

THE PHYSICAL MULTI-REGIONAL SUPPLY AND USE TABLES

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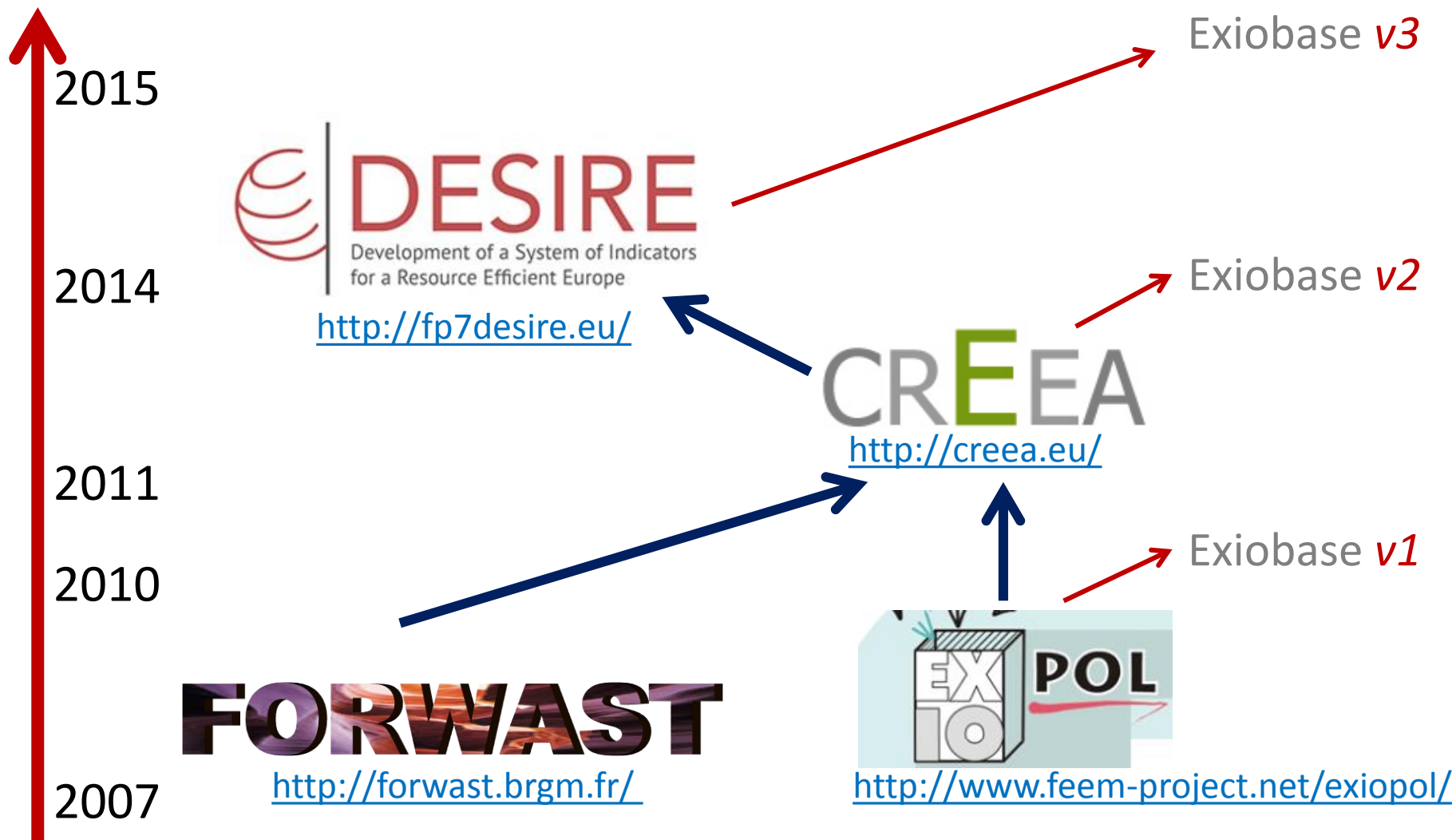
Davos, 13th October 2015

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Contents

- History of the Exiobase
- The reason why we have developed PSUTs
- The mixed units-units framework
- Some feasible analyses
- Improvements of Exiobase.3
- The PSUTs algorithm
- Conclusions and further improvements



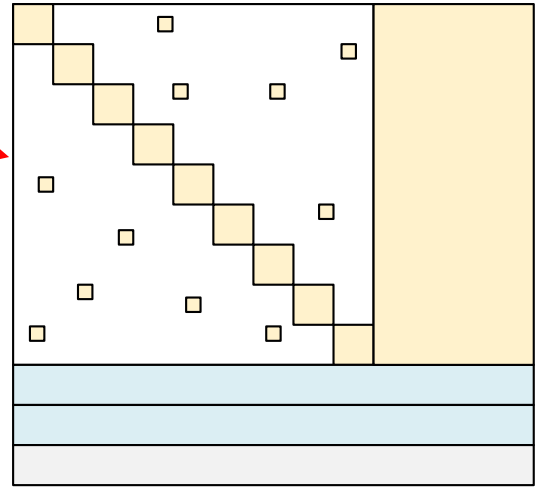


NATIONAL EE-MSUTs

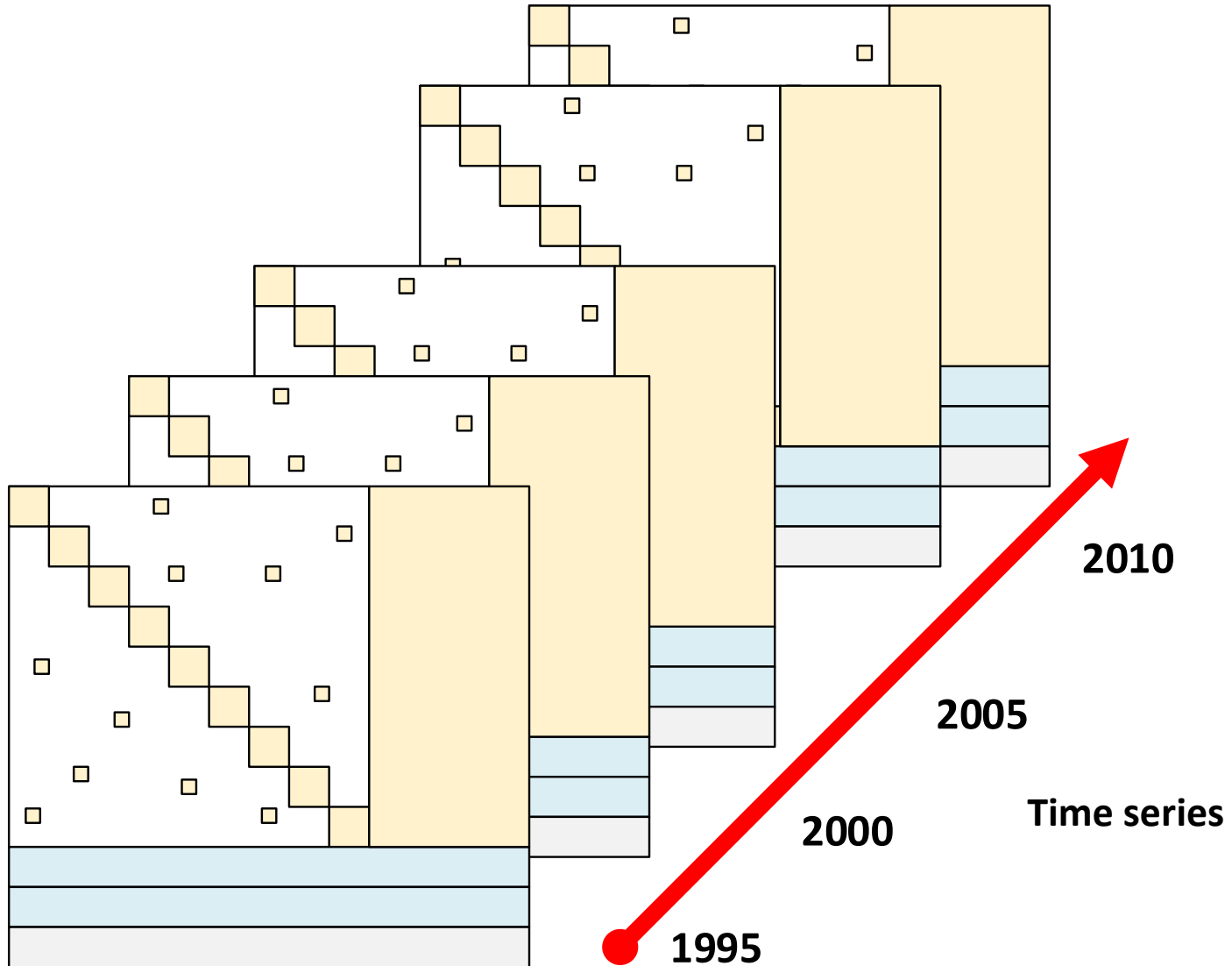
	ACTIVITIES	FINAL USERS
PRODUCTS	MATRIX OF TRANSACTION (WITHIN A COUNTRY)	FINAL DEMAND
P.F.	VALUE ADDED/ USE OF PRIMARY FACTORS	
RES.	RESOURCE ACCOUNTS	
EMISS.	EMISSION ACCOUNTS	
WASTE ACCOUNTS		



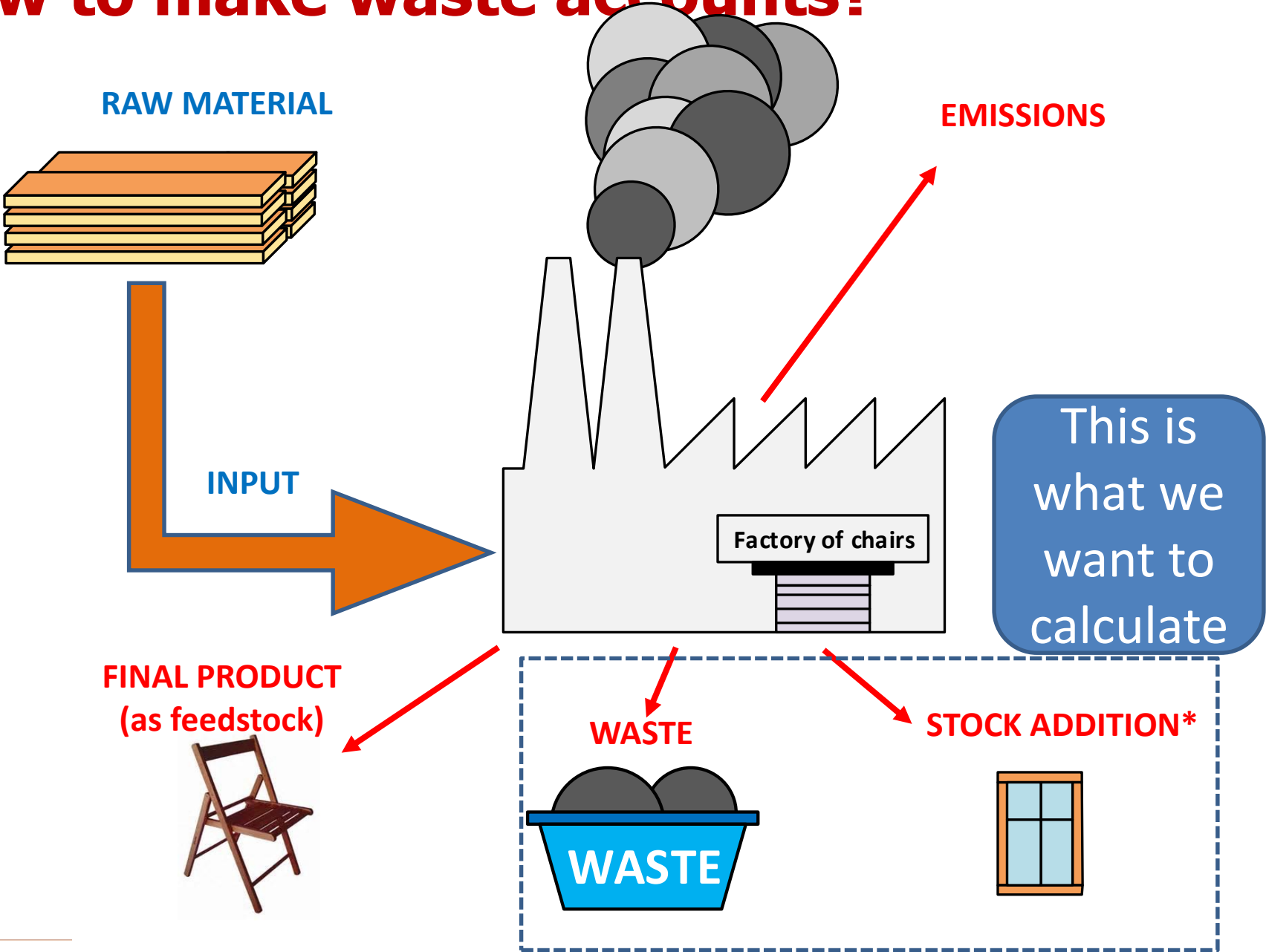
WORLD EE-MSUTs



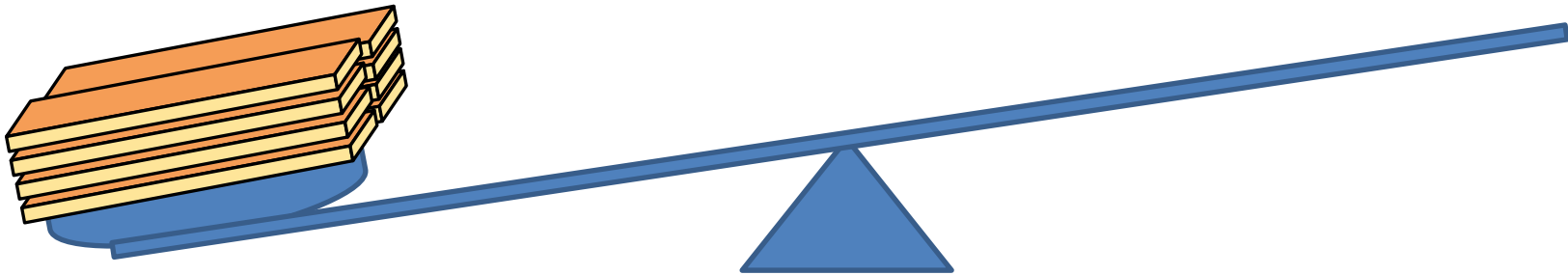
FORWAST



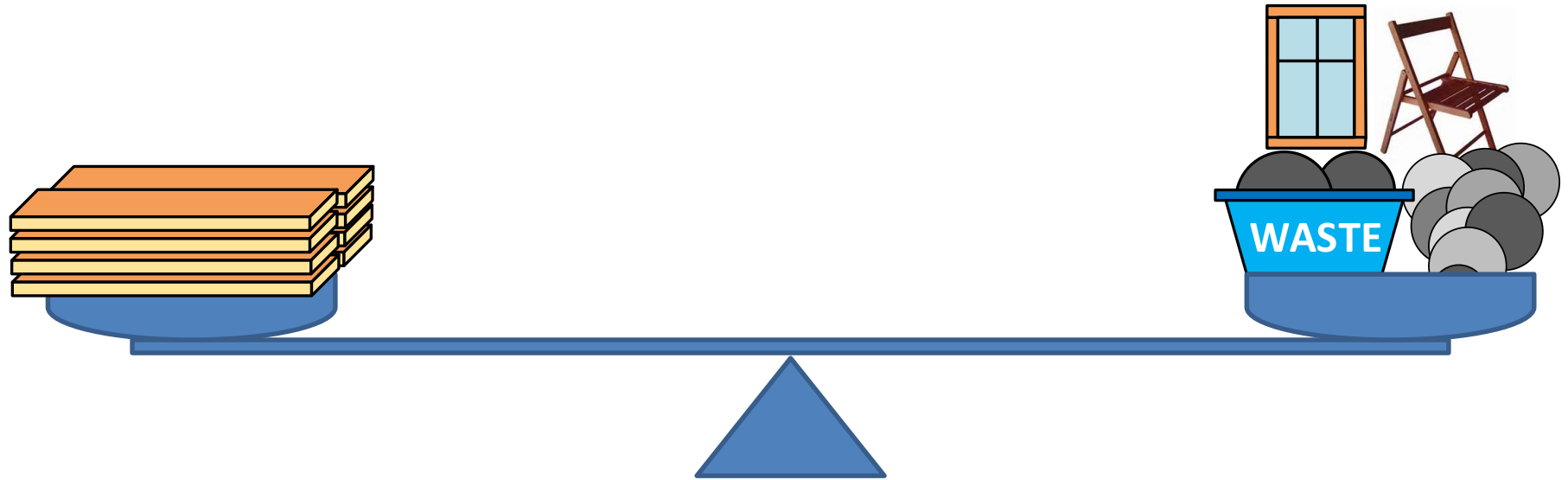
How to make waste accounts?



An important property is the mass-balance

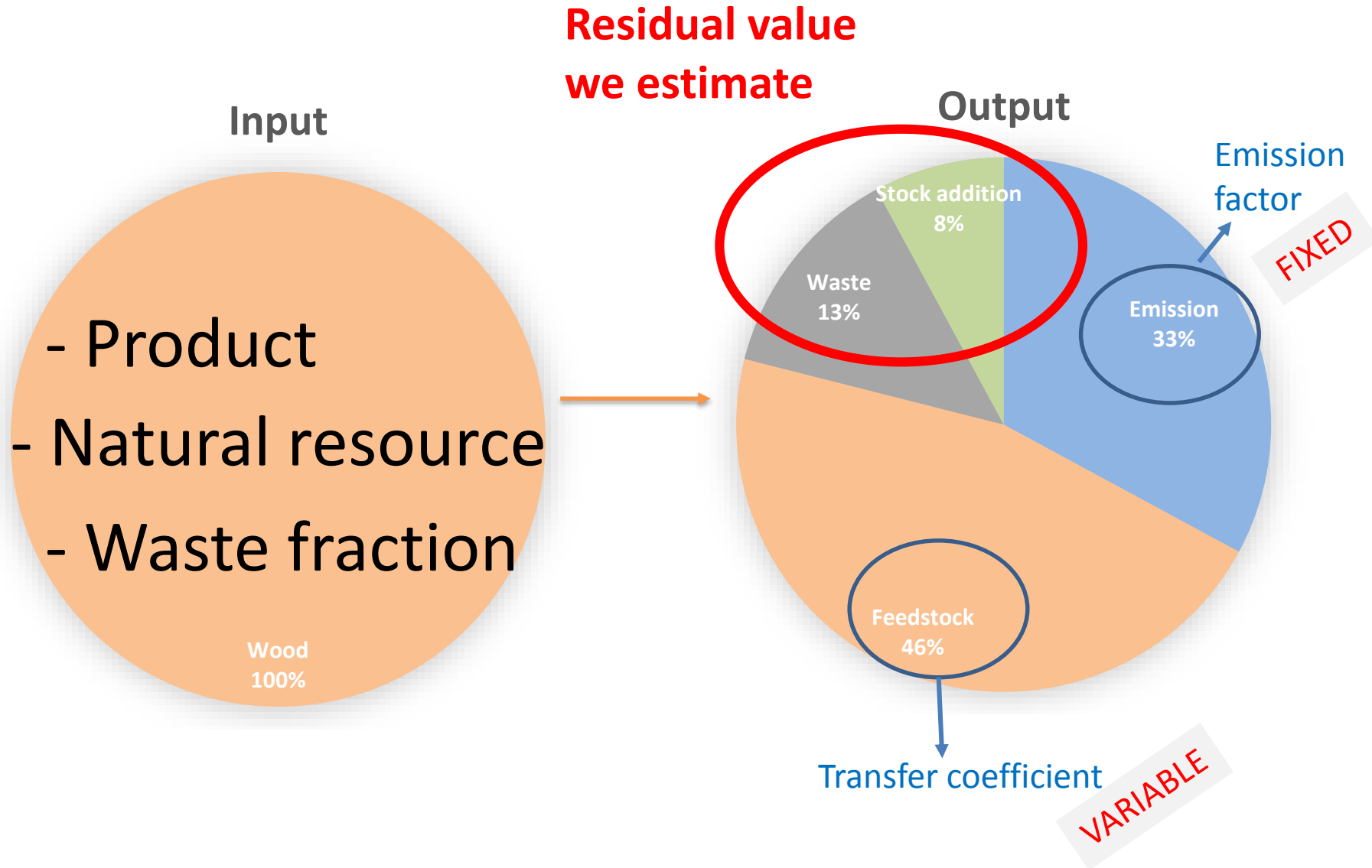


An important property is the mass-balance



$$\text{INPUT} = \sum \begin{array}{l} \text{FINAL PRODUCT (as feedstock)} \\ \text{WASTE} \\ \text{STOCK ADDITION*} \\ \text{EMISSIONS} \end{array}$$

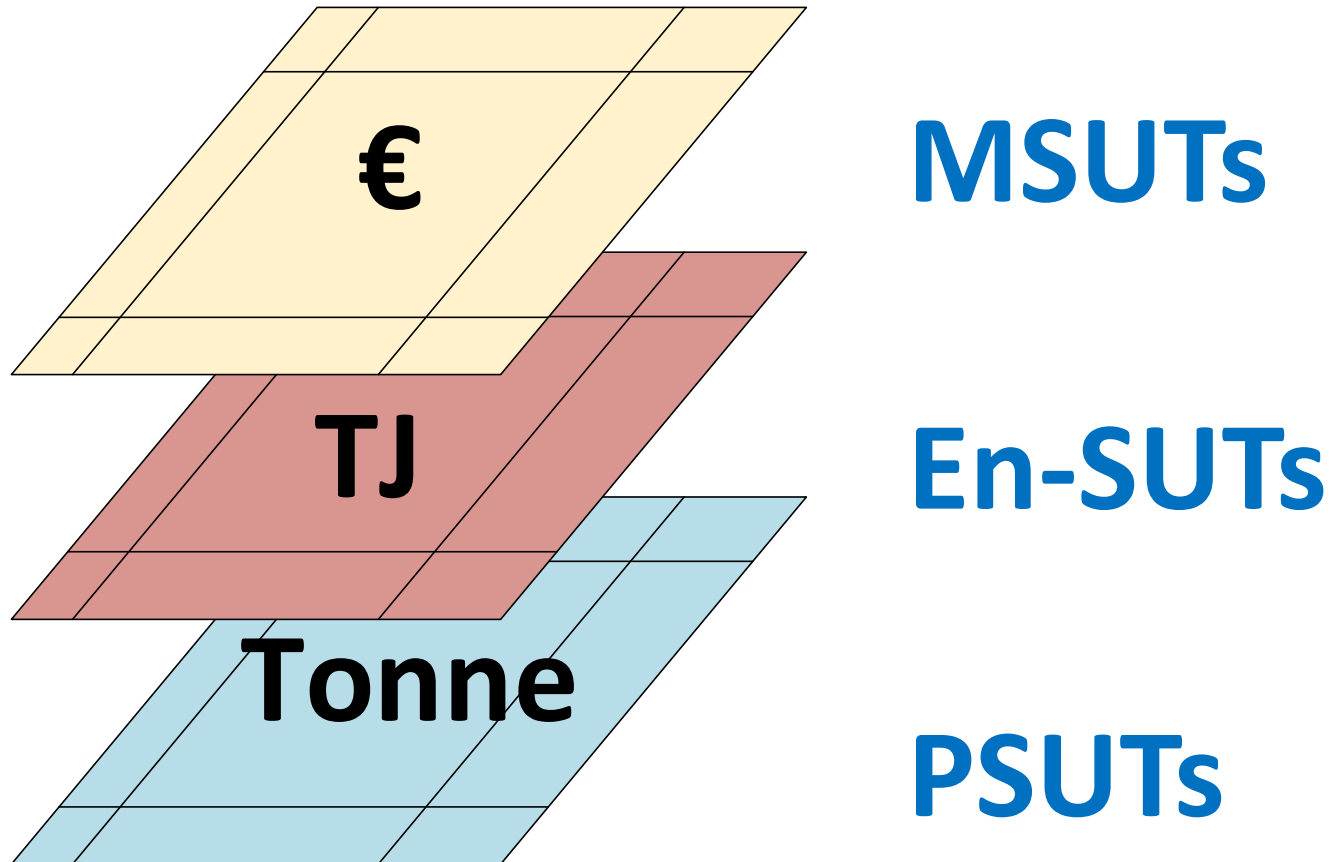
How to perform a mass balance



Physical SUTs for the mass balance

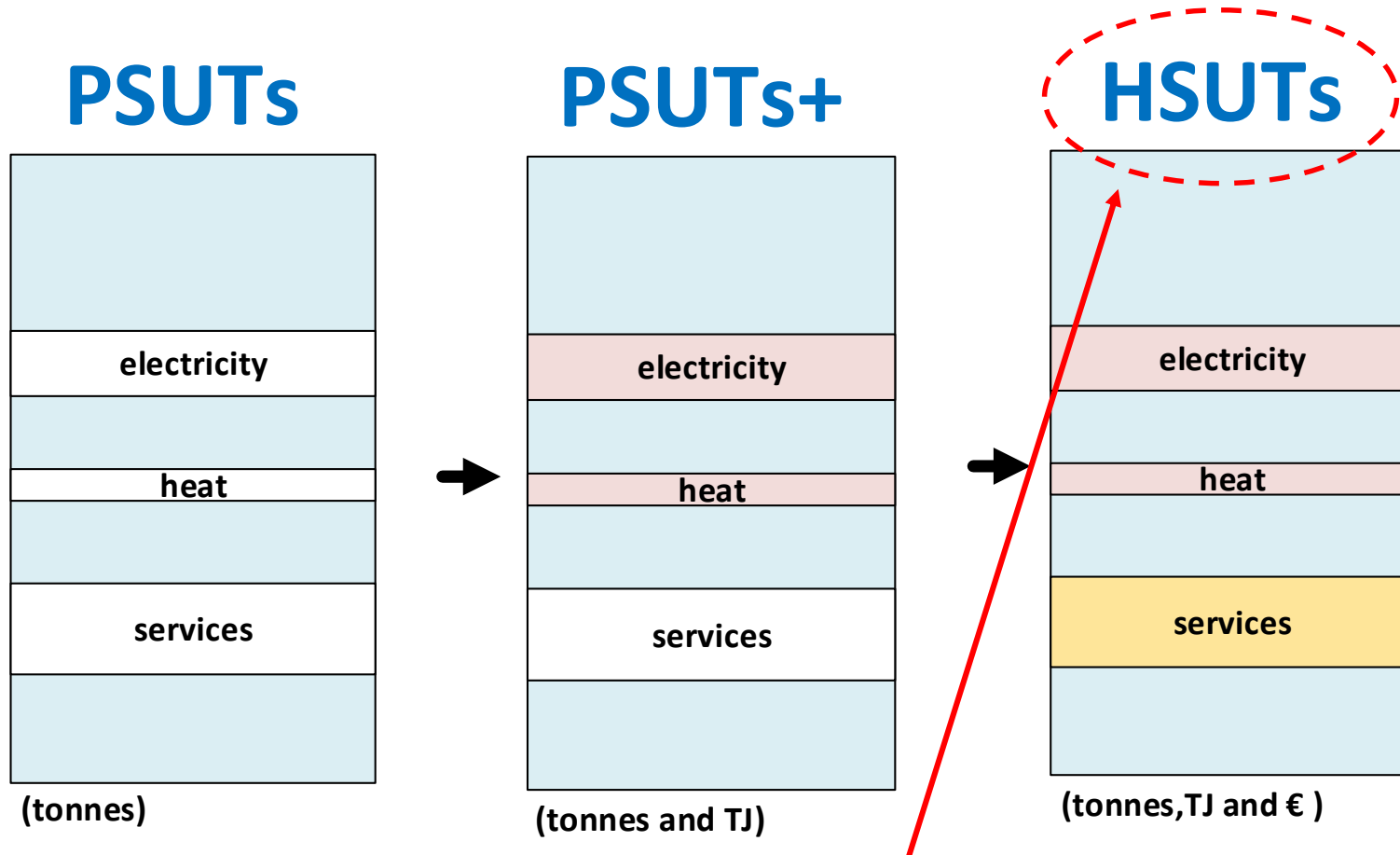
In order to make the mass balance we need to calculate SUTs in mass unit.

Then we get a 3-levels SUTs:



From PSUTs to hybrid SUTs (mixed units)

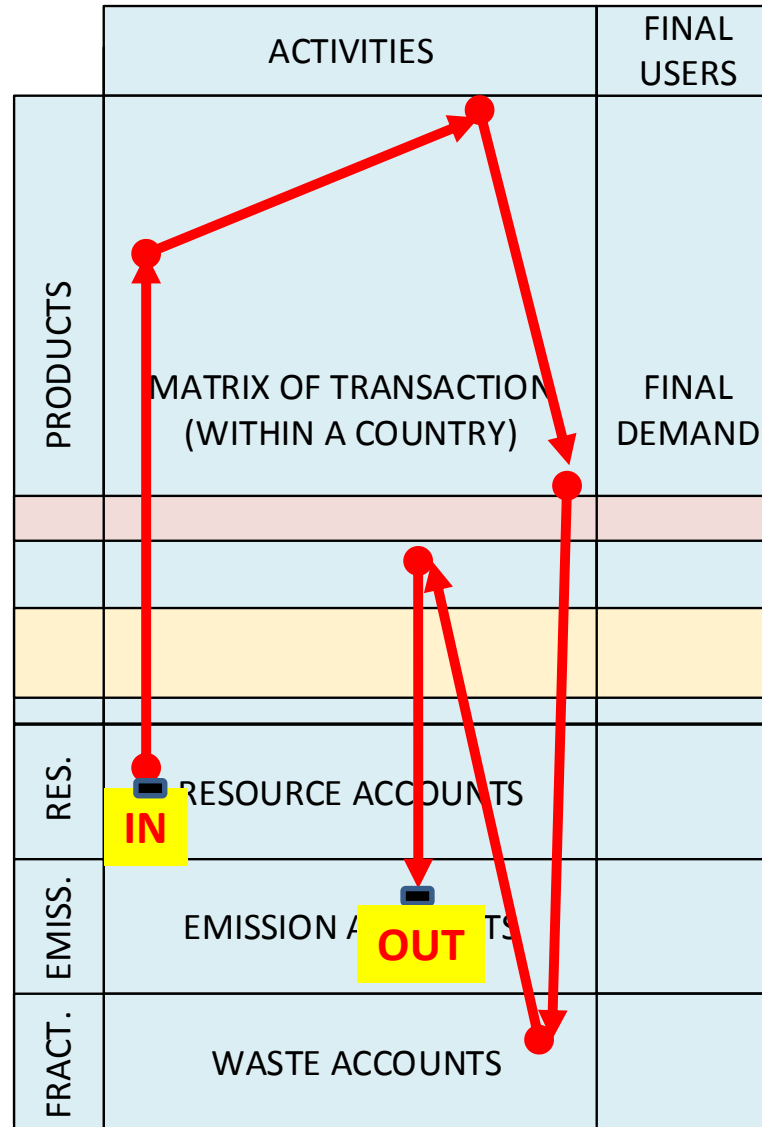
For the calculation of waste accounts, we need all the flows within an economy.



we work in a mixed-unit (hybrid) framework.

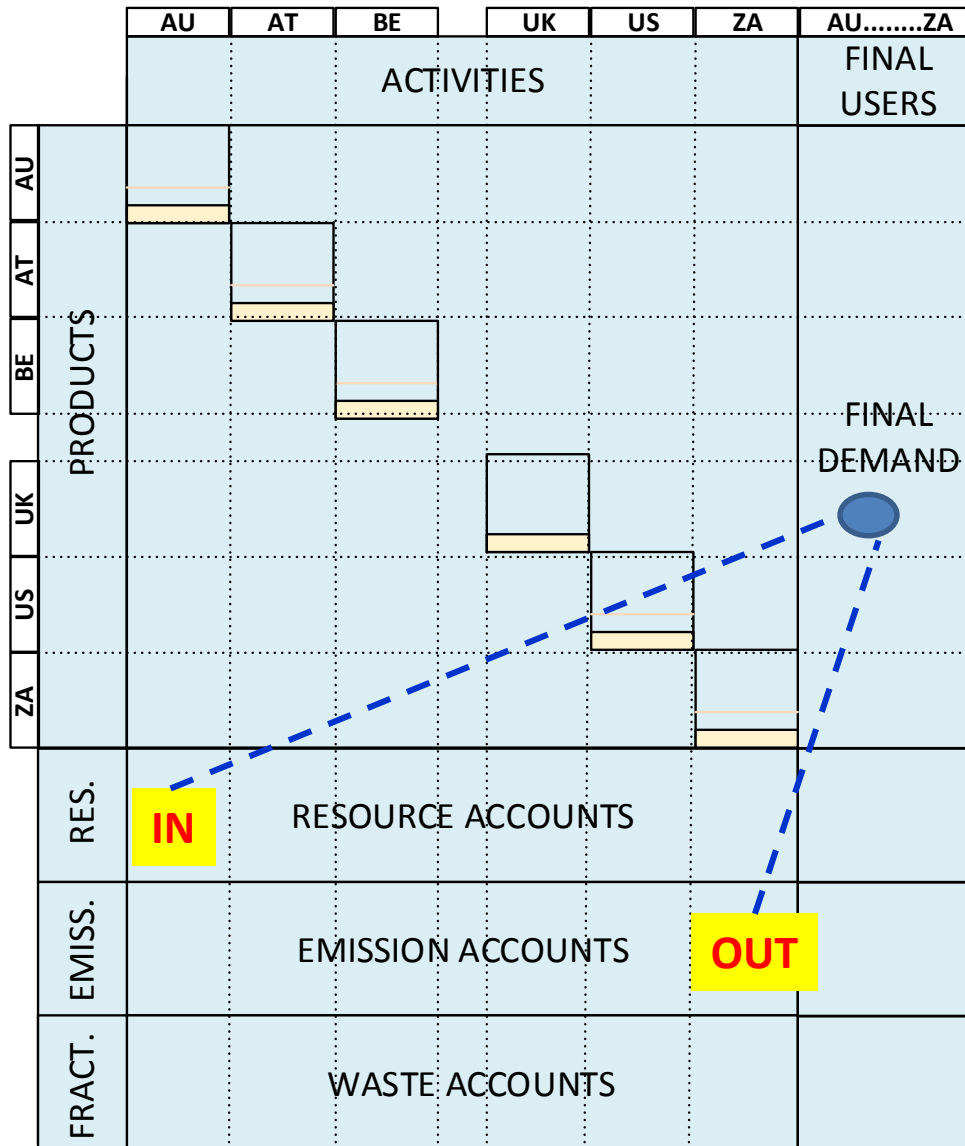
The final result and feasible analyses

NATIONAL HSUTs



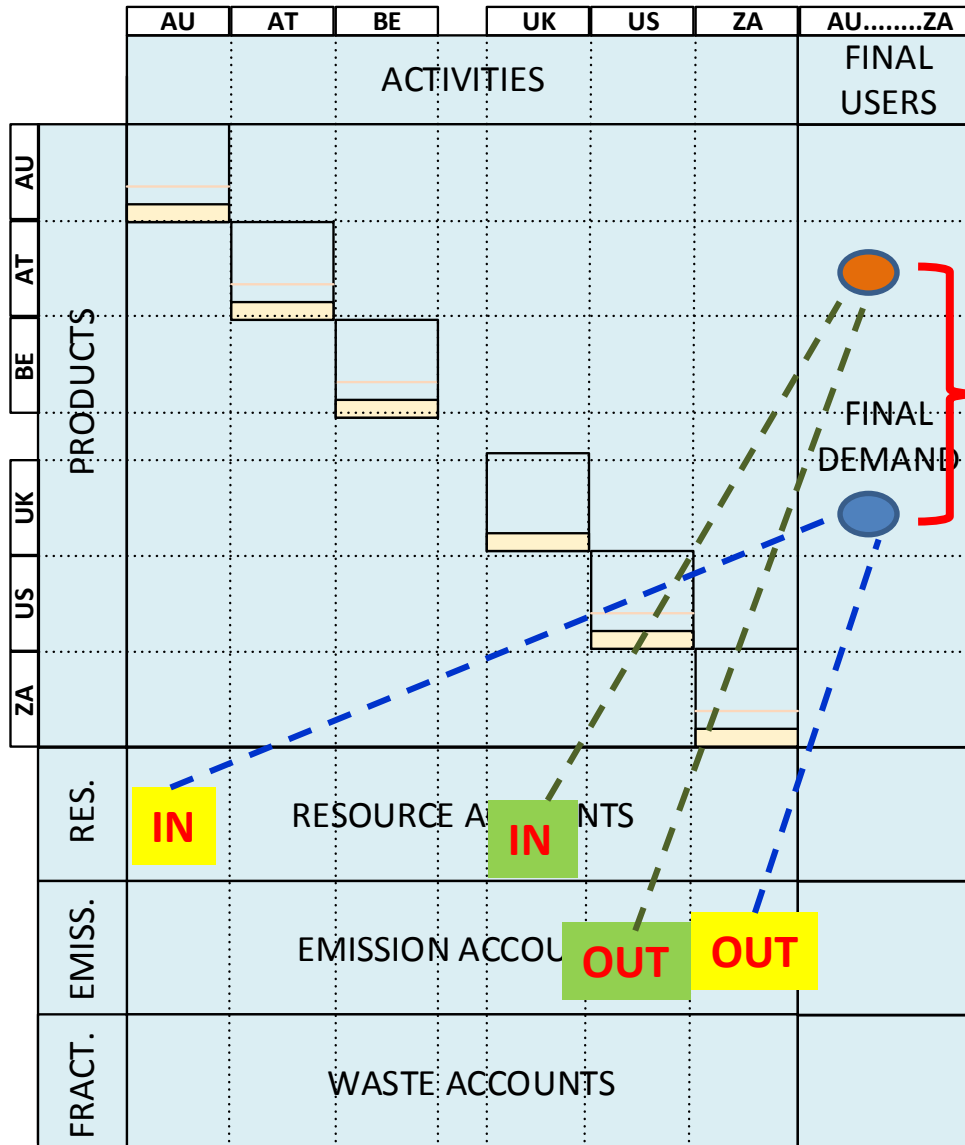
Tracing the pathway within an economy

Feasible analyses at world scale/1



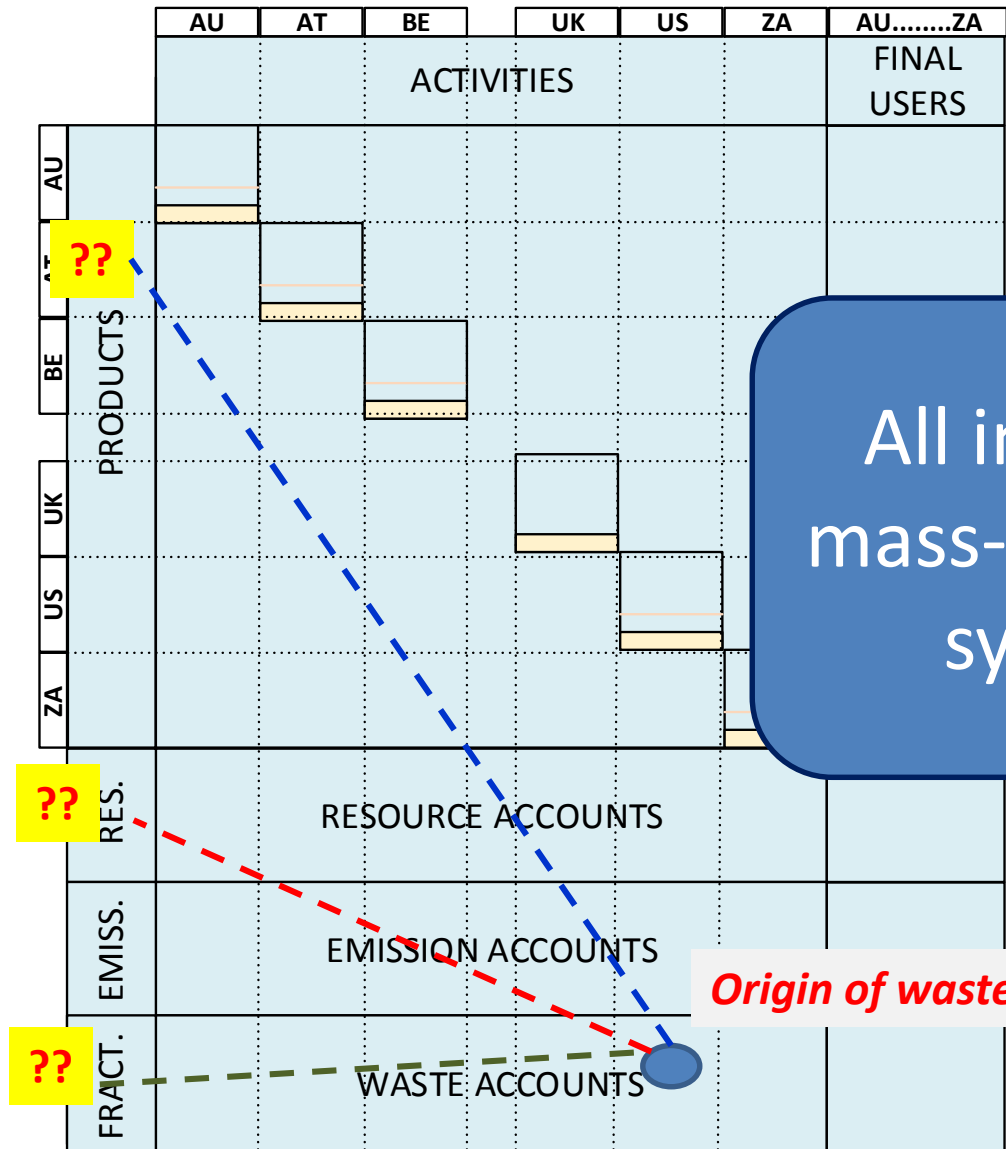
Product footprint

Feasible analyses at world scale/2



Comparison between productions/life styles

Feasible analyses at world scale/3



All in a fully mass-balanced system

Origin of waste

Current improvements of



exiobase

v3

The algorithm to build the MR-HSUTs has been radically improved:

- **Only one algorithm that manipulates data and produces results;**
- **Residual columns have been dropped;**
- **Mass balance calculated within homogenous activities;**
- **Better modelling of co-productions;**
- **Easy to be updated.**

The structure of the MR-HSUTs algorithm

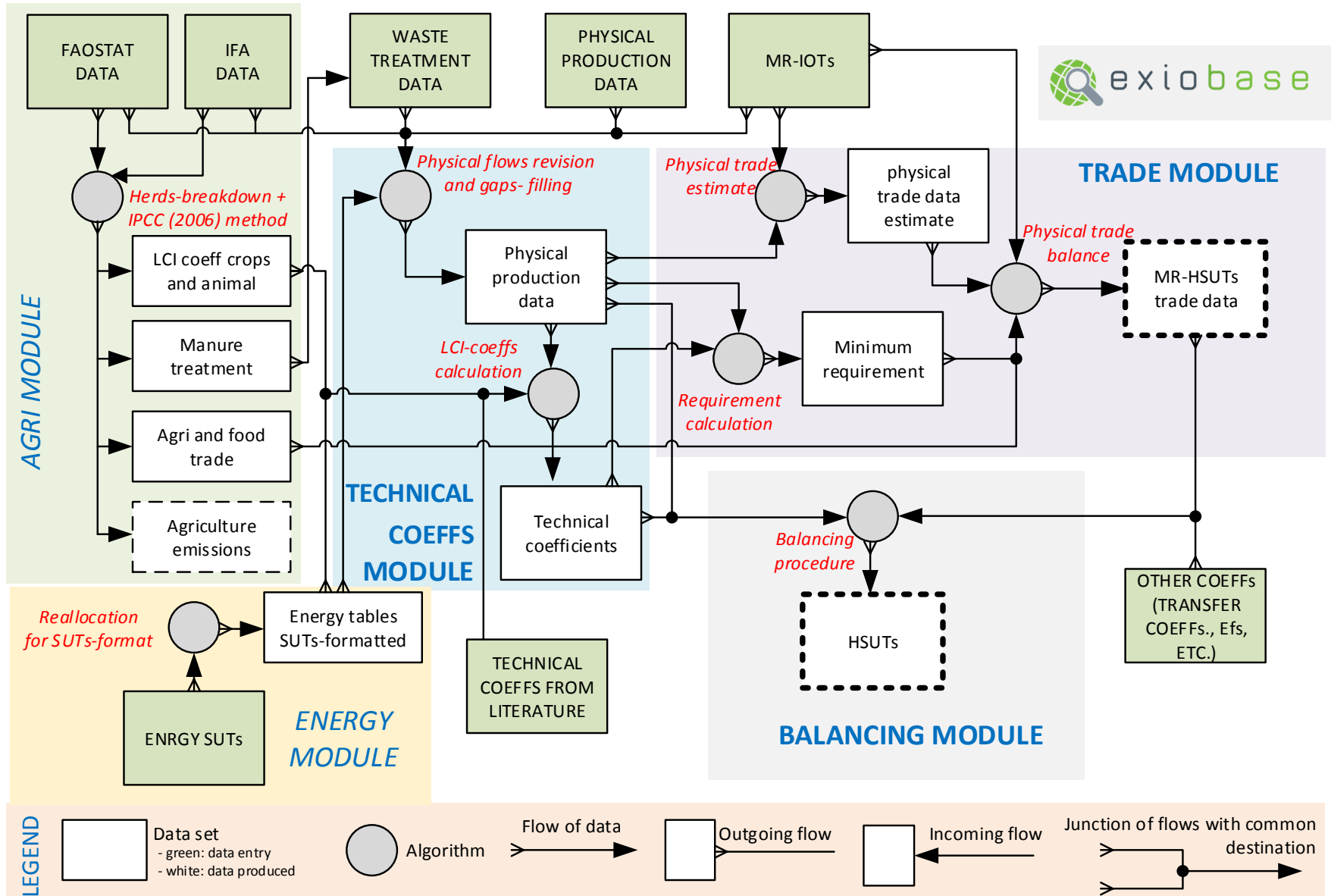
The algorithm to build the MR-HSUTs addresses 4 main issues:

- **Data revision and gap-filling procedure**
- **Calculation of national minimum material requirement**
- **Trade-linking**
- **Mass-balancing of national economies**

The algorithm is divided into two types of modules:

- **Sectorial modules**
- **General modules**

The MR-HSUTs algorithm



Conclusions and further improvements

- Exiobase is Global multi-regional hybrid database with:
 - 200 products x 160 industries
 - 44 countries + 5 rest of world regions
 - Economic/Mass/Energy levels
 - Time series
- MR-HSUTs are robust analytical tools for:
 - LCA, MFA and SFA
 - Comparison of life styles/productive recepies; etc.

Conclusions and further improvements/2

- MR-HSUTs may be
 - linked to any other physical-unit based data sets to improve the quality of any impact assessment;
 - the baseline of quantitative models.

What next:

- Adding more sectorial modules (specialized knowledge)
- Introducing more units (more levels)
- Finding more consistency between the three level (€, TJ, tonnes)

THANK YOU FOR YOUR ATTENTION!

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WRF 2015, Davos (CH)
13th October 2015

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