

## Book review

**'SOIL DEGRADATION, CONSERVATION AND REMEDIATION' BY K.T. OSMAN**Tanmoy Sarkar <sup>1</sup>✉**Article Ref. No.:**

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The book entitled as "Soil Degradation, Conservation and Remediation", written by Osman (2014) has the objectives to address the principle processes of soil degradation, its impact on soil quality, plant production and human health and conservation methods and techniques in sufficient details.

The book is divided into six chapters of variable length. *Chapter 1* considers the importance of soil and makes an introductory discussion on land capability classification, soil fertility, soil productivity, soil quality and soil health, global arable land, World Soil Taxonomy, soil degradation and laws of sustainable soil management. The institutional initiatives for soil/ land degradation assessment e.g. GLASOD, SOTER, LADA, GLADA, WOCAT & ASSOD have been mentioned without detailed discussion. Properties of different land quality classes are represented in a brief manner. In the *2<sup>nd</sup> chapter* the author describes various processes and forms of physical deterioration of soil. The concept of surface sealing, crusting, hard setting, and compaction and their formation, factors and management has been represented in a lucid manner. The *3<sup>rd</sup> chapter* tells about different forms and controls of water erosion process with adequate field

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observations and references, while the wind erosion process is described in the *4<sup>th</sup> chapter*.

All the previous sections did not consider the scientific mechanism regarding rain splash erosion, overland flow, sub surface flow. The geo-hydraulic characteristics, pedological adjustments and geomorphologic complexities and the formation of rill and gullies have some scope for discussion. However, the factors controlling soil erosion and degradation mainly depend on the complex competitive interaction between erosivity of the eroding agent and the erodibility of the soil, the slope of the land and the nature of vegetation cover, but such factors are not so well addressed in all chapters throughout the book. USLE and RUSLE have been addressed as the soil loss equations and all six factors were mentioned in a very brief manner, though the application and limitations of this model in the field are ignored. Various controls of water erosion and managing the way of wind erosion have been discussed briefly: conservation tillage, mulching, contour cropping, strip cropping and most importantly the Sloping Agricultural Land Technology (SALT) package were briefly addressed. However, the approaches to soil conservation for different land cover and land use and mechanical methods of erosion control have a further scope which is more important needs to be investigated. Chemical degradation of soil and its various forms like acidification and soil salinization are discussed in *5<sup>th</sup> chapter*. Discussion on the losses of soil nutrients and minerals due to erosion and nutrient removal by various harvested crops is an interesting section in the book which is appreciable. The final chapter deals with the problem of soil pollution and its different sources. The role of overgrowing solid waste, associated with municipal and urban-industrial sectors in soil pollution has been thoroughly analyzed.

Overall the book presents a standard discussion on soil degradation. It is a well-documented text reference book for soil erosion and degradation study. However, soil erosion hazard assessment and erosion measure methods and techniques in field: and for simulated conditions in the laboratories remain completely untouched. The range of models covered in the volume is not so impressive. The research on soil erosion and degradation has been addressed with different approaches and a wide range of predictive models, developed by the researchers with a sound physical base reflecting the knowledge and understanding of how the erosion system works. But the demonstration of USLE/RUSLE as the only soil loss equations makes the volume less impressive.

The author narrates different types of water erosion e.g. sheet erosion, rill erosion, gully erosion, and stream bank erosion. However, type-specific erosion assessment field and laboratory estimation methods are ignored. The volume is unable to represent the sound and holistic picture of methodological development in the soil erosion and degradation research till now. The role of remote sensing and Geographical Information System (GIS) and statistical and mathematical approaches in the concerned research is quite ignored in the full volume and these limitations make the book only a text book rather than a good thoroughly researched reference volume for present day researchers.