

Towards stewardship and circular use for sustainable land and soil management

Deltares, RWS, University of Hasselt and OVAM organized a double workshop at 25 February #WRF19 on Land Stewardship and Circular Use of soil and land as means to avoid degradation of the soil-sediment-water-system and enhance the use of their ecosystem services.

In the **first workshop**, Margot de Cleen (RWS) and Bernard Vanheusden (UHAsselt) gave an introduction to land stewardship as an instrument to invoke circular land and soil use and to create multifunctional and public values. The current transitions towards the Sustainable Development Goals ask for instruments to cope with competing land claims. They described the state of the art in the Netherlands and Flanders. Daphina Misiedjan (University Utrecht) gave an inspirational lecture on possible juridical frameworks of our relationship with nature: Stewardship, Trusteeship & Guardianship. Afterwards we discussed land stewardship and its relation to the Sustainable Development Goals (SDGs), based on a few cases (landfills, urban and brownfield land, rural land). We searched for the narrative and strategies for action.

In the **second workshop**, the central theme was Circular Economy and its relationship to soil and land management. Sophie Moinier (Deltares) introduced the topic. Linda Maring (Deltares) gave examples on "circular land use" and "soil inclusive urban planning". Dirk Dedecker (OVAM) gave another set of examples on circular soil and sediment use. After this, the attendees added to the examples from their own experience. We discussed how to implement new opportunities in practice: which conditions and requirements, knowledge and stakeholders do we need?

The **conclusions** of both workshops included some key ingredients:

It's complex! We are talking about systems: natural, social and economic. This asks for awareness of the possibilities that different interests may offer. The SDGs therefore are a good framework. We need an interdisciplinary and holistic approach to connect topics as well as partnerships and mutual trust between parties. New business models and innovation are needed to make these transitions feasible.

Land stewardship and CE as strategies for sustainable soil and land management: part 1

Land and soil stewardship

Land and soil stewardship need parties to take joint responsibility for their soil and land. Who are your possible partners? These become clear when you discuss for a region or an area what developments you would like to achieve or what societal challenges you want to tackle. By using the SDGs as a framework you not only get an idea of the challenges and their urgency but also of ways to tackle these. In groups we discussed the way ecosystem services of soil and land can contribute to challenges in urban and rural areas but also in case of landfills. Subsequently the focus was on conditions to sustainably use or restore these services as well as requirements such as financing, juridical agreements, stakeholder involvement and knowledge to realize and monitor land stewardship. At last we discussed the role of land owners and industry as well as actions needed from stakeholders

Key messages

Land Stewardship could be a very good example of a concept to realize societal goals, such as the SDGs together with stakeholders in urban and rural areas or brownfields.

A robust and healthy soil is essential for realizing the SDGs. This requires restoration of degraded land and soils. Circular land and soil management is a key element in this realization. This requires partnerships and new business models.

To deal with degraded urban and rural land and soils is complex. Land stewardship is a model to realize partners taking shared responsibility in circular managing these areas. Thus the partners in these areas contribute to SDGs and create public values. These innovative and interdisciplinary models ask for awareness building between different sectors using land and soil, such as agriculture, energy or climate. The transitions these sectors need can only be achieved with sustainable and circular soil and land use. Not only do they need new knowledge, they also create innovation and jobs.

Landfills

Landfills can contribute to several SDGs (e.g. 3, 4, 7, 8, 9, 11, 12, 13, 15) although a lot of attention is needed to avoid health risks and risks for contamination of the environment. At the same time the landfill can get new functions for society and spare land elsewhere such as recreation, circular use of resources, solar fields or biomass production, biogas production. Land stewardship can lead to new partnerships, innovation by connecting societal opportunities. To avoid landfilling and invoke circular use of resources awareness is needed. Taxes, pricing or restrictions for reusable waste are policy options. Consumers as well as producers and the EU are important stakeholders.

Rural contaminated land

Rural areas are very important while they comprise the largest acreage compared to urban areas. They can contribute to SDGs such as 2, 3, 4, 6, 7, 8, 12, 13 and 15. A great deal of the public values assemble in rural areas such as food production, climate adaptation and mitigation, biodiversity, drinking water security etc. As land is most privately owned it is hard to get these public values achieved without extra measures or agreements. This is very complex! Awareness is needed, as well as insight in stakeholder interests, willingness to share responsibilities and also willingness to share in costs and benefits. As the interests vary an interdisciplinary approach is needed.

Urban land /brownfields

To give value to degraded urban land and brownfields new business models are needed: land and soil stewardship should be big business. Urban land and brownfields have links to several SDGs (e.g. 3, 8, 9, 11, 12, 15) and thus behold social, economic and ecological values.

What are carriers for new business models (how to move things) towards stewardship?

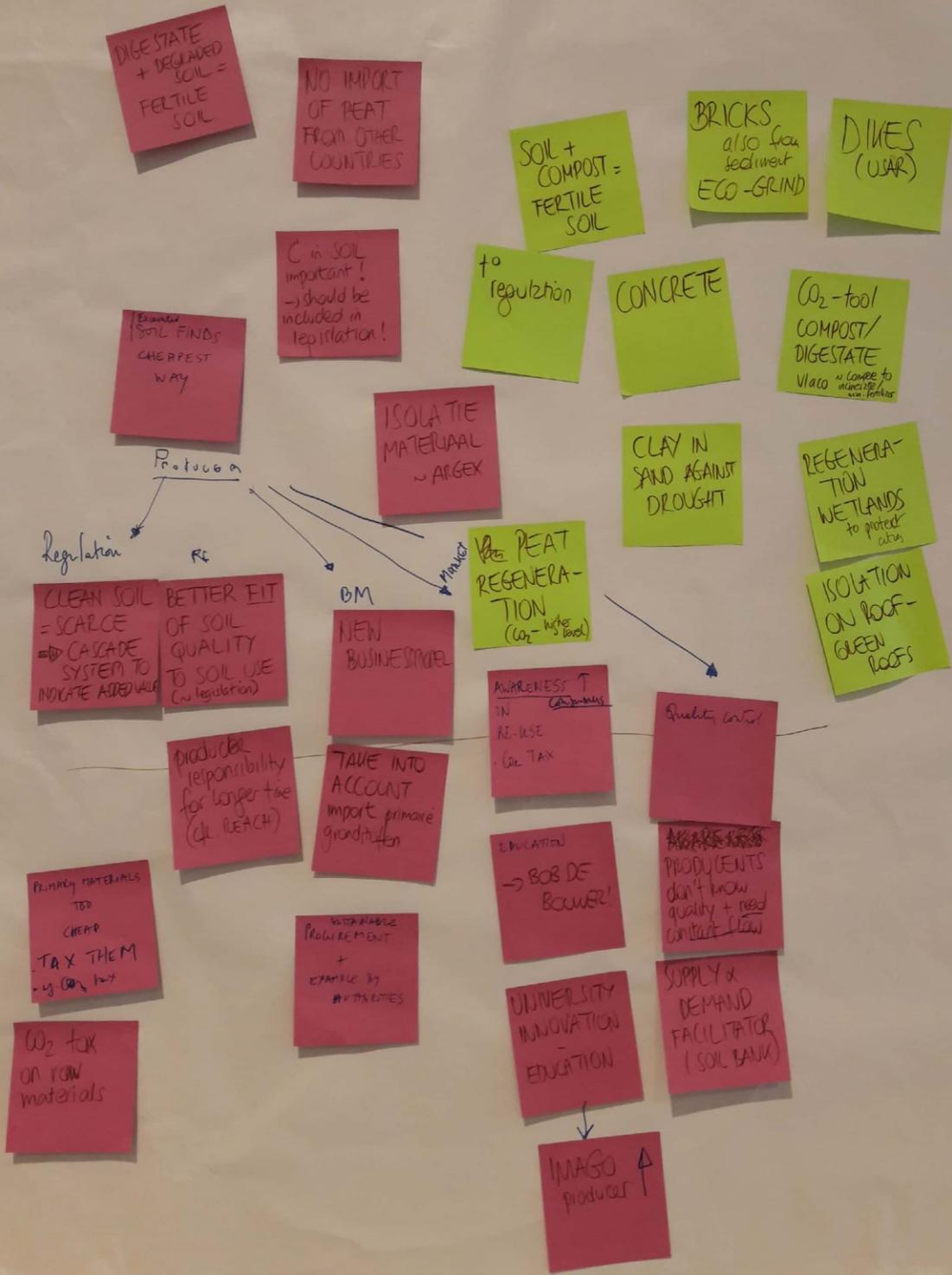
- Foster corporate social responsibility (eg the industries and service providers network NICOLE): long term balancing industrial continuity and environmental care.
- Focus through local authorities
- Establish new forms/styles of cooperation (eg commons, community land trust, community supported agriculture, energy cooperations, ...)
- Support by new policy and juridical frameworks (eg new cooperative laws, covenants, agreements...)
- Attention needed for “willingness to pay” by the consumer and true pricing
- Nurturing business models: not sharing/creating/earning money, but also other values (eg time sharing: “I garden in your garden”); we contribute to climate adaptation...

Land stewardship and CE as strategies for sustainable soil and land management: part 2

Circular sediment and soil management:

Different examples and opportunities were given

Examples Soil + Sediment management



Key message: Excavated soil and sediment always find the cheapest way to circulate - therefore we are in need for incentives to enhance producers & users to work differently:

- valuation of healthy excavated soil & sediment through adoption of a cascade system to indicate the added value & induce stewardship
- CO₂ taxes on raw materials, clean soil and sediment
- producer responsibility over longer period
- new business models - that take into account import of clean raw material and healthy excavated soil and sediment / sustainable procurement & authorities giving the example
- awareness raising of consumers - students - primary school children on re-use, CO₂ taxes, healthy soil/sediment versus soil/sediment as a material
- all these incentives supported by clear regulation & quality control & new instances eg. supply and demand facilitator

Circular land use and soil inclusive planning:

Different examples and opportunities were given:

- Brownfield redevelopment / regeneration
 - Hemiksem Scheldesoord (BE)
 - Tech Lane Ghent (BE)
 - Blue gate Antwerp (BE)
 - London Olympics (UK)
 - Lankhorst Culemborg (NL)
 - Gasmeter site Ghent (BE)
 - Water cycles Binckhorst Den Haag (NL)
 - Contaminated land fit for purpose redevelopment, gas manufacturing plant Ghent Tondelier (BE)
- Landscape/recreation
 - excavation landfill -> restauration cultural landscape & creation recreational area (KU Leuven)
 - Beringen: mountainbike piste (also on landfill)
 - National Parc "de Hoge Kempen"
 - sandpits infrastructure become recreational area
- Landfills
 - Landfill mining
 - Landfill becomes nature/recreation/solar energy production
- Biomass
 - Green waste for city parks -> awareness building
 - Green waste for SOC
 - Temporary use, short cycle wood logging (biomass) Phytoremediation
- Climate change/ water safety
 - sand motor (NE)
 - room for the river (NL)
 - Hedwige polder (BE, NL)
 - Sigmaplan ->water safety and nature development
- Energy
 - water river sludge for energy (WTP)
 - electricity hills (Atol)
 - Geothermal energy / Aquifer thermal energy (ATES)
 - ATES with groundwater remediation
- Temporary nature
- Forest restoration
- Multifunctional use of space
 - roof gardens
 - waste treatment plants (composting and anaerobic digestion on former landfills)

In the last round, we discussed how to implement the opportunities.

| Example | Conditions/requirements | Knowledge | Stakeholders |
|---------------------------------------|---|--|--|
| Landfill mining (eg REMO landfill) | No legislation NIMBY: noise of the installations, traffic Valuable nature is a "problem", it blocks the mining opportunities Costs/business case | Pilots needed Technology is clear Process is difficult How to create trust? | People around the site, nature organizations, policy makers, etc |
| Innovative technologies (eg | Infrastructure and land use (when talking about the energy transition Coalition, nexus thinking. What are the overall gains. If you make coalitions, the business case can | | |

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|---------|---------|
| energy) | develop |
|---------|---------|

Key message: Requirements, knowledge are needed but you reach the goal when parties trust each other.