22nd World Congress of Soil Science

Policy Programme

KEY INFORMATION

The Policy Session will be an in person session held on the 2ND August

Session 1 and 2, 20-minute presentations will be limited to 15 minutes plus 5 minutes Q&A.

Session 3 presentations will be limited to 30 minutes plus 5 minutes Q&A.

Soils are a diverse, living component of all terrestrial ecosystems, providing a wide range of benefits and performing functions that are important for our environment, society and economy. Their ability to provide ecosystem services including food production, water regulation and climate regulation, however, has resulted in their overuse and exploitation from many different users globally, often exceeding the boundaries of the natural system.

Action is needed to not only reverse the degradation of soils globally but also ensure the future, sustainable use of all soils. This will rely on coherent soil governance with a holistic approach , across a variety of sectors.. It is important to adopt mechanisms which encourage practices to effectively control the usage of the soil resource to avoid degradation, promote soil health and importantly, avoid conflict between users. Complex and difficult decisions need to be made considering the users of soil, encourage adoption of existing best practices and acknowledge spatial differences in the nature and severity of threats.

The WCSS provides an unique opportunity for policy makers, land managers, regulators and scientists internationally to share experiences and suggest workable solutions. This session will provide a platform to discuss and explore the complexities, challenges and opportunities of achieving sustainable soil management and maintaining soil function. It will explore the role soil policy may have alongside other mechanisms, in the sustainable use of soils and contribution to environmental targets such as net zero; climate change mitigation and adaptation; food security and biodiversity.

We hope the session will help develop international knowledge sharing networks and solutions. Please take this opportunity to discuss experiences and ideas with others during the WCSS event and afterwards

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POLICY PROGRAMME

SUSTAINABLE NATURAL SYSTEMS AND EFFECTIVE GLOBAL POLICIES: HOW TO PROTECT A RESOURCE THAT SUPPORTS LIFE ON EARTH

Session 1
Tuesday 2 August 2022

10:00 – 12:00 BST	**Sustainable natural systems and effective global policies** Session chaired by Eleanor Reed (Natural England)	
10:00 – 10:10	WCSS Policy Session opening remarks	Francesca Osowska, NatureScot
10:10 – 10:45	**Keynote speaker** Impacting Adoption of Soil Health Management in the US	Cristine Morgan, Soil Health Institute, USA
10:45 – 11:20	**Keynote speaker** From advocacy on global soil governance to consolidation into national soil policies/legislation	Ronald Vargas, FAO
11:20 – 11:40	Soil in the European Green Deal	Arwyn Jones, Joint Research Centre
11:40 – 12:00	The Sustainable Soils Alliance raising soil's political profile	Elly Fay, Sustainable Soils Alliance

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Session 2
Tuesday 2 August 2022

13:00 – 15:00 BST	**What is needed to ensure that soil policy is delivered on climate change, biodiversity, food security and sustainability agendas.** Session chaired by Clive Mitchell (NatureScot)	
13:00 – 13:20	N. Ireland's Soil Nutrient Health Scheme: A World first	John Gilliland, Devenish
13:20 – 13:40	The NFU's vision for soils policy: from a farmers perspective	Phil Jarvis, NFU
13:40 – 14:00	The need for soil monitoring frameworks to underpin robust environmental policy development	Mathew Williams, Scottish Government
14:00 – 14:20	Developing a national soil strategy: before and after?	Ruedi Stähli, Federal Office for the Environment FOEN
14:20 – 14:40	What restoring soil health means from the level of the farm up to the level of the food system	David Mckay, Soil Association
14:40 – 15:00	Finding common ground: A case study on academic, government and stakeholder collaboration on a soil policy statement for post-Brexit Wales	Jack Hannam, Carmen Sanchez-Garcia, Cranfield University; Swansea University

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Session 3
Tuesday 2 August 2022

15:30 - 17:30 BST	**Effective land use policies in the information age** Session chaired by Jack Hannam (Cranfield Univeristy)	
15:30 – 16:05	From soil policy to soil protection: a matter of cooperation and communication	Elena Havlicek, Federal Office for the Environment FOEN
16:05 – 16:40	Effective land use policies in the information age	Johan Bouma, Emeritus Professor of Soil Science, Wageningen University
16:40 – 17:15	Panel Discussion with the following topics: *1* **How do we best share good practice and good ideas globally?** *2* **How do we better link the farming, research and policy maker communities?** 3 **Why is it so difficult to introduce soil protection measures?** 4 **What does sustainable soil management look like at farm level?**	Panel members comprise: Johan Bouma; Elena Havlicek; Ronald Vargas; David Mckay; Cristine Morgan
17:15 – 17:30	WCSS Policy Session Closing Remarks	Francesca Osowska, NatureScot

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SPEAKER ABSTRACTS

Contents

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Johan Bouma

Effective land use policies in the information age

Emeritus Professor of Soil Science, Wageningen University

Governmental and legal authority is being tested by society as never before. Active social media have major impact on public opinion, particularly with younger people that have less affinity with traditional media like newspapers and TV. Land use regulations will only be successful when recognized as being relevant by land users. If not, much effort on enforcement is needed to achieve adoption.

Restricting attention to agriculture, farmers are confused as they hear contradictory opinions about a large number of management systems being promoted by various action groups: biologic, biologic-dynamic, circular, nature-inclusive, regenerative, high-tech precision and others. They complain about a lack of independent advice. Also, farmers are, next to economic issues, quite concerned about environmental rules and regulations that are not only unclear to them but also inhibit their cherished entrepreneurial freedom. For example, the EU Water Framework of 2000 has the clear objective to improve the quality of ground- and surface water, by defining critical threshold values for nitrogen and phosphorous content. But rather than measure these contents, indirect means are defined that are assumed to result in reaching the thresholds: a limited number of animals/ha, maximum fertilization rates and nutrient contents of soil in Fall. Farmers would, rather, be challenged by the thresholds, as such, and be left alone in defining forms of management that would reach the thresholds. So: emphasizing goals rather than means to reach goals.

The introduction of the UN Sustainable Development Goals (SDG's) in 2015, adopted by 193 governments, and of the Green Deal by the EU in 2019, has provided clarity as to the goals of sustainable development that until that time were nebulous. But the goals show that not only water quality should now be considered, as mentioned above, (SDG6) but also, at least, production of healthy food to combat hunger (SDG's 2&3) , carbon capture by soils and limiting greenhouse gas emissions for climate mitigation (SDG13) and preservation of soil health and biodiversity, contributing to life on land (SDG15). No doubt, rules and regulations will follow in due time also covering the other SDG's, beyond SDG6. To avoid likely problems with means-oriented approaches in future, a focus on clear goals is needed.

Again, introduction of the SDG's offers a clear opportunity to do so by defining goals and corresponding ecosystem services, each one with characteristic

threshold values, that contribute to the various SDGs. Such threshold values will present clear goals for the farmer allowing him to choose management measures that fit his particular farming style. Research on Living Labs can provide valuable information.

The research community is challenged to provide relatively simple, operational methods to assess ecosystem services and to define thresholds that may well need to have a regional character.

It would, however, be too simple to suggest that introduction of scientifically determined thresholds in environmental regulations would solve all problems. Such thresholds should be based on discussions between scientists and farmers, balancing not only technical but also socio-economic aspects of modern farming. This calls for innovative communication practices that can result in recommendations to the policy arena that hold the promise of leading to successful implementation, contributing to reaching the SDG's that form the :"point-at-the-horizon" to aim for.

Elly Fay

Founder & Executive Director Sustainable Soils Alliance (SSA)

The Sustainable Soils Alliance (SSA) was launched in 2017 with the mission to see UK soils restored to health, through achieving sustainable management within a generation. Unlike other keystone environmental issues, there is no coherent policy framework for soil in the UK. Regulations are inadequate or unenforced, there is no long-term soils monitoring – or even consensus on the core tools or metrics to do this. Investment in soil education for farmers, advisors, specialists and the general public is minimal. Without these policy and outreach mechanisms, soils will continue to decline.

We are a campaigning organisation aiming to raise soil's political profile, but in reflection of the challenges outlined above, we also operate as a think tank – convening experts to devise solutions to the complex technical, practical and legal challenges to a viable soils policy – which we hope in turn will unlock investment in and standardisation of sustainable practices and approaches.

Brexit provided an opportunity to address the gap in agri-environmental policy, and much of our early work involved establishing soil as a priority within keystone pieces of legislation such as the Agriculture Act. We achieved this through Parliamentary events, responding to government consultations, targeted lobbying, and galvanising and aligning critical stakeholders from the science, farming and campaigning communities.

Having established soil as a policy priority, we have begun the process of addressing the issue according to the different policy pillars and mechanisms that drive behaviour change – regulations, incentivization, education, monitoring, the food supply chain, the carbon marketplace etc., through targeted research and engagement with policy-delivery organisations - to explore their role and potential, and better understand the barriers that have hindered them in the past.

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John Gilliland

N. Ireland's Soil Nutrient Health Scheme – A World first

Director of Agriculture & Sustainability, Devenish Nutrition

Launched in March 2022, over the next four years N. Ireland will baseline and measure the soil, trees and hedges in every field. The information will be used to give unique individual farm business data to empower farmers to make better management decisions. This scheme is as a direct result of a Public Private Partnership in vision, consultation and piloting. When repeated every five years, will give a transparent understanding of change in our soils over time. John Gilliland, Chair of the Expert Working, which created the vision, will share N. Ireland's experience and journey to date which is delivering for both policy and farming simultaneously.

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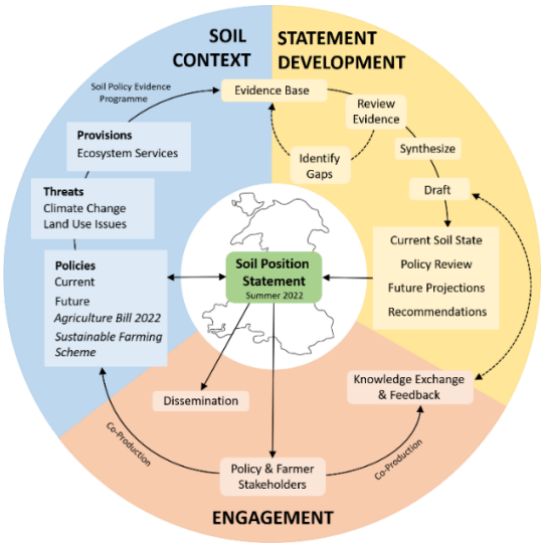
Jack Hannam[a], Carmen Sanchez-Garcia[b] and Erik Button[c]

Finding common ground: A case study on academic, government and stakeholder collaboration on a soil policy statement for post-Brexit Wales

[a]Cranfield University; [b]Swansea University; [c]Bangor University



The EU referendum to withdraw from the European Union set in motion a reform of agricultural policy that has been in place for decades. This reform is a devolved responsibility, meaning Wales is developing bespoke policy to best serve its farmers, land and soil. With no soil protection policy in Wales, this is a perfect opportunity to formulate a Welsh position on soils so that the sustainable use of this valuable resource is integrated into future policy for the long-term. Following past failed attempts, a new collaboration between policy makers, academics and stakeholders was planned to maximise the adoption of a soil policy statement. This progressive approach was led by a fellowship supported by PhD placements seconded in the Welsh Government (WG) Soil and Land Use Team. Evidence of Welsh agricultural soils was synthesised to identify their current status, and future threats and opportunities. This synthesis was then used to devise a common aim and priority objectives for Welsh agricultural soils. For representation of a range of perspectives on Welsh soils and greater ownership of the statement, it was co-produced with internal and external stakeholders. Firstly, it was co-produced with WG policy teams, where conflicting and complementing policy objectives and

how the Statement could fit in to the Welsh policy landscape were identified. Finally, external representative soil stakeholders (I.e., farmers) were engaged in workshop and consultation events led by independent facilitators. The results of additional knowledge gained through the co-production was analysed and integrated into a final version of the statement. Despite the challenges of collaborating between policy-makers and scientists due to differences in skills, approaches and targets, we demonstrate here that it can be highly productive and successful. In addition, we argue that engaging with farmers, who in Wales manage over 80% of the land, is essential to gain support for an overarching national soil policy statement.

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Elena Havlicek

From soil policy to soil protection: a matter of cooperation and communication

Scientific Officer Federal Office, Environment FOEN – Soil and Biotechnology Division

Presenting the pathway from problem identification to the effective soil protection practices, based on a concrete example from Switzerland (soil protection on construction sites). We have now more than 20 years of experience in this area, highlighting the positive results of collaboration between scientists, administration and practitioners of the Swiss Soil Science Society.

Phil Jarvis

The NFU's vision for soils policy: from a farmers perspective

NFU Environment Forum

Healthy, well managed soils are crucial to our farming systems, providing the essential medium to grow our food and the foundation for our varied landscapes. Soils also deliver many wider benefits including sequestration and storage of carbon, diversity of soil ecosystems, regulation of water and resilience to climate change. But our soils continue to face challenges. Climate change is already felt and is set to increase the threats to soil health such as erosion, compaction and loss of organic matter.

Global population growth and the inevitable spread of urban development adds additional pressure to produce more food from our land, at the same time as delivering public services, such as clean water and mitigating the impacts of flooding events. All these threats and challenges are compounded by a lack of good data and information on the current condition of our soils.

Soil health is of fundamental importance to the agricultural sector and is increasing in significance in a policy context. The NFU's new report outlines what is needed from government for healthier soils. It shows in more detail the work farmers and growers are doing to improve soil health, highlighting the benefits of good soil management, and the challenges and opportunities farmers and growers face in protecting, maintaining and enhancing our soil while producing climate-friendly food.

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Arwyn Jones
Soil in the European Green Deal

Joint Research Centre, European Commission

Healthy soils underpin the sustainable development challenges that are at the heart of the European Green Deal. The need for sustainable soil management is explicitly referenced in a number of policy areas ranging from biodiversity, climate change, agriculture and pollution. The vision of the EU Soil Strategy 2030 is to significantly improve the state of soils by 2050 and to protect soils on the same legal basis as air and water. The proposed Soil Health Law will specify the conditions for a healthy soil, determine options for monitoring soil and establish rules conducive to sustainable soil use and restoration.

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David Mckay

What restoring soil health means from the level of the farm up to the level of the food system

Head of Policy, Scotland, Soil Association

For more than 75 years, the Soil Association has worked to increase understanding of the principle that the health of soil, plants, animals and humans is one and indivisible. As policy makers around the world wrestle with the twin climate and nature crises, there is a growing awareness of the need to improve our degraded soils. But what does restoring soil health mean at the farm level, and how will that impact upon the wider food system?

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Cristine Morgan

Impacting Adoption of Soil Health Management in the US

Chief Scientific Officer, Soil Health Institute, USA

United States Agricultural policy is incentive based. Farmers are encouraged to manage natural resources responsibly by the Federal Government through payments for practice and by provisioning of free education and training. The Soil Health Institute is implementing its theory of change to achieve greater adoption of soil health practices by farmers. This talk will describe our biophysical and socio-economic approach and how we desire for it to impact US agricultural policy.

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Ruedi Stähli

Developing a national soil strategy: before and after?

Scientific Officer Federal Office for the Environment FOEN – Soil and Biotechnology Division

Reflecting on the concrete impact of the Swiss Soil Strategy.

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Mathew Williams

The need for soil monitoring frameworks to underpin robust environmental policy development

Chief Scientific Adviser (CSA) Environment, Natural Resources and Agriculture, Scottish Government

In Scotland, soils are perhaps the most important reservoir of natural capital that we have, underpinning vital ecosystem services and therefore influencing policies related to net zero and the climate and biodiversity crises, agricultural sustainability, food production and environmental quality. And yet we have no full account of soil health and natural capital, nor a mechanism to monitor soil changes. Here I discuss the needs for a robust soil monitoring framework at national scale. I review how such a framework can help monitor and evaluate progress towards a range of key policy objectives. I discuss how such a framework might be designed, structured, implemented, analysed, curated and reported. I review the challenges to be overcome, including accuracy, accounting for history and scale, and linking to allied datasets. International collaboration and scientific innovation will be required for success.

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Ronald Vargas

From advocacy on global soil governance to consolidation into national soil policies/legislation

Global Soil Partnership (GSP), FAO