



**Opening remarks of IUSS President Prof. Dr. Rainer Horn on the occasion of**

**World Soil Day 2016 and the International Year of Pulses  
end of year celebration**

**Soils and Pulses – a symbiosis for life**

**FAO Rome, 5<sup>th</sup> December 2016**

**Excellences, Presidents, Distinguished Guests, Ladies and Gentlemen!**

**On behalf of the International Union of Soil Sciences, I have the privilege and honour to convey the best greetings of more than 60,000 soil scientists from around the world to you, on the occasion of the World Soil Day celebration by FAO in Rome.**

**This year, the World Soil Day (WSD) celebration is linked to the end of the International Year of Pulses (IYP) and gives us a very positive feedback mechanism and a unique opportunity to define the symbiosis of life. Soils, as we know, are the most complex biomaterials on the planet and are a self-regulating biological factory. Thus, it is absolutely essential that soil degradation, as the most insidious and underestimated challenge of the 21<sup>st</sup> century, must be defeated. Severe degradation, including widespread contamination, erosion, severe depletion of carbon and nutrients, rapid urbanization, and frequent hazards are threatening sustainable food production, adequate water supply, global ecosystem services, and the quality of human life. Soil carbon sequestration, soil restoration, the conservation of biodiversity and other important soil functions are important for the sustainable land and soil use. In this context, the reactor functions of soils as living systems are the basis not only for the well-functioning for food production, filter and buffer for clean groundwater and storage of water for plant uptake but they also are responsible for healthy soils and are the basis for carbon sequestration in combination with an improved water storage potential.**

**The symbiosis between pulses, soils and soil properties is worldwide functioning and results in a very positive improved nutrient management, and if continuously applied also in a well-structured and therefore really healthy soil system with improved functionalities for future generations.**

**Such Symbiosis is in this sense a very positive feedback mechanism which supports sustainable soil management strategies and is a major contributor to the soil – food- water- carbon sequestration - climate change nexus.**

**The 5<sup>th</sup> of December, which is the birthday of his Majesty King Bhumibol Adulyadej of Thailand, is therefore not only an excellent opportunity to remember his very positive activities in his country but it must be kept in the international calendar to remember the importance of soils as non-renewable and sensitive systems as the basis for life which includes food production, water storage for plant growth as well as carbon sequestration. Pulses are of major importance for these issues as they improve soil properties and functions and by an extended root growth make soils more resistant against further soil degradation due to a better structure, fertilized by atmospheric nitrogen and by an improved biodiversity. As a direct follow up, processes such as the carbon sequestration potential as well as the water storage capacity for plant growth can add remarkable amounts of water per m<sup>3</sup> which finally leads to higher and more predictable crop yields even under harsh environmental conditions.**

**However, all these positive aspects always require a careful handling of soils according to their resilience and elasticity for the long-term maintenance of these positive key properties and processes, thus meeting the demands of the growing world population. If this symbiosis for life is not positively handled, we will not only lose the unique soil functionality but in addition soils are exposed to an increasing degradation threat which finally results in an irreversible loss. These negative aspects again would also affect growth of pulses and destroy the eventually positive symbiosis for life. Therefore, we have to make clear, that just public concern is not sufficient to protect soils, to speak about biodiversity, the biological processes in soils and their positive effects, but we need to take action for these linked processes and functions. The strategy is to promote sustainable intensification for achieving food security, sufficient drinking water supply, accessible stored water for plants and the reduction of greenhouse gas emissions. This means the mitigation of global change processes for maintaining healthy soils. These are major requirements which can be only achieved with a perfect symbiosis between soils, plants, and microbes in well-structured systems worldwide.**

**Therefore, it is essential for scientists and the interested community to know more about soils, their functions and the interactions especially with pulses and consequences for soil biodiversity because this interlink is the basis for our wellbeing. The free of charge granted nitrogen fixation, the interactions**

between microbes and the maintenance of soil functions even with the increasing degradation risks are important to take action and to consider this symbiosis more directly. It is us who directly profit from functioning ecosystems. It is therefore important to convince politicians, decision makers, landowners, and the world community about these interactions between soils and the biosphere for the provisions of goods and services for humankind. The Sustainable Development Goals, approved by the U.N. in 2015, postulate the maintenance of these multidimensional functions in order to end hunger and malnutrition, and adaptation to climate change by 2030.

By the celebrations of the WSD and the IYP, the symbiosis for life must attract attention from all of us not only today but also in the future. Both the 2015 IYS and 2016 IYP must be placed and maintained at the forefront of the scientific agenda, on the roster of policy makers, and in the awareness of the general public. We must also link both ideas perfectly in the IUSS initiative of the International Decade of Soils 2015-2024 as we need to keep the momentum of our activities and acceptance at such very high level continuously.

Finally, I express my best wishes for a continuous positive cooperation between IUSS and FAO. Together we can enlarge the scientific knowledge, strengthen the understanding of soils as a finite and non-renewable resource, promote the sustainable use of soils, and enhance awareness about the importance of soils for the production of food, adaptation and mitigation of climate change, and the provision of water. Soils are the basis of all terrestrial and aquatic life. They must be used, restored and improved for human wellbeing and nature conservation – for this the link between the WSD and the celebration on the occasion of the IYP as a symbiosis for life is an excellent example which shall be even enlarged in future years in case of further input to the understanding of ecosystem functions.