



Valueflows

REA accounting for the climate

<https://valueflo.ws>

REA

REA stands for **Resources, Events, Agents**.

It started out as an enterprise accounting model but has developed into an overall economic model for networks.

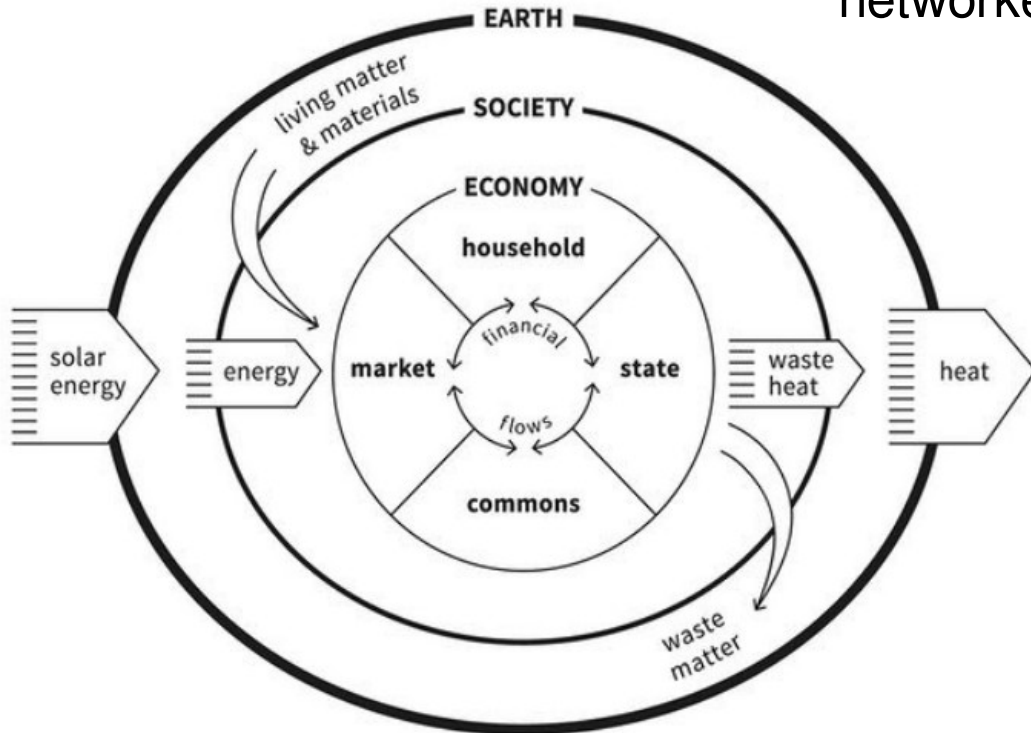
The traditional double entry accounting ($\text{Assets} - \text{Liabilities} = \text{Owner Equity}$) model does not work for networks, because a network does not have a singular ownership.

The REA economic model does work.

Climate accounting for the earth's networks of resource flows needs REA or something like it.

Value Flows

Value Flows is a set of common open vocabularies based on REA. It describes **flows of economic resources of all kinds** within networked economic ecosystems.



But it works for everything in this version of Kate Raworth's doughnut model, not just the Economy circle.

And it's a lot easier to record and analyze all these circles of resource flows with a common vocabulary.

REA core definitions

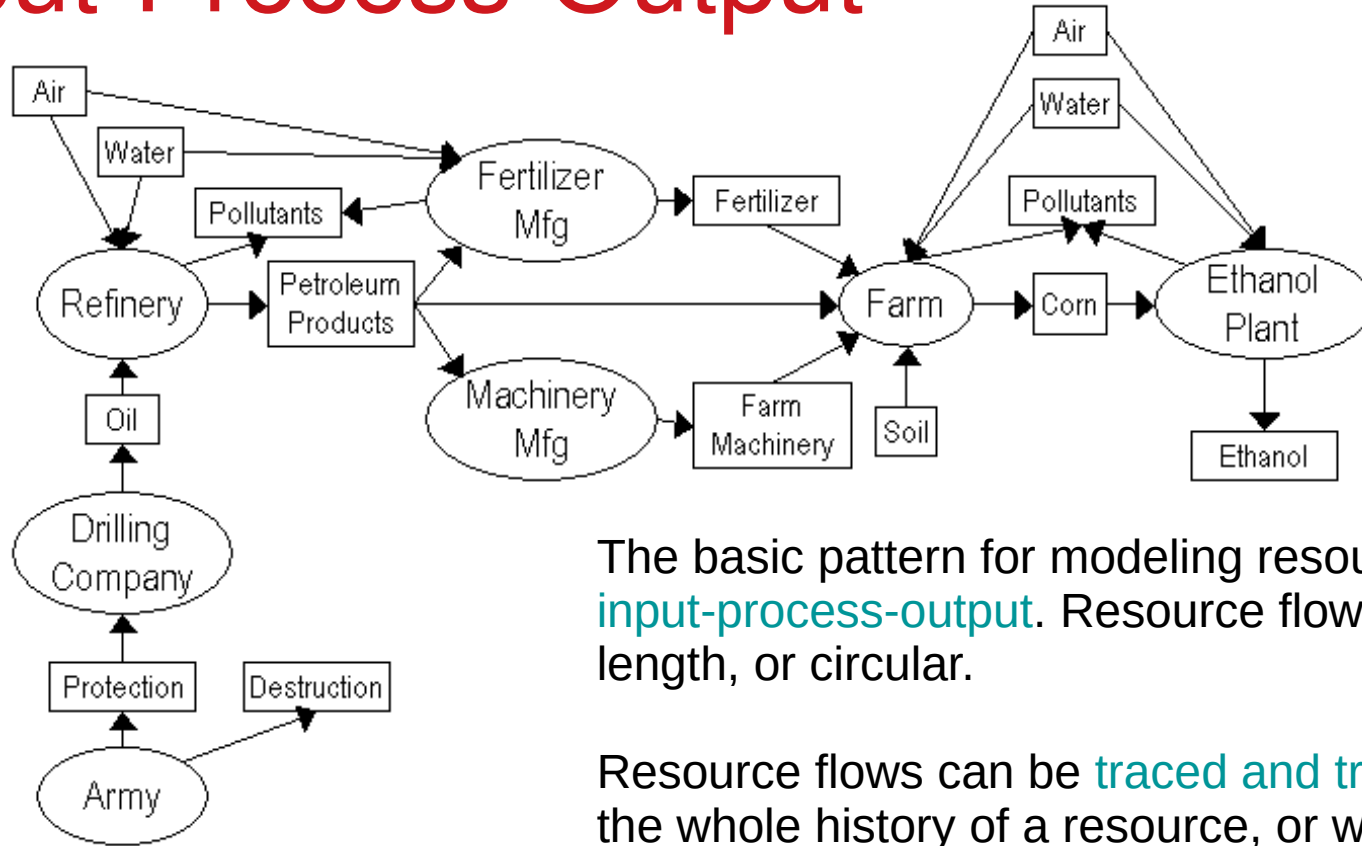
Agents are Economic Agents, who perform Economic Events affecting Economic Resources. Agents can be individual persons or organizations.

An Economic **Event** can take actions like create, change, consume, use, or destroy Economic Resources, or transfer them from one Agent to another, or transport them from one place to another.

Economic **Resources** could be

- Useful goods and services
- Money, tokens, credits
- Energy
- Labor power, skills
- Pollutants, CO₂, methane, heat
- Air, water, soil microbiota

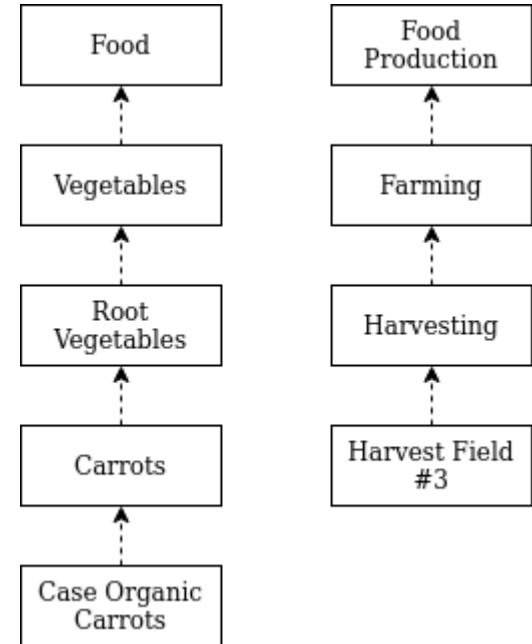
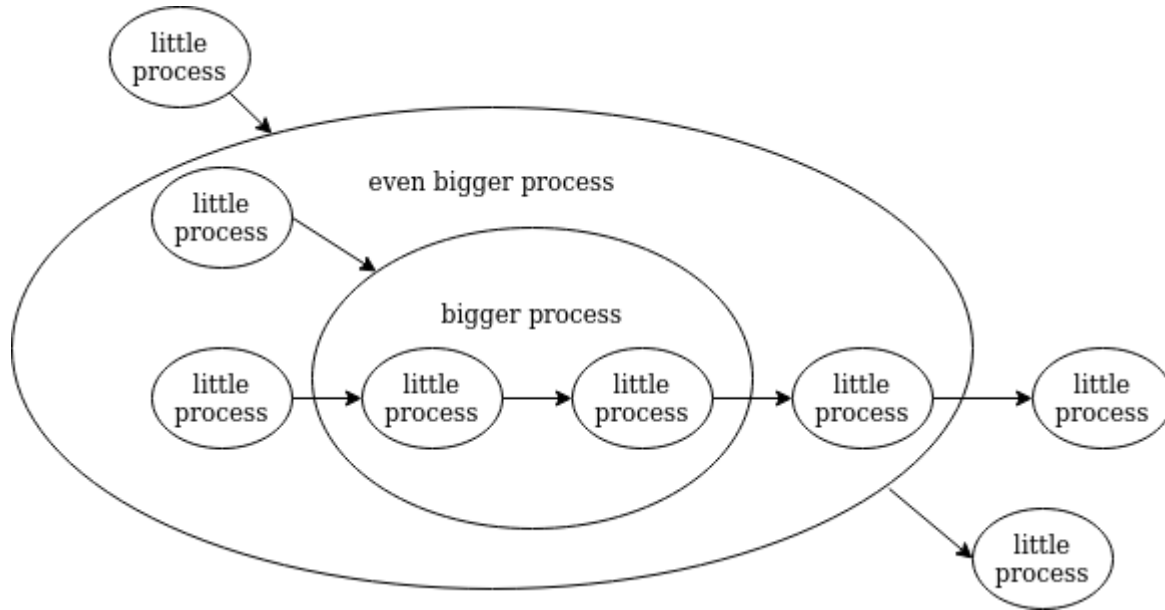
Input-Process-Output



The basic pattern for modeling resource flows is **input-process-output**. Resource flows can be of any length, or circular.

Resource flows can be **traced and tracked**, to see the whole history of a resource, or what happened to a resource after it was produced.

This works at different levels...



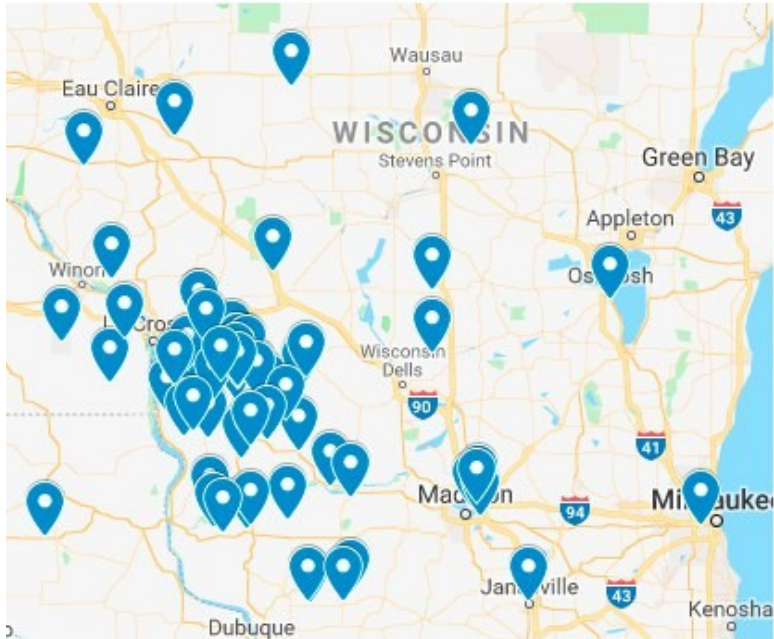
Operational

Learn**Deep**
MILWAUKEE



FIFTH SEASON COOPERATIVE

local food, always in season



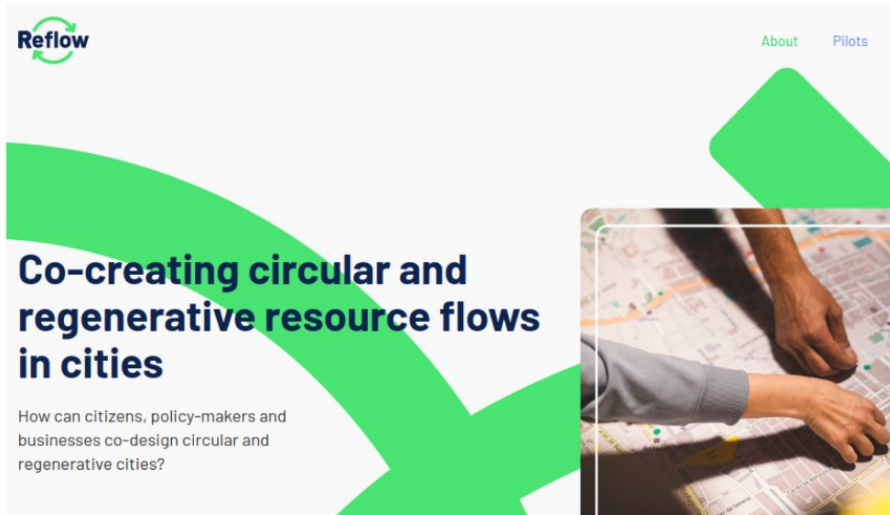
Guerrilla Translation

SENSORICA peer into the future

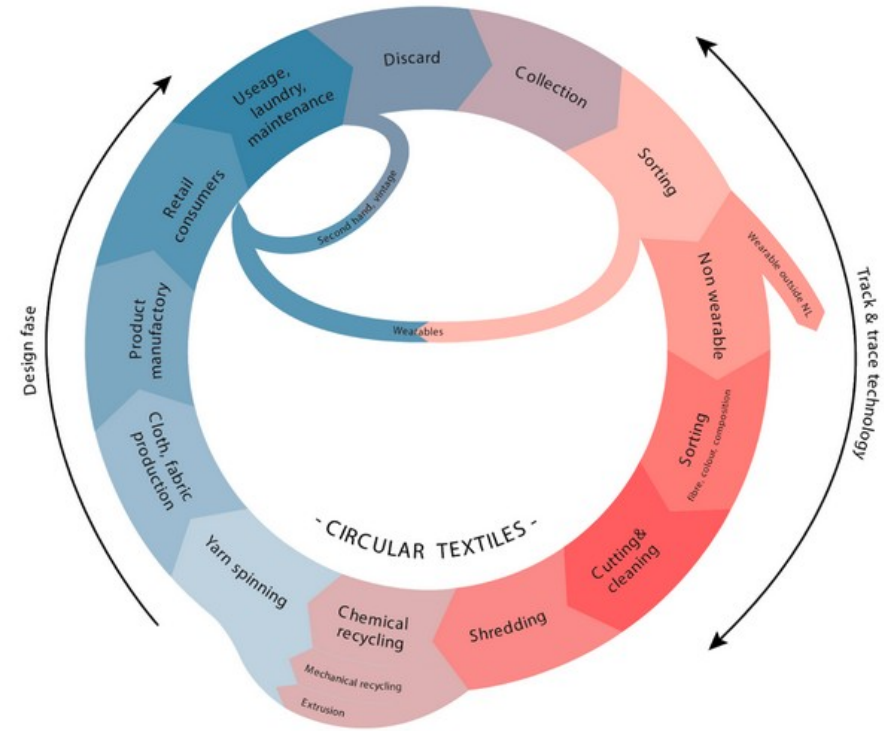


Municipal

Reflow is a project in process that is using Value Flows for municipality-wide circular economy projects in Europe.

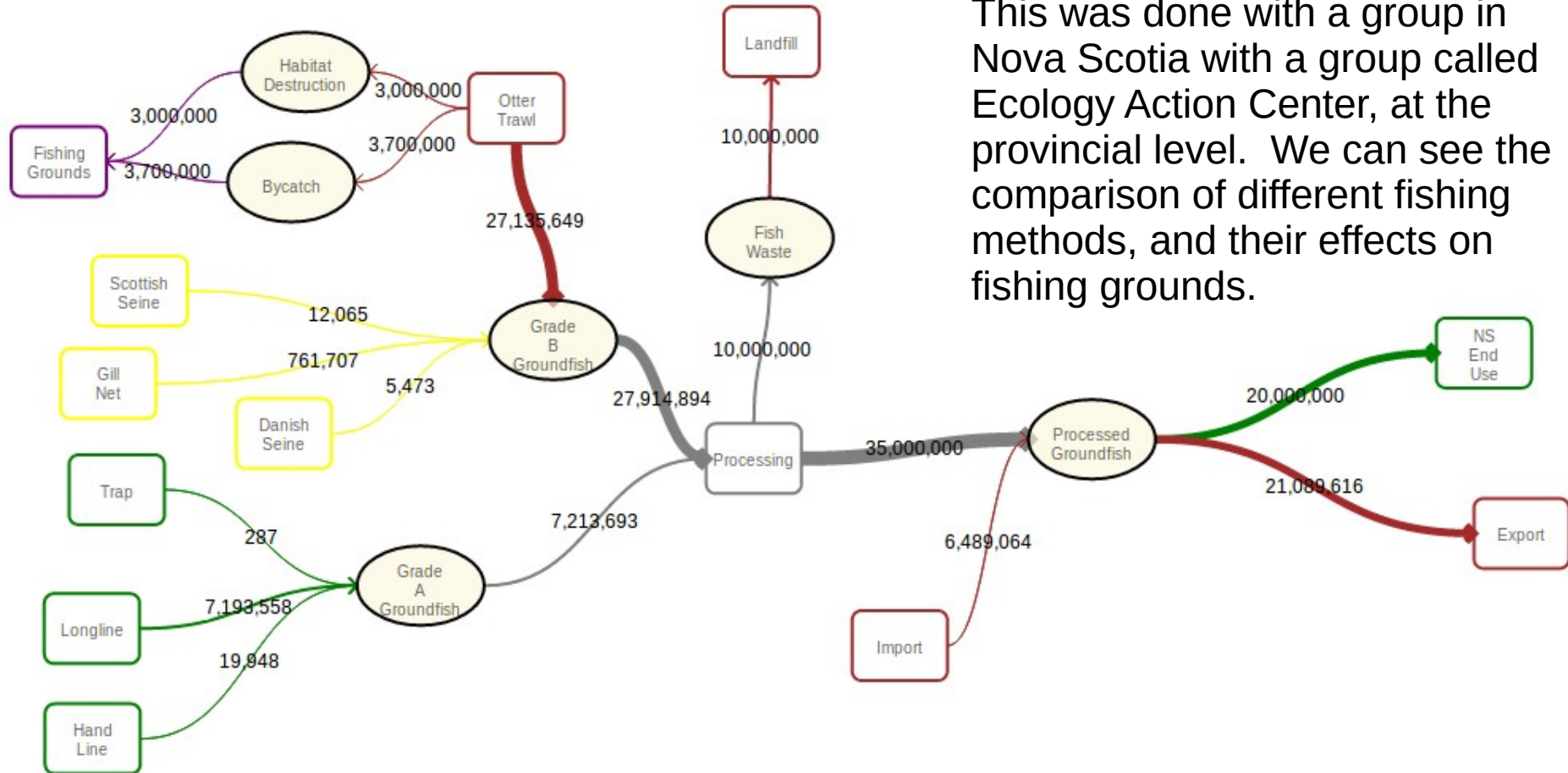


REA Accounting for the Climate



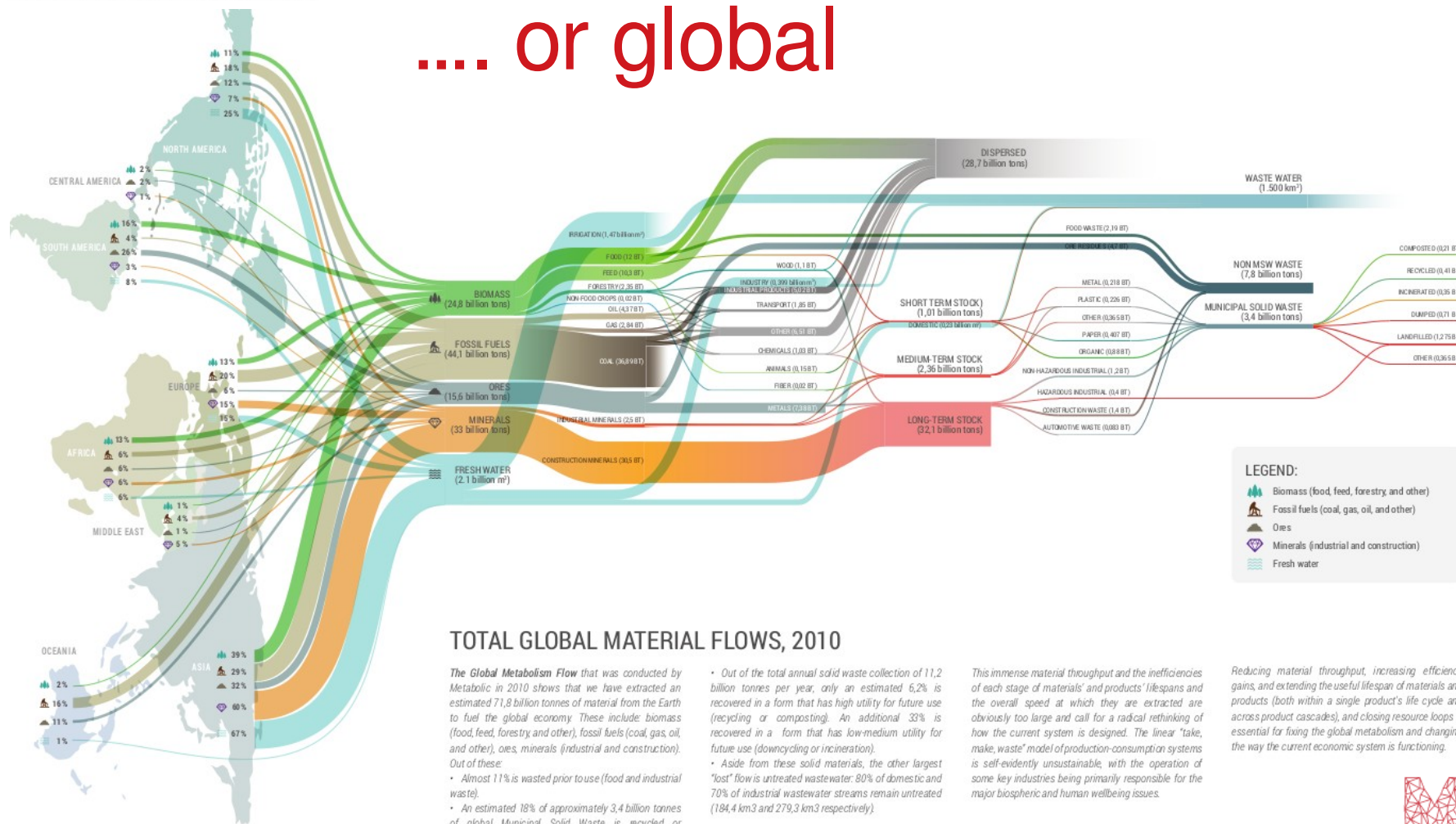
In Amsterdam, they are working with the textile industry.

Provincial



This was done with a group in Nova Scotia with a group called Ecology Action Center, at the provincial level. We can see the comparison of different fishing methods, and their effects on fishing grounds.

.... or global



TOTAL GLOBAL MATERIAL FLOWS, 2010

The *Global Metabolism Flow* that was conducted by Metabolic in 2010 shows that we have extracted an estimated 71,8 billion tonnes of material from the Earth to fuel the global economy. These include: biomass (food, feed, forestry and other), fossil fuels (coal, gas, oil, and other), ores, minerals (industrial and construction). Out of these:

- Almost 11% is wasted prior to use (food and industrial waste).
- An estimated 18% of approximately 3,4 billion tonnes of global Municipal Solid Waste is recycled or composted. An additional 10% is incinerated. The remainder is lost.

- Out of the total annual solid waste collection of 11,2 billion tonnes per year, only an estimated 6,2% is recovered in a form that has high utility for future use (recycling or composting). An additional 33% is recovered in a form that has low-medium utility for future use (downcycling or incineration).
- Aside from these solid materials, the other largest "lost" flow is untreated wastewater: 80% of domestic and 70% of industrial wastewater streams remain untreated (184,4 km³ and 279,3 km³ respectively).

This immense material throughput and the inefficiencies of each stage of materials' and products' lifespans and the overall speed at which they are extracted are obviously too large and call for a radical rethinking of how the current system is designed. The linear "take, make, waste" model of production-consumption systems is self-evidently unsustainable, with the operation of some key industries being primarily responsible for the major biospheric and human wellbeing issues.

Reducing material throughput, increasing efficiency gains, and extending the useful lifespan of materials and products (both within a single product's life cycle and across product cascades), and closing resource loops is essential for fixing the global metabolism and changing the way the current economic system is functioning.

LEGEND:

-  Biomass (food, feed, forestry and other)
-  Fossil fuels (coal, gas, oil, and other)
-  Ores
-  Minerals (industrial and construction)
-  Fresh water



Ways to contribute

- Use Value Flows for your project, we can help you model your flows and map to Value Flows. More use cases are always helpful for the vocabulary.
- Contribute to the Value Flows vocabulary project, <https://gitter.im/valueflows/welcome>.
- If Value Flows can contribute anything to the protocols for the Climate Collabathon, we are happy to help with that.

Links and references

Value Flows documentation: <http://valueflo.ws>

REA links: <https://valueflo.ws/appendix/rea.html>

Kate Raworth's doughnut: <https://www.kateraworth.com/>

Fifth Season Cooperative: <http://www.fifthseasoncoop.com/>

Sensorica: <https://www.sensorica.co/>

Guerrilla Translation: <https://www.guerrillatranslation.org/>

LearnDeep: <https://learndeep.org/>

FairCoop: <https://wiki.fair.coop/en:faircoop:start>

Nova Scotia fish project: <http://locecon.org/nova-story/>

Reflow: <https://reflowproject.eu/>

Metabolic: <https://www.metabolic.nl/>