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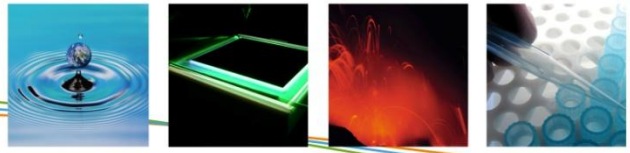


11/05/2012

Methodology for inventory to address biomass use for food/fuel/materials: example Belgium

Nathalie Devriendt, VITO, MOL

Goal of the inventory

- Belgian Environmental Authority was commissioner of study
- Request:
  - Development of a methodology and a database for biomass in Belgium
- Biomass information to be collected:
  - Import/export
  - Local production
  - Used for ?
  - History of 20 years (1989 – 2009)
  - Update easily

Approach

Step 1: Analysis of information sources

Step 2: Determination of the database structure

Step 3: Collection and filling of the data in the database

Step 4: First tests

Step 1: Analysis of information sources

- Possible sources ?
  - STATBEL – EUROSTAT – FAO – OESO - IEA
- Barriers ?
  - Terminology - definitions
  - No common source for import/export AND local production
- **Results:**
  - Bottom-up approach: detailed
  - Most of the international sources had 1 national source (public available): Statistics of National Bank of Belgium: import/export
  - No common source for locally produced biomass
  - Terminology: following '**Commission Regulation (EU) No 861/2010 of 5 October 2010 on the tariff and statistical nomenclature and on the Common Customs Tariff'** (but less detailed!)
  - Focus on biomass streams: internationally traded AND with competitive use: 150 biomass streams

Step 2: Determination of the database structure

- Acces database
- Database is compiled out of tables and queries

Data necessary	
Locally produced biomass in Belgium	*Table production*
Imported biomass in Belgium + country of origin	*Table import*
Exported biomass out of Belgium + destination country	*Table export*
Total consumption of Biomass in Belgium	*Query: Import – Export + localy produced*
Amount used for materials	*Table used for*
Amount used for energy: biodiesel, bio-ethanol, heat, electricity, CHP	*Table used for*
Amount used for food/feed	*Table used for*
Amount used for chemistry	*Table used for*
Amount used for other applications	*Table used for*
Price index	*Table price*

Step 3: Collection and filling of the data in the database

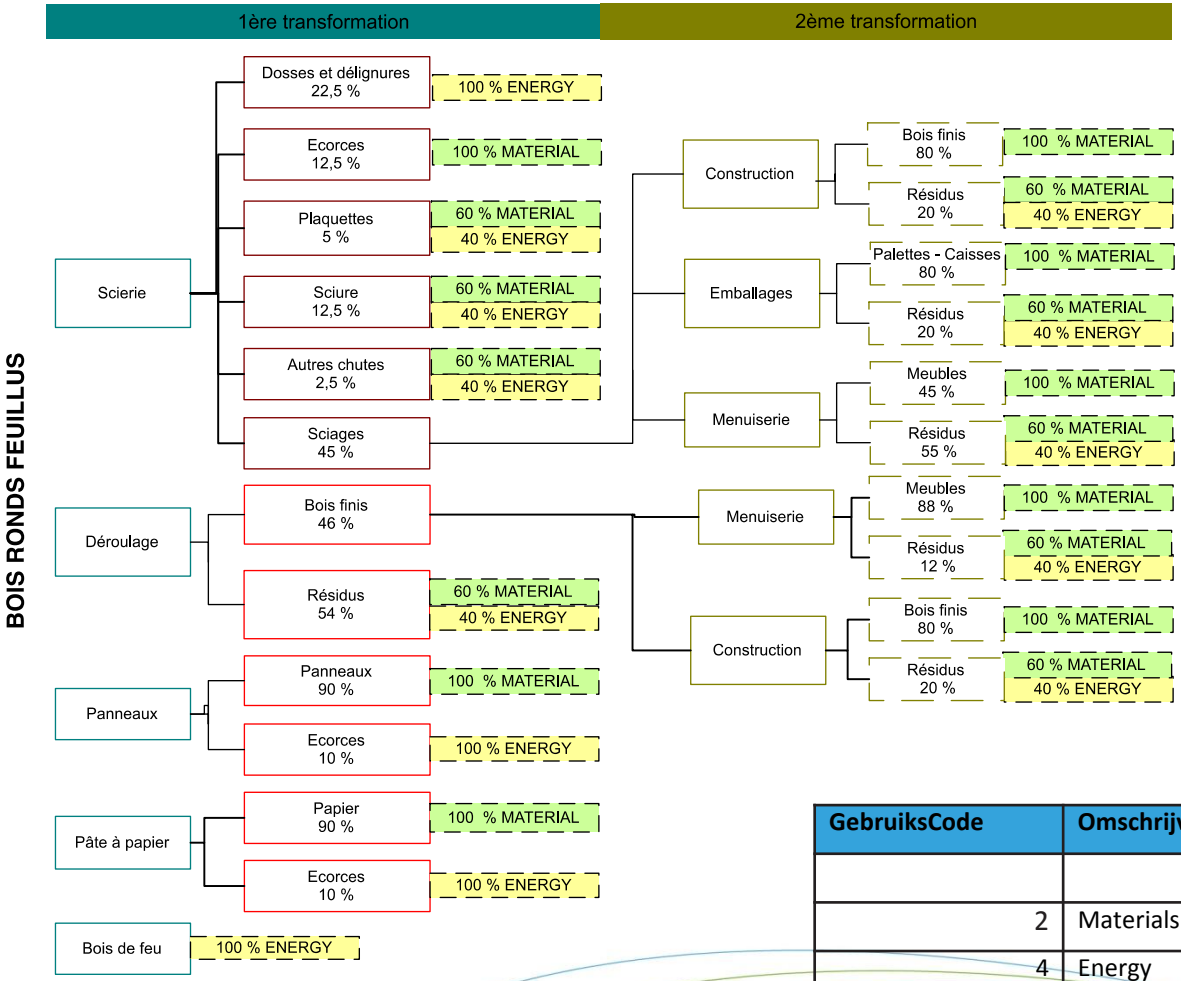
- Import and Export biomass (NBB): in kg and €
  - 150 streams, per region, country of origin/destination
- Local Production biomass (divers sources): in kg
  - 150 streams, per region, per year
- Consumption biomass stream: calculation query
  - Import - export + local production
- Biomass Used for (own research):
  - In percentages
  - 150 streams , per region, per year, used for
- Price biomassastreams (international indices): in €
  - 150 streams, per year

GebruiksCode	Omschrijving
1	Material
2	biodiesel
3	bio-ethanol
4	heat
5	electricity
6	CHP
7	alimentation
8	chemistry
9	others

Step 3: Collection and filling of the data in the database

- Problems !?!
  - Coupling local production with import/export: other biomass definitions
  - Double counting
    - Intermediate products: locally produced from raw biomass
    - NOT included in database in tonnes because double counting !
  - **Used for** ?
    - Very few data available, so only for 1 year !
    - Own research: collection of literature, expert views, associations, …
    - Dependent on willingness of associations: wood, food, chemistry, waste, …
    - Buffer over different years: consumption and import/export not in same year => no coherent match for 1 year !

Step 3: Collection and filling of the data in the database: Example for wood



GebruiksCode	Omschrijving	
2	Materials	62%
4	Energy	38%

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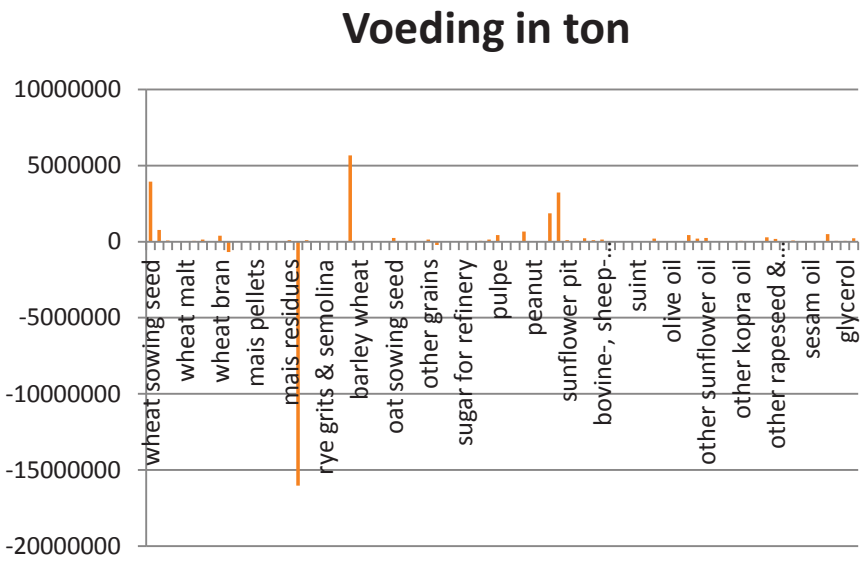
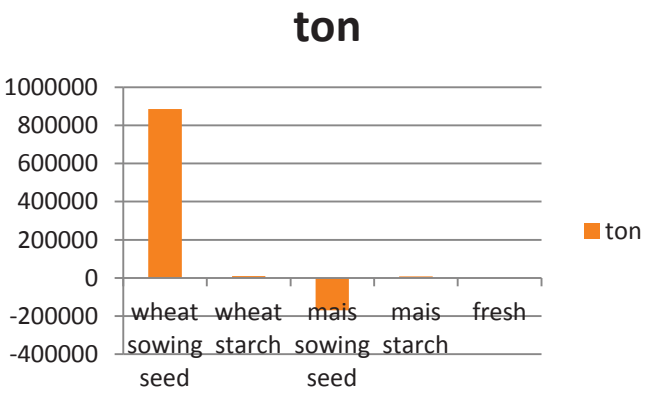
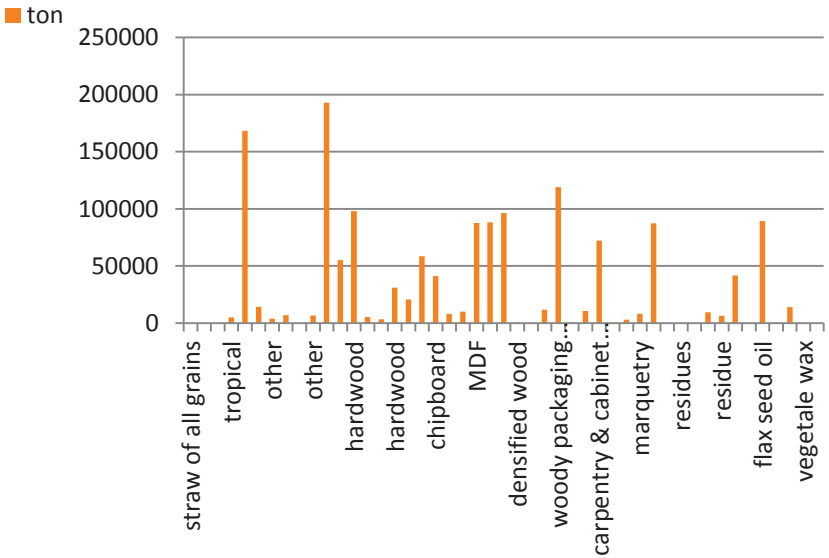
Step 4: First tests: Food, Material, Chemistry

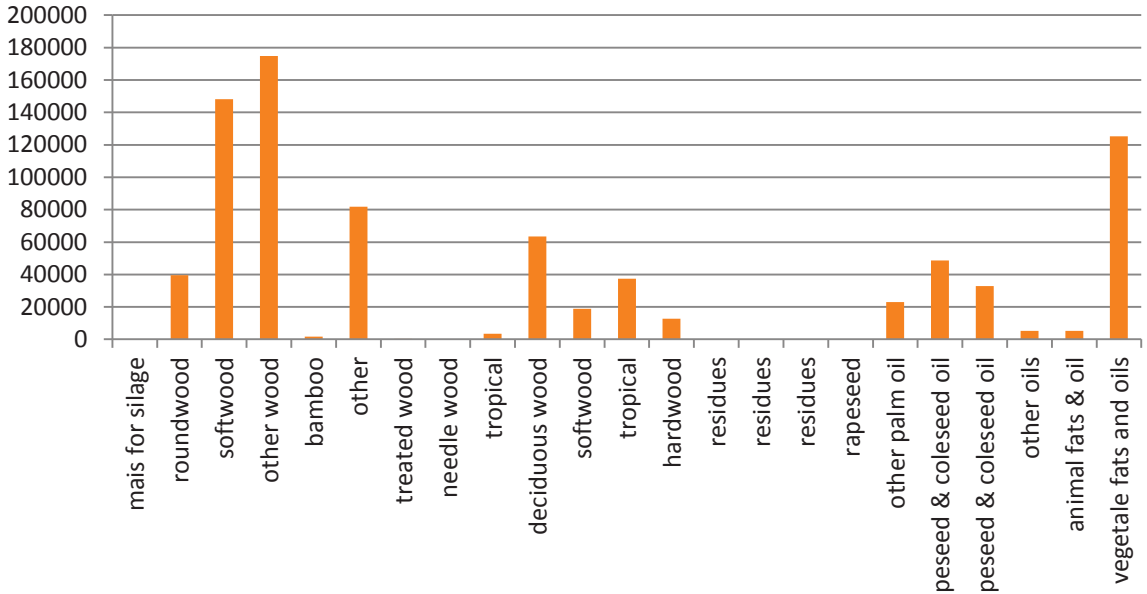


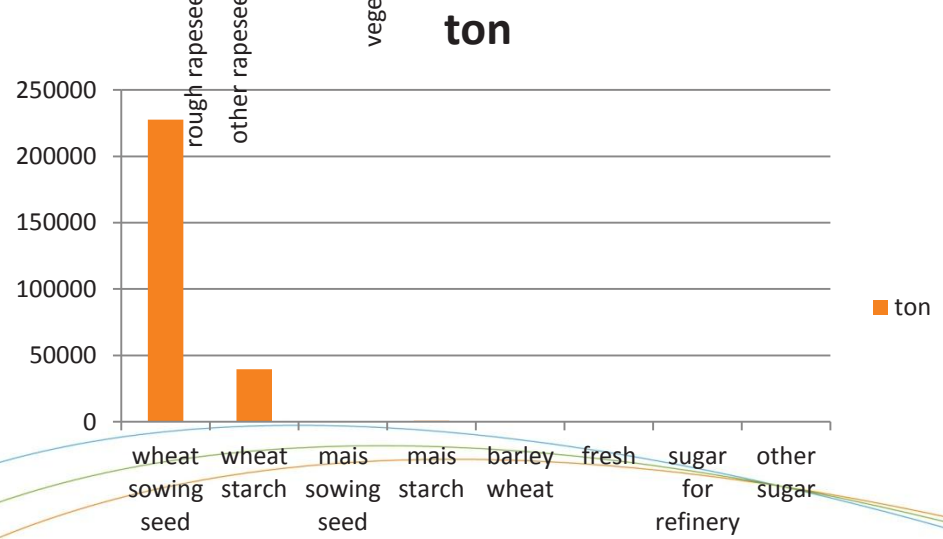




Queries: ‘consumption’ x ‘used for’

Step 4: First tests: Energy & Bio-ethanol





Conclusion

- Database is starting point:
  - Methodology is most important part
  - Easy set up, easy to extend
  - All data on same level, unit, coherent
  - First database on all biomass use !
- Necessity of collecting data over the years !
- How to use the database:
  - For import/export
  - For relative amounts, orders of magnitude, NOT absolute
  - For comparison over different applications
  - For detecting trends
  - For analysis over a more than 1 year !

Conclusion

- Further research and more detailing necessary:
  - 'Used for':
    - More/other data monitoring necessary
    - Ideas for 'used for energy': now only public available resources, coupled to National Energy Balances (confidentiality ?!)
    - Ideas for 'used for': Nacebel codes via NBB (confidentiality ?!)
- Intermediate/side streams:
  - Searching for integration solutions without double countings
  - Input /Output Model?
    - Only in €
    - 60 streams: biomass 1 streams
- Only locally produced biomass:
  - Not yet in database, should be in future
  - Need of coherent data !!!

Remark !

- Started as a puzzle of 100 pieces …

- … to a puzzle of 100.000 pieces with still a lot of missing pieces !

Thank you for the attention !

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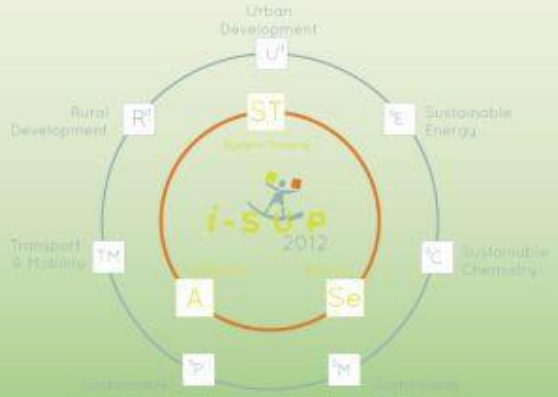

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