GENEVA
Eurosoil 2020

NO POVERTY – End Poverty In All Its Forms Everywhere
PERSON RESPONSIBLE: Reto Meuli

DESCRIPTION
Even though extreme poverty has significantly decreased within the last decades and enabled people across the world to improve their lives, poverty remains a key challenge of mankind. To overcome this situation, access to basic services as ownership and control over land paired with the know-how to sustainably and efficiently manage soils is crucial.

The overarching goal of the sessions in this theme is to raise the awareness for the importance of the resource soil as a key factor to reduce poverty in every-day life. Scientists, practitioners and stakeholders will be invited to document this topic and to present solutions for pro-poor and gender sensitive development strategies with the objective to improve human and environmental well-being at the same time.

TOPICS

Scientific topics
Soil as basis for life: - Sustainable soil management in low income countries - Soil degradation mitigation in small / family-operated farms - Climate change adaptations in small-farming - strengthening sustainable agri-food systems, e.g. agro-forestry - Poverty and land degradation
Social topics
Soil as commodity: - Landownership and soil quality - Engage in debates on the emerging sharing economy - Farmers welfare and soil quality
Soil as a gender issue: - investments in female soil and agriculture education - empowering women as smallholder famers

Implementation topics
Capacity building - strategies for empowering people: - Facilitate and organize education in soil fertility preservation and restauration - Encourage the processing of local products

- Promotion of family agriculture linked to local development contributing to food sovereignty
- Soil education in low income countries
- Training courses in husbandry technologies for a more efficient and sustainable use of the soil resource

Economic topics

Improving the financial basis for a sustainable soil management:

- Result-oriented management schemes for best practice dissemination
- financial compensation of soil preservation services in agriculture

Educational and organizational measures to improve market access:

- Land ownership and land policy for small farm holders
- Best practices labels
- Develop agricultural cooperatives as a training facility for sustainable soil management

Technical topics

Promote new technologies:

- Provide technical skills to grow crops e.g. YouTube training videos

Policy / legal topics

Policy and legal measures to promote wide-spread ownership of land:

- Access to land and land tenure systems, e.g. planting a traditional garden
- To ensure the availability of land as the main asset for agricultural production
- Reduce land fragmentation and landlessness
- Ban the global competition on land resources, no land grabbing
- Promote import substitution by local products
- Support food system governance, e.g. food sovereignty, by supply chain management
- To link technology generators, technology disseminators and farmers to contribute to poverty alleviation

---

<u>Links with other SDG's</u>

SDG 2 Zero Hunger

GENEVA Eurosoil 2020

ZERO HUNGER – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
PERSON RESPONSIBLE: Michael Zimmermann

DESCRIPTION

The SDG 2 aims to end all forms of hunger and malnutrition by 2030, making sure all people have access to sufficient and nutritious food all year round. Extreme hunger and malnutrition remain a huge barrier to development in many countries. 795 million people are estimated to be chronically undernourished as of 2014, often as a direct consequence of environmental degradation, drought and loss of biodiversity. Over 90 million children under the age of five are dangerously underweight. The aim "zero hunger" involves promoting sustainable agricultural practices, supporting small-scale farmers and allowing equal access to land, technology and markets (UNDP). Soil is the most basic resource in nourishing a globally growing population and must be in the focus of SDG 2.

The soil science community can contribute significantly to different targets formulated within the SDG 2 which include increase the agricultural production, secure access to production resources, ensure sustainable food production systems, implement resilient agricultural practices strengthen capacity for adaptation to climate change, improve land and soil quality, maintain the genetic diversity and support agricultural research and technology developments.

TOPICS

Scientific topics
Effects of farming practices on soil functions
Soil quality assessment
Nutrient fluxes and balances
Result or action-oriented management schemes of soil quality: balance and prospects
Soil improving cropping systems
Social topics
Filling the yield gap of low input systems
Implementation topics
Climate resilient production systems
Organic farming
Sustainable intensification

Soil-less food production systems
Pioneers' knowledge of soil improving cropping systems
Economic topics
The prospects of limited fertilizer resources
Value chain from soil to food
Water demands in agricultural production systems
Technical topics
Status and prospects of precision and smart agriculture
Remote sensing applications
Development and application of rhizosphere-technology
Policy topics
Land use management and food security
Impact of national legislations on sustainable agricultural production systems

---

Links with other SDG's

SDG1 – No poverty

GENEVA Eurosoil 2020

GOOD HEALTH AND WELL-BEING – Ensure healthy lives and promote well-being for all at all ages

PERSON RESPONSIBLE: Rainer Schulin

DESCRIPTION

Environmental contamination continues to be a major factor adversely affecting human health and well-being. Soil pollution can affect human health directly through dermal contact and uptake or ingestion and indirectly through contamination of water, air and food. Sources of soil pollution are emissions from many kinds of human activities, including mining, industrial production, traffic, product use and consumption, waste disposal, application of agrichemicals, and more. As new materials, products, and applications continue to be developed at an increasing rate, also the potential health risks arising from them keep changing and thus the problems to be dealt with.

TOPICS

Scientific topics

• Soil as health factor (OS, poster/PICO, WS)
  • Toxicology and ecotoxicology of soil pollutants
  • Medical geology (pedology) (incl. soil as resource of antibiotics)
 	
• Health risks arising from existing pollution, in particular:
  • Trace elements (Cd, As, Sb, Hg, …)
  • Pharmaceuticals, antibiotics, hormone-active substances …
  • Pesticides
 	
• Emerging chemical and biological soil pollutants
  • Nanomaterials, microplastics, …
  • Rare earth elements
  • GMOs
  • Neurotoxic compounds

Social topics
• Factors determining societal acceptance of different soil remediation schemes, soil protection policies …
Implementation topics
• Prevention strategies to reduce risks of soil pollution arising from novel products and materials   • Approval and registration procedures

- Soil monitoring strategies
- Risk reduction by closing material flow cycles

- Methods of risk analysis and setting risk-based standards for soil pollution
  - Exposure assessment
  - Risk assessment
  - Accounting for soil pollution risks in spatial planning
- Managing soil as a factor of crop plant cultivation for the production of healthy food

Economic topics

- Costs of soil contamination
- Costs and benefits of soil pollution prevention vs. remediation

Technical topics

- Innovative soil remediation techniques
  - Integrating soil remediation into sustainable land use
  - Recovery of precious metals, mineral nutrients and other compounds
- Success stories and failures of contaminated soil remediation

Policy topics

- Soil protection policies and strategies
- Preserving and improving the filter function of soils

Links with other SDG's:

- SDG 2 – zero hunger
- SDG 6 – clean water and sanitation
- SDG 11 – sustainable cities and communities
- SDG 15 – life on land

GENEVA
Eurosoil 2020

CLEAN WATER AND SANITATION – Ensure availability and sustainable management of water and sanitation for all
LIFE ON LAND - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
PERSON RESPONSIBLE: Jörg Luster and Thomas Keller

DESCRIPTION

Land degradation results in impaired soil functions and related ecosystem services, such as maintaining biodiversity, providing food and wood, controlling flooding, and purifying water. In order to help to reverse this trend, we want to answer the questions how soil functions can be improved and maintained sustainably, how they are affected by and can be made resilient against disturbances, and how they can be restored if impaired. To this end, we want to bring together scientists, stakeholders and practitioners to present and discuss (i) the latest scientific insights into the biological, chemical and physical processes and their interactions that are the basis of soil functions, (ii) natural and technical options to sustainably manage and restore soil functions, and (iii) approaches how to deal with related economic, political and social implications.

TOPICS

Scientific topics
Soil biodiversity (assessment, interaction with ecosystem functions)
Water infiltration into and retention by soils
Soil-groundwater and soil-surface water interactions
Application of the ecosystem nutrition concept to different ecosystems
Assessing and monitoring forest soil acidification
Factors determining stability and quality of soil organic matter
Effect of anthropogenic disturbances (Soil compaction, soil tillage) on soil functions
Effect of natural disturbances (drought, windthrow, erosion, flooding, fire, clear-cutting) on soil functions
Recovery of soil functions after disturbance (from compaction, erosion, fire, …)
Wetland and river floodplain restoration
Peat degradation and peat management
Digital mapping of soil functions
Understanding factors determining soil structure and how they can be managed
Social topics
Dealing with conflicting ecosystem services (e.g. food/wood production vs. biodiversity; flood protection vs. water purification)

Implementation topics *(delineation from technical topics not always clear)*
Soil biodiversity (monitoring, prevention of loss, restoration)
Erosion and landslides: monitoring and prevention
Sustainable wood production
Implementing measures to increase water infiltration and retention in land use management
Managing amount and quality of soil organic matter in agriculture and forestry
Managing soils for water resources protection
Physical soil protection in timber harvesting and tillage
Land-use management options to increase the resilience of soil functions to disturbances
Prevention of desertification
Harmonization and use of soil data bases
Economic topics
Economic incentives for sustainable management of soil functions
Valuation of soil functions
Technical topics *(delineation from implementation topics and scientific topics not always clear)*
Engineering solutions to stabilize soils
Soil amendments for water purification
Liming and fertilization of forest soils to mitigate acidification and nutrient imbalances, and to restore acidified soils
Soil structure management
Peat restoration
Restoration of compacted soils
Restoration of deserts
Remote sensing of soil properties, functions and degradation
Policy topics
Implications of the EU water framework directive for management of soil functions
Implementation of soil in EU policies directed to biodiversity (habitats directive, EU 6th Environmental Action Programme, Messsage from Malahide)
Implications of the EU floods directive for management of soil functions
Soil functions in Forest Management and Agricultural Management policy
The Swiss ordinance relating to impacts on the soil as role model (!?)

<u>Links with other SDG's</u>

SDG 2: non food-production related aspects of sustainable management of agricultural soils
SDG 3: water purification
SDG 11: physical soil protection
SDG 13: climate regulation function of soils (mainly SDG 13); soil organic matter; drought

GENEVA
Eurosoil 2020

SUSTAINABLE CITIES AND COMMUNITIES – Make cities and human settlements inclusive, safe, resilient and sustainable
PERSON RESPONSIBLE: Elena Havlicek

DESCRIPTION

SDG 11 focuses on urban environment. More than half of the world's population live in urban areas; in developed countries, urban dwellers represent between 75% and 80% of the population. Urbanization is exerting pressure on peri-urban and rural areas (national and regional spatial planning), on regional climate (UHI) and on human physical (contamination) and mental (green public spaces) health. Even if there is no specific target focussing on soils in the SDG 11, a sustainable management of urban soils can contribute to achieving sustainable cities and enhancing well-being of urban population. Moreover, as the major part of the population resides in cities and has lost the concrete and emotional link to the "dirt", there is a vast development potential for awareness raising about the multiple soil functions.

TOPICS

Scientific topics
• Developing the services of urban soils (e.g. climate change mitigation, runoff water management, biodiversity) • Goals for the management of green areas (gardening and landscaping) • Urban agriculture • Urban soil biology • Technosols and anthrosols • Recycling and minimizing footprint with urban soils
Social topics
• Soil functions and social perception
• Land use conflicts
Implementation topics
• Soil management on construction sites. • Protection and monitoring of urban soil. • Urban soil pollution
Economic topics
• Land managements and soil value
Technical topics
• Technosols for urban and industrial environmental applications.

GENEVA
Eurosoil 2020

Policy topics
• Land management and soil quality

Links with other SDG's

GENEVA Eurosoil 2020

CLIMATE ACTION – Take urgent action to combat climate change and its impacts
PERSON RESPONSIBLE: Johan Six

DESCRIPTION

Planetary warming has continued in recent years, setting a new record of about 1.1 degrees Centigrade above the preindustrial period, according to the World Meteorological Organization (WMO). Drought conditions predominated across much of the globe. Atmospheric carbon dioxide levels reached a record high of 400 parts per million in 2016. Mitigation and adaptation to climate change and its impacts will require building on the momentum achieved by the Paris Agreement on Climate Change. Stronger efforts are needed to build resilience and limit climate-related hazards and natural disasters. What is the role of soils in all in this goal?

TOPICS

Scientific topics
• Agricultural, forest and grassland soils and greenhouse gas fluxes • Impact of extreme weather events on soil processes • Mitigating greenhouse gas emissions from agricultural soils (crop- and grassland) • Mitigating greenhouse gas emissions from forests, wetlands and floodplains • Adaptation to Climate Change: understanding and counteracting the effects of dry spells and heavy precipitation cycles on soil functions in agriculture and forest management
Social topics
• Farmers and farmers organization willingness to perform carbon sequestration
• Social acceptance of agricultural subsides, and carbon sequestration
Implementation topics
• Negative emissions management strategies in agriculture
Economic topics
• Monetarization of soil NET
• Carbon farming
Technical topics

• Negative emissions in soil improving cropping systems
Policy topics

Links with other SDG's