Call for expert nominations for EASAC project "Soils at risk"

BACKGROUND

The Royal Netherlands Academy of Arts and Sciences (KNAW) has kindly agreed to act as lead academy for an EASAC project on soil sustainability, already supported by the EASAC Environment Steering Panel and agreed at the EASAC Oslo Council meeting in May 2016.

Please consider the information below to nominate an expert from your Academy to contribute to this project. We would be grateful for member academies' nominations of experts to this working group as soon as possible, but no later than 5 September 2016. Please send your nomination to secretariat@easac.eu.

PROJECT RATIONALE

There have been proposals to apply a uniform framework for the protection of soils across EU Member States, and a draft framework directive for soils was proposed by the Commission in 2006, but withdrawn in 2014. One reason may have been the mixing of issues of contaminated land remediation with agricultural soil management, but a major reason for withdrawal was opposition from farming interests in the larger Member States. They argued that farmers have an inherent interest in maintaining their land in good condition and in assuring its long-term fertility and productivity, and additional legislation or regulation was merely adding to costs without any benefits. This does, however, leave the problems of soil protection, control of erosion, maintenance of structure and long-term fertility without any consistent standards or approach across EU Member States. Since then, the issue of carbon retention in soils has also become a more important issue.

Surveys show that as much as a third of the world's soils are degraded due to human activities, reducing the productivity of land and its capacity to provide normal goods and services. In regions with highly productive soils, loss of essential functions has been reported, such as being a habitat of biodiversity, prevention of nutrient leaching to surface and ground waters, and excessive production of greenhouse gases. Placing soils under increasing stress leads to loss of multi-functionality, which is an essential capacity of the contribution of soils to numerous ecosystem services on which human society depends. Future increases in population and climate change will further exacerbate pressures on soils, threatening their ability to support growing demands for food and provide other services to humankind. The UN's 2015 *Status of the Worlds Soil Resources* report concluded that urgent action is needed to tackle this grand challenge; we need to prevent further soil degradation and restore degraded soils. The 68th UN General Assembly declared 2015 the International Year of Soils, which has greatly stimulated attention for soils and soil biodiversity.

PROJECT PROPOSAL CONTENTS - SCIENCE FOR POLICY NEEDS ON SOILS

Although the proposed Soil Framework Directive was withdrawn, the European Union's Seventh Environment Action Programme recognises that soil degradation is a serious challenge and aims that by 2020 land should be managed sustainably in the EU, that soil is adequately protected, and that the remediation of contaminated sites well underway. In addition, in the framework of COP21, the French Government has proposed the "4 per 1000" strategy, which aims at increasing soil carbon levels with 4 per mil per year, in order to capture a substantial amount of carbon dioxide produced by fossil fuel into the soil organic matter. Reports have also suggested that inadequate soil management may cause enhanced incidences of soil-borne diseases affecting not only plants, but also animals and humans.

From a scientific perspective, soil-related problems are intermingled and some solutions may apply to more than one problem. Five broad topics are critical to the sustainable management of soils:

- increasing soil organic matter content,
- biodiversity,
- improving soil structure,
- water regulation and nutrient delivery, and
- enhancing the resilience of soils to long-term climate change and upcoming plant, animal, and human diseases.

The proposed EASAC study will analyse solutions to prevent future soil degradation, consider how to secure the capacity of soils to deliver goods and services in a rapidly changing world, and provide scientific guidance on how to support policy on sustainable and multifunctional soil management. This requires a broad study including ecology, agronomy, environmental sciences, socio-economic factors, as current soil degradation is often caused by trade-offs among these aspects.

PROPOSED APPROACH

The Netherlands Academy KNAW has kindly offered to act as lead academy for this EASAC project under the guidance of Prof. Wim van der Putten, who is soil ecologist and KNAW member. There is an initial proposal to hold a workshop in Amsterdam in November 2016 (provisionally 21-23 November 2016), co-organized with Prof. Richard Bardgett (Univ. of Manchester, UK) and Prof. Johan Six (ETH, Switzerland). It would be proposed that this meeting also be the first meeting of the EASAC working group, thus including the experts from EASAC member academies.