1 350 562 OSXV

A WORLD BANK STUDY

Economics of Climate Change in the Arab World

Case Studies from the Syrian Arab Republic, Tunisia, and the Republic of Yemen

Dorte Verner and Clemens Breisinger, editors



Contents

| Acknowledgments About the Authors Abbreviations and Acronyms | | ix xi xv |
|--|--|----------------|
| Chapter 1 | Introduction | 1 |
| pro | Dorte Verner | - |
| | Climate Change is Happening Now Challenges to Addressing the Economic Impacts | 3 |
| | of Climate Change | 4 |
| | Notes | 5 |
| | References | 6 |
| Chapter 2 | Modeling Suite | 9 |
| | Clemens Breisinger, Olivier Ecker, Gerald Nelson, Manfred Wiebelt, and Tingju Zhu | |
| | Biophysical Impact Assessment | 11 |
| | Economic Impact Assessment | 16 |
| | Local Impacts | 18 |
| | Notes | 28 |
| | References | 28 |
| Chapter 3 | Economic Impacts of Climate Change | 31 |
| | Perrihan Al-Riffai, Clemens Breisinger, Olivier Ecker, Jose | |
| | Funes, Gerald Nelson, Richard Robertson, Rainer Thiele, | |
| | Dorte Verner, Manfred Wiebelt, and Tingju Zhu | |
| | Global Climate Change Impacts | 32 |
| | Syria | 34 |
| | Tunisia | 48 |
| | The Republic of Yemen | 56 |
| | Notes | 76 |
| | References | 77 |

| Chapter 4 | Economic Impacts of Droughts in the Syrian Arab Republic and Floods in the Republic of Yemen Perrihan Al-Riffai, Clemens Breisinger, Olivier Ecker, Rainer Theile, Dorte Verner, Manfred Wiebelt, and Tingju Zhu | 79 |
|------------|---|-------|
| | Droughts in Syria | 80 |
| | Floods in the Republic of Yemen | 90 |
| | Notes | 98 |
| | References | 98 |
| Chapter 5 | Conclusions and Proposed Actions for Adaptation Dorte Verner and Clemens Breisinger | 99 |
| | Advancing a Global Action Plan | 102 |
| | Including Climate Change in National Strategies, Policies, | |
| | and Investment Plans | 103 |
| | Agricultural and Rural Development Policies | 103 |
| | Social Protection Policies | 105 |
| | Disaster Risk Management Strategies | 106 |
| | Notes | 107 |
| | References | 107 |
| Appendix A | Inputs Used for DSSAT Model | 109 |
| | Agronomic Inputs | 109 |
| | References | 111 |
| Appendix B | Methodology of Aggregation from Pixel Data | |
| | to Agroecological Zones (the Syrian Arab Republic) | 113 |
| | Reference | 114 |
| Appendix C | Mapping Decision Support System for Agrotechnology Transfer (DSSAT) and International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) Crops to the Social Accounting Matrix | |
| | (SAM) Sectors | 115 |
| | Projected Crop Yields | 115 |
| | Durum and Soft Wheat | 115 |
| | Barley | 116 |
| | Other Cereals | 116 |
| | Vegetables and Fruits | . 116 |
| | Other Crops | 116 |
| | Reference | 117 |
| Appendix D | Supplementary Model Tables | 119 |