Database-wide updates in ecoinvent v3.1

Water use, prices, properties and production volumes



ecoinvent v3 User Meeting



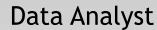
Basel, Switzerland



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Content



- Prices
- Properties
- Production volumes
- Water use

Introduction



- Database wide updates are updates of data on one single issue related to all or significant amount of datasets
 - example; prices of the products

ecoinvent v3 database

Introduction



- Data are being supplied either by individual data providers or centrally
- Data are being managed centrally
- Data for the database wide updates are being collected and calculated using one methodology assuring consistency, transparency and quality
- These data are being updated constantly, starting from ecoinvent v3.0

Update of prices



- Currently the ecoinvent v3.1 database contain prices for more than 1200 products
- Present in the datasets as a property of an exchange
- For now the prices are being collected for the year 2005
- The development of price modelling is ongoing

Use of the prices

Economic allocation

prices

properties

production volumes

water use

Update of properties



- Currently the ecoinvent v3.1 database contain 6 mandatory properties for all the products and elementary exchanges which have a mass
- Dry mass, wet mass, water in wet mass, water content, carbon content, fossil and carbon content, non-fossil

Use of the properties

- Balances
- Information about the composition of the product or elementary exchange

prices

properties

production volumes

water use

ecoQuery - price and properties

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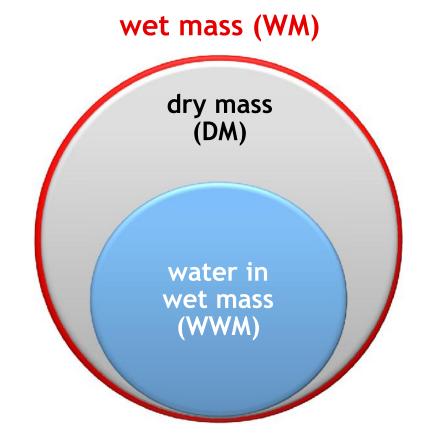
barley production/DE

Exchanges Properties				
Name	Amount	Unit	Uncertainty	SE
Reference Product				
barley grain				
+ carbon content, fossil	0	dimensionless		
+ carbon content, non-fossil	0.46538	dimensionless		
+ dry mass	0.86	kg		
+ energy content	15.583	MJ		
+ water content	0.16279	dimensionless		
+ water in wet mass	0.14	kg		
+ wet mass	1	kg		
By-product/Waste	11			

Use of the properties



- What is the amount of water in barley?
- Reference product: barley grain [kg]
 - Water in wet mass = 0.14 kg
- Answer: the amount of water in 1kg of barley is 0.14 kg.



prices

properties

production volumes

water use

Update of production volumes



- Currently the ecoinvent v3.1 database contain production volumes for more than 12000 products
- 4000 products produced as a reference product and 8000 produced as a by-product
- Present in the datasets in the description of the product

Use of the production volumes

Market mix modelling

prices

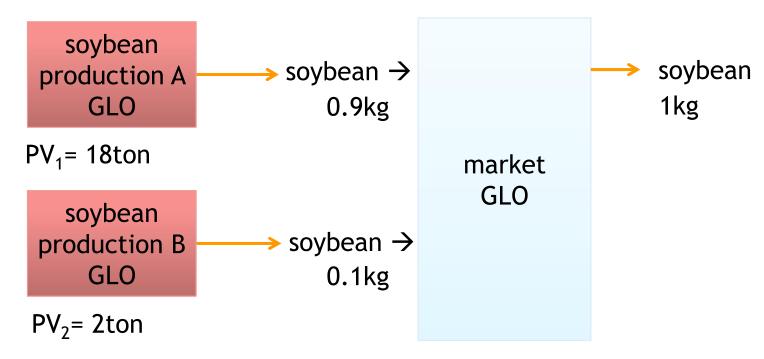
properties

production volumes

water use

Production volumes - market mix





$$PV_1/(PV_1+PV_2)=18/(18+2)=0.9$$

$$PV_2/(PV_1+PV_2)= 2/(18+2)=0.1$$

prices

properties

production volumes

water use

Trust Transparency!

ecoQuery - production volume



Name	A	mount	Unit	Uncertainty	SD	
Reference Pro	oducts					
– soybean oil,	refined	Í	kg			
Uncertainty						
Compartment		Subcompartme	ent			
Classification		Formula				
CAS-Number		Synonym				
Activity Link		Variable Name	soybean_	ybean_oil_refined		
Mathematical Relation		Comment				
Tags		Source				
Page Numbers		Annual Production Volume	28695693	3573,8964		
Production Volume Variable Name	soybean_oil_refined_PV	Production Volume Mathematical Relation	200000000000000000000000000000000000000	52*1000*fraction_of_c _oil_crude_input	rude_oil_PV_to_refinery	
Production Volume Comment	Data from FAO (http://faostat.fao.org/site/636/DesktopDefault.as PageID=636#ancor). The production volume PV in 20 was 3.97E+10 kg/year. In 2005 the PV was 3.4E+10 kg/year.					

prices

properties

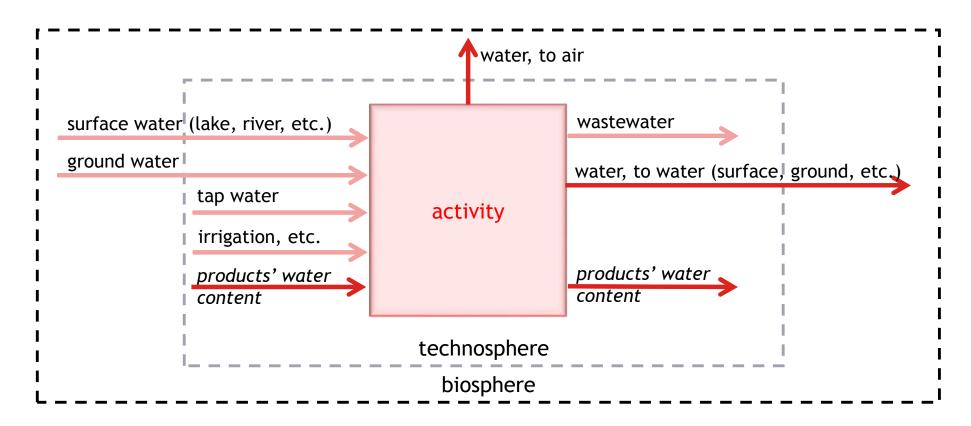
production volumes

water use

Trust Transparency!



ecoinvent version 2 \impression ecoinvent version 3.0



prices properties production volumes water use



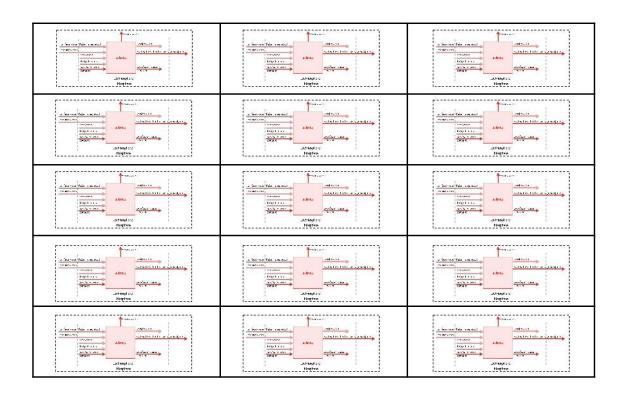
ecoinvent version 2 \rightarrow ecoinvent version 3.0

- New exchanges on the output side of the unit processes
- Most of the processes from ecoinvent v2.2 updated; exchanges on the output side have been added
- Properties to all products have been added which allow calculation of the amount of water embedded in the products

prices properties production volumes water use



ecoinvent version 2 \Longrightarrow ecoinvent version 3.0 \Longrightarrow ecoinvent version 3.1



prices

properties

production volumes

water use



ecoinvent version 2 \Longrightarrow ecoinvent version 3.0 \Longrightarrow ecoinvent version 3.1

- All the activities in the database have been look at and most of them updated, so that most of them are as close to the ideal water balance as possible.
- New datasets which were being accepted for ecoinvent v3.1 were reviewed to assure, that the water use is modelled correctly

prices properties

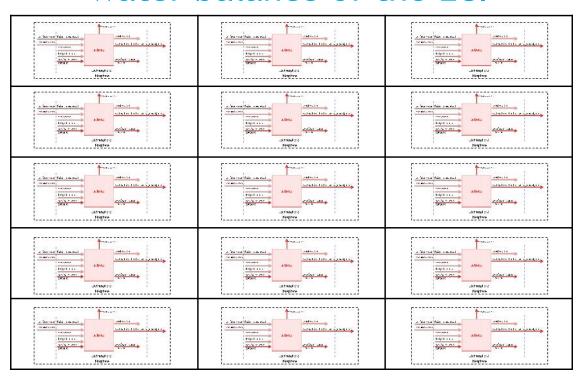
production volumes

water use



ecoinvent version 2 \Longrightarrow ecoinvent version 3.0 \Longrightarrow ecoinvent version 3.1

water balance of the LCI





water OUT

prices

water IN

properties

production volumes

water use

Conclusion



- On top of many new datasets a lot of additional data added in the older datasets
- Database-wide updates
 - increased overall quality
 - consistency and transparency
- The new and updated data can be used even outside of traditional LCA studies

Thank you for your interest in ecoinvent version 3!



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