



Prof. Dr. Muhammad Naeem
(Vice-Chancellor)



Prof. Dr. Azeem Khalid
(Director ISES)

Hands-on Training Workshop

“RUSLE MODELLING WITH GEOSPATIAL TECHNIQUES FOR SOIL EROSION
ASSESSMENT AND MONITORING ”

12-14 November, 2024



Dr. Shahzada Sohail Ijaz
(Focal Person)

Organized by

Institute of Soil & Environmental Sciences



Funded by

Research Endowment Fund (REF) Program
Office of Research, Innovation and Commercialization (ORIC)
PMAS-Arid Agriculture University Rawalpindi



Dr. Qaiser Hussain



Dr. Muhammad Amin

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INTRODUCTION

Pakistan's total geographical area spans 79.96 million hectares, with alarming reports indicating that 76% of this land is experiencing degradation. Consequently, 36% of the land is affected by active water erosion while 40% suffers active wind erosion. The highest rate of erosion is recorded in the Indus watershed between the Tarbela Dam and 90 km upstream side, where soil loss is estimated to be 150-165 t ha⁻¹ yr⁻¹. Other areas prone to water erosion include Potohar plateau characterized by irregular topography with slopes ranging from 8–40%. The region receives significant rainfall, with 70% of annual precipitation (450 - 1750 mm) falling during the monsoon season.

Revised Universal Soil Loss Equation (RUSLE) model is crucial to sustainable land use since it serves as a vital instrument in computing soil loss. This empirical and spatialized model establishes a systematic framework for evaluating the rate of soil erosion and predicting its possible impacts on land resources. The full potential of RUSLE can only be realized by integrating its variables into a geographic information system (GIS). This combination would enable an improved understanding of the spatial distribution and intensity of soil erosion, which would allow for better implementation of soil conservation measures.

OBJECTIVES

Goal of the Hands-on training workshop is to develop capacity of young scientists, researchers, and post-graduate students for assessing soil erosion using RUSLE model & ArcGIS techniques for monitoring soil erosion using modular runoff plots and automatic equipment installed at University Research Farm.

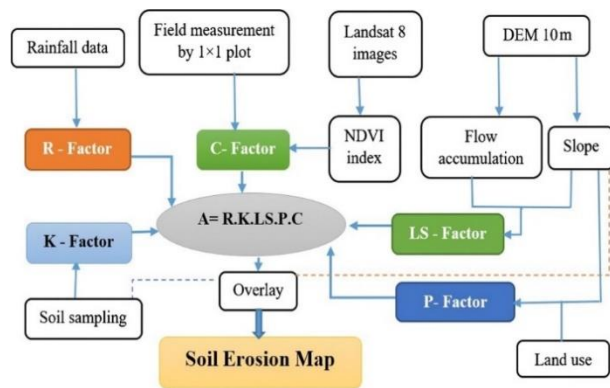


Figure: Flow chart of RUSLE model and geospatial techniques

WHO SHOULD ATTEND

Soil Scientists, Environmentalists, Agronomists, Agrometeorologists, Agriculture Extension Agents, Policy Makers, Planners and other Agricultural Professionals striving to reduce soil erosion should attend this workshop.

REGISTRATION

- **Registration Fee** for all participants: Rs. 2500
- **Registration Link:**
<https://forms.gle/461hD9gXQ3ndjWPT7>

ORGANIZERS

Patron in-Chief

Prof. Dr. Muhammad Naeem (Vice Chancellor, PMAS-AAUR)

Organizing Committee

Prof. Dr. Azeem Khalid (Director, ISES)

Dr. Shahzada Sohail Ijaz (Associate Professor, ISES)

Dr. Qaiser Hussain (Associate Professor, ISES)

Dr. Muhammad Amin (Assistant Professor, IGEO)

Dr. Adeel Anwar (Assistant Professor, Agronomy)

Focal Person

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Figure: Automatic erosion assessment equipment

NOTE

- **Laptop** must be available with each participant to attend the workshop in person only
- Accommodation facility and TA/DA is not admissible