

Open Footprint Puzzle Process

A holistic approach to collect, compare and combine footprint information

Growth and Sustainability - Resource Balancing

Resource Balancing - Information Flow

Information Puzzle

DataPool DataModel

Conclusion - Footprint Puzzle

ERSCP 2012, Bregenz 2012-05-03
Hellmut von Koerber, *fleXinfo*
member of Netzwerk Footprinting

Abstract - Open Footprint Puzzle Process

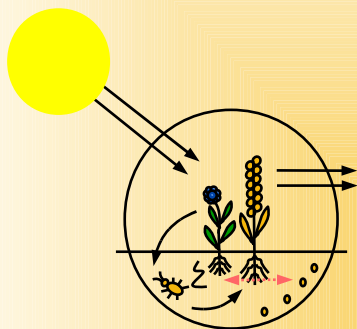
An holistic approach to collect, compare and combine footprint information

The **different assessment methods** like Life Cycle Analysis, ecological footprint, carbon footprint and water footprint have many similarities. They all use sectors, processes or products to model the economic value chain. They all distinguish different regions, time periods and stakeholders. They often use information from different sources in different formats, terminologies or languages. And they all use one or more indicators to count or calculate the direct and indirect (*grey*) resource flow in their systems.

To **integrate footprint-information** from different sources and to facilitate footprints for a wide range of regions and processes, a network process is proposed. This process is characterized by

- **A Common basic model** defined for transparent and extendable description of footprint information in a common terminology.
- **A Common Coordinate System** for regions, periods, sectors, processes, products, units and indicators.
- **Resource-Profiles** for all subsystems with vector of indicators (one or more of matter, energy, area, distance, work, money...).
- **Interfaces** to existing footprinting methods and tools and economic data from BNP.
- **Background models** with default resource-profiles for regions, sectors and time periods. Thus footprinting may concentrate to the system in the foreground changing background values only when necessary.
- **Generic Tools** for the integration process.
- In an **open network process** footprint information from different sources is collected, translated, compared and combined. At this the content stays unchanged and may be presented in **common and original terminology**. To avoid double counting and lacks a **consistent selection** of this data is created and used as the **base for calculations**.
- **Workshops** to instruct network members, how to integrate small or big puzzle pieces into a footprint data collection.
- **Common servers** accessible via WEB for sharing the same consistent environment of data and tools.
- The development may **start** with existing methods, tools and data, adding **step by step** new puzzle pieces or bundling several steps into one project.

Growth and Sustainability - Resource Balancing



Agricultural Surplus
positive resource balance
permanent source of resources

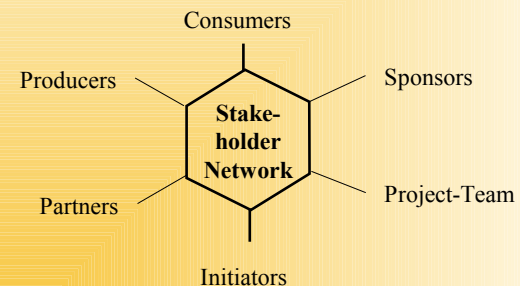
Consume only the increment of growth! !!

Where to find the surplus?

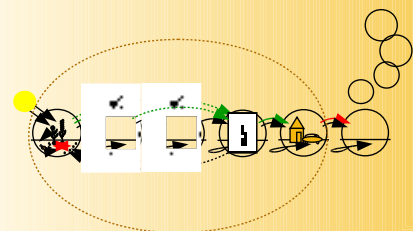
How to use and promote it?

How to get there?

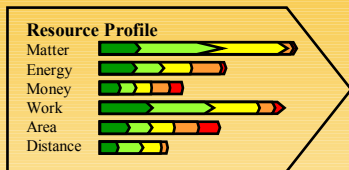
How to measure it?



Open Footprint Puzzle Process
Collect, compare and combine resource intensity information

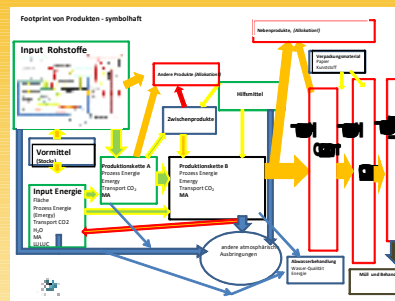


Food chain and value chain
Agricultural surplus as base of a sustainable economy



Resource Profile

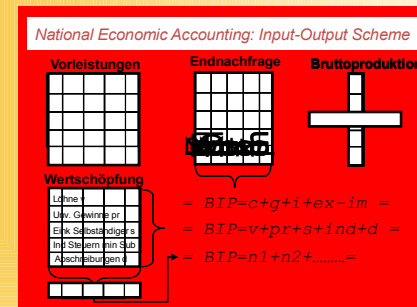
direct and indirect resource -input, -output, -stock or -balance
same **Vector of indicators** for all subsystems and processes



Value chain

structure of **resource flow** for one product or process base for different footprints
©Wolfgang Pekny

Integrate with sector matrix



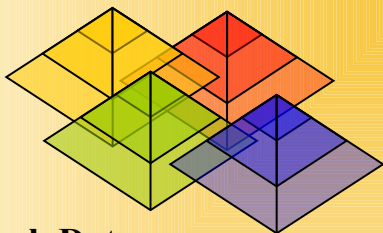
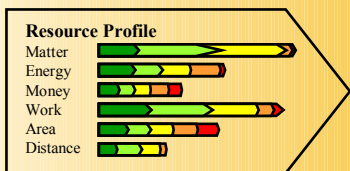
Sector Matrix
monetary input-output-flow between sectors in national economy

© Peter Fleissner

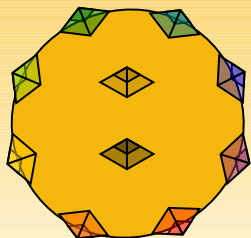
Use average specific weight, energy... to calculate **Default values for resource balances** per sector and year

Resource Balancing - Information Flow

Make **transparent** the contribution of one process (region, product, person...) to resource **problems** and **solutions**



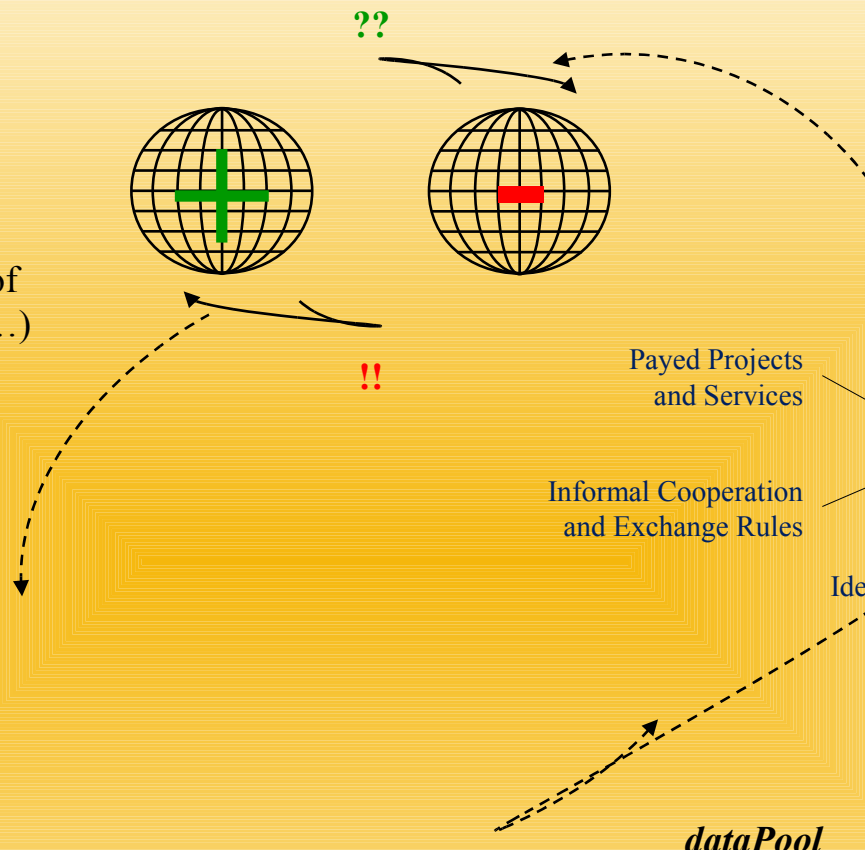
Many **rough Data** and vast number of Details



Integrate **top of pyramids** at first and add details as necessary

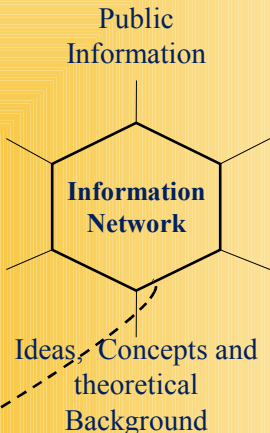
wer?	wann?	wie?	wo?	was?	wieviel?	wovon?

Bring data into a **simple basic structure**



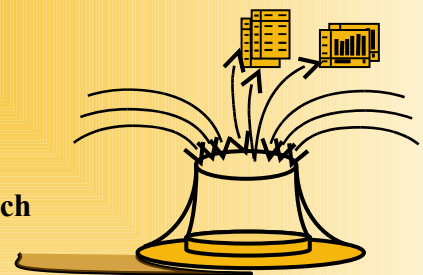
Build Sustainable Information Network

Paid Projects and Services
Informal Cooperation and Exchange Rules



Research Funding Fund Raising
Methods, Tools, Interfaces and Background Models

dataPool
www.fleXinfo.ch

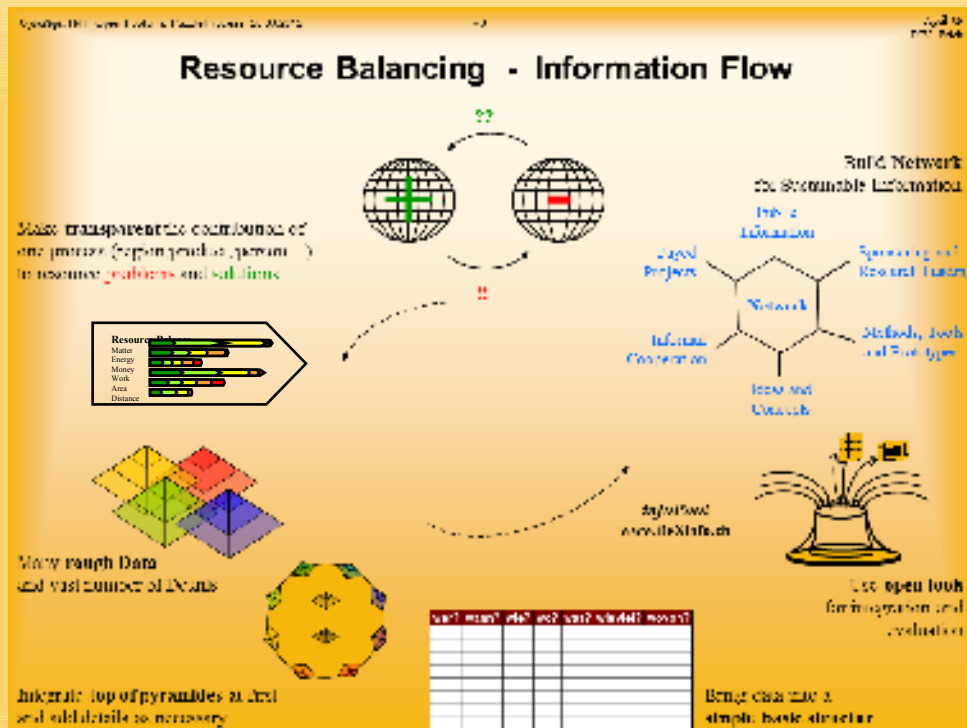


Use **open tools** for integration and evaluation

Information Puzzle

Open FootPrint Puzzle Process

Evolving Information Structures



Workshop Module

How to integrate

- 1 number, link or comment
- 1 table, document or database
- 1 area of interest
- 1 coordinate (region, period, product, indicator...)
- 1 terminology or language
- 1 footprinting tool

Exchange Rules

How to share

- knowledge and experience
- data and metadata
- tools and methods

Interfaces

How to connect

- Footprinting Tools and Databases e.g. LCA, efp, pcf, envFp, MIPS...
- IO-Models
- Statistical Databases

Transparent Resource Flow

Resource Profile

How to measure

n+ indicators

Information Pyramids

n+ aspects with

n+ levels of details and

n+ gaps of information

n+ points of view

n+ sources of information

n+ languages and terminologies

Focus of Interest

n+ regions, periods

n+ organisations, persons

n+ sectors, products, processes

Data Structure

How to store

n+ numbers with each

n+ indications in

n+ dimensions

Basic Model

•Common Terminology

•Common Coordinate System

to structure regions, periods, products, indicators... with

• n+ dimensions with each

• 1+ classifications

Common

• Basic Model

• Background Models with Footprint Information

• Integration Method

• Tools and Servers

• Public WEB-interface

DataPool - Flexible Analysis with Pivot-Tables



Zeitreihe zur Landnutzung

Durch Auswahl mehrerer Jahre ergibt sich eine Zeitreihe.

Statistiken zum ökologischen Landbau
 & ZMP Alle Angaben vorläufig und ohne Gewähr

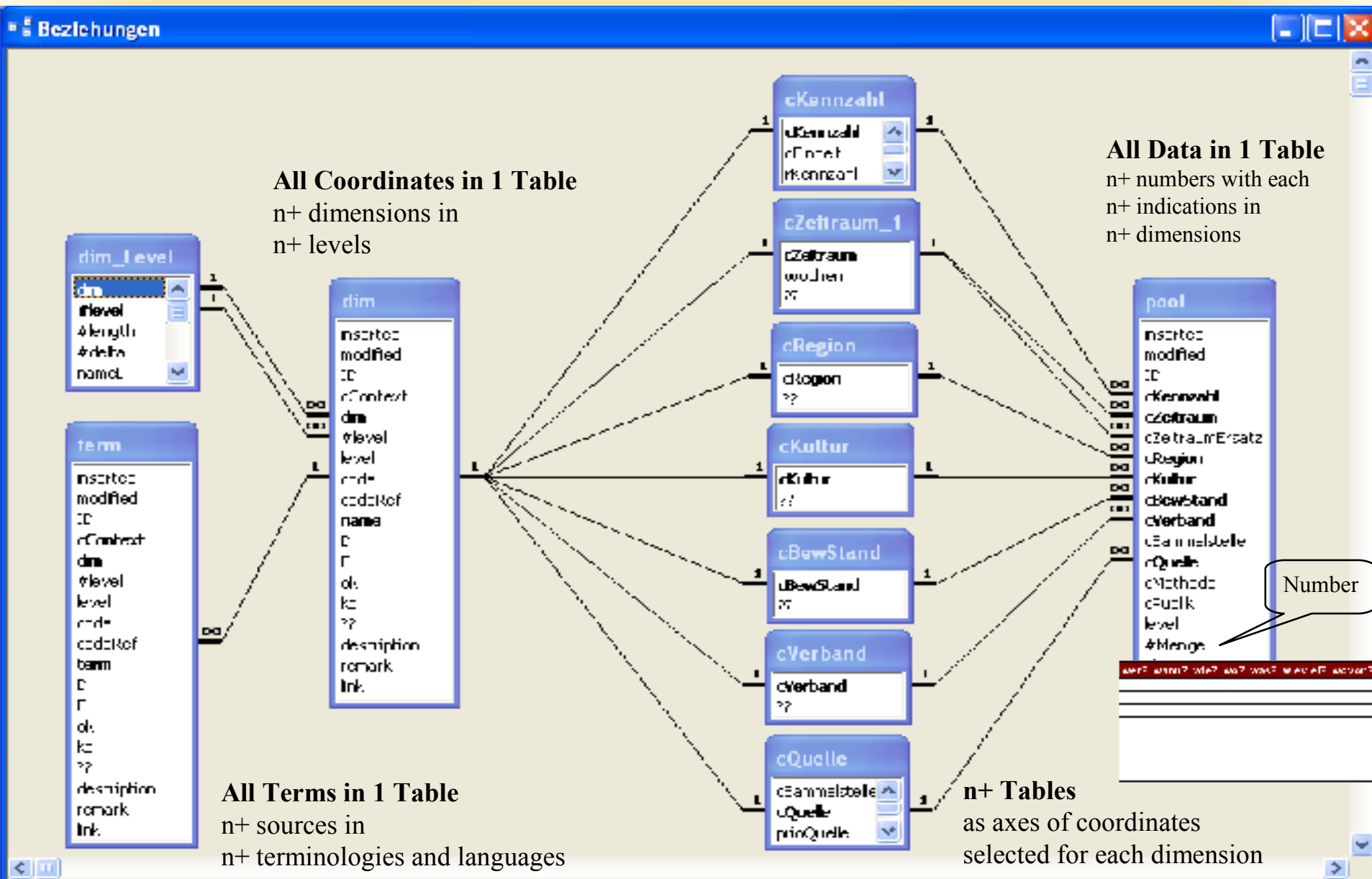
Häufungszug

bei Land und Jahr auswählen

Kennzahl		Kont	Sta	Land	Jahr														
Fläche [ha]																			
Europa																			
LU [LU2%]																			
Deutschland																			
2002						2003		2004		2005		2006							
Kult1	Kult2	Kult3	Kult4	Kult5	Gesamt	Rin	%Rin	Gesamt	Rin	%Rin	Gesamt	Rin	%Rin	Gesamt	Rin	%Rin			
Pflanzenbau																			
gesamt					18'974'200	896'978	4.7%	17'008'000	734'027	4.3%	17'020'400	767'891	4.5%	17'035'200	807'408	4.7%	18'951'000	825'539	4.3%
Ackerland																			
gesamt					11'790'900	332'000	2.8%	11'026'900	346'000	3.1%	11'090'700	362'000	3.3%	11'901'300	375'000	3.2%	0	360'000	
Getreide					6'911'000	156'000	2.3%	6'839'100	161'000	2.4%	6'918'900	176'000	2.5%	6'839'000	185'000	2.7%	0	178'000	
Lufttrocken/Getreide					1'540'200	98'000	6.4%	1'509'300	107'000	7.1%	1'719'400	104'000	6.0%	1'005'000	104'000	10.4%	0	122'000	
Hackfrucht					755'700	6'000	0.8%	743'900	7'300	1.0%	746'000	7'600	1.0%	705'400	7'300	1.0%	0	8'500	
Handelsgewächse					68'900	872	1.3%	60'200	740	1.2%	66'300	825	1.3%	69'300	845	1.2%	0	1'030	
Olisamen					1'337'700	6'000	0.4%	1'323'700	6'400	0.5%	1'331'700	7'600	0.6%	1'307'400	7'500	0.6%	0	7'800	
Gemüse (inkl. Erdbeeren)					118'100	8'100	6.9%	121'800	8'200	6.7%	127'100	8'300	6.6%	129'300	8'700	6.7%	0	8'000	
Saatgut																			
Flächensillegierung/Grünland					834'600	35'000	4.2%	938'700	40'500	4.3%	784'400	39'000	5.0%	793'800	12'000	1.5%	0	14'000	
ohne Zuordnung					207'700	20'628	10.0%	106'410	11'860	11.2%	177'600	19'575	11.0%	160'600	47'155	29.4%	0	10'170	
Sonderkulturen & Dauerkulturen																			
gesamt					107'000	6'000	5.6%	108'000	6'600	6.1%	108'000	7'000	6.5%	101'000	7'000	6.9%	0	20'500	
Obst					67'900	4'600	6.8%	69'000	4'700	6.8%	60'300	5'000	8.3%	66'200	5'000	7.6%	0	5'600	
Baumschulen					21'600	300	1.4%	23'800	300	1.3%	22'700	400	1.8%	21'700	630	2.9%	0	590	
Blumen u. Zierpflanzen					7'068	95	1.3%	9'615	60	0.6%		115			115		0		
Haus- und Nutzgärten					7'400						6'000			5'400			0		
Oliven																			
Zitrus																			
ohne Zuordnung					744	945	128.5%	100'735	1'380	1.4%	0'000	1'395	15.5%	11'000	1'355	12.3%	0	14'350	
Grünland					4'969'600	340'000	6.8%	4'960'300	310'000	6.2%	4'911'400	305'000	6.2%	4'929'000	410'000	8.3%	0	430'000	
Waldland					90'400	1'700	1.9%	90'600	1'800	2.0%	90'300	2'500	2.8%	91'000	2'600	2.9%	0	2'100	
nicht genutzte LF					0	0		0	0		0	0		0	0		0	0	
ohne Zuordnung					8'300	9'278	111.8%	1'781'320	9'727	0.5%	1'000	10'391	259.3%	1'900	12'006	635.1%	0	12'839	
Forstfläche					0	0		0	0		0	0		0	0		0	0	
Waldsammlung					0	0		0	0		0	0		0	0		0	0	

Zeile mit
 1 bis
 10
 20
 50
 100
 alle

DataPool – generic DataModel



Footprint Puzzle

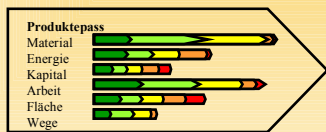
Open FootPrint Puzzle
Process
Evolving **Footprint** Structures

Keyrole of Agriculture
Evolving Living Structures
research area

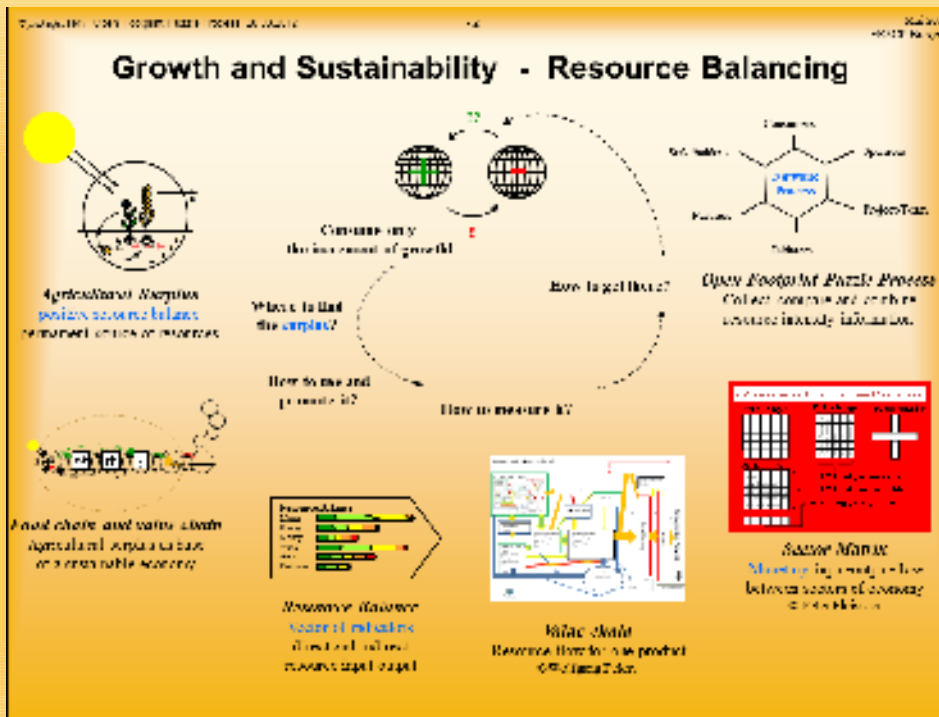


LossLess CarbonCycle
research outline 2012

Organic FoodPrint
research outline 2012



Product Passport
research proposal 2008+2009



Foreground Models

Sample Application Areas

- Starting with 1 document
- Adding special data
- Adding **background data**

• **IAASTD** - Agriculture at a Crossroads

- CAP - Common Agriculture Policy (EU)
- Energy Paradigm Shift
- Climate Change

Accounting

- extend to eco-accounting
- national accounting
- operational accounting

Background Models

- **Basic Model**
- **Global Model**
- **Regional Model**
- **Sector Model**
- **Product Model**
- **Existing Models**

for resource profile collection
terminology and empty structure – no data
global profile, by indicator and year
refined by continent and country
refined by sector
refined by product
from existing databases and tools

More Aspects

- **State of the Art**
 - Most puzzle pieces are in the state of concept, outline or prototype
 - DataPool is productive in statistics of european and global organic market for years providing different resource-stock and import-information
 - Adaptations to basic model and resource-flow will be done in 2012
 - Small puzzle pieces may be done in informal cooperation
 - Medium puzzle pieces may be done by mandate
 - Large puzzle Areas may be solved in common research projects
- **Holistic Complexity**
- **The Method *Multiple Data Integration***