New data in version 3.1

Changes from v2.2

User meeting, Basel, 2014.05.16

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Overview of the new data in v3.1

- Electricity and heat
- From forest to wood products
- Paper and cardboard
- Agri-food
- Chemical
- Tap water
- Road transport
- Machinery operation
- Building materials
- Mining and metals
New electricity data in v3: 90% produced electricity in the world

Work done by: PSI and CIRAIG
Slide by PSI

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Heat production and incineration

- **Incineration (v3.1)**
  - Work done by G. Doka, funded by BAFU
  - Update of incineration activities

- **Heat production**
  - Work done by PSI, funded by BAFU
  - Furnaces updated for v3.0
  - Heat production activities based on wood were updated or created new for v3.1
Forestry in v2.2 & v3.01

- Hardwood forestry/RER
- Softwood forestry/RER

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Forestry in v3.1

Birch/Sweden
Mixed species/Switzerland
Oak/Germany
Beech/Germany

Pine/Germany
Mixed species/Switzerland
Spruce/Sweden
Spuce/Germany

Boreal forest/Québec

Work done by: F. Werner and CIRAIG (Québec data)

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Forest machinery in v2.2 and v3.0
Forest machinery in v3.1

- And new operation datasets:
  - Chipping (different chippers)
  - Forwarding
  - Harvesting (different ways)
  - Power sawing
  - Skidding
  - Yarding (different ways)

Work done by: F. Werner

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Wood preservatives in v3.1

• Work done by F. Werner, supported by BAFU (all wood related data)

• New more detailed data on wood preservative production:
  ▶ Distinction between: water and solvent based; creosote; inorganic or organic salt (Cr or Cr-free)
  ▶ Indoor or outdoor use (ground or no ground contact)
  ▶ Can be matched with the actual classification types of wood preservative
  ▶ Prepared to be used in different application types

• New more detailed data on wood preservation activities:
  ▶ Different application methods: pressure (6 methods) and non-pressure (12 methods)
The sawmill in v3.1

- Work done by ETH and Chalmers (BAFU funded), data provided and approved by the Swiss Forest Industry
- Higher level of detail: more products available (beam, board, lath)
- Generic products still available (sawnwood, hardwood, [...]; sawnwood, softwood, [...]).
Wood boards in v3.1

- Some board production activities have been updated or are new (F. Werner; BAFU funded), concerning:
  - Fibreboard
  - Oriented strand board (OSB)
  - Particle board
  - Medium density fibreboard

- New regional data on boards:
  - Brasil: particle board (University São Paulo)
  - Quebec: data from industry on OSB (CIRAIG)
Paper and cardboard in v3.1

- Updated data for Europe in v3.01 (data from FEFCO)
  - Fluting medium
  - Linerboard
  - Corrugated board box

- New Canadian data from industry present in v3.1 (CIRAIG)
  - Fluting medium
  - Linerboard
  - Corrugated board box
  - ...

Image: Action Packaging (actionpackaging.com)
Food in v3.1 (industrial data)

- **Dairy (CIRAIG & ecoinvent):**
  - Milk
  - Yogurt
  - Cheese
  - Butter
  - Cream

- **Soja derivatives (CIRAIG):**
  - Tofu
  - Soybean beverage

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More than 30 new fruits and vegetables in v3.0

Work done by: ETH
New inventories on biofuels in v3.0

Sugar cane
Colombia

Oil palm
Colombia

Alfalfa-grass mixture, CH
Miscanthus, DE
Willow, DE

Jatropha
India
East-Africa

Work done by: EMPA, ART
Slide: Thomas Nemecek, ART.

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Agriculture: changes up to v3.1

- Emissions of ALL agriculture activities were updated for v3.0
  - New model developed by Agroscope

- New agricultural services in v3.1: regional industry data from Canada (CIRAIG)
  - Tillage
  - Bale loading
  - Fertilizer spreading
  - ...

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Chemical Products

- More than 80 new chemicals for v3.0 (ETH)
  - citric acid*
  - glycine
  - sodium amide
  - acrolein
  - trifluoroacetic acid
  - lactic acid
  - ...

- Around 10 new chemicals for v3.1 (CIRAIG)
  - iron chloride
  - tetraethyl orthosilicate
  - ...

*These confidential datasets in several geographies (CN, RER, RNA, GLO) were provided by myclimate.
Tap water in v3.1

- Higher level of detail (data delivered by CIRAIG)

- New infrastructure data (new water works construction)

- New tap water production activities in GLO, Québec, CH, Europe
  - tap water production, conventional treatment
  - tap water production, conventional with biological treatment
  - tap water production, direct filtration treatment
  - tap water production, microstrainer treatment
  - tap water production, seawater reverse osmosis, [...]
  - tap water production, ultrafiltration treatment
Road transport

Passenger transport (Empa & PSI) in v3.0

- Combustion Engine Cars (petrol, diesel, natural gas); different Sizes (“small”, “medium”, “large”); different European Norms (3, 4, 5).
- Electric car.

Road freight transport in v3.1 (PSI)

- New data implemented to
  - Update EURO 3, 4, 5
  - Generate new data on EURO 6

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Machine operation model in v3.1

- Model developed and integrated in the database by CIRAIG

- Machine operation model represents a standard situation and it can be adapted to specific data using:
  - Power value of the machine in kW
  - Specific emission data
Building materials

- Cement, concrete (ETH, CIRAIG)
  - Cement data updated with data from industry in Europe and Canada
  - New concrete data for RNA region (specific classification)

- New products (Québec; CIRAIG); industry data
  - Steatite (soapstone)
  - Shale and shale bricks

- Regionalisation of existing products (to Canada) with industry data
  - Lime, limestone, quicklime
Aluminium in v3.1

- Data from IAI; provided by IAI and CIRAIG.
- New data on electricity production for the aluminium industry (per region of the world)
- New data on primary aluminium production (higher level of detail), per region of the world
- New data on secondary production (higher level of detail), Europe and GLO
The full aluminium update

Data provided by IAI, and implemented by IAI and CIRAIG
Slide: Pascal Lesage (CIRAIG)
Metals: new in v3.1

• **Magnesium** and **ferrosilicon** (data from IMA; provided by German Aerospace Centre)
  ‣ New more detailed data on production with regional data: China, Israel

• New products or new activities (CIRAIG), from industry data
  ‣ Iron pellet
  ‣ Gold and silver mining (Canada)
  ‣ Steel and aluminium lost-wax casting
  ‣ Steel forging
Thank you for your interest in ecoinvent version 3!

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