

The ecoinvent database

An introduction





The ecoinvent database

What is it, and why do we need it?

How is it structured?

How do I use it in SimaPro?

Why are there multiple versions in SimaPro?



What is the ecoinvent database?





Consists of unit processes

List of:

- Outputs to technosphere Products made by the process
- Inputs from technosphere e.g. steel, electricity, coal etc.
- Outputs to environment Emissions e.g. CO₂, NOx
- Inputs from environment Resources e.g. Ores, water





These need to be linked

2 options:

- Direct linking
- Market based linking

What happens when you add a new dataset to the database?



Market processes





Market processes





Linking it up





Exploring the database in SimaPro

Go To

Networks







Task 1 – Explore the structure of the database

- 1. Open SimaPro and log in
- 2. Go to libraries
- 3. Switch everything off
- Switch only 'Methods' and 'Ecoinvent 3 allocation, recycled content - unit' back on
- 5. Find the market for something associated with your project*
- 6. Using GoTo, explore a few of the upstream processes, write down what you find

Q1. What else is included in the market processes?

7. Create a network of the chosen process



Task 1 – Explore the structure of the database

A1. Transport is also included in the market processes

For electricity, **transmission losses** are included in the market process





How do I use it in Sima Pro?

IMPORTANT

Only ever use one version of the ecoinvent database in your projects





How do I use it in Sima Pro?

Remember what the difference is between market and transformation processes

Transformation	Market
Specific production method in a specific location	Mix of production methods and locations within a market
Doesn't include transport	Already includes transport
Only use them if you know that you only want to model a specific situation	Use these for most if not all of your secondary data inputs



Why are there multiple versions?

	Ecoinvent 3 - allocation, default - system
	Ecoinvent 3 - allocation, default - unit
	Ecoinvent 3 - allocation, recycled content - system
V	Ecoinvent 3 - allocation, recycled content - unit
	Ecoinvent 3 - consequential - system
	Ecoinvent 3 - consequential - unit

Why are there six? and Which one should you choose?



Why are there multiple versions?

	Ecoinvent 3 - allocation, default - system
	Ecoinvent 3 - allocation, default - unit
	Ecoinvent 3 - allocation, recycled content - system
\checkmark	Ecoinvent 3 - allocation, recycled content - unit
	Ecoinvent 3 - consequential - system
	Ecoinvent 3 - consequential - unit

Unit processes have links to other processes in the database

System processes are calculated from their sister unit process and **only** include environmental flows



Why are there multiple versions?

	Ecoinvent 3 - allocation, default - unit	
\checkmark	Ecoinvent 3 - allocation, recycled content - unit	ĺ
	Ecoinvent 3 - consequential - unit	

The three different ecoinvent databases were constructed using different **System Models**





The ecoinvent 3 'raw' database is made up of **unlinked** datasets describing inputs and outputs to unit processes







These unit processes can have multiple outputs







Life Cycle Inventories are calculated using matrices

To make the maths work, these matrices need to be square

This means the processes in the matrix need to have a **single output**





So... the multiple output processes need to be turned into Single Output Unit Processes (SOUPs)



But...

There are lots of different recipes to make **SOUPs**



SOUP RECIPES FOR DUMMIES





But...

...and link them together

These are LCA system models

 Market and a second second















For wastes:

The system is 'cut off' at the point where the waste has been treated

Any beneficial by-products are burden free to other systems

The original system gets no benefit from the production of these byproducts







For recyclables:

The system is 'cut off' at the point where the recyclable is produced

The recyclable materials enters the recycling system burden free

The original system gets no benefit from the production of the recycled products



Pros and Cons

Pros

- Simple to understand
- Simple to explain
- Widely used
- Used in the older versions of ecoinvent

Cons

- No real incentive to recycle at end of life
- Leads to a weird situation where recycling and waste treatment processes technically become potentially infinite sources of burden free material and energy



Allocation at the point of substitution (APOS)

aka. Allocation, Default



APOS

Now we have a multi output process though...

So we need to split and allocate to create SOUPs...

So we need to split and allocate to create SOUPs...

Lots of things produce waste that goes to EfW

Lots of things produce waste that goes to EfW

Lots of things produce waste that goes to EfW

Each with a little bit of the impact of the upstream system

These are merged into a single process to represent the generation of electricity Waste from EfW treatment (EfW)

Mental...

 Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Clinker (Rov)) [Production, Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, other than natural gas. (Nov) [Processing 1 Alloc Def, U Head, district, natural gas, Nov (GLO)] transment, natural gas, Nov (GLO)] Head, district, natural gas, Nov (GLO)] transment, natural gas, Nov (GLO)] Head, district, natural gas, Nov (GLO)] transment, natural gas, Nov (GLO)] Head, district, natur			1 Electricity, for reuse in municipal waste incineration only {BG} treatment of municipal solid waste, incineration
 Hard coal (CA)) mete greation (Alace Def, U Sweet gas, hurned in furnace Alace Def, U Chiner (Revisit) production Alace Def, U Sweet gas, hurned (Alace Def, U Hard coal (CA)) production Alace Def, U Hard coal (CA)) production, hard			2 Heat, district or industrial, other than natural gas {RoW} heat production, at hard coal industrial furnace :
 Head, district or industrial, other than natural gas (Row)] refinery gas, burned in furnace Allico Def, U Head, district or industrial, other than natural gas (Row)] refinery gas, burned in furnace Allico Def, U Sweet gas, burned in gas turbine (Row)] processing Allico Def, U Head, district or industrial, other than natural gas (Europe without Switzerland)) refinery gas, burned in furnace Allico Def, U Head, district or industrial, other than natural gas (Europe without Switzerland)) refinery gas, burned in furnace Allico Def, U Head, district or industrial, other than natural gas (Europe without Switzerland)) refinery gas, burned in furnace Allico Def, U Head, district or industrial, other than natural gas (Europe without Switzerland) informe Allico Def, U Head, district or industrial, other than natural gas (Row)] processing Allico Def, U Head, district or industrial, interail gas, successing (Allico Def, U Head, district or industrial, natural gas, (Row)] production, Halico Def, U Head, district or industrial, natural gas, (Row)] production, Halico Def, U Guicefange (Def) electricity production, Halico Def, U Head, district or industrial, natural gas, (Row)] production, Halico Def, U Head, district or industrial, natural gas, (Row)] production, Right Allico Def, U Head dise electric generating, Row) production, Right Allico Def, U Head dise electricity, Right Viage (ROV)] production, Right Allico Def, U Head dise electricity Right Viage (ROV)] production, Right Allico Def, U Head dise electricity Right Viage (ROV)] Production, Right Allico Def, U Head dise electricity Right Viage (ROV)] Production, Right Allico Def, U Head dise electricity Right Viage (ROV)] Head and power cogeneration, natural gas, conventional power row ele			3 Hard coal {CN} mine operation Alloc Def, U
 Clinker (Box)) production Alloc Def, U Clinker (Box)) production Alloc Def, U Pip lord, (GAD) production, Pip lord, (GAD) each production, Pip lor			4 Heat, district or industrial, other than natural gas {RoW} refinery gas, burned in furnace Alloc Def, U
 Best of the second secon			5 Clinker {RoW} production Alloc Def, U
2 - Pig rou durage, weiter in the construction of the construct			6 Sweet gas, burned in gas turbine {RoW} processing Alloc Def, U
Image: Second			7 Pig iron {GLO} production Alloc Def, U
Image: Status Image: Status<			8 Heat, district or industrial, other than natural gas {Europe without Switzerland} refinery gas, burned in fu
Image:			9 Natural gas, vented {GLO} natural gas venting from petroleum/natural gas production Alloc Def, U
1 Waste natural gas, sweet (GLO)! treatment of, burned in production, hard call Alloc Def, U 12 Electricity, high voltage (GL) i electricity production, hard call Alloc Def, U 13 Heat, district or industrial, natural gas, conventional power or-generation, natural gas, conventional power or-generatio			10 Heavy fuel oil, burned in refinery furnace {RoW} processing Alloc Def, U
 Electrichy, high voltage (N) i electrichy production, hard coil Alloc Def, U Head, district or industrial, natural gas, (RU)] heat and power co-generation, natural gas, conventional power Weste natural gas, source (Co)) i reactivity production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Suffaire J, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i electrichy production, failed Labore J, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD) i processing Alloc Def, U Electrichy, high voltage (CD-SD) i electrichy producton, fainter Alloc Def, U Electrichy, high voltage (CD-SD) i electrichy producton, hard coil Alloc Def, U Electrichy, high voltage (CD-SD) i electrichy producton, hard coil Alloc Def, U Electrichy, high voltage (CD-SD) i electrichy producton, hard coil Alloc Def, U Electrichy, high voltage (CD-SD) i electrichy producton, hard coil Alloc Def, U Electrichy, high v			11 Waste natural gas, sweet {GLO} treatment of, burned in production flare Alloc Def, U
 Heat, district or industrial, natural gas (RU) heat and power co-generation, natural gas, conventional power for the section of the section of			12 Electricity, high voltage {IN} electricity production, hard coal Alloc Def, U
14 Waste natural gas, sour (GLO) treatment of, burned in production flare Allac Def, U 15 Quicklime, in pieces, loose (RoW) production, langte Allac Def, U 16 Electricity, high voltage (CB) electricity production, langte Allac Def, U 17 Hard coal (RoW) mine operation Alloc Def, U 18 Diesel, burned in diesel-lectric; operation Alloc Def, U 19 Transport, freight, sea, transocenic tarker (GLO) processing Alloc Def, U 20 Chlorodifluoromethane (RoW) production, langte a langte, conventional power openation, natural gas, conventional power openation, nator coal Alloc Def, U			13 Heat, district or industrial, natural gas {RU} heat and power co-generation, natural gas, conventional pow
15 Quickline, in pieces, loose (ReW)] production Alloc Def, U 16 Electricity, high voltage (DE)] electricity production, light Alloc Def, U 18 Diesel, burned in diesel-electric generating set, 10MV (GLO)] forcessing Alloc Def, U 18 Diesel, burned in diesel-electric generating set, 10MV (GLO)] forcessing Alloc Def, U 21 Sulfate pub (ReW)] in divortion Alloc Def, U 22 Electricity, high voltage (CM-W)] production, hard coal Alloc Def, U 23 Electricity, high voltage (RUV)] heat and power co-generation, natural gas, conventional power plant, 100M 24 Electricity, high voltage (RCW)] heat and power co-generation, natural gas, conventional power plant, 100M 24 Electricity, high voltage (RCV)] production, lagint Alloc Def, U 25 Electricity, high voltage (RCV)] production, lagint Alloc Def, U 26 Heat, district or industrial, natural gas, (RoW)] heat and power co-generation, natural gas, conventional power plant, 100M 27 Electricity, high voltage (RCV)] electricity production, hard coal Alloc Def, U 28 Electricity, high voltage (RCV)] electricity production, hard coal Alloc Def, U 29 Sinter, iron (GLO)] processing Alloc Def, U 20 Electricity, high voltage (RCV)] electricity production, hard coal Alloc Def, U 32 Heat, district or ind			14 Waste natural gas, sour {GLO} treatment of, burned in production flare Alloc Def, U
16 Electricity, high voltage (DE) electricity production, lignite Alloc Def, U 17 Hard coal (RoW)] mine operation Alloc Def, U 18 Diesel, burned in diesel-electric generating set, 10MW (GLO)] diesel, burned in diesel-electric generating, hard and power co-generation, natural gas, conventional power plant, 100M 22 Electricity, high voltage (CL)] electricity production, lignite Alloc Def, U 23 Electricity, high voltage (CL-)] electricity production, lignite Alloc Def, U 24 Electricity, high voltage (CL-)] electricity production, lignite Alloc Def, U 25 Diesel, burned in diuder-electricity production, lard coal Alloc Def, U 26 Heat, district in diudrial, attural gas (RoW)] heat production, lard coal Alloc Def, U 27 Electricity, high voltage (CE-O)] electricity production, hard c			15 Quicklime, in pieces, loose {RoW} production Alloc Def, U
17 Hard coal (RoW)) mine operation Alloc Def, U 18 Disel, burned in disesel-electric generating set, 10MW (GLO) diseel, burned in disesel-electric generating set, 10MW (GLO) disesel, 10MC Def, U			16 Electricity, high voltage {DE} electricity production, lignite Alloc Def, U
18 Diesel, burned in diesel-electric generating set, 10MW (GLO) diesel, burned in diesel-electric generation, natural gas, conventional power orgeneration, natural gas, conventional power orgeneration, natural gas, GNW (Het production, hard coal Alloc Def, U 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 <th></th> <th></th> <th>17 Hard coal {RoW} mine operation Alloc Def, U</th>			17 Hard coal {RoW} mine operation Alloc Def, U
19 Transport, Freight, sea, transoceanic tanker {GLO}] processing Alloc Def, U 20 Chlorodfluoromethane (RoW)] production Alloc Def, U 21 Sulfate pulp (RoW)] production, Preze bleached Alloc Def, U 22 Electricity, high voltage {Ch+IM}] electricity production, hard coal Alloc Def, U 23 Electricity, high voltage {Ch+IM}] electricity production, hard coal Alloc Def, U 24 Electricity, high voltage {Ch+IM}] electricity production, hard coal Alloc Def, U 25 Diesel, burned in building machine {GLO}] processing Alloc Def, U 26 Heat, district or industrial, natural gas {RoW}] heat and power co-generation, natural gas, conventional power plant, 100M 27 Electricity, high voltage {Ch+IM} production, hard coal Alloc Def, U 28 Electricity, high voltage {Ch+IM} production, hard coal Alloc Def, U 29 Sinter, iron (GLO) production Alloc Def, U 20 Heat, district or industrial, other than natural gas {RoW}] heat production, heavy fuel oil, at industrial furn 20 Heat, district or industrial, other than natural gas {RoW}] heat production, heavy fuel oil, at industrial furn 21 Heat, district or industrial, other than natural gas {RoW}] heat production, heavy fuel oil, at industrial furn 22 Heat, district or industrial, other than natural gas {RoW}] heat production, heavy fuel oil, at industrial		18 Diesel, burned in diesel-electric generating set, 10MW {GLO} diesel, burned in diesel-electric generating :	
20 Chlorodfluoromethane (RoW)] production Alloc Def, U 21 Sulfate pulp (RoW)] production, elementary chlorine free bleached Alloc Def, U 22 Electricity, high voltage (CH-WH) electricity production, natical gas, conventional power plant, 100M 24 Electricity, high voltage (CH-WH) electricity production, natical gas, conventional power plant, 100M 25 Disesi, burned in building machine (GLO) processing Alloc Def, U 26 Heat, district or industrial, natural gas (RoW) heat and power co-generation, natural gas, conventional power plant, 100M 27 Electricity, high voltage (CH-WH) 28 Electricity, high voltage (CH-WH) 29 Sinter, iron (GLO) production, lighite Alloc Def, U 29 Sinter, iron (GLO) production, lighite Alloc Def, U 29 Sinter, iron (GLO) production, lighite Alloc Def, U 29 Sinter, iron (GLO) production, lighite Alloc Def, U 29 Sinter, iron (GLO) production, lighite Alloc Def, U 29 Sinter, iron (GLO) production, hard coal Alloc Def, U 20 Electricity, high voltage (CH-SQ) electricity production, hard coal Alloc Def, U 20 Electricity, high voltage (CH-SQ) electricity production, hard coal Alloc Def, U 20 Electricity, high voltage (CH-SQ) electricity production, ha			19 Transport, freight, sea, transoceanic tanker {GLO} processing Alloc Def, U
1 Suffate pulp {RoW}] production, elementary chlorine free bleached Alloc Def, U 2 Electricity, high voltage {CN-NM}] electricity production, hard coal Alloc Def, U 2 Electricity, high voltage {CN-NM}] electricity production, hard coal Alloc Def, U 2 Electricity, high voltage {CN-NM}] electricity production, hard coal Alloc Def, U 2 Electricity, high voltage {CN-NM}] electricity production, hard coal Alloc Def, U 2 Electricity, high voltage {CN-NM}] electricity production, hard coal Alloc Def, U 2 Electricity, high voltage {CN-SD}] electricity production, ignite Alloc Def, U 2 Electricity, high voltage {SRC}] electricity production, ignite Alloc Def, U 2 Sinter iron {GLO}] production alloc Def, U 2 Electricity, high voltage {SRC}] electricity production, ignite Alloc Def, U 2 Sinter iron {GLO}] production alloc Def, U 2 Sinter iron {GLO}] electricity production, ignite Alloc Def, U 3 Clinker {Europe without Switzerland}] production, nard coal Alloc Def, U 3 Electricity, high voltage {SRC}] electricity production, hard coal Alloc Def, U 3 Electricity, high voltage {SRC}] electricity production, hard coal Alloc Def, U 3 Electricity, high voltage {SRC}] electricity production, hard coal Alloc Def, U		1 MJ Bectricity, for reuse in	20 Chlorodifluoromethane {RoW} production Alloc Def, U
Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-NM} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard coal Alloc Def, U Electricity, high voltage {Ch-SN} electricity production, hard		1.141 kg CO2 eq	21 Sulfate pulp {RoW} production, elementary chlorine free bleached Alloc Def, U
23 Electricity, high voltage {RU} heat and power co-generation, natural gas, conventional power plant, 100M 24 Electricity, high voltage {ZA} electricity production, hard coal Alloc Def, U 25 Diesel, burned in building machine {GLO} processing Alloc Def, U 26 Electricity, high voltage {RFC} electricity production, lignite Alloc Def, U 27 Electricity, high voltage {CRC} electricity production, hard coal Alloc Def, U 28 Electricity, high voltage {CRC} electricity production, hard coal Alloc Def, U 29 Sinter, iron {GLO} production, lignite Alloc Def, U 20 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 20 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 21 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 22 Heat, distric or industrial, other manager (ROW) heat production, hard coal Alloc Def, U 23 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 24 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 30 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 31 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 32 Heat, distric or industrial, other manager (ROW) heat production, hard coal Alloc Def, U 33 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 34 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 35 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 36 Electricity, high voltage (CN-SS) electricity production, hard coal Alloc Def, U 36 Electricity, high voltage (SERC) electricity production, hard coal Alloc Def, U 37 Electricity, high voltage (SERC) electricity production, hard coal All			22 Electricity, high voltage {CN-NM} electricity production, hard coal Alloc Def, U
24 Electricity, high voltage {ZA} electricity production, hard coal Alloc Def, U 25 Diesel, burned in building machine {GLO}] processing Alloc Def, U 26 Heat, district or industrial, natural gas {RoW} heat and power cogeneration, natural gas, conventional power cogeneration, natural gas, convention, natro coal Alloc Def, U <th></th> <th></th> <th>23 Electricity, high voltage {RU} heat and power co-generation, natural gas, conventional power plant, 100M</th>			23 Electricity, high voltage {RU} heat and power co-generation, natural gas, conventional power plant, 100M
25 Diesel, burned in building machine {GLO}} processing Alloc Def, U 26 Heat, district or industrial, natural gas {Row}} heat and power co-generation, natural gas, conventional pr 27 Electricity, high voltage {RFC}] electricity production, lignite Alloc Def, U 28 Electricity, high voltage {CN-SD} electricity production, lignite Alloc Def, U 29 Sinter, iron {GLO}} production Alloc Def, U 29 Sinter, iron {GLO}} production Alloc Def, U 29 Sinter, iron {GLO}} production, hard coal Alloc Def, U 29 Sinter, iron {GLO}} production Alloc Def, U 20 Biectricity, high voltage (CN-SD) electricity production, hard coal Alloc Def, U 20 Biectricity, high voltage (CN-SD) electricity production, hard coal Alloc Def, U 20 Biectricity, high voltage (CN-SD) electricity production, hard coal Alloc Def, U 20 Biectricity, high voltage (CN-SD) electricity production, hard coal Alloc Def, U 21 Heat, district or industrial, figh voltage (CN-SD) electricity production, hard coal Alloc Def, U			24 Electricity, high voltage {ZA} electricity production, hard coal Alloc Def, U
26 Heat, district or industrial, natural gas {RoW}] heat and power co-generation, natural gas, conventional pr 27 Electricity, high voltage {RFC}] electricity production, lignite Alloc Def, U 28 Sinter, iron {GLO}] production Alloc Def, U 29 Sinter, iron {GLO}] production, lignite Alloc Def, U 20000 tron Bectricity, high voltage {CN-3S} electricity production, lignite Alloc Def, U 20000 tron Bectricity, high voltage {CN-3S} electricity production, hard coal Alloc Def, U 28 Sinter, iron {GLO}] production Alloc Def, U 29 Sinter, iron {GLO}] production, hard coal Alloc Def, U 30 Electricity, high voltage {CN-3D} electricity production, hard coal Alloc Def, U 31 Electricity, high voltage {CN-3D} electricity production, hard coal Alloc Def, U 32 Heat, district or industrial, other than natural gas {RoW} heat production, hard coal Alloc Def, U 32 Heat, district or industrial, other than natural gas {RoW} heat production, hard coal Alloc Def, U 33 Clinker {Europe without Switzerland}] production Alloc Def, U 34 Electricity, high voltage {CN-SN} electricity production, hard coal Alloc Def, U 35 Electricity, high voltage {CN-SN} electricity production, hard coal Alloc Def, U 36 Electricity, high voltage {CN-SN} electricity			25 Diesel, burned in building machine {GLO} processing Alloc Def, U
Image: Sector			26 Heat, district or industrial, natural gas {RoW} heat and power co-generation, natural gas, conventional po
Image: Sector of the sector			27 Electricity, high voltage {RFC} electricity production, lignite Alloc Def, U
Image: State of the set	0.00091 kg 0.00093 kg 0.000963	5.246-7 m3 Roundwood,	28 Electricity, high voltage {CN-JS} electricity production, hard coal Alloc Def, U
000005 Vg	mesured as dry [[GL03] method 	eucalyptus ssp.	29 Sinter, iron {GLO} production Alloc Def, U
Source 1/w Source 1/w <th></th> <th></th> <th>30 Electricity, high voltage {SERC} electricity production, lignite Alloc Def, U</th>			30 Electricity, high voltage {SERC} electricity production, lignite Alloc Def, U
Heat, district or industrial, other than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the the than natural gas {RoW} heat production, heavy fuel oil, at industrial furm weat of any industrial of the			31 Electricity, high voltage {CN-SD} electricity production, hard coal Alloc Def, U
Image: Section in equilibrium		0.00258 km	32 Heat, district or industrial, other than natural gas {RoW} heat production, heavy fuel oil, at industrial furn
Image word Image word <th>Wood chips, wet, Wood chips, Wood chips, Wet, Wet, Wet, Wet, Wet, Wet, Wet, Wet</th> <th>Nood chips, wet, Roundwood, measured as dry eucelyptus ssp.</th> <th>33 Clinker {Europe without Switzerland} production Alloc Def, U</th>	Wood chips, wet, Wood chips, Wood chips, Wet, Wet, Wet, Wet, Wet, Wet, Wet, Wet	Nood chips, wet, Roundwood, measured as dry eucelyptus ssp.	33 Clinker {Europe without Switzerland} production Alloc Def, U
35 Electricity, high voltage {RFC} electricity production, hard coal Alloc Def, U 36 Electricity, high voltage {SERC} electricity production, hard coal Alloc Def, U 37 Electricity, high voltage {CN-SX} electricity production, hard coal Alloc Def, U 38 Transport, freight, sea, transoceanic ship {GLO} processing Alloc Def, U 39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U		0.00467 kg CO2 4	34 Electricity, high voltage {DE} electricity production, hard coal Alloc Def, U
36 Electricity, high voltage {SERC} electricity production, hard coal Alloc Def, U 37 Electricity, high voltage {CN-SX} electricity production, hard coal Alloc Def, U 38 Transport, freight, sea, transoceanic ship {GLO} processing Alloc Def, U 39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U			35 Electricity, high voltage {RFC} electricity production, hard coal Alloc Def, U
37 Electricity, high voltage {CN-SX} electricity production, hard coal Alloc Def, U 38 Transport, freight, sea, transoceanic ship {GLO} processing Alloc Def, U 39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U			36 Electricity, high voltage {SERC} electricity production, hard coal Alloc Def, U
38 Transport, freight, sea, transoceanic ship {GLO} processing Alloc Def, U 39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U			37 Electricity, high voltage {CN-SX} electricity production, hard coal Alloc Def, U
39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U			38 Transport, freight, sea, transoceanic ship {GLO} processing Alloc Def, U
 40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U 41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U 			39 Electricity, high voltage {CN-HE} electricity production, hard coal Alloc Def, U
41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U			40 Electricity, high voltage {CN-GD} electricity production, hard coal Alloc Def, U
			41 Electricity, high voltage {JP} electricity production, hard coal Alloc Def, U

But here's the important bit

But here's the important bit

APOS

Pros and Cons

Pros

- Consistent
- Better reflects reality
- Avoids infinite burden free material sources

Cons

- Incredibly complicated
- Results can be difficult to understand and explain

Task 2 - What difference does it make?

Switch on both ecoinvent 3 databases

• DON'T DO THIS AGAIN – its ok for this though!!

Pick a process (e.g. concrete, plastic, paper production)

Choose a method and run a comparison using the same process in each database to see if the system model choice has made a difference (try and find one where it has...)

Q2. Is there any difference?

Task 2 - What difference does it make?

A2. Not really...

For most purposes there's no real difference in the results between these two system models

BUT its important to understand there is a difference

Its really important to be consistent in the background system model you use

Its really important to mention it in your goal and scope!

So to conclude...

Only ever use one version of the ecoinvent database in your projects

