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Syrdary Province of Uzbekistan -- 6. The New Map of Soil Salinity and Regularities in Distribution of Salt-Affected Soils in Russia -- 7. Soil Salinity Mapping in the Sinai Peninsula of Egypt Using Geographic Information System and Remote Sensing Techniques -- 8. Spatial Variability of Soil Salinization as Judged from the Comparison of Soil Maps and Remote Sensing Materials for Different Years in Uzbekistan -- 9. Soil Salinity in the Central Arid Region of Iran - Esfahan Province -- 10. Mapping the Risk of Soil Salinization Using Electromagnetic Induction and Non-Parametric Geostatistics -- 11. Spatiotemporal Variability and Mapping of Groundwater Salinity in Tadla: Geostatistical Approach -- 12. Spatial Analysis Using a Proportional Effect Semivariogram Model -- 13. Spatial Monitoring of Soil Salinity and Prospective Conservation Study for Sinnuris District Soils, Fayoum, Egypt -- 14. Geographical Distribution of Soil Salinity, Alkalinity and Calcicity within Fayoum and Tamia Districts, Fayoum Governorate, Egypt -- 15. Using Remotely-Sensed Soil Conductivity to Monitor Restoration Activities on Vernal Pools, Northern Great Basin, USA -- 16. Mapping and Monitoring of Salt-Affected Soils Using Remote Sensing and Geographic Information System for the Reclamation of Canal Commanded Area of Jammu, India -- Part II Management and Reclamation of Salt-Affected Soils -- 17. Management of Saline Lands in Oman: Learning to Live with Salinity -- 18. Rice Production in Salt-Affected Soils of Pakistan Using Different Reclamation Techniques -- 19. Marginal-Quality Water Use as an Ameliorant for Tile-Drained Saline-Sodic Soils in a Rice-Wheat Production System -- 20. Reclamation of Degraded Vertisols Under Cassava in Arid Environments of India -- 21. Sustainable Management of Salt Affected Soils and Poor Quality Ground Waters for Enhancing Crop Production -- 22. Controlling Sodic Soil Erosion by Electrolytes and Polyacrylamide Application -- 23. Practical, Productive and Environment Friendly Utilization of Different Categories of Salt-Affected Soils in Arid and Semi-Arid Regions of Pakistan -- 24. The Reclamation Effects Should be Considered for Saline Soil Criteria in Soil Classification System -- Part III Use of Marginal Quality Water for Crop Production -- 25. Use of Marginal Quality Waters for Sustainable Crop Production -- 26. *Distichlis Spicata* – A Salt and Drought Tolerant Plant Species with Minimum Water Requirements for Sustainable Agriculture in Desert Regions and Biological Reclamation of Desert Saline Soils -- 27. Relative Salinity Tolerance of 35 *Lolium* spp. Cultivars for Urban Landscape and Forage Use -- 28. Enhances the Quality of Turfgrasses with Saline Groundwater -- 29. Plant Response to Saline Water Irrigation in a Sicilian Vineyard -- 30. Yield and Growth Responses of Autochthonous Pearl Millet Ecotype (*Pennisetum glaucum* (L.) R. Br.) Under Saline Water Irrigation in Tunisia -- 31. Use of Marginal Water for *Salicornia bigelovii* Torr. Planting in the United Arab Emirates -- 32. Performance of *Chenopodium quinoa* Under Salt Stress -- 33. Inducing Pea Plants for Conquering the Adverse Conditions of Saline Reclaimed Soils with Some Support Application -- 34. Prospects of Crop and Forage Production in Coastal Saline Soils of Bangladesh -- IV. Salt-Tolerance Mechanisms in Plants -- 35. Salt Response of Some Halophytes with Potential Interest in Reclamation of Saline Soils -Gas Exchange, Water Use Efficiency and Defense Mechanism -- 36. Salt Response of Halophytes with Potential Interest in Food Crops and Reclamation of Saline Soils, Growth, Water Relations, Mineral Content and Anatomical Adaptations -- 37. Biology and Physiology of *Avicennia Marina* in the Coastal Conditions of Southern Morocco -- V. Biosaline Agriculture and Agroforestry for Marginal Lands -- 38. Integrating Agroforestry and Pastures for Soil Salinity Management in Dryland

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#### Sommario/riassunto

This important addition to the technical literature of ecology is a storehouse of information on marginal soils and waters from around the world. Soil salinity is considered the most important component of land degradation in arid and semi-arid regions, it is dynamic, spreading globally in over 100 countries and covering more than one billion hectares. It is causing significant losses in irrigated agriculture due to poor understanding and management. There have been significant developments in technologies to assess, map and monitor soil salinization spatially and temporally using remote sensing, geographical information system, geophysical methods and modeling, from regional, national to farm levels. The papers assembled here cover topics such as technological advances in soil salinity mapping and monitoring, management and reclamation of salt-affected soils, use of marginal quality water for crop production, salt-tolerance mechanisms in plants, biosaline agriculture and agroforestry, microbiological interventions for marginal soils, opportunities and challenges in using marginal waters, and soil and water management in irrigated agriculture. Focusing on arid and semi-arid regions, the book details recent developments in soil salinity and reclamation aspects in an applied context. Once this information is properly assimilated and applied in the field by potential stakeholders the agriculture scientists and farmers, marginal soil productivity may be increased leading to improved livelihood for farmers.

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