FROM THE DESK OF RATTAN LAL

Viewpoint 9.2017

1st September 2017

Sub: The ecological costs of soil management practices

Fellow Soil Scientists,

"There is no such thing as a free lunch" – so said Barry Commoner in his book *The Closing Circle* (1971). Indeed, every action has a reaction, not only equal and opposite but also with long-lasting and strong ramifications. For example: (i) deforestation and conversion of natural to agricultural ecosystems increases food production ***but*** reduces biodiversity, depletes the soil/terrestrial carbon stocks, and changes hydrological and energy balances, (ii) plowing prepares a seedbed and facilitates seeding ***but*** exacerbates risks of accelerated soil erosion and the non-point source pollution, (iii) use of fertilizers (N and P) enhances crop growth and yield ***but*** emits N_2O and pollutes the water, (iv) use of crop residues and animal dung are feedstocks for biofuel production and renewable energy ***but*** degrades soil health, etc. etc. Not only does every anthropogenic activity has tradeoffs ***but*** the long-term ecological and environmental costs on soil and other natural resources (water, biodiversity, landscape) are much greater than even the short-term economic costs. Soil scientists must reconcile the demands of producing food and other victuals for the growing and progressively affluent world population with the critical need of restoring and sustaining soil health and environment quality for human wellbeing, nature conservancy and provisioning of other ecosystem services. The Latin term *Homo sapiens* means "wise man." Through implementation of the techniques of judicious use and management of soil resources, soil scientists can help the fellow *Homo sapiens* become wiser by "making peace with the planet," promoting "good earth," nurturing "the Gaia," and protecting "spirit of the soil." It is important to realize that we came "out of the earth" and soil is "the dust from which we shall return."

Sincerely,

Rattan Lal,
President, International Union of Soil Sciences

Columbus, Ohio

International Decade of Soils 2015-2024