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Climate Change Impact Assessment Methodology Project at National Institute for Environmental Studies -- Chapter 9. Description of Coastal Ecosystems (Coral, Macroalgae, and Seagrass) in Local Climate Change Adaptation Plans of Japanese Prefectures -- Chapter 10. Detection, Assessment, and Projection of Climate Change Effects on Terrestrial Ecosystems -- Chapter 11. Assessing Costs of Adaptations to Sea Level Rise in Japanese Coastal Areas -- Chapter 12. Projection of Coastal Impacts: Beach Erosion and Inundation Risk of Urban Areas -- Chapter 13. Assessment of Climate Change Adaptation Measures for Pluvial Flooding -- Chapter 14. Evaluation of Flood Damage Reduction by Use of Irrigation Reservoirs Under Climate Change with the Worst Scenario -- Chapter 15. Diffusion of Flood Adaptation Measures in Japan: An Agent-Based Model for Assessing Individual Behaviors and Policy Communication Effectiveness -- Chapter 16. Drought Risk and Agricultural Water Use: Changes in Water Resources and the Optimal Rice Growing Period -- Chapter 17. Climate Change and Quality of Life: What Affects the Happiness of Citizens?- Chapter 18. Implementing Urban Design Workshops for Climate Change Adaptation at the District Scale -- Chapter 19. Urban Metabolism and Adaptation Options for Climate Change -- Chapter 20. Urban Transport in a Warming World: Adapting to Climate Challenges -- Chapter 21. Risk Assessment and Adaptation Policies for Dengue Fever -- Chapter 22. Determinants of Farmers' Strategies for Adapting to Climate Change -- Chapter 23. Direct and Indirect Economic Impacts of Sea Level Rise -- Chapter 24. Climate Security Policy in Japan: Toward Climate-Based Policymaking.

Sommario/riassunto

This open access book presents the latest Japanese research for the projection of climate change impacts and the evaluation of adaptation policies, with a particular focus on the S-18 Project—a nationwide, interdisciplinary research initiative involving experts from various fields. Readers can get a comprehensive view of the latest knowledge and strategies to combat climate change impacts in Japan. The topics span the research framework and future scenarios for climatic and socio-economic changes, and impacts and adaptation measures in major sectors at both national and local levels. Target sectors include agriculture, forestry and fisheries, natural ecosystems, natural disasters and coastal zones, water resources, urban infrastructure, and transportation, quality of life and human health, and economic analysis of the impacts. The book features high-resolution spatial distribution of impacts, changes in vulnerability with localities, effects of mitigation and adaptation measures, and implications of climate change policies on society. As the world experiences increased extreme weather events, this comprehensive book is a timely reference for similar studies in other countries through the presentation of research results and lessons obtained in Japan. Researchers, policymakers, and academics in environmental science, climate policy, and related fields will find this book invaluable for understanding and addressing the multifaceted challenges of climate change adaptation and mitigation. Some chapters were written originally in Japanese. The English translation was facilitated by artificial intelligence. The authors later revised the content for accuracy.