FROM THE DESK OF RATTAN LAL

Viewpoint 12.2018

Farewell and Goodbye

26th December, 2018

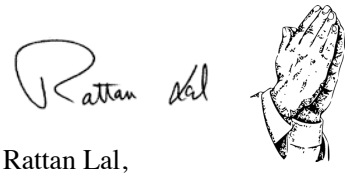
Sub: Making Soils of Agro-ecosystems Emission Negative

Dear Fellow Soil Scientists,

Anthropogenic climate change since the 1950s is a phenomenon that humans have not experienced since the last ice age 10-12 millennia ago. Now humans, with the population of 7.6 billion in 2019 and projected to be 11.2 billion by 2100, must face it and increasingly so in the near and distant future. The most vulnerable section of the economy may be agriculture, especially the rainfed agriculture in arid and semi-arid regions. Furthermore, those who may be the most adversely affected would be the resource-poor and small land holders in developing countries. Indeed, all farmers may be affected, but it is these who do not have the capacity to adapt that will be the most vulnerable. The magnitude and severity of vulnerability will also depend on the type and severity of soil degradation and the attendant impacts on its functionality and productivity. Some of them may be forced from their land, become climate refugees, and exacerbate the political instability. It is these farmers who will be exposed to more frequent drought-flood syndrome along with the declining crop yields by biotic stresses through persistent weeds, and pests and pathogens. Yet, the most natural and cost-effective option to address climate change would be to make agriculture a solution to the issue by enhancing adaptability and resilience of farmers, improving soil quality, and restoring the depleted soil organic carbon (SOC) stocks. While all farmers are aware of the importance of SOC and the need for its restoration, they often cannot afford to invest in soil restoration. Sources of biomass-C (i.e. crop residues, animal dung) have numerous competing uses (i.e., feed, fuel, construction material), and are thus not often returned to the soil as amendments. Thus, all farmers must be compensated by payments for ecosystem services generated through restoration of soil quality and functionality. The payment should be made by assessment of the societal value of soil carbon and the ecosystem services that it generates. The latter includes advancement of Sustainable Development Goals (SDGs) especially of eliminating poverty (#1), zero hunger (#2), clean water and sanitation (#8), climate action (#13), and life on land (#15). It is also important to remember that soil degradation and desertification, anthropogenic climate change and the related extreme events, pedological/agronomic droughts and the attendant heat waves, low agronomic yields and perpetual hunger, and marginal living and desperateness are as serious threats to Global Peace and Stability as are nuclear proliferation and weapons of mass destruction, and thus require policy interventions at local, regional and global scale to address this issue.

I thank all members of IUSS, the Executive Committee and the Secretariat for providing me the unique opportunity to serve this great world organization. My special thanks are due to Dr. Flavio Camargo and the Organizing Committee of the 21WCSS. Through advancing science, education and outreach, IUSS has and will continue to play a pivotal role in human wellbeing, nature conservancy, and in world peace.

With best wishes for 2019 and beyond,



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International Decade of Soils 2015-2024