

In the Name of Allah, the Beneficent, the Merciful

Soil Science News

Quarterly Newsletter of Soil Science Society of Pakistan

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Editorial

Rapid Urbanization: Threat to food security and environment

We all are very much aware that soil is a precious natural resource and sustains life by performing several vital functions in the ecosystem in addition to supporting agricultural production such as food, fodder, biomass, energy, fiber and infrastructures. However, soil resources are facing unprecedented pressures now-a-days, many of which are human-induced.

Intergovernmental Technical Panel on Soils, an important subsidiary of FAO has presented a revised World Soil Charter, stating "Soils are fundamental to life on earth but human pressures on soil resources are reaching their critical limits. Further, loss of productive soils will amplify food-price instability and can send millions of people into poverty".

The Intergovernmental Technical Panel on Soils has published a report on the *Status of the World's Soil Resources* and identified ten main soil threats, globally – soil erosion, soil organic carbon change and nutrient imbalance were considered the most severe threats to soil; this was followed by soil salinization, soil sealing, loss of soil biodiversity, soil contamination, acidification, compaction and waterlogging.

Soil sealing or land taking is perhaps, a severe threat to soil in developing countries. The sealing is the destruction or covering of

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News and Views

National Seminar on "Mountainous Agriculture and Soil Health"

Soil Science Society of Pakistan (SSSP) and University of Azad Jammu & Kashmir Muzaffarabad jointly organized National Seminar entitled "Mountainous Agriculture and Soil Health" on Monday, 30th September 2019 at University of AJ&K Muzaffarabad. Large number of researchers, academicians, students and AJK government officials attended the seminar. Secretary Agriculture, Animal Husbandry & Food, Govt. of AJ&K Mr. Raja Tariq Masood was the Chief Guest of the seminar. Dr. Muhammad Bashir Butt, Director General Agriculture, Govt. of AJ&K was the Guest of Honour. The seminar comprised of two sessions including inaugural and technical session. The Inaugural session was started with the recitation of Holy Quran. General Secretary SSSP Dr. Ghulam Murtaza Jamro, presented brief introduction and achievements of the Society to participants. He highlighted that SSSP is involved in the promotion of soil science profession in the country. Raja Muhammad Razzaq Khan, Secretary Population Welfare, Govt of AJ&K, presented key note address of the seminar. He talked on Demography and Agro-Ecology of AJ&K. He also briefed the participants about threats to soils in AJ&K which are closely related to current climate changes and rapid urbanization. The Chief Guest of the seminar emphasized on the importance of soil health under mountainous agriculture. He also praised the efforts of SSSP in promoting the research in various fields of soil science in order to address the climate change and food security issues. Prof. M. Kaleem Abbasi, President-SSSP thanked to honourable guests and participants. He assured

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that the society will keep playing its role in dissemination of scientific findings and promotion of research and technology. He also appreciated the role of the members of the organizing committee and University of AJ&K in holding the seminar successfully. At the end of Inaugural session, Dr. Ghulam Murtaza Jamro thanked University administration for their utmost cooperation in organizing the seminar.

During the technical session, five presentations were delivered by renowned national scientists. Dr. M. Bashir Butt, DG Agriculture, AJ&K talked on "Agriculture in the State: Challenges and Opportunities". Prof. Dr. Khalid Saifullah Khan, Director Institute of Soil Science, PMAS Arid Agriculture University, Rawalpindi delivered a comprehensive presentation on "Soil Health and Agricultural Sustainability in Mountainous Areas". Dr. Abdul Khaliq, Chairman, Department of Soil and Environmental Sciences, University of Poonch Rawalakot, AJ&K presented a talk entitled "Mountainous Agriculture in AJ&K and Challenges to Soil health". Dr. Tariq Sultan, PSO, LRRI, NARC, Islamabad spoke on "Role of Soil Health Technologies for Sustainable Agriculture in Pakistan". Dr. Saiqa Andleeb, Assistant Professor, Department of Zoology, University of AJ&K delivered a presentation entitled "Vermicomposting: Sustainable Agricultural Practices to Improve Soil Health". Dr. M. Mahmood-ul-Hassan and Dr. Nasir Raheem acted as Chair and Co-chair of the technical session, respectively. Miss Munazza Yousra was the rapporteur of the seminar. Shields and certificates were presented to the guests, resource persons and participants. In the end, Dr. Humayun Shaheen, University of AJ&K thanked to the Society for organizing the event.

● Promotions/Appointment/Postting

Professor Dr. Zahir A. Zahir, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad (UAF) has joined office of Research Innovation and Commercialization (ORIC), for 2nd tenure after successful completion of 1st tenure. During 1st tenure, he performed excellently and UAF achieved goals of high-quality research, more high impact projects and developed stronger Industry-academia linkages. He is recipient of 23 national awards and is also serving as Editor-in-Chief of the society Journal "Soil & Environment".



Professor Dr. Muhammad Yaseen has been appointed as Director, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad (UAF). He started his career as Agriculture Officer (Research Wing) in the Department of Agriculture, Govt of Punjab and subsequently selected as a lecturer in the Department of Soil Science, UAF in 1990 and later on promoted to the rank of Professor. Dr. Yaseen is a well-known scientist and expert in the field of Soil and Environmental Sciences with specialization in Soil Fertility and Plant Nutrition.



Dr Muhammad Javed Akhtar, Associate Professor, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad has been posted as Director, Financial Assistance and University Advancement, UAF.

Dr. Muhammad Anwar-ul-Haq and Dr. Muhammad Iqbal, Assistant Professors, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad have been promoted as Associate Professors.



Dr. M. Amer Maqsood, Dr. Abdul Wakeel, Dr. Sanaullah, Dr. Muhammad Sabir, Dr. Zia-ur-Rehman and Dr. Nabeel Khan Niazi (left to right in pictures below), Assistant Professors, Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad have been promoted as Associate Professors on Tenure Track System.



Dr. Muhammad Arif, Agriculture Officer, Pesticide Quality Laboratory, Soil Chemistry and Environment Institute (SC&EI), AARI, Faisalabad has been promoted as Assistant Agricultural Chemist and posted in Soil Chemistry Section, SC&EI, AARI, Faisalabad.



Mr. Mahmood Sadiq, Deputy Director, Soil Survey of Punjab, Lahore has been promoted as Director (BS-19) and posted in Soil Survey of Punjab, Lahore.

Dr. M. Asad Bashir has joined Department of Soil Sciences, University College of Agriculture & Environmental Sciences, The Islamia University of Bahawalpur as an Assistant Professor (IPFP-HEC). He completed PhD in 2018 under the supervision of Prof. Dr. Muhammad Khalid, Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad.



Dr Matiullah Khan, Principal Scientific Officer, Land Resources Research Institute, National Agricultural research Center, Islamabad, has been posted as Program Leader, Soil Environment and Chemistry Research Program, LRRI, NARC, Islamabad



Mr. Muhammad Abbas, Junior Scientist, Soil and Environmental Sciences Division, Nuclear Institute of Agriculture, Tandojam has been promoted as Senior Scientist.

Dr. Badar-uz-Zaman, Principal Scientific Officer, Land Resources Research Institute, National Agricultural Research Center, Islamabad, has been posted as Program Leader, Soil Physics and Salinity Research Program, LRRI, NARC, Islamabad

Dr. Sarfaraz Hussain, Agri. Chemist Pesticide Quality Control Laboratory, Faisalabad has joined as Director (on look after basis) Soil Salinity Research Institute, Pindi Bhtain.

Mr. Muhammad Siddique Shakar, Agri. Officer, Provincial Reference Fertilizer Testing Laboratory, Raiwind has been promoted as Asstt. Agri. Chemist and posted at Pesticide Residual Laboratory, Kala Shah Kaku, Sheikhupura.

Mr. Abdul Wakeel Asstt. Agri. Officer, Soil Chemistry Section, Institute of Soil Chemistry and Environment Sciences, AARI, Faisalabad, has been promoted as Asstt. Agri. Chemist and posted at Soil and Water Testing Laboratory, Sargodha.

Dr. Zafar Abbas, Agri Officer, Soil and Water Testing Laboratory, Bahawalpur has been promoted as Asstt. Soil Fertility Officer and posted at Water Testing Laboratory, Bahawalpur.

Hafiza Salma Kasur, Asstt Agri Officer, Soil and Water Testing Laboratory, Lodharan has been promoted as Asstt. Agri. Chemist and posted at Soil and Water Testing Laboratory Lodharan

Mr. Mumtaz Hussian Faroqi, Asstt. Agri. Chemist, Soil and Water Testing Laboratory D. G. Khan has been transferred to Soil and Water Testing Laboratory Bhakar.

Ch. Muhammad Hussian Asstt. Agri Chemist has been transferred to Soil and Water Testing Laboratory, Toba Tak Singh.

Dr Khalid Hussian Khaliqi, Asstt. Agri. Chemist, Soil and Water Testing Laboratory, Toba Tak Singh has been transferred to Soil and Water Testing Laboratory Faisalabad as Assistant Soil Fertility Officer.

Miss Siama Nazer, Agri Officer, Soil and Water Testing Laboratory, Gujranwala has been transferred to Soil and Water Testing Laboratory Sialkot and posted as Agri. officer.

Mr. Abdul Hafeez Agri officer, Soil and Water Testing Laboratory, Gujranwala has been transferred to Soil and Water Testing Laboratory to Sialkot.

Dr. Syed A Sadiq Agha has assumed the charge of Director Agriculture Research Soil & Water Testing Balochistan, ARI, Quetta. He has recently qualified through Balochistan Public Service Commission for the post of Director Agriculture Research. Dr. Sadiq has been working as Associate Professor since 2016 at Balochistan Agriculture College Quetta. He also served on various positions in Agriculture Extension Department Balochistan Quetta.



PhD Degrees

Ms. Ana Aslam, Assistant Research Officer, Soil Chemistry Section, Soil Chemistry and Environment Institute, AARI, Faisalabad has successfully completed PhD from the Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad. She conducted her research work on "Role of endophytic bacteria containing carbonic anhydrase in improving the photosynthesis and plant biomass of cereals at different moisture regimes" under the supervision of Professor

Dr. Zahir A. Zahir.

Dr. Nazia Rais, has successfully completed PhD from the Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing, P.R. China in the field of Soil Science. Her PhD thesis title was "The change of labile soil organic carbon and its driving factors under long-term fertilization in typical upland agricultural Soils of China".



Dr. Javeria Afzal, has successfully completed PhD from the College of Resources and Environment, Huazhong Agricultural University, Wuhan, Hubei, P. R. China in the field of Soil Science. Her PhD thesis title was "Screening and the differences in cadmium accumulation, distribution under iron application of Cd resistant and sensitive rice cultivars".

Dr. Tanveer Ali Siyal, has completed PhD from Northwest A&F University, Yangling, Shaanxi, China in the field of Soil Science. His PhD thesis title was "Effects of fruit waste and its bio-chars on biochemical properties, greenhouse gas emissions of sandy and loess soil and plant growth".



Awards

Professor Dr. Zahir A. Zahir, Director, Office of Research Innovation and Commercialization (ORIC), University of Agriculture, Faisalabad was awarded **Quaid e Azaam Gold Medal** on his meritorious services for education and research by Tehreek-e-Istehkam-e- Pakistan Council, Pakistan (Regd). This prestigious award ceremony was held at Dr. Majid Nizami Auditorium, The Mall, Lahore and was attended by the distinguished personalities



across the country. Mrs. Parveen Sarwer, Wife of the Governor Punjab distributed the awards.

Ms. Amina Kalsom, Assistant Research Officer, Soil Chemistry Section, Soil Chemistry and Environment Institute, AARI, Faisalabad has received Appreciation Certificate & Cash Prize for winning poster competition in 1st International Conference on Surface Science – Innovations & Applications for Geo Environmental Challenges, April 25-26, 2019, held at University of Agriculture, Faisalabad, Pakistan.

Ms. Ana Aslam, Assistant Research Officer, Soil Chemistry Section, Soil Chemistry and Environment Institute, AARI, Faisalabad has been Award Shield for winning poster competition in 1st International Conference on "Agricultural & Biological Sciences Focusing Food Security and Climate Change", 27-30 March 2019 held at University of Haripur, Pakistan.



Foreign Visits

Mr. Abubakar Dar, Ph.D. Scholar, Institute of Soil and Environmental Sciences, UAF has successfully completed his International Research Support Initiative Program (IRSIP) Research Fellowship funded by HEC, Pakistan as a visiting scientist in the Institute of Agricultural Sciences in the Tropics (Hans-Ruthenberg-Institute), University of Hohenheim, Stuttgart, Germany. He worked on "Identification of allelopathic rhizobacterial metabolites and evaluating their suppressive effects against weeds (*Avena fatua* L., *Phalaris minor*, Retz. and *Rumex dentatus* L.) of wheat".

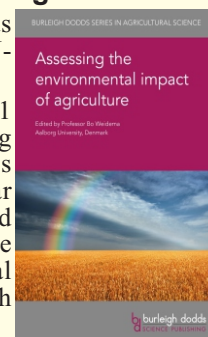


Publication

Assessing the environmental impact of agriculture

Bo P. Weidema (Ed.) 2019, Burleigh Dodds Science Publishing Limited; 386 pages, ISBN-13: 9781786762283, hardcover £ 160.00.

The book is divided into three parts. Part 1 reviews key issues in using LCA and modelling applied to farming systems. Part 2 provides more details on the modelling of three particular impacts, namely freshwater, pesticides and social impacts. Part 3 is dedicated to detailing the options available for reducing the environmental impact and improving the performance of both crop and livestock farming.



Retirements

Dr. Muhammad Sarwar, Chief Scientific Officer, Land Resources Research Institute, retired from NARC, Islamabad on Sep. 09, 2019 on superannuation. Dr. Sarwar did his B. Sc. (Hons.) Agri. and M.Sc. (Hons.) from the University of Agriculture Faisalabad in 1983 and 1985, respectively. He completed Ph. D. from PMAS Arid Agriculture University, Rawalpindi. He started his professional career by joining PARC as Assistant Director (Coordination) in 1986. He earned a rich experience of research planning, monitoring and evaluation and has 52 projects were implemented in different Research Institutes and Universities. Later on, Dr. Sarwar worked in the field of plant nutrition and dissemination of fertilizer band placement technology for wheat.



We pray for good health and prosperous retired lives of our respected colleagues.

Rapid Urbanization: Threat to food security and environment *Continued from page 1*

by buildings, constructions of roads and completely or partly impermeable layers of artificial material (asphalt, concrete, etc.). Despite the extensive loss of productive soils and the valuable ecosystem services that soils provide, the magnitude and negative implications of soil sealing and land taking processes are always underestimated.

Pakistan is the 6th largest populous country of the world with 208 million population and is projected to be 244 million in 2030, 307 million in 2050 and 352 million in 2100. The urban population is roughly 37% of the total country's population and is projected to exceed 50% by 2050. Among the provinces, Sindh is the most urbanized province of the country having 52% of its population in urban areas; 37% of the Punjab's population is living in urban areas; 28% of the Baluchistan's and KPK is the least urbanized province.

The rapid growth in human population is an indication of the strong urbanization trend in major cities of Pakistan. For example, Lahore's population has increased @ 54% since the last census in 1998 and was followed by Peshawar 50%, Islamabad 48%, Quetta 44% and Karachi 34%. This expansion in towns and cities and infrastructure development involve the transformation of prime and productive agricultural land into residential colonies, highways and shopping malls. This is not only adversely affecting food production but also affecting environment. Food production needs to be doubled in the next 30 years in order to feed the growing human population. Production of more food, feed, fiber and energy for ever-increasing population will put a tremendous pressure on agriculture and will result in considerable changes in emission of GHGs. The GHGs emission will have incredible impact on atmospheric temperature.

The rapid urbanization, as the result of exponential population increase, is triggering soil sealing, if not controlled, would give rise to the devastating consequences of environmental deterioration, food insecurity crisis and soil ecological instability. Hence, fertilized soils should be protected from consistent urbanization.

We appreciate the decision of the Punjab government for banning the development of new housing schemes on farmland and expect that other provincial and federal governments will also put ban on converting productive agricultural land into housing. The Punjab government decision is a first step in right direction. Nevertheless, it remains to be seen that how this decision is transformed as a policy instrument and be implemented in true letter and spirit unlike other decisions.

General News

Collaboration

Department of Soil Science, Sindh Agriculture University, Tandojam and Action Against Hunger (ACF- An International NGO) has signed a Memorandum of Understanding in connection to project entitled "Land Reclamation through Salt Tolerant Fodder Production in Sindh, Pakistan".

International Collaboration Opportunity

The Global Initiative on "Crop Microbiome and Sustainable Agriculture", provides an opportunity for International Collaboration. For more information please visit

<https://www.globalsustainableagriculture.org>

4 Tier Service Structure for AARI Scientists

The Punjab Govt has announced new service structure, 4 Tier, to AARI scientists. Govt of the Punjab has approved 4-Tier Services Structure for Agri. Researchers with I:15:34:50 of BS 20:19:18:17.

The designation of research scientists has also been changed as ARO to Scientific Officer, Asstt. Chemist to Senior Scientific Officer, Chemist to Principal Scientific Officer, Director to Deputy Chief Scientific Officer and Director General to Chief Scientific.

Interview with Prof. Rattan Lal on "How Soil & Farming Can Help Save the Climate"

<https://www.columbusunderground.com/low-hanging-fruit-dr-rattan-lal-on-how-soil-farming-can-help-save-the-climate-jb1>




CALL FOR PAPERS

18th INTERNATIONAL CONGRESS OF SOIL SCIENCE

Wise Soil Management Ensures Better Environment and Livelihood

11 - 13 February 2020, Sindh Agriculture University Tandojam, Pakistan






Important Dates

November 30, 2019	Last date of receipt of abstracts (as per given format) and registration forms
December 15, 2019	Notification of accepted abstracts
January 5, 2020	Last date for receipt of accommodation reservation requests

Organized By:
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 In Collaboration with:
Sindh Agriculture University, Tandojam, Pakistan

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News and Views for next issue of the 'Soil Science News' may be conveyed to the Society office bearers of your chapter or to **Dr. M. Mahmood-ul-Hassan** (mmh@comsats.net.pk), Editor/ **Dr. Azhar Hussain** (azharhaseen@gmail.com), Assoc. Editor, Soil Science News. The news can also be mailed at info@sss-pakistan.org