Regionalização de Dados de Inventários Ecoinvent

Seminario ACV do Brasilia
9. November 2015

Simon Gmünder
Quantis Latin America
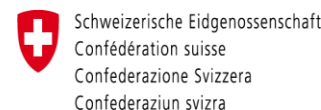simon.gmuender@quantis-intl.com

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Quantis
Sustainability counts

ecoinvent
Centre

UTFPR
UNIVERSIDADE TECNOLÓGICA FEDERAL DO PARANÁ

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

SRI

**Sustainable development.
Risks.
Opportunities.
Goals.
Strategy.**

Sustainable development.
Risks.
Opportunities.
Goals.
Strategy.

Regulations / laws
Fiscal & Economic
Resource allocation
Green procurement
…

Make decisions based on facts.
Not assumptions.

Life Cycle Assessment

Recycling · Resource extraction and refining · Manufacturing · Packaging and distribution · Use · End of life · COMPANY PRODUCT SERVICE SITE

A **global vision** for environmental impacts

Deliver science-based **decision-making tools**

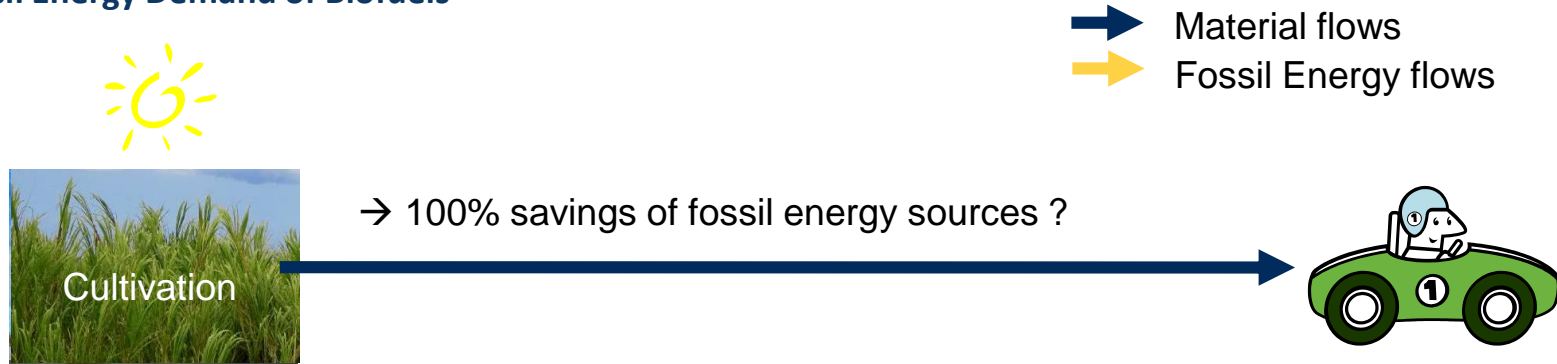# Why a life cycle approach?

Example Switzerland in 2006
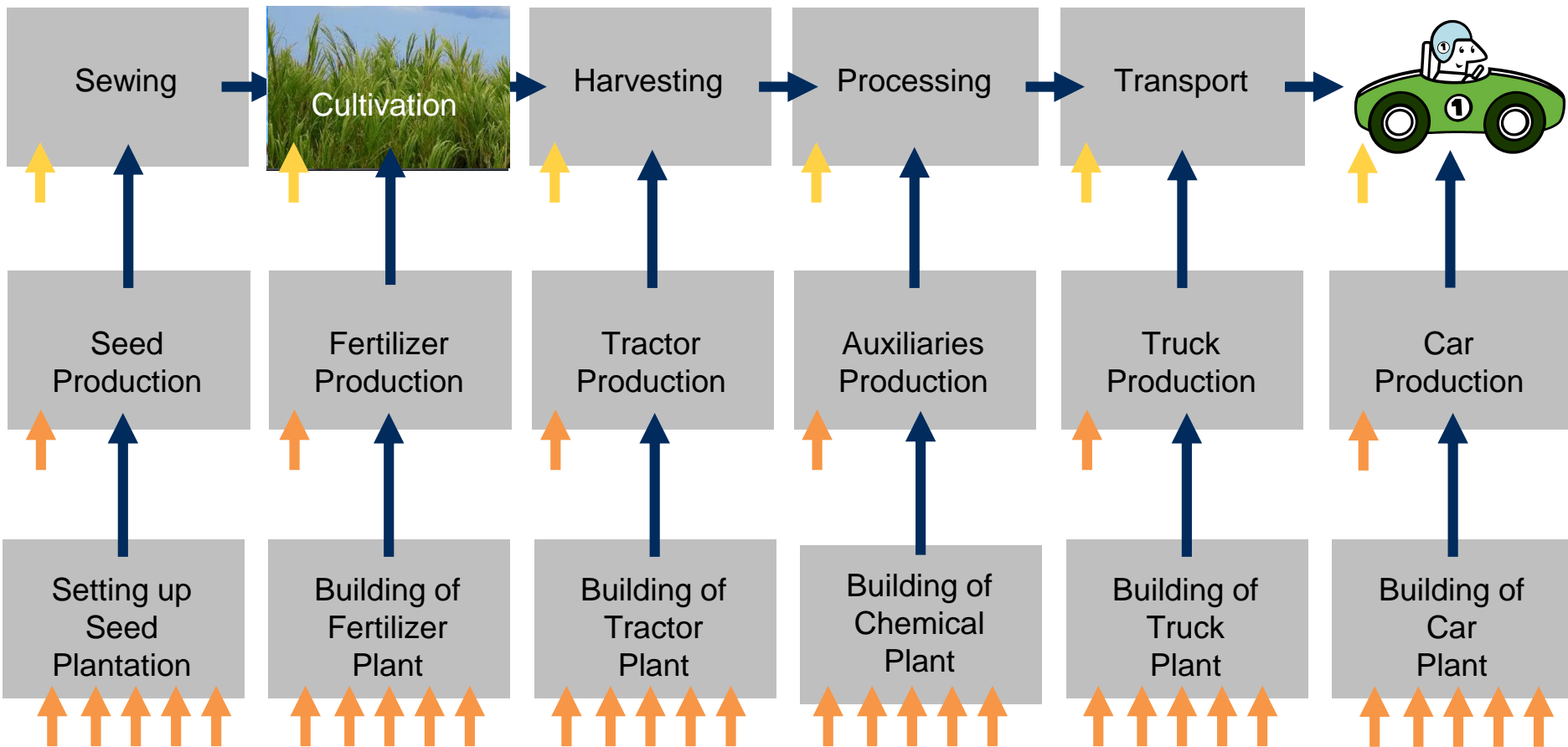Shall we promote biofuels to shift towards renewable energy?

Why Life Cycle Approach?

Example: Fossil Energy Demand of Biofuels

→ Material flows

→ Fossil Energy flows

Cultivation

→ 100% savings of fossil energy sources ?

Why Life Cycle Approach?

Example: Fossil Energy Demand of Biofuels

Why Life Cycle Approach?

Example: Fossil Energy Demand of Biofuels

LCA results:

77% reduction

30% reduction

Fossil energy consumption for transportation
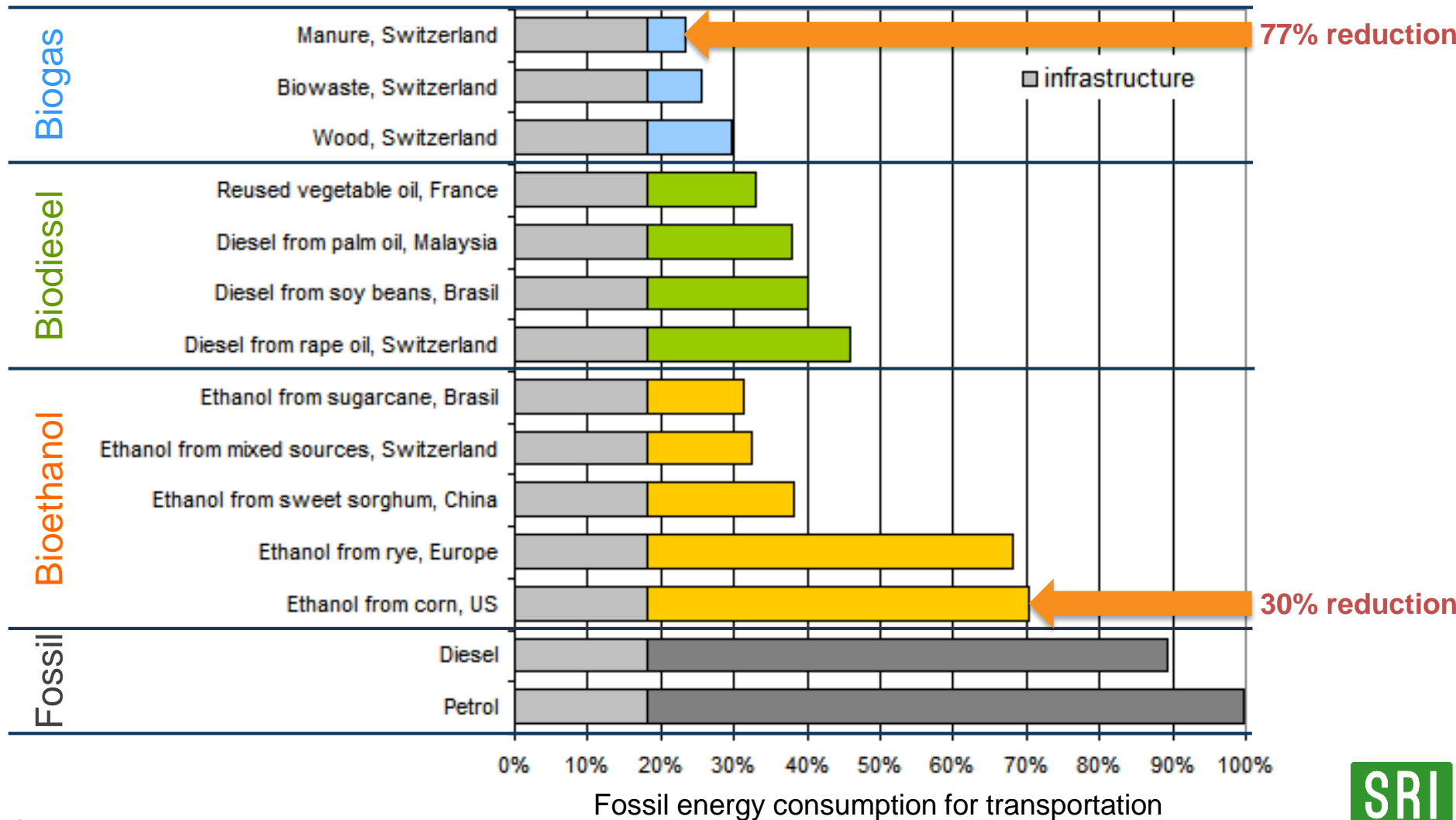
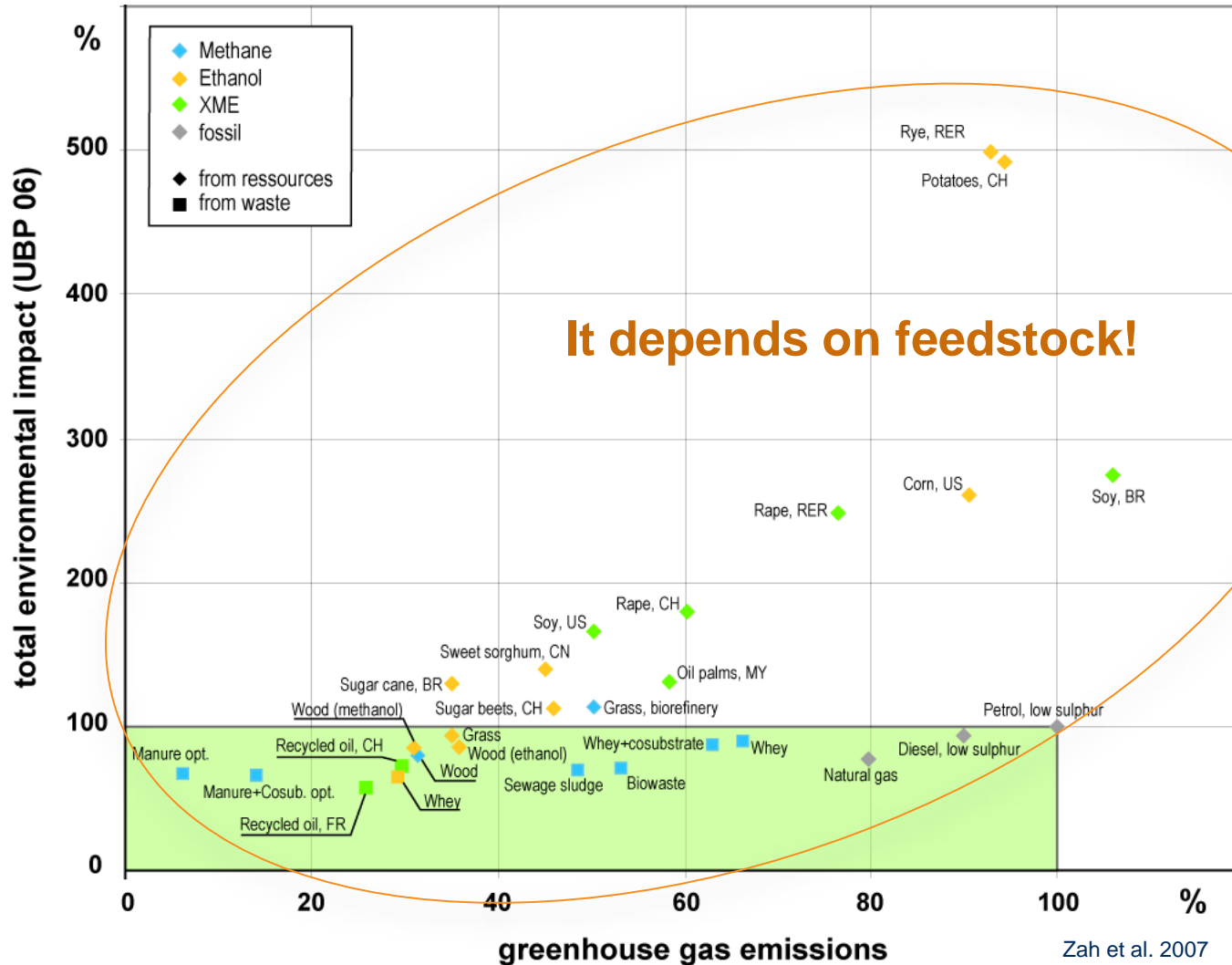Carbon footprint · Water footprint · Ecosystems quality · Natural resources · Human health

Why mulit-indicator?

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Avoid shift of environmental impacts

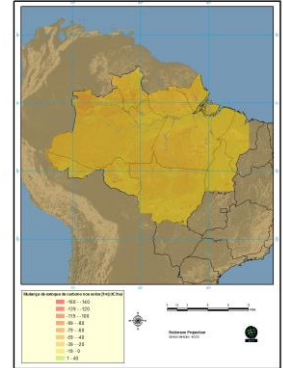For fossil fuels / plastic
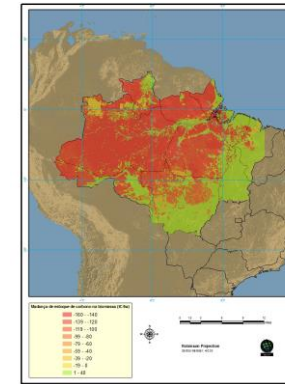… and for biofuels / bioplastics

Soil degradation

Ecotoxicity

Air pollution

Ressource depletion

Climate change

Biodiversity loss

Water contamination

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The impact of the LCA-study on policy setting in Switzerland

Zah et al. 2007

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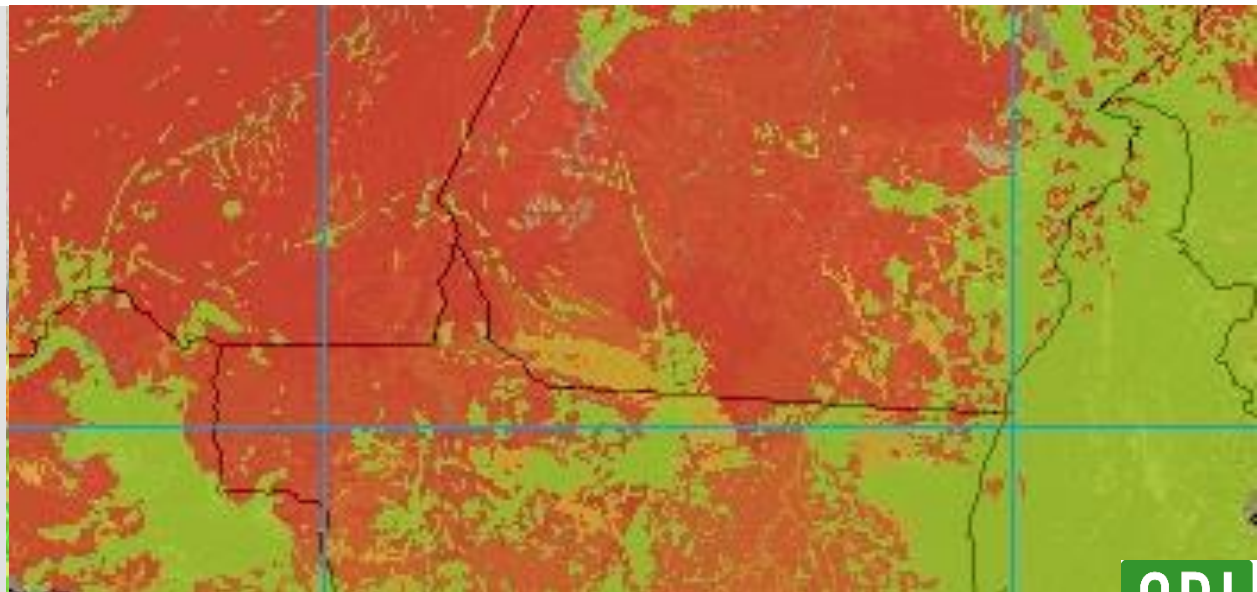# The impact of the LCA-study on policy setting in Switzerland

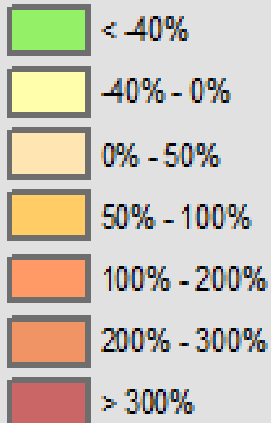**It depends on where and how the feedstock is cultivated and processed!**
Some parameters highly location specific
-> example palm biodiesel in Brasil

Palm Biodiesel: Net-GHG emissions

[%]

(green)	< -40%
(pale yellow)	-40% - 0%
(light tan)	0% - 50%
(orange)	50% - 100%
(darker orange)	100% - 200%
(orange-red)	200% - 300%
(red)	> 300%

Example Switzerland in 2006
Shall we promote biofuels to shift towards renewable energy?

Only promote if sustainable.
Linked to billions of investment and taxes.
High Data Quality Requirements (low level of uncertainty).

LCA study shows:
Benefits possible, but not guaranteed (except for biofuels from waste)
-> Average data not suitable, case to case decision

Primary data about critical aspects is required to provide value chain specific proof!
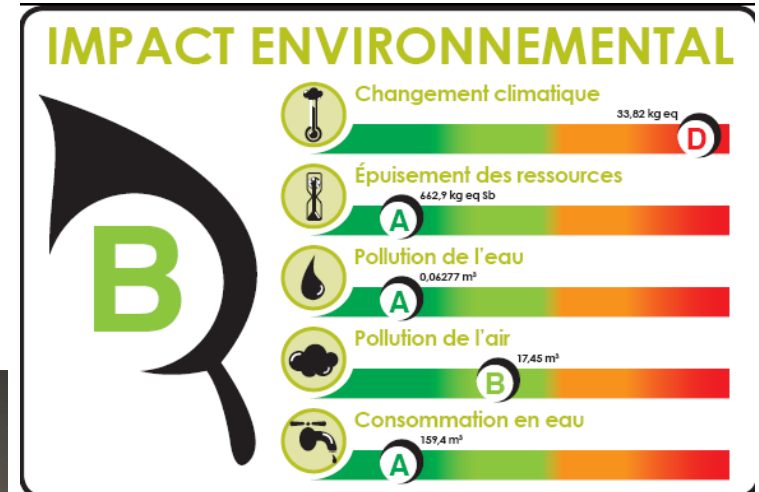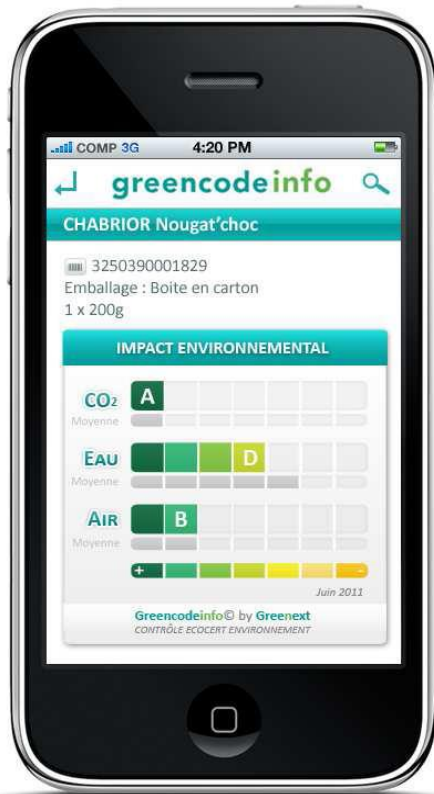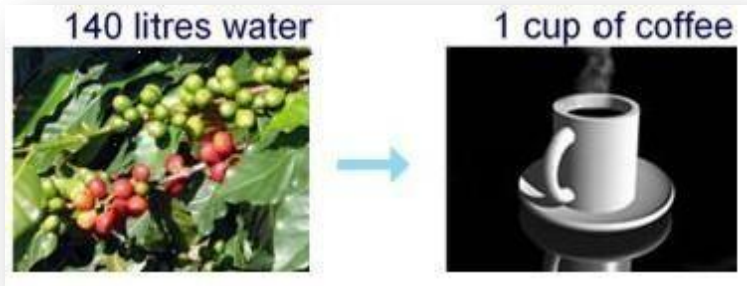Regionalization!

Stimulate Sustainable Consumption

Environmental Product Declaration

Product Environmental Footrpint

Provide additional information

140 litres water → 1 cup of coffee

IMPACT ENVIRONNEMENTAL

Changement climatique — 33,82 kg eq — D
Épuisement des ressources — 662,9 kg eq Sb — A
Pollution de l'eau — 0,06277 m³ — A
Pollution de l'air — 17,45 m³ — B
Consommation en eau — 159,4 m³ — A

COMP 3G — 4:20 PM
greencode info
CHABRIOR Nougat'choc
3250390001829
Emballage : Boite en carton
1 x 200g

IMPACT ENVIRONNEMENTAL

CO₂ — A — Moyenne
EAU — D — Moyenne
AIR — B — Moyenne

Juin 2011

Greencodeinfo© by Greenext
CONTRÔLE ECOCERT ENVIRONNEMENT

100% PUR JUS Raisin
Casino
2,6%* pour 100 g
indice environnemental
1L

SRI

Sustianbility strategy
risk mitigation
Supply chain management
Communication
...

**Company perspective:
Creating Value from your Sustainability
Data**

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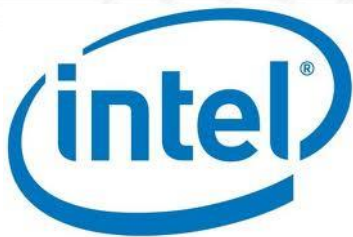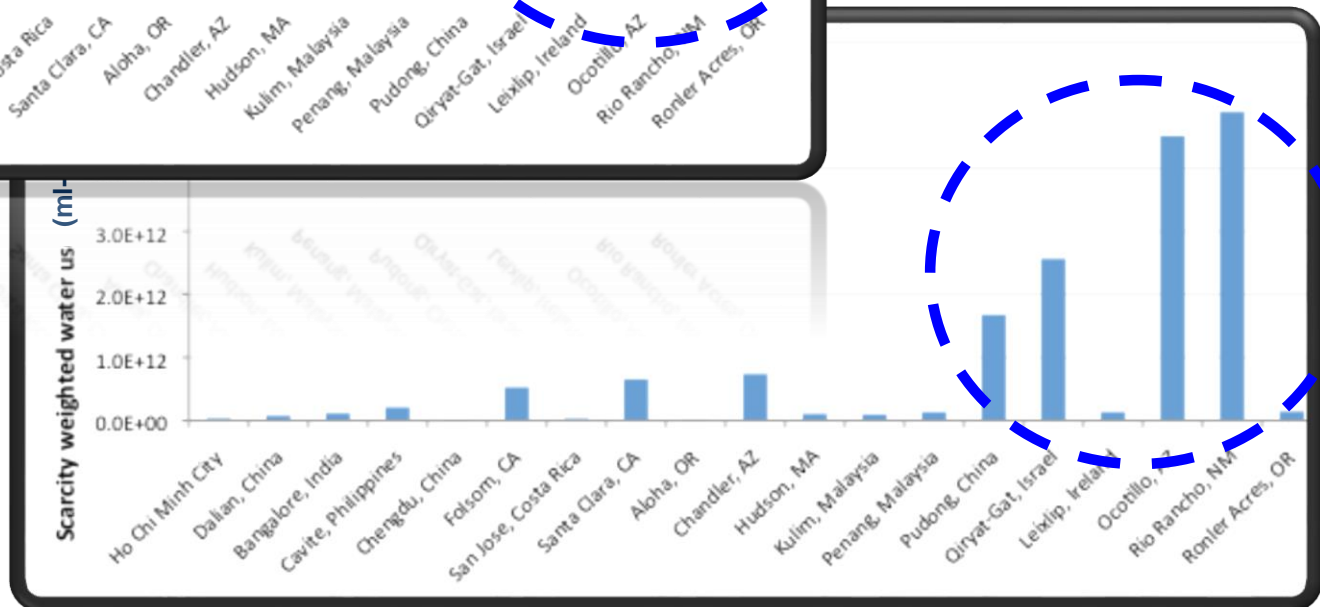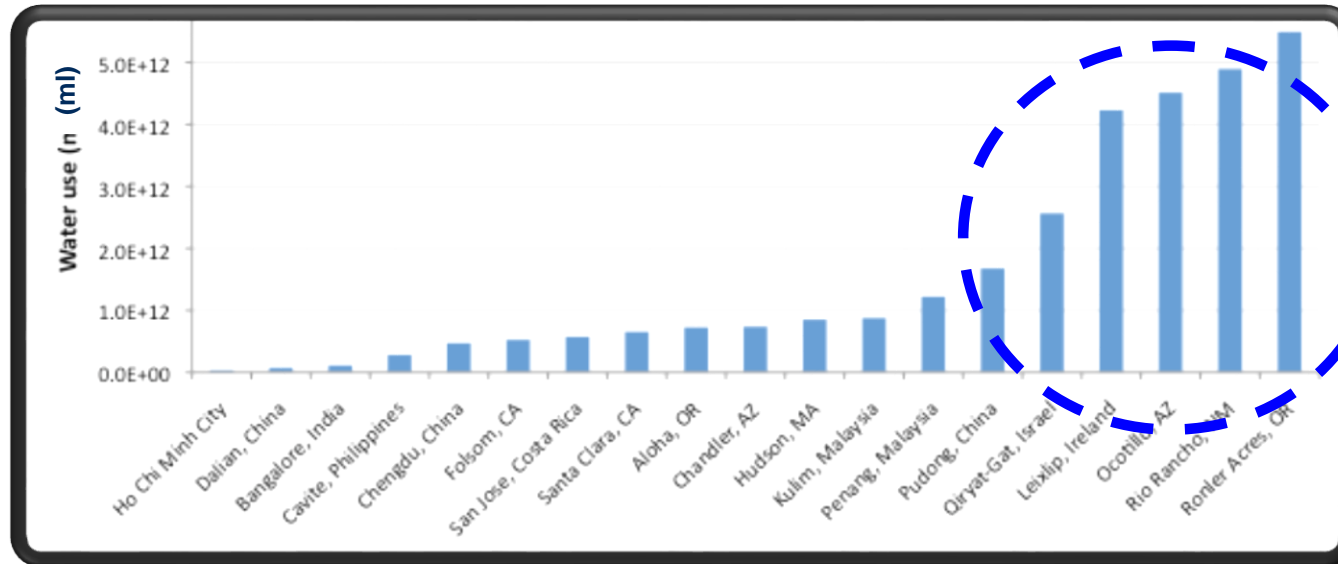
WEF Global Risks Report 2015

Water footprint: Identify potential risks & prioretize actions

2010 Corporate Responsibility Report

How do you do an LCA?

LCA framework, as described by ISO 14040: 2006

- Goal & scope definition
- Inventory analysis
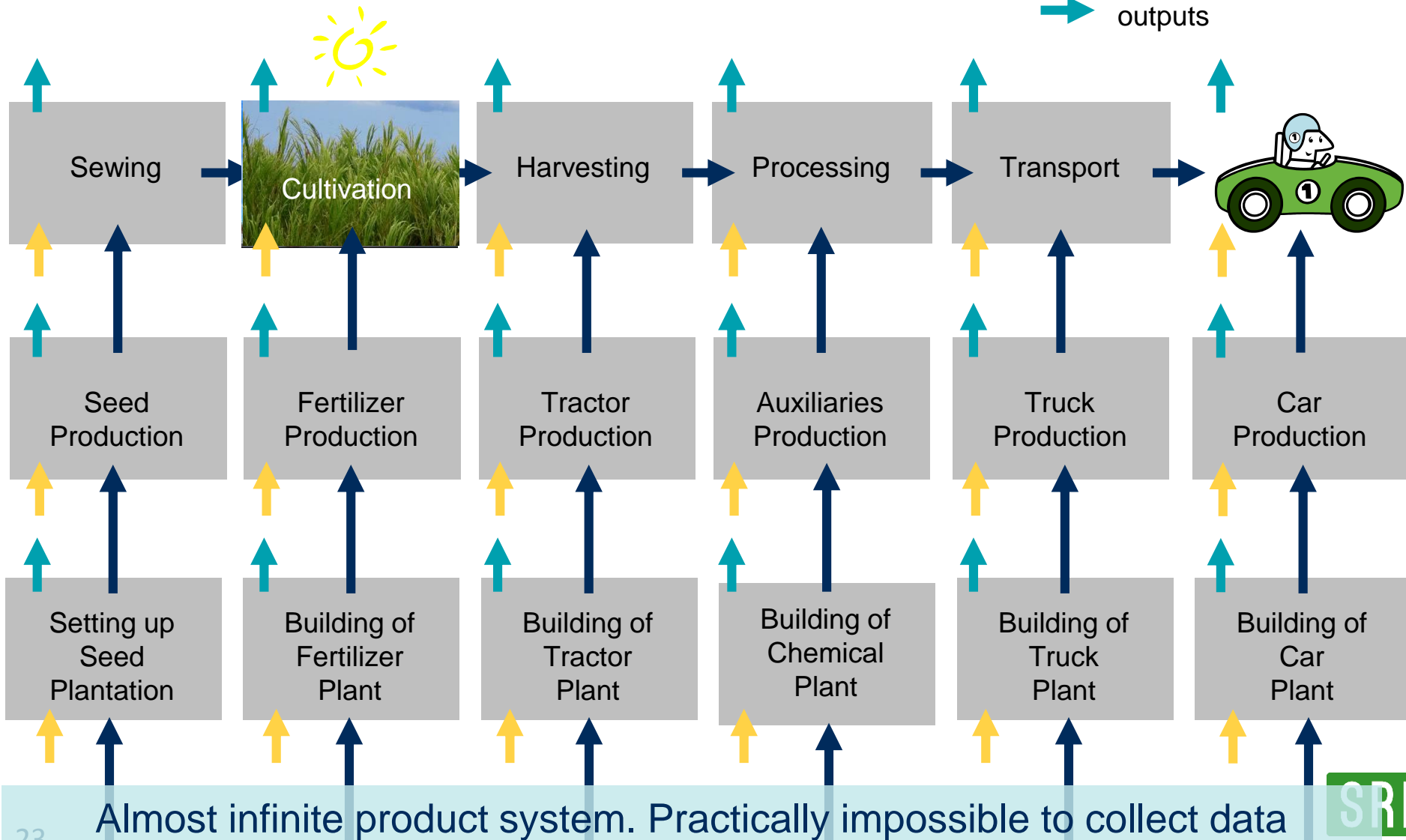- Impact Assessment
- Interpretation
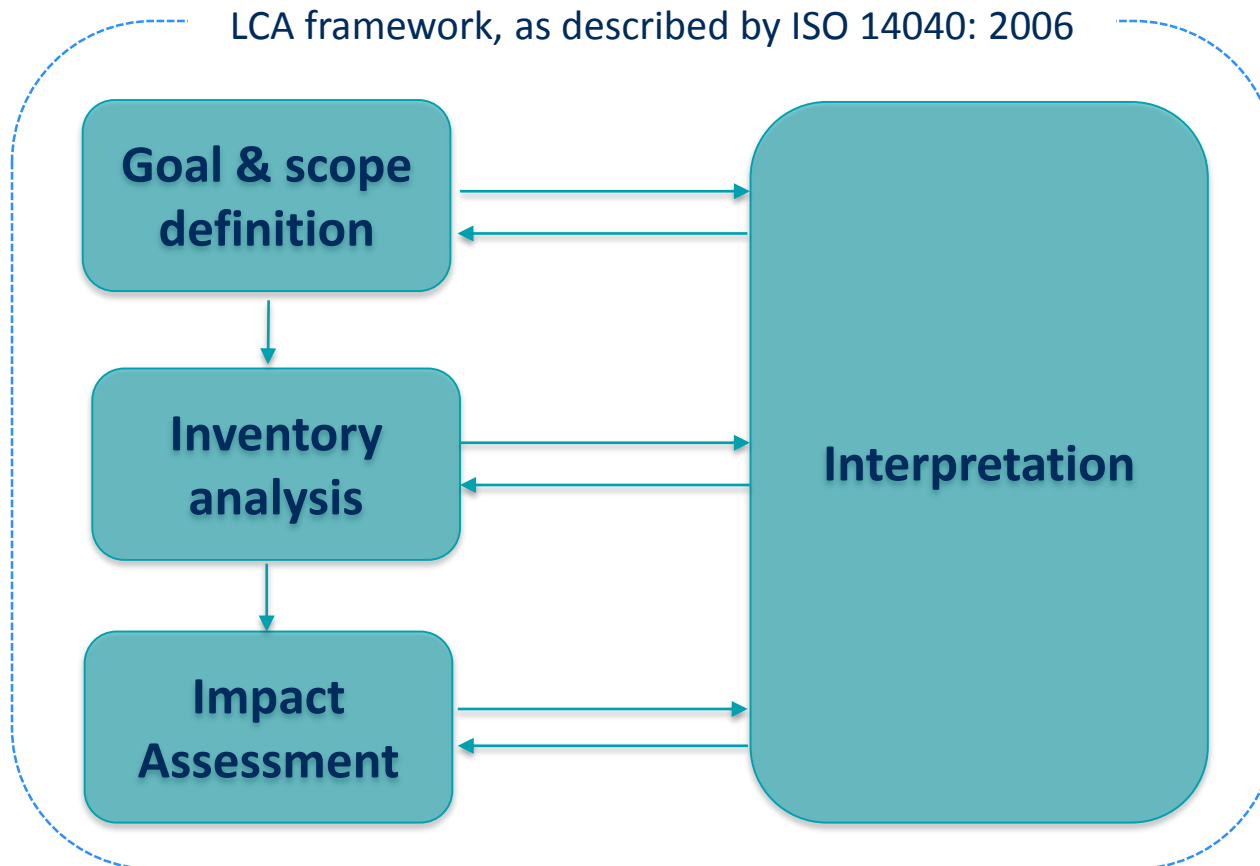
ISO 14040. 2006. Environmental management – life cycle assessment – principles and framework. International Standard Organization, Geneva, Switzerland.

The need for background data

Example: Fossil Energy Demand of Biofuels

→ Material flows
→ inputs
→ outputs

Sewing → Cultivation → Harvesting → Processing → Transport →

Seed Production | Fertilizer Production | Tractor Production | Auxiliaries Production | Truck Production | Car Production

Setting up Seed Plantation | Building of Fertilizer Plant | Building of Tractor Plant | Building of Chemical Plant | Building of Truck Plant | Building of Car Plant

Almost infinite product system. Practically impossible to collect data

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SRI

Who is ecoinvent

- The world's leading transparent LCI database for over a decade

- Founded by Swiss Institutes and institutions in 1997

- Database up and running since 2002

- A not-for-profit association

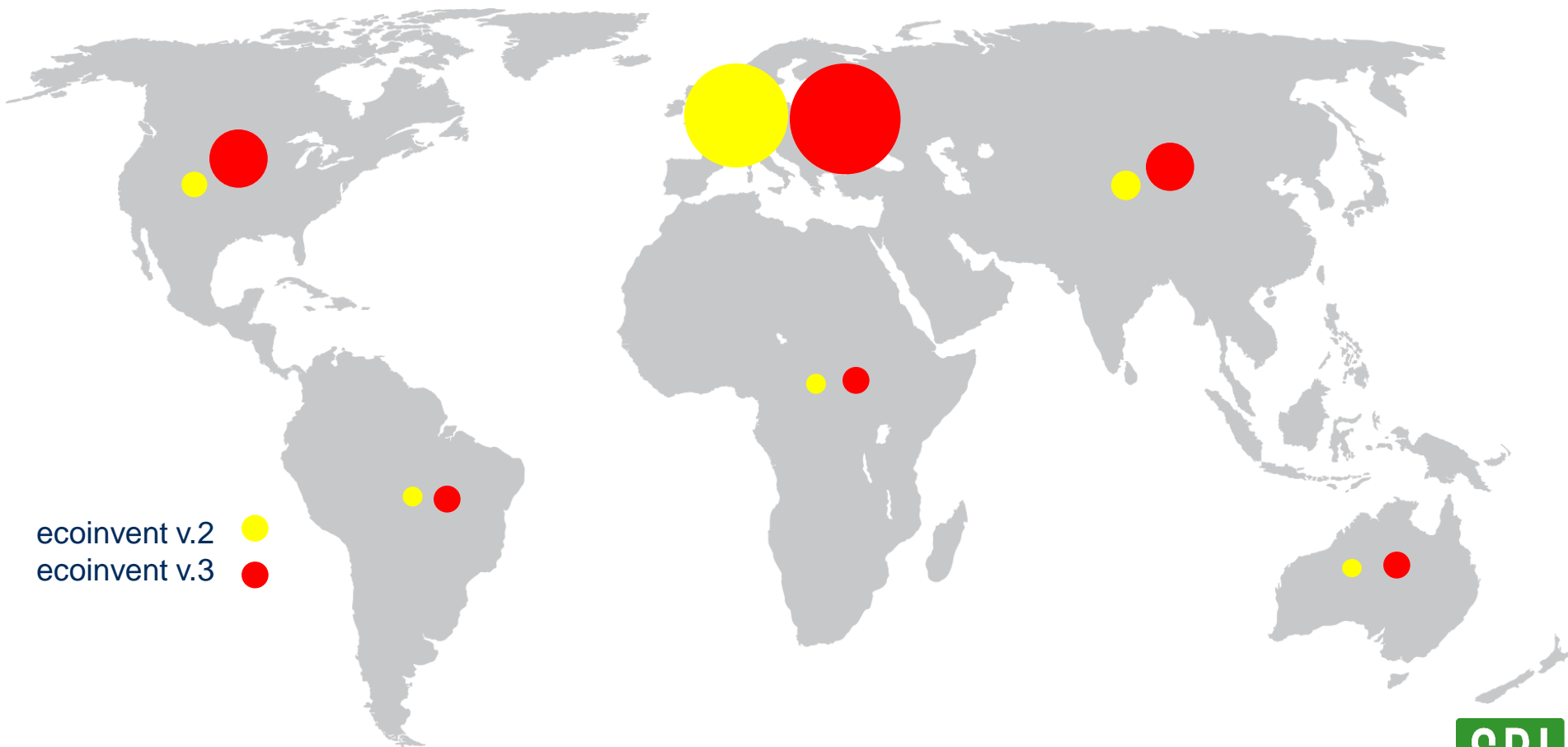# LCI background data are concentrated

ecoinvent v.2 🟡
ecoinvent v.3 🔴

Challenge of Sustainable Supply Chains

DEMAND

→ **Growing concerns on sustainability of globally traded goods**
→ **Preference for local products**

Gap of Information

Favourable production conditions

SUPPLY

→ **Limit access to «green» markets**
→ **Criticism on misuse of trade policies**

→ **Strong demand for LC-based studies and LCI data**
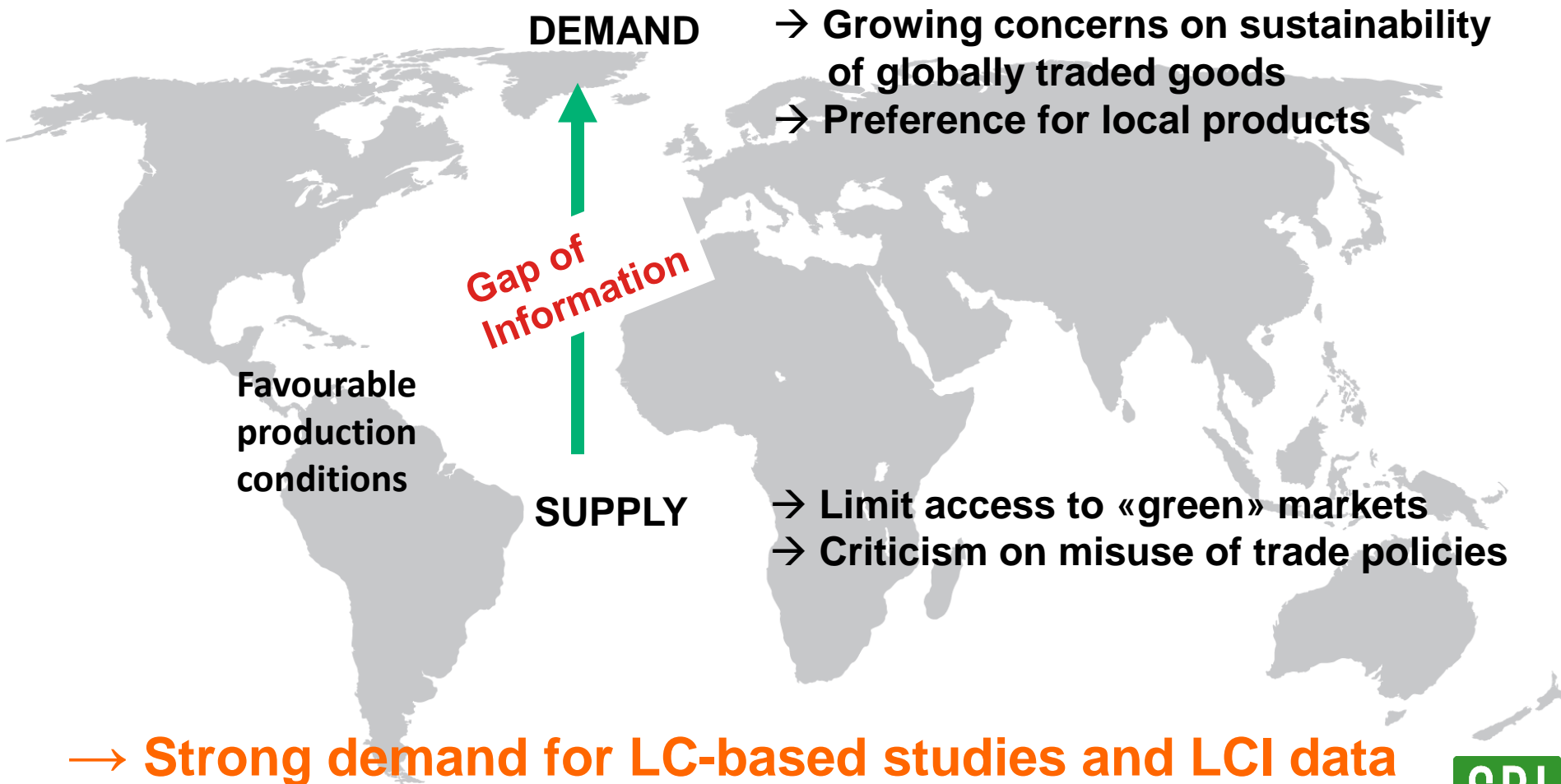
SRI project overview

✓SRI Component A: Life Cycle Assessment

✓ Centre for regional networks

✓ LCA/LCI expertise

✓ Data collection

Build LCA/LCI expertise and critical core of LCI data for newly industrialized countries

✓Activities in <u>Brazil</u>, India, South Africa, Egypt

✓Mobilization: Jan 2015 – Dec 2017 (2018)

Regional network centre

Regional coordinator: Universidade Tecnológica Federal do Paraná

Management: Cassia Ugaya

Council of the Coordination Center composed by:

- Brazilian Life Cycle Association (ABCV)
- Brazilian Institute of Science and Technology Information (IBICT)
- Brazilian Business Life Cycle Network (RBACV)
- Brazilian Business Council on Sustainable Development (CEBDS)
- National Cleaner Production Center (NCPC)
- Others

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Regional centres and coordinators

facilitator and coordinator for the SRI project in Brazil..

..to replicate on the successful model of the Swiss ecoinvent centre.

✓ consult and interact with regional stakeholders

✓ organize training workshops and coordination meetings on LCI generation

✓ organize and coordinate data collection projects and actively approach potential data providers

✓ synchronize with the international LCI/LCA community

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Capacity building workshop

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
October	26	27	28	29	30	31	1
			Rio de Janeiro Towards Latin American Life Cycle data				
November	2	3	4	5	6	7	8
		São Paulo How to Create Value from Sustainability Assessment through Life Cycle Thinking		**Curitiba** How to Create Value from Sustainability Assessment through Life Cycle Thinking	**Curitiba** Providing Data to the ecoinvent Database		
	9	10	11	12	13	14	15
	Brasilia Life Cycle Assessment in the Policy Context						

for LCA practitioners   for Private sector   for Data Providers   for Policy makers and industry associations
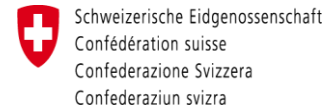
& other capacity building activities

Financed by

Part of the
SRI project

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

SRI SUSTAINABLE RECYCLING INDUSTRIES

Partners

cebds

ibict

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Rede Empresarial
Brasileira de Avaliação
de Ciclo de Vida

FIEP SESI SENAI IEL   FIEP

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Data collection approaches (type of data)

Energy, Transportation, Infrastructure

Electricity, modes of transportation

Important sectors for the country

Agro-industry, forestry products, chemicals, cement, metals

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Data collection
Initial calls and future plans

✓ Open upcoming calls according to the time-schedule devised with regional coordinators

✓ Brazil
  - ✓ Agricultural data
  - ✓ energy, transportation
  - ✓ construction material

✓ Value of the calls
  - ✓ Depends on the scope and level of details required

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SRI project – data rights

Data collection is tailored to the Brazilian needs

Local and international data providers are responsible for data collection (through open calls)

Ecoinvent provides the necessary infrastructure for validation and publishing of the data

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Data

Freely available to Brazilian community, while providing the collected data for publication in the ecoinvent database.
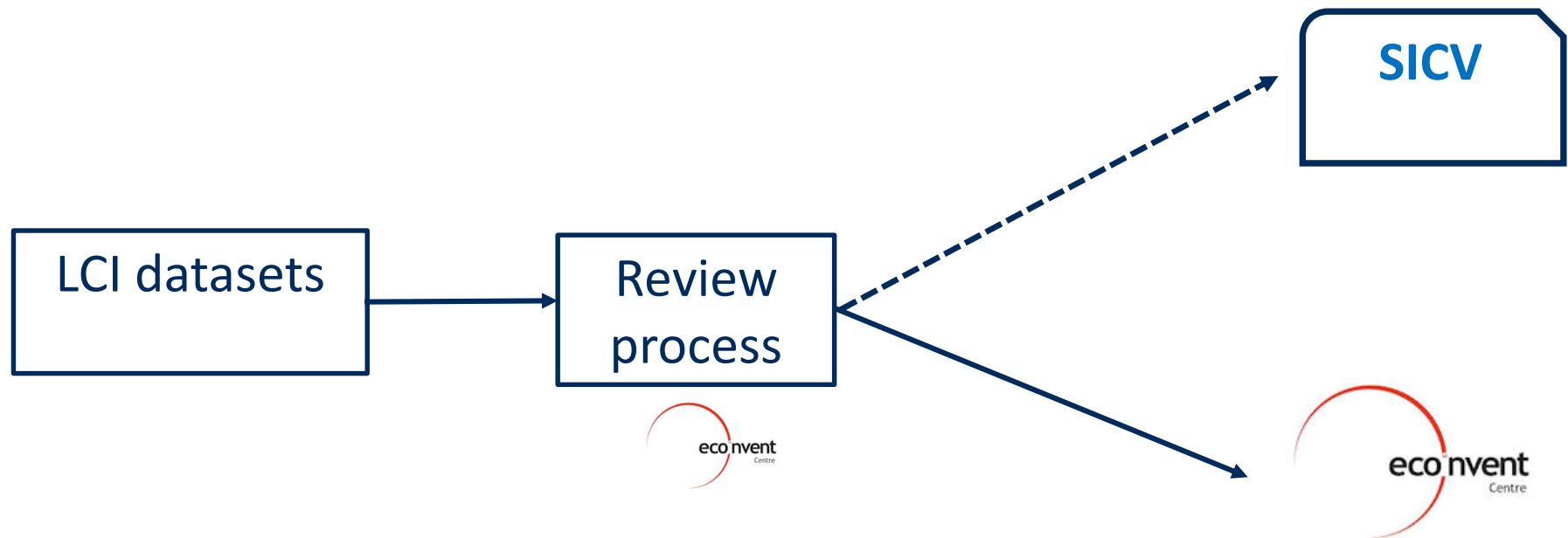
Questions?

Contact us

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safaei@ecoinvent.org

Cassia Ugaya
cassiaugaya@utfpr.edu.br