Food and Agriculture Organization of the United Nations

7th Asian Soil Partnership MEETING

9-10 March 2022

# National updates on soil: country

By Waqar Ahmad
Agriculture & Development Consultant
National Focal Point -

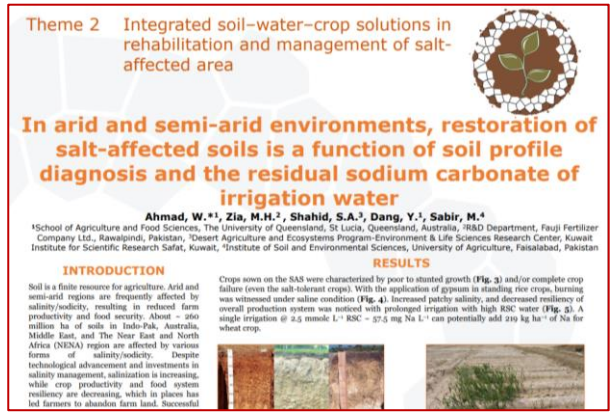
# PAKISTAN

ASIAN SOIL PARTNERSHIP

# Main activities implemented under Pillar 1

***Promote SMS resources for soil protection, conservation and sustainable productivity***

***Members: Muhammad Salim, Muhammad Sabir, Waqar Ahmad and Munir Zia***


Theme 2 Integrated soil–water–crop solutions in rehabilitation and management of salt-affected area

In arid and semi-arid environments, restoration of salt-affected soils is a function of soil profile diagnosis and the residual sodium carbonate of irrigation water

Ahmad, W.*[1], Zia, M.H.[2], Shahid, S.A.[3], Dang, Y.[1], Sabir, M.[4]

[1]School of Agriculture and Food Sciences, The University of Queensland, St Lucia, Queensland, Australia, [2]R&D Department, Fauji Fertilizer Company Ltd., Rawalpindi, Pakistan, [3]Desert Agriculture and Ecosystems Program-Environment & Life Sciences Research Center, Kuwait Institute for Scientific Research Safat, Kuwait, [4]Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Pakistan

INTRODUCTION

Soil is a finite resource for agriculture. Arid and semi-arid regions are frequently affected by salinity/sodicity, resulting in reduced farm productivity and food security. About ~ 260 million ha of soils in Indo-Pak, Australia, Middle East, and The Near East and North Africa (NENA) region are affected by various forms of salinity/sodicity. Despite technological advancement and investments in salinity management, salinization is increasing, while crop productivity and food system resiliency are decreasing, which in places has led farmers to abandon farm land. Successful

RESULTS

Crops sown on the SAS were characterized by poor to stunted growth (Fig. 3) and/or complete crop failure (even the salt-tolerant crops). With the application of gypsum in standing rice crops, burning was witnessed under saline condition (Fig. 4). Increased patchy salinity, and decreased resiliency of overall production system was noticed with prolonged irrigation with high RSC water (Fig. 5). A single irrigation @ 2.5 mmole $L^{-1}$ RSC ~ 57.5 mg Na $L^{-1}$ can potentially add 219 kg $ha^{-1}$ of Na for wheat crop.

**CIRCULAR ECONOMY**

- ✓ Wise use of resources – Soil Use and Management, Wiley/ FAO- Symposium
- ✓ Animal waste management – Designed projects (PhDs/MS Level Students)
- ✓ Residues management – Sustainability, MDPI
- ✓ Conservation tillage to tackle smog issue and improve carbon sequestration in rice-wheat cropping system, Pakistan. In: *Best soil management practices for soil organic carbon maintenance and sequestration: A technical manual.* Rome, FAO.

1. **Waqar Ahmad, Let's Connect through Our Soils – Sustainable Future. Invited Speaker by the National Centre of Excellence in Geology (NCEG), University of Peshawar. August 21, 2021**

# Main activities implemented under Pillar 2

***Encourage investment, technical cooperation, policy, education, awareness and extension in soil***

***Members: Waqar Ahmad, Muhammad Jamal Khan Khattak, Ghulam Murtaza***

1. Policy Brief for Asia "The multi-faced role of soil in Asia"
2. **Implementation of Global Soil Doctors Program – Asia**
   There has been a relatively slow progress made during the last year and was a scattered (not well coordinated effort in Pakistan). *CALL FOR PROPOSALS – End of May 2022* **(Partnership building)**
3. **Certified Professional Soil Scientist (CPSS) Program in collaboration with scientists from the developed countries particularly Australia**
4. Staff training of the Agriculture Department, abroad in Natural Resource Management (NRM)
5. Mapping: Salt-affected soils, soil organic carbon, and Soil Atlas for Asia

# Main activities implemented under Pillar 2

What did your country do on the World Soil Day?

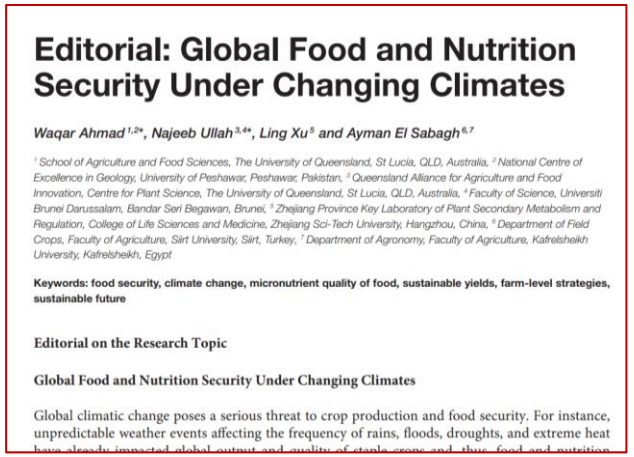

1.CELEBRATIONS/COMMITMENTS
2.COVERAGE IN PRINT AND ELECTRONIC MEDIA

# Main activities implemented under Pillar 3

***Promote targeted soil research and development focusing on identified gaps, priorities and synergies with related productive, environmental and social development actions***

***Members: Riaz H. Qureshi, Muhammad Jamal Khan Khattak and Waqar Ahmad***

1.National Soil Policy Document *(working paper drafted in consultation with key experts. Pakistan would need support from GSP Secretariat for publishing this policy document) – We can share after the Soil Governance Webinar (May 2022)*
2.A commodity-specific Manual on 4R Nutrient Stewardship – IN PROCESS
3.Linking Research, Development and Extension (RD&E) for Sustainable Development - IN PROCESS
4.How to Communicate the Message of SSM to the End User? – Strategy Document (DRAFTED)
5. **Special issues:**
   - -Biodiversity and Natural Resources Management ***(Sustainability)***
   - -Genotype X Environmental X Management (GxExM) – Moving Beyond Wheat
   - -Global Food and Nutrition Security under Changing Climates ***(Frontiers in Agronomy)***
   - - Adaptation of Plants to Waterlogging and Hypoxia ***(Frontiers in Plant Science)***



**Editorial: Global Food and Nutrition Security Under Changing Climates**

*Waqar Ahmad [1,2]*, Najeeb Ullah [3,4]*, Ling Xu [5] and Ayman El Sabagh [6,7]*

[1] School of Agriculture and Food Sciences, The University of Queensland, St Lucia, QLD, Australia, [2] National Centre of Excellence in Geology, University of Peshawar, Peshawar, Pakistan, [3] Queensland Alliance for Agriculture and Food Innovation, Centre for Plant Science, The University of Queensland, St Lucia, QLD, Australia, [4] Faculty of Science, Universiti Brunei Darussalam, Bandar Seri Begawan, Brunei, [5] Zhejiang Province Key Laboratory of Plant Secondary Metabolism and Regulation, College of Life Sciences and Medicine, Zhejiang Sci-Tech University, Hangzhou, China, [6] Department of Field Crops, Faculty of Agriculture, Siirt University, Siirt, Turkey, [7] Department of Agronomy, Faculty of Agriculture, Kafrelsheikh University, Kafrelsheikh, Egypt

**Keywords: food security, climate change, micronutrient quality of food, sustainable yields, farm-level strategies, sustainable future**

**Editorial on the Research Topic**

**Global Food and Nutrition Security Under Changing Climates**

Global climatic change poses a serious threat to crop production and food security. For instance, unpredictable weather events affecting the frequency of rains, floods, droughts, and extreme heat

# Main activities implemented under Pillar 4

**Information and Data**
**Members:** ***Waqar Ahmad, Muhammad Jamal Khan Khattak, Muhammad Salim***

1. Data collection and sharing and coordinating for the activities in relation to International Network of Soil Information Institutions
2. Data collection, processing and quality assurance for mapping Salt-affected Soils, SOC mapping and Asian Soil Atlas

*For the data required for Asian Soil Atlas, Pakistan was far behind in terms of re-classification of the soils. Our dedicated team worked hard for classifying the soils as per The World Reference Base (WRB)/correlation matrix*

# Main activities implemented under Pillar 5

***Harmonization of methods, measurements and indicator for the sustainable management and protection of soil resources***

***Members:***
***Muhammad Sabir, Waqar Ahmad, Muhammad Salim, Riaz H. Qureshi, Munir Zia***

Coordinating for the activities in relation to Global Soil Laboratory Network-
*National Accredited Laboratory in Islamabad, Pakistan*

Activities in SEALNET are coordinated by the Chair with the support of the vice-Chair and, from 2021, a Steering Commitee.

**2021-2023**

**Chair:** Dr. Gina P. Nilo (Philippines)
**Vice-Chair:** Dr. Muhammad Abbas Aziz (Pakistan)

# BOOK ON MICRONUTRIENTS – 4R STEWARDSHIP PAKISTAN

**Munir Zia and Waqar Ahmad**

# BOOK ON MICRONUTRIENTS – 4R STEWARDSHIP PAKISTAN

## Munir Zia and Waqar Ahmad

**New books:** 1 - 6 of 6

| # | Bookseller | Notes | Price |
|---|---|---|---|
| 1. | amazon.com<br>United States | Hardcover, ISBN 9781032307626<br>Publisher: CRC Pr I Llc, 2022<br>Hardcover. 272 pages. This title has not yet been released. You may pre-order it now and we will deliver it to you when it arrives. Fulfillment by Amazon. | $179.99 |
| 2. | amazon.co.uk<br>United Kingdom | Hardcover, ISBN 9781032307626<br>Publisher: CRC Press, 2022<br>Hardcover. Edition: 1. 272 pages. This title will be released on August 17, 2022. Pre-order now. Fulfillment by Amazon. | $182.91 |
| 3. | amazon.ca<br>Canada | Hardcover, ISBN 9781032307626<br>Publisher: CRC Press, 2022<br>Hardcover. Edition: 1. 272 pages. This title has not yet been released. You may pre-order it now and we will deliver it to you when it arrives. Fulfillment by Amazon. | $188.81 |
| 4. | amazon.fr<br>France | Hardcover, ISBN 9781032307626<br>Publisher: Taylor & Francis Ltd, 2022<br>Relié. 272 pages. Cet article paraîtra le 28 août 2022. Précommandez dès aujourd'hui. Fulfillment by Amazon. | $193.57 |
| 5. | amazon.it<br>Italy | Hardcover, ISBN 9781032307626<br>Publisher: CRC Press, 2022<br>Copertina rigida. Edition: 1. 272 pages. Questo articolo non è ancora disponibile. Se prenoti ora, effettueremo la consegna non appena arriverà. Fulfillment by Amazon. | $195.67 |
| 6. | amazon.es<br>Spain | Hardcover, ISBN 9781032307626<br>Publisher: CRC Press, 2022<br>Tapa dura. Edition: 1. 272 pages. Este producto está en preventa. Compralo en Preventa ya. Fulfillment by Amazon. | $200.73 |

ISBN is **9781032307626 / 1032307625**

**Micronutrient Fertilizer Use in Pakistan: Historical Perspective and 4r Nutrient Stewardship**

by **Rashid, Abdul; Zia, Munir; Ahmad, Waqar**

**Publisher:** CRC Pr I Llc, 2022

**Edition:** Hardcover

**Language:** English

**Prices INCLUDE standard shipping to Pakistan**

Show prices without shipping
Change shipping destination/currency

Shipping prices may be approximate. Please verify cost before checkout.

https://www.amazon.com/Micronutrient-Fertilizer-Use-Pakistan-Perspective/dp/1032307625/ref=sr_1_2?qid=1646805821&refinements=p_27%3AAbdul+Rashid&s=books&sr=1-2

# PROMOTION OF SSM – CONFERENCES + RESEARCH ARTICLES

sustainability

MDPI

*Article*

## Synergistic Effects of Acacia Prunings-Derived Biochar and Nitrogen Application on the Mineral Profile of Maize (*Zea mays* L.) Grains

Habib Ullah [1,2], Sahib Alam [1], Waqar Ahmad [3,4,*], Stuart Morrow [2], Muhammad Sabir [5] and Yacine Hemar [2,6]

[1] Department of Agricultural Chemistry and Biochemistry, The University of Agriculture, Peshawar 25130, Pakistan; noorezi121@gmail.com (H.U.); dralam@aup.edu.pk (S.A.)
[2] School of Chemical Science, The University of Auckland, Auckland 1142, New Zealand;

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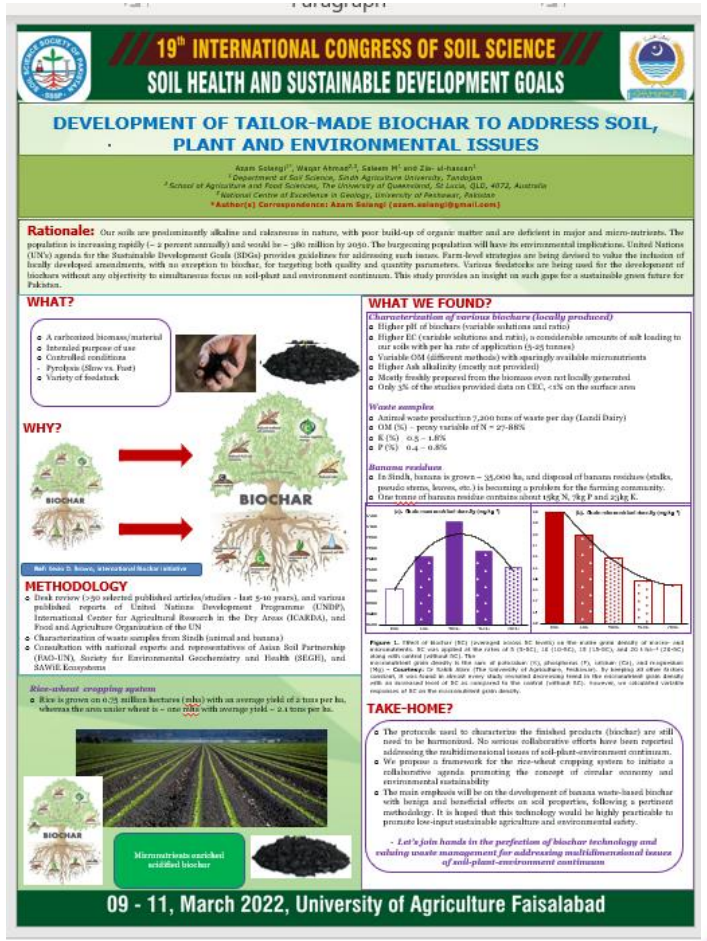

# Thanks for your attention

2022

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