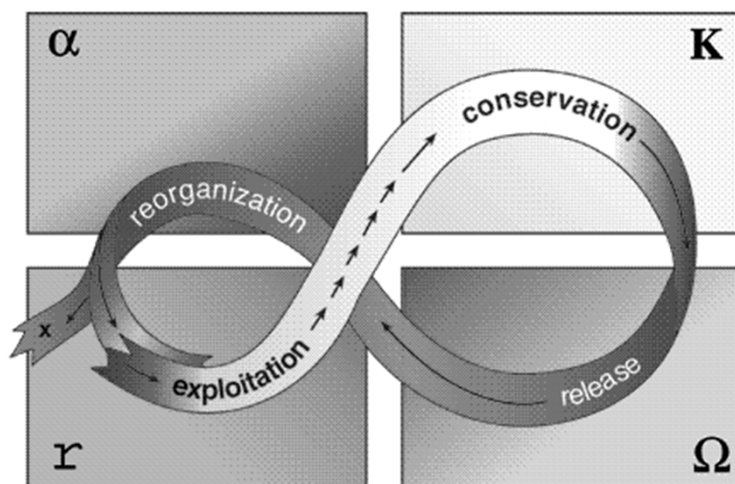




Buzz Holling



# Holling's chart



The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning





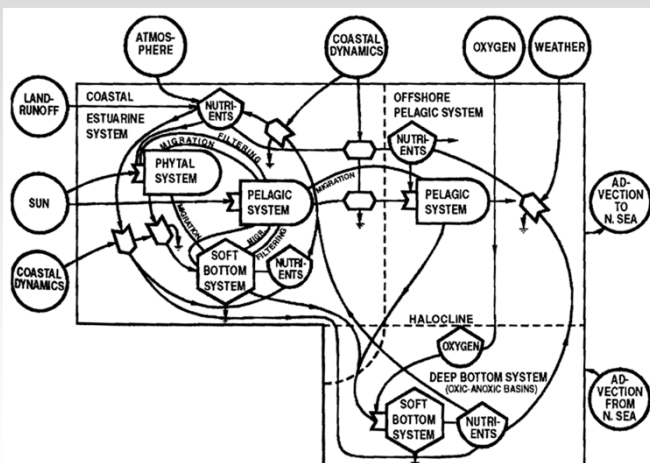
# Gotland

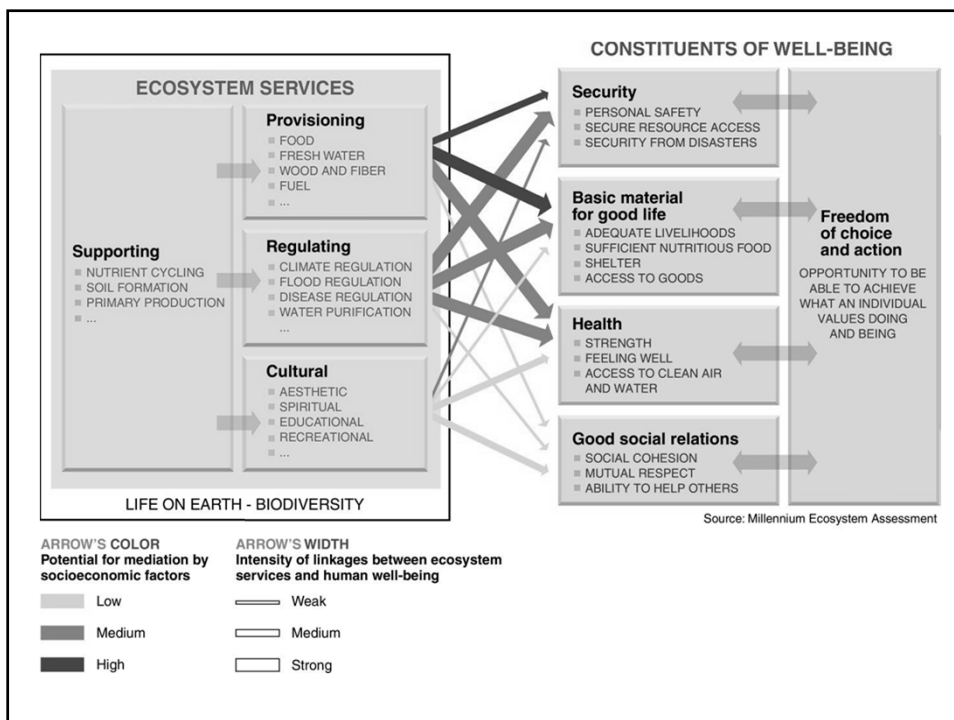
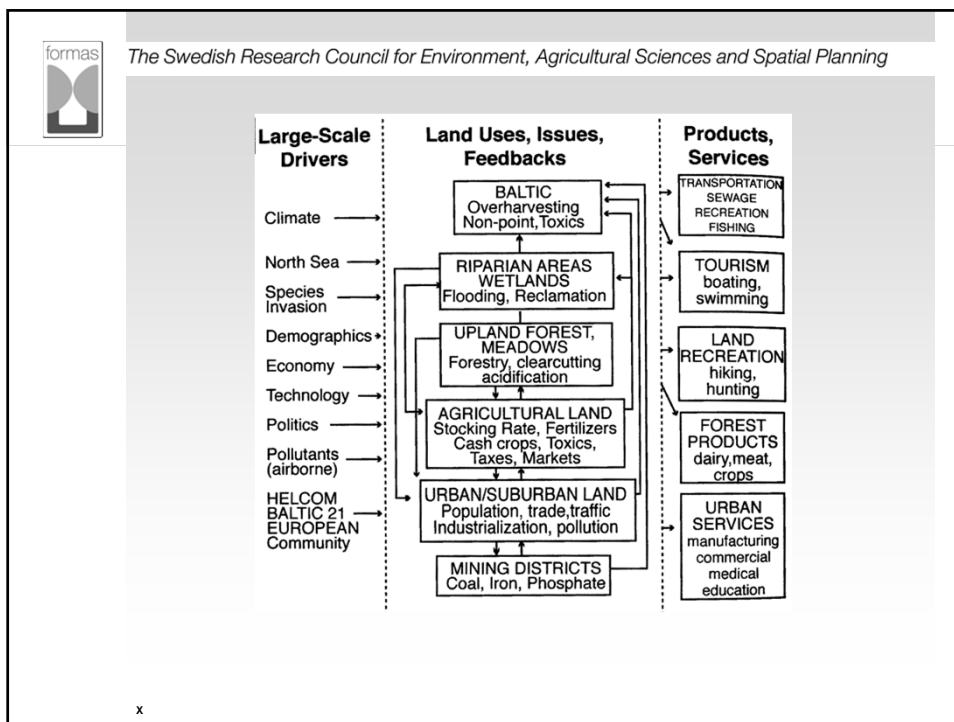


Ref: <http://www.gotlandia.info> , <http://www.gotland.se>



The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning





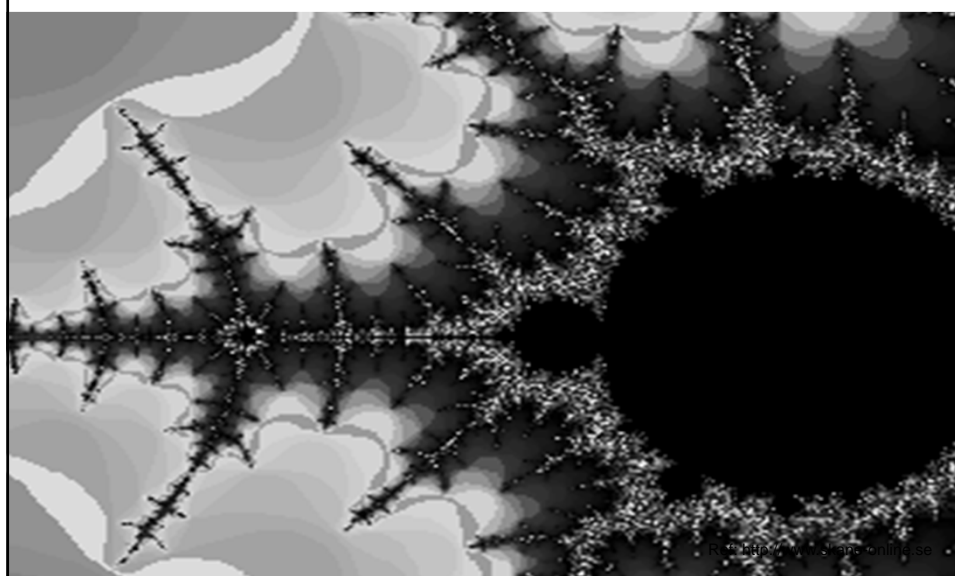
# THE ABISKO KVA SCIENTIFIC STATION

Foto: TORBEN R. CHRISTENSEN och C. JONASSON



Svedin

## fraktal



Fraktal från Svedin online.se