

WHAT IS THE PURPOSE OF THE INTERNATIONAL YEAR OF SOIL 2015?

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Soil is fundamental to life on Earth but human pressures on soil resources are reaching critical limits. Soil is as essential as air and water but rarely receives the same attention.

WHY DOES SOIL MATTER?

The importance of soil to people around the world should ideally be obvious to the casual observer, but is often ignored in political and economic debates. We often take for granted that soil will be able to maintain food production into the future but this narrow perception is being challenged as we strive for food security alongside pressing issues of water, energy, climate change and biodiversity conservation. We now recognise that soil has a central role in delivering water quality, flood regulation, climate regulation and habitats of high

conservation value. There are major management and restoration challenges to be tackled to ensure that we maintain a soil capital that is adequate, both in terms of stocks and in terms of quality, to meet these multiple and contrasting needs of people into the future. At present the global soil capital is being eroded and lost rather than preserved and restored. Over one-third of the world's agricultural soils are degraded and require rehabilitation or restoration while expanding urban and industrial development is reducing the stock of soil capital at an alarming rate¹. Assuming a continuing trend, in the next 100 years, we would lose soil over an area comparable to the surface of Hungary.



Not all soils are the same. Only a relatively small proportion (ca 14%) of the world's soils can grow food without major intervention. There are approximately 32 groups of soil around the world², and many thousands of subtle variations within these. Each of these has

its own characteristics with a capacity to support a range of ecosystem goods and services. Our highest value agricultural soil is typified by a balance of mineral materials, organic matter and nutrients. Our best carbon storing soil is peat which is predominately made up of decomposing soil organic matter, accumulated over many 1000s of years and can be many metres deep. All soils retain carbon to some degree and soil is the largest terrestrial store of carbon. Soil has a pivotal role in climate change mitigation as well as future adaptation. How soils around the world respond to a changing global climate will dictate the availability of food and water in the future.

importance of soils to life on Earth, and to raise awareness of the numerous ways in which soil impacts on our daily lives. Around the world, organisations involved with soil education, soil research or soil use and management will be showcasing their work to a variety of interest groups. These events around the world can be found at the Global Soil Partnership (GSP) website: <http://www.fao.org/globalsoilpartnership/iys-2015/en/>. The Global Soil Partnership was founded in 2012 with the support of the FAO (Food and Agriculture Organisation of the United Nations) as an interactive, responsive and voluntary partnership, open to governments, regional organizations, institutions and other stakeholders. The first GSP Plenary Assembly in 2013 endorsed the formation of the Intergovernmental Technical Panel on Soil which is now working to produce the first World Soil Resources Report for publication in 2015. The second GSP Plenary in 2014, involving the FAO Member Countries as well as non Governmental organisations and institutions, endorsed an updated World Soil Charter and Plans of Action to:

THE INTERNATIONAL YEAR OF SOIL 2015

It is for these reasons that the United Nations Assembly declared³ 2015 as the International Year of Soil and the 5th December every year as World Soils Day. 2015 is an opportunity to celebrate the

- Promote sustainable management of soil resources.
- Encourage investment, technical cooperation, policy, education awareness and extension in soils.
- Enhance the quantity and quality of soil data and information.

- Support harmonization of methods, measurements and indicators for sustainable soil management across all terrestrial ecosystems.

WHAT DO WE NEED FROM SOIL SCIENCE?

Soil is one of the most complex natural systems known. This complexity is one of the greatest assets of soil since it confers the ability to deliver multiple benefits and a degree of resilience to disturbance. Many soils can continue to maintain food production while in a highly altered or even degraded state. However the social, economic and environmental consequences for other ecosystem goods and services are now becoming equally recognised as we strive to achieve water, energy, climate and conservation needs alongside food production. Soil is unique in being the interconnection between these demands. Without successful soil use and management for multiple benefits we will not meet the needs for future generations.

Scientists have been studying soil for over a hundred years. Even Charles Darwin was fascinated by the formation of soils⁴. Today, soil scientists come in many different guises as soil science is truly a multi-disciplinary science. Researchers from natural sciences, social science and economics are working to tackle soil challenges. Advances in molecular biology and mathematical modelling are being applied to soils to uncover and simulate how complex biological, chemical and physical interactions enable soil to support diverse ecosystem goods and services. A few of these soil challenges have been taken up in the recent UK Research Council funded programmes and studentships^{5,6}.

The UK has a thriving soils research community with a strong international reputation exemplified by the British Society of Soil Science winning the bid to host the World Congress of Soil Science in 2022. The UK science community needs the right funding opportunities to foster collaborative transdisciplinary research to match the advances made elsewhere such as the Human Genome Project or Climate Modelling.

REPRESENTING SOIL SCIENTISTS AND PROMOTING SOIL SCIENCE

The British Society of Soil Science (BSSS⁷), a learned society, was formed in 1947 and is now an established international membership organisation and charity committed to the study of soil in its widest aspects. Our broad membership enables the BSSS not only to represent the skills and expertise of soil scientists within the UK, but also to deliver training. In 2011, the BSSS launched "Working with Soil"⁸ as

a competency scheme to establish professional standards for people in the UK and Europe. Working with Soil is now endorsed by over 50 organisations including Government bodies, agribusiness, research, consultancies and NGOs. As part of its goals, the BSSS is committed to increasing the awareness of soils and in promoting education across all sectors of society. As part of this, the BSSS supports two international journals. The International Year of Soils is an ideal platform for the BSSS to demonstrate the breadth and depth of UK soils research which is applied in UK and



around the world, and to raise awareness of the importance of soils to the UK economy and Society at large.

HOW CAN YOU CONTRIBUTE TO THE INTERNATIONAL YEAR OF SOIL?

There are several high-level conferences and meetings in 2015. These include the 3rd Global Soil Week⁹ in Berlin, which is a multi-stakeholder platform for dialogue between policy-makers, scientists, NGOs and other stakeholders on soil matters in relation to food security, rural development,

the UK, and plan more of this throughout the year. We will be strengthening our relationships and coordinating activities with other societies, both national and international, such as the Nigerian Soil Science Society, and organising a series of school, public engagement and policy events. You can find out more about these activities on the BSSS website (<http://www.soils.org.uk/>), or follow us on twitter (https://twitter.com/Soil_Science), and we look forward to hearing from you in what promises to be a groundbreaking year for soil.

... soil has a central role ...

growth, energy production, and the competition for soil resources. Soil science will be well represented in Austria at the European Geosciences Union General Assembly (April 12-17, 2015). The EGU is attended by over 12,000 scientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences.

Within the UK, BSSS has a broad programme of events through the year in partnership with other learned Societies, organisations, Government and schools. We launched the year with a soil digging-tree planting event held at 30 schools across

References

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- 3 The 68th UN General Assembly (A/RES/68/232).
- 4 Darwin, C.R., 1881, The formation of vegetable mould, through the action of worms, with observations on their habits. London: John Murray.
- 5 <http://www.bbsrc.ac.uk/news/food-security/2014/141013-pr-protect-soils-safeguard-food-security.aspx>
- 6 <http://www.nerc.ac.uk/research/funded/programmes/soilsecurity/>
- 7 <http://www.soils.org.uk/>
- 8 <http://www.soils.org.uk/working-soil-professional-competency>
- 9 <http://globalsoilweek.org/global-soil-week/gsw-2015>