

Philippines Vulnerability To Climate Related Related

"Through a comprehensive collection of articles, the Oxford Encyclopedia of Climate Change Communication explores the origin and evolution of our understanding of climate change as it is presented in communication and media. Taking a multifaceted approach, the encyclopedia offers a scholarly examination of the effects of climate change communication on public opinion and policy decisions; journalistic coverage and media portrayals of climate change; communication strategies and campaigns; and the implications of effective communication, including those of outreach and advocacy efforts. Additionally, the encyclopedia reviews climate change communication research methods and approaches. Global in breadth and deeply resourced, the work serves as an essential source of perspective on all aspects of this important area of scholarship"--

On top of a decade of exacerbated disaster loss, exceptional global heat, retreating ice and rising sea levels, humanity and our food security face a range of new and unprecedented hazards, such as megafires, extreme weather events, desert locust swarms of magnitudes previously unseen, and the COVID-19 pandemic. Agriculture underpins the livelihoods of over 2.5 billion people – most of them in low-income developing countries – and remains a key driver of development. At no other point in history has agriculture been faced with such an array of familiar and unfamiliar risks, interacting in a hyperconnected world and a precipitously changing landscape. And agriculture continues to absorb a disproportionate share of the damage and loss wrought by disasters. Their growing frequency and intensity, along with the systemic nature of risk, are upending people's lives, devastating livelihoods, and jeopardizing our entire food system. This report makes a powerful case for investing in resilience and disaster risk reduction – especially data gathering and analysis for evidence informed action – to ensure agriculture's crucial role in achieving the future we want.

This book provides an authoritative insight on the Loss and Damage discourse by highlighting state-of-the-art research and policy linked to this discourse and articulating its multiple concepts, principles and methods. Written by leading researchers and practitioners, it identifies practical and evidence-based policy options to inform the discourse and climate negotiations. With climate-related risks on the rise and impacts being felt around the globe has come the recognition that climate mitigation and adaptation may not be enough to manage the effects from anthropogenic climate change. This recognition led to the creation of the Warsaw International Mechanism on Loss and Damage in 2013, a climate policy mechanism dedicated to dealing with climate-related effects in highly vulnerable countries that face severe constraints and limits to adaptation. Endorsed in 2015 by the Paris Agreement and effectively considered a third pillar of international climate policy, debate and research on Loss and Damage continues to gain enormous traction. Yet, concepts, methods and tools as well as directions for policy and implementation have remained contested and vague. Suitable for researchers, policy-advisors, practitioners and the interested public, the book furthermore:

- discusses the political, legal, economic and institutional dimensions of the issue
- highlights normative questions central to the discourse
- provides a focus on climate risks and climate risk management
- presents salient case studies from

around the world.

The archipelago of the Philippines is well endowed with nonferrous mineral resources, and in recent years the Philippine government, acting under the influence of the dominant and seemingly ubiquitous neoliberal development paradigm, has liberalized its mining laws in order to accelerate economic development. Yet the Philippines is also a country highly prone to a variety of natural hazards that have the ability to interact adversely with mining's potential for environmental degradation. Thus there are great dangers inherent in pursuing such a development paradigm: earthquakes can destabilize tailings storage facilities, typhoons can flood tailings ponds, and mine-pit dewatering can enhance the competition for groundwater resources during droughts. This study explores how these hazards amplify the environmental harm prevalent in mining, and reveals the substantial threat posed to the livelihoods of the archipelago's poor, as well as the inadequacies of the very institutions designed to protect their environment.

'Climate Resilient Cities: A Primer on Reducing Vulnerabilities to Disasters' provides city administrators with exactly what they need to know about the complex and compelling challenges of climate change. The book helps local governments create training, capacity building, and capital investment programs for building sustainable, resilient communities. A step-by-step self-assessment challenges policymakers to think about the resources needed to combat natural disasters through an innovative hot spot risk and vulnerability identification tool. This primer is unique from other resources in its treatment of climate change using a dual-track approach that integrates both mitigation (lowering contributions to greenhouse gases) and adaptation (preparing for impacts of climate change) with disaster risk management. The book is relevant both to cities that are just beginning to think about climate change as well as those that already have well established policies, institutions, and strategies in place. By providing a range of city-level examples of sound practices around the world, the book demonstrates that there are many practical actions that cities can take to build resilience to climate change and natural disasters.

No person or place is immune from disasters or disaster-related losses. Infectious disease outbreaks, acts of terrorism, social unrest, or financial disasters in addition to natural hazards can all lead to large-scale consequences for the nation and its communities. Communities and the nation thus face difficult fiscal, social, cultural, and environmental choices about the best ways to ensure basic security and quality of life against hazards, deliberate attacks, and disasters. Beyond the unquantifiable costs of injury and loss of life from disasters, statistics for 2011 alone indicate economic damages from natural disasters in the United States exceeded \$55 billion, with 14 events costing more than a billion dollars in damages each. One way to reduce the impacts of disasters on the nation and its communities is to invest in enhancing resilience--the ability to prepare and plan for, absorb, recover from and more successfully adapt to adverse events. Disaster Resilience: A National Imperative addresses the broad issue of increasing the nation's resilience to disasters. This book defines "national resilience", describes the state of knowledge about resilience to hazards and disasters, and frames the main issues related to increasing resilience in the United States. It also provides goals, baseline conditions, or performance metrics for national resilience and outlines additional information, data, gaps, and/or

obstacles that need to be addressed to increase the nation's resilience to disasters. Additionally, the book's authoring committee makes recommendations about the necessary approaches to elevate national resilience to disasters in the United States. Enhanced resilience allows better anticipation of disasters and better planning to reduce disaster losses-rather than waiting for an event to occur and paying for it afterward. Disaster Resilience confronts the topic of how to increase the nation's resilience to disasters through a vision of the characteristics of a resilient nation in the year 2030. Increasing disaster resilience is an imperative that requires the collective will of the nation and its communities. Although disasters will continue to occur, actions that move the nation from reactive approaches to disasters to a proactive stance where communities actively engage in enhancing resilience will reduce many of the broad societal and economic burdens that disasters can cause.

The Climate Change 2007 volumes of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) provide the most comprehensive and balanced assessment of climate change available. This IPCC Working Group II volume provides a completely up-to-date scientific assessment of the impacts of climate change, the vulnerability of natural and human environments, and the potential for response through adaptation. Written by the world's leading experts, the IPCC volumes will again prove to be invaluable for researchers, students, and policymakers, and will form the standard reference works for policy decisions for government and industry worldwide.

This compendium looks at Asian and European policies for dealing with climate change, and possible impacts on conflicts and security. It clarifies the impacts of climate change on natural resources, on the frequency and expansion of natural disasters and the repercussions for environmentally-induced migration.

An overview of the current scientific knowledge available on climate change implications for fisheries and aquaculture is provided through three technical papers that were presented and discussed during the Expert Workshop on Climate Change Implications for Fisheries and Aquaculture (Rome, 7-9 April 2008). A summary of the workshop outcomes as well as key messages on impacts of climate change on aquatic ecosystems and on fisheries- and aquaculture-based livelihoods are provided in the introduction of this Technical Paper. The first paper reviews the physical and ecological impacts of climate change relevant to marine and inland capture fisheries and aquaculture. The paper begins with a review of the physical impacts of climate change on marine and freshwater systems and then connects these changes with observed effects on fish production processes. It also outlines a series of scenarios of climate change impacts on fish production and ecosystems through case studies in different regions and ecosystems. The second paper tackles the consequences of climate change impacts on fisheries and their dependent communities. It analyses the exposure, sensitivity and vulnerability of fisheries to climate change and presents examples of adaptive mechanisms currently used in the sector. The contribution of fisheries to greenhouse gas emissions is addressed and examples of mitigation strategies are given. The role of public policy and institutions in promoting climate change adaptation and mitigation is also explored. Finally, the third paper addresses the impacts of climate change on aquaculture. It provides an overview of the current food fish and aquaculture production and a synthesis of existing studies on climate change effects on

aquaculture and fisheries. The paper focuses on the direct and indirect impacts of climate change on aquaculture, in terms of biodiversity, fish disease and fishmeal. Contribution of aquaculture to climate change is addressed (carbon emission and carbon sequestration), as well as possible adaptation and mitigation measures that could be implemented.

Urban Disasters and Resilience in Asia presents the latest information on the intensity and frequency of disasters. Specifically, the fact that, in urban areas, more than 50% of the world's population is living on just 2% of the land surface, with most of these cities located in Asia and developing countries that have high vulnerability and intensification. The book offers an in-depth and multidisciplinary approach to reducing the impact of disasters by examining specific evidence from events in these areas that can be used to develop best practices and increase urban resilience worldwide. As urban resilience is largely a function of resilient and resourceful citizens, building cities which are more resilient internally and externally can lead to more productive economic returns. In an era of rapid urbanization and increasing disaster risks and vulnerabilities in Asian cities, Urban Disasters and Resilience in Asia is an invaluable tool for policy makers, researchers, and practitioners working in both public and private sectors. Explores a broad range of aspects of disaster and urban resiliency, including environmental, economic, architectural, and engineering factors Bridges the gap between urban resilience and rural areas and community building Provides evidence-based data that can lead to improved disaster resiliency in urban Asia Focuses on Asian cities, some of the most densely populated areas on the planet, where disasters are particularly devastating

The urban poor living in slums are at particularly high risk from the impacts of climate change and natural hazards. This study analyzes key issues affecting their vulnerability, with evidence from a number of cities in the developing world.

As the global climate shifts, communities are faced with a myriad of mitigation and adaptation challenges. These highlight the political, cultural, economic, social, and physical vulnerability of social groups, communities, families, and individuals. They also foster resilience and creative responses. Research in hazard management, humanitarian response, food security programming, and other areas seeks to identify and understand factors that create vulnerability and strategies that enhance resilience at all levels of social organization. This book uses case studies from around the globe to demonstrate ways that communities have fostered resilience to mitigate the impacts of climate change.

'Economic losses from natural disasters totaled \$92 billion in 2015.' Such statements, all too commonplace, assess the severity of disasters by no other measure than the damage inflicted on buildings, infrastructure, and agricultural production. But \$1 in losses does not mean the same thing to a rich person that it does to a poor person; the gravity of a \$92 billion loss depends on who experiences it. By focusing on aggregate losses—the traditional approach to disaster risk—we restrict our consideration to how disasters affect those wealthy enough to have assets to lose in the first place, and largely ignore the plight of poor people. This report moves beyond asset and production losses and shifts its attention to how natural disasters affect people's well-being. Disasters are far greater threats to well-being than traditional estimates suggest. This approach provides a more nuanced view of natural disasters than usual reporting, and a perspective that takes fuller account of poor people's vulnerabilities. Poor people

suffer only a fraction of economic losses caused by disasters, but they bear the brunt of their consequences. Understanding the disproportionate vulnerability of poor people also makes the case for setting new intervention priorities to lessen the impact of natural disasters on the world's poor, such as expanding financial inclusion, disaster risk and health insurance, social protection and adaptive safety nets, contingent finance and reserve funds, and universal access to early warning systems. Efforts to reduce disaster risk and poverty go hand in hand. Because disasters impoverish so many, disaster risk management is inseparable from poverty reduction policy, and vice versa. As climate change magnifies natural hazards, and because protection infrastructure alone cannot eliminate risk, a more resilient population has never been more critical to breaking the cycle of disaster-induced poverty. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation Special Report of the Intergovernmental Panel on Climate Change Cambridge University Press

A comprehensive overview of the concepts of vulnerability and resilience for natural hazards research for both physical and social scientists.

Adapting to Climate Change in Eastern Europe and Central Asia presents an overview of what adaptation to climate change might mean for the countries of the region of Eastern Europe and Central Asia (ECA). The next decade offers a window of opportunity for ECA countries to make their development more resilient to climate change.

This Intergovernmental Panel on Climate Change Special Report (IPCC-SREX) explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation. Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Changes in the frequency and severity of the physical events affect disaster risk, but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability. Some types of extreme weather and climate events have increased in frequency or magnitude, but populations and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and climate-related disasters exist or can be developed at any scale, local to international. Prepared following strict IPCC procedures, SREX is an invaluable assessment for anyone interested in climate extremes, environmental disasters and adaptation to climate change, including policymakers, the private sector and academic researchers.

Informed by the country approaches of Ghana, Peru and the Philippines, in addition to a review of relevant literature, this report examines the potential for increased coherence in approaches to climate change adaptation and disaster risk reduction across levels of government and sectors.

This research project will explore the gender dimension of climate change using The City of San Fernando located in the Ilocos Region of the Philippines, as a case study. Feminist researchers argue that gender is considered a critical variable for shaping access to the resources needed to cope with climate-related disasters and change. In particular, initiatives and policies that target the specific vulnerabilities of farmers and fishers will be investigated to determine whether they are gender-sensitive. An intersectional feminist political ecology approach will be undertaken to determine the extent to which gender is considered in these

approaches and identify the underlying social, cultural and historical factors that contribute to gender equality or inequality. Perceptions of gendered vulnerability are mediated by hegemonic climate change development discourses that homogenise women in the developing world as poor and vulnerable. These depictions of women as vulnerable because they are poor result in the dominance of poverty reduction measures. The Philippines is an interesting area of study as extensive institutional arrangements have been put in place to support women; however, this is contrasted by inherent social arrangements that continue to undermine the role of rural women within particular parts of society. Government and development agencies have established supporting and inclusionary measures that aim to enhance gender equality; however, these policies and initiatives do not always translate into observable effects on the ground level. Gender norms, gender roles and the gender division of labour shape how vulnerability is perceived which in turn influence climate change adaptation measures. I argue that if contextual vulnerabilities and gender roles are not acknowledged, within farming and fisher folk communities, then vulnerability reduction measures may produce multiple burdens for women.

Climate change can reasonably be expected to increase the frequency and intensity of a variety of potentially disruptive environmental events--slowly at first, but then more quickly. It is prudent to expect to be surprised by the way in which these events may cascade, or have far-reaching effects. During the coming decade, certain climate-related events will produce consequences that exceed the capacity of the affected societies or global systems to manage; these may have global security implications. Although focused on events outside the United States, *Climate and Social Stress: Implications for Security Analysis* recommends a range of research and policy actions to create a whole-of-government approach to increasing understanding of complex and contingent connections between climate and security, and to inform choices about adapting to and reducing vulnerability to climate change.

'Sound and solid case studies on vulnerability and adaptation have been woefully lacking in the international discourse on climate change. This set of books begins to bridge the gap.' Achim Steiner, UN Under-Secretary General and Executive Director of United Nations Environment Programme 'Important reading for students and practitioners alike.' Martin Parry, Co-Chair, Working Group II (Impacts, Adaptation and Vulnerability), Intergovernmental Panel on Climate Change (IPCC) 'Fills an important gap in our understanding ... It is policy-relevant and deserves to be widely read.' Richard Klein, Senior Research Fellow, Stockholm Environment Institute (SEI), Sweden The Intergovernmental Panel on Climate Change (IPCC) concluded in its 2001 report that much of the developing world is highly vulnerable to adverse impacts from climate change. But the IPCC also concluded that the vulnerabilities of developing countries are too little studied and too poorly understood to enable determination of adaptation strategies that would be effective at reducing risks. These authoritative volumes, resulting from the work of the Assessments of Impacts and Adaptations to Climate Change (AIACC) project launched by the IPCC in 2002, are the first to provide a comprehensive investigation of the issues at stake. *Climate Change and Vulnerability* discusses who is vulnerable to climate change, the nature of their vulnerability and the causes of their vulnerability for parts of the world that have been poorly researched

until now. Climate Change and Adaptation covers current practices for managing climate risks to food security, water resources, livelihoods, human health and infrastructure, needs for effective management of climate risks, the changing nature of the risks, strategies for adaptation, and the need to integrate these strategies into development planning and resource management.

PREFACE ix ACKNOWLEDGMENTS xi L. AMADORE, W. C. BOLHOFFER, R. V. CRUZ, R. B. FEIR, C. A. FREYSINGER, S. GUILL, K. F. JALAL, A IGLESIAS, A. JOSE, S. LEATHERMAN, S. LENHART, S. MUKHER JEE, J. B. SMITH, and J. WISNIEWSKII Climate Change Vulnerability and Adap tion in Asia and the Pacific: Workshop Summary 1-12 A. IGLESIAS, LIN ERDA, and C. ROSENZWEIG I Climate Change in Asia: A Review of the Vulnerability and Adaption of Crop Production 13-27 I. AMIEN, P. REJEKININGRUM, A. PRAMUDIA, and E. SUSANTI Effects of Interannual Climate Variability and Climate Change on Rice Yield in Java, Indonesia 29-39 R. D. BUAN, AR. MAGLINAO, P. P. EVANGELISTA, and B. G. PAJUELAS I Vulnerability of Rice and Corn to Climate Change in the Philippines 41-51 Z. KARIM, S. G. HUSSAIN, and M. AHMED I Assessing Impacts of Climatic Variations on Foodgrain Production in Bangladesh 53-62 LIN ERDA I Agricultural Vulnerability and Adaptation to Global Warming in China 63-73 WANG JINGHUA and LIN ERDA I The Impacts of Potential Climate Change and Climate Variability on Simulated Maize Production in China 75-85 M. A. WIJERATNE I Vulnerability of Sri Lanka Tea Production to Global Climate Change 87-94 B. BOLORTSETSEG and G. TUVAANSUREN I The Potential Impacts of Climate Change on Pasture and Cattle Production in Mongolia 95-105 K. BOONPRAGOB and J. SANTISIRISOMBOON I Modeling Potential Changes of Forest Area in Thailand under Climate Change 107-117 K. 1. KOBAK, I. YE. TURCHINOVICH, N. YU. KONDRASHEVA, E. -D. SCHULZE, W.

While major strides have been made in the scientific understanding of climate change, much less understood is how these dynamics in the physical environment interact with socioeconomic systems. This book brings together the latest knowledge on the consequences of climate change for society and how best to address them.

Adaptation, vulnerability and resilience of people to climate change depend upon a range of conditions. These vary from their degree of exposure and dependency upon weather patterns for livelihoods and food security, to varying capacities in adaptation, which are influenced by gender, social status, economic poverty, power, access, and control and ownership over resources in the household, community and society. This report demonstrates that women represent a primary resource for adaptation through their their experience, responsibilities and strength, and that women play a much stronger role in the management of ecosystem services and food security. Hence, it argues that sustainable adaptation must focus on gender and the role of women if it is to become successful.

This publication, prepared jointly by the WHO, the World Meteorological Organization and the United Nations Environment Programme, considers the public health challenges arising from global climate change and options for policy responses, with particular focus on the health sector. Aspects discussed include: an overview of historical developments and recent scientific assessments; weather and climate change; population vulnerability and the adaptive capacity of public health systems; the IPCC Third Assessment report; tasks for public health scientists; the health impacts of climate extremes; climate change, infectious diseases and the level of disease burdens; ozone depletion,

ultraviolet radiation and health; and methodological issues in monitoring health effects of climate change.

Images of the devastation wreaked by typhoons, flooding, earthquakes and drought in the Philippines circulate globally as an important part of disaster discourses. This collection seeks to move beyond these simplistic representations of calamity by bringing together a group of Filipino and international scholars from diverse disciplinary backgrounds to grapple with the complex nature of disaster in the Philippines.

Firmly grounded in the relationship between disaster and place, the volume's contributors confront the challenges of the Philippine nation's internal heterogeneity of language, ethnicity and class. In doing so, this book seeks to engage the specificities of place amid diversity, and explores two broad but interrelating avenues of investigation through case studies drawn from across the archipelago: How can environmental extremity in the Philippines help us understand disasters? How can disasters help us understand the Philippines?

The degree to which human conditions and the natural environment are vulnerable to the potential effects of climate change is a key concern for governments and the environmental science community worldwide. This book from the Intergovernmental Panel on Climate Change (IPCC) provides the best available base of scientific information for policymakers and public use. The Regional Impacts of Climate Change: An Assessment of Vulnerability reviews state-of-the-art information on potential impacts of climate change for ecological systems, water supply, food production, coastal infrastructure, human health, and other resources for ten global regions. It also illustrates that the increasing costs of climate and climate variability, in terms of loss of human life and capital due to floods, storms, and droughts, are a result of the lack of adjustment and response in society's policies and use of resources. This book points to management options that would make many sectors more resilient to current variability in climate and thus help these sectors adapt to future changes in climate. This book will become the primary source of information on regional aspects of climate change for policymakers, the scientific community, and students.

Ending poverty and stabilizing climate change will be two unprecedented global achievements and two major steps toward sustainable development. But the two objectives cannot be considered in isolation: they need to be jointly tackled through an integrated strategy. This report brings together those two objectives and explores how they can more easily be achieved if considered together. It examines the potential impact of climate change and climate policies on poverty reduction. It also provides guidance on how to create a "win-win†? situation so that climate change policies contribute to poverty reduction and poverty-reduction policies contribute to climate change mitigation and resilience building. The key finding of the report is that climate change represents a significant obstacle to the sustained eradication of poverty, but future impacts on poverty are determined by policy choices: rapid, inclusive, and climate-informed development can prevent most short-term impacts whereas immediate pro-poor, emissions-reduction policies can drastically limit long-term ones.

The start of the new millennium will be remembered for deadly climate-related disasters—the great floods in Thailand in 2011, Super Storm Sandy in the United States in 2012, and Typhoon Haiyan in the Philippines in 2013, to name a few. In 2014, 17.5 million people were displaced by climate-related disasters, ten times more than the 1.7 million displaced by geophysical hazards. What is causing the increase in natural disasters and what effect does it have on the economy? Climate Change and Natural Disasters sends three messages: human-made factors exert a growing influence on climate-related disasters; because of the link to anthropogenic factors, there is a pressing need for climate mitigation; and prevention, including climate adaptation, ought not to be viewed as a cost to economic growth but as an investment. Ultimately, attention to climate-related disasters, arguably the most tangible manifestation of global warming, may help mobilize broader climate action. It can also be instrumental in transitioning to a path of low-carbon, green growth, improving disaster resilience, improving natural resource use, and caring for the urban environment. Vinod Thomas proposes that economic growth will become sustainable only if

governments, political actors, and local communities combine natural disaster prevention and controlling climate change into national growth strategies. When considering all types of capital, particularly human capital, climate action can drive economic growth, rather than hinder it. This publication reviews the economics of climate change in Southeast Asia, with a particular focus on Indonesia, Philippines, Singapore, Thailand, and Viet Nam. It confirms that the region is highly vulnerable to climate change, demonstrates that a wide range of adaptation measures are already being applied, and that it has great potential to contribute to the reduction of greenhouse gas emissions globally. It shows that the cost to the region and globally of taking no early action against climate change far outweighs the cost of action. The publication urges Southeast Asia to play an important part in working toward a global solution to climate change, and to apply all feasible and economically viable adaptation and mitigation measures as key elements of poverty reduction and sustainable development strategies. It also argues that the current global economic crisis offers Southeast Asia an opportunity to start a transition towards a climate-resilient and low-carbon economy by introducing green stimulus programs that can simultaneously shore up economies, create jobs, reduce poverty, lower carbon emissions, and prepare for the worst effects of climate change.

This book contributes to a better understanding of the relationship between migration, vulnerability, resilience and social justice associated with flooding across diverse environmental, social and policy contexts in Southeast Asia. It challenges simple analyses of flooding as a singular driver of migration, and instead considers the ways in which floods figure in migration-based livelihoods and amongst already mobile populations. The book develops a conceptual framework based on a 'mobile political ecology' in which particular attention is paid to the multidimensionality, temporalities and geographies of vulnerability. Rather than simply emphasising the capacities (or lack thereof) of individuals and households, the focus is on identifying factors that instigate, manage and perpetuate vulnerable populations and places: these include the sociopolitical dynamics of floods, flood hazards and risky environments, migration and migrant-based livelihoods and the policy environments through which all of these take shape. The book is organised around a series of eight empirical urban and rural case studies from countries in Southeast Asia, where lives are marked by mobility and by floods associated with the region's monsoonal climate. The concluding chapter synthesises the insights of the case studies, and suggests future policy directions. Together, the chapters highlight critical policy questions around the governance of migration, institutionalised disaster response strategies and broader development agendas. Climate change-related effects and aftermaths of natural disasters, such as Typhoon Haiyan in the Philippines, have wreaked havoc on local peoples' lives and livelihoods, especially in impoverished coastal communities. This book looks at local-level responses to the effects of climate change from the perspective of ecological theology and feminism, which provides a solution-based and gender-equitable approach to some of the problems of climate change. It examines how local social and religious action workers are partnering with local communities to transform and reconstruct their lives and livelihoods in the 21st century.

Asia and the Pacific continues to be exposed to climate change impacts. Home to the majority of the world's poor, the population of the region is particularly vulnerable to those impacts. Unabated warming could largely diminish previous achievements of economic development and improvements, putting the future of the region at risk. Read the most recent projections pertaining to climate change and climate change impacts in Asia and the Pacific, and the consequences of these changes to human systems, particularly for developing countries. This report also highlights gaps in the existing knowledge and identifies avenues for continued research.

The Philippine economy has grown rapidly since 2010, but despite this growth, poverty and inequality remain high. Two-thirds of the poor live in rural areas, and the weak performance of the agriculture sector has contributed to the slow improvement in livelihoods. The challenge for agriculture will further increase, with climate change posing a growing threat to the sector. But agricultural transformation to spur sustained growth and reduce poverty is still possible under climate change with aggressive institutional reforms and implementation of the right mix of policies and programmes. The identification of the suitable policy and programme combination requires an accurate assessment of the key drivers of agricultural growth and food security; the impacts of climate change on agriculture and the overall economy; and the effectiveness of policies for adaptation and growth. This book addresses these big issues, focusing on enhancing the adaptation capacity of the Philippine agriculture sector. It is designed to provide a much-needed base of knowledge and menu of policy options to support decision- and policymaking on agriculture, climate change, and food security. The volume uses newly generated data, modelling outputs, and innovative analyses to provide a scientific basis for a variety of adaptation measures under different sets of climate change scenarios to guide decision-makers in strategic planning and policy formulation. “As we have actually experienced in Leyte, an island province in the Visayas where Super Typhoon Yolanda (Haiyan) struck, disasters caused by natural hazards could completely negate economic gains, devastate families and shatter dreams. Our greatest challenge is to make ourselves better prepared for and be more resilient to such disasters. Natural hazards need not always lead to loss of so many lives and properties. This book shows us ways and provides tools to draw up climate change and socioeconomic scenarios at the regional and provincial levels, allowing us to identify strategies for mitigating climate change risks.” — Ernesto M. Pernia, Secretary of Socioeconomic Planning, National Economic and Development Authority, Philippines “This book by top Philippine researchers combines state-of-the-art biophysical and economic modeling of climate impacts and adaptation policies with in-depth synthesis of agriculture, natural resources, climate trends, and policies. It provides a comprehensive assessment of climate change impacts on agriculture and the broader economy to provide important insights for Philippine policymakers.” — Dr Cynthia Rosenzweig, Head, Climate Impacts Group, NASA Goddard Institute for Space Studies and Co-Founder of the Agricultural Model Inter-comparison and Improvement Project (AgMIP) ?Sound and solid case studies on vulnerability and adaptation have been woefully lacking in the international discourse on climate change. This set of books begins to bridge the gap.?Achim Steiner, UN Under-Secretary General and Executive Director of United Nations Environment Programme?Important reading for students and practitioners alike.?Martin Parry, Co-Chair, Working Group II (Impacts, Adaptation and Vulnerability), Intergovernmental Panel on Climate Change (IPCC)?This book fills an important gap in our understanding ... It is policy-relevant and deserves to be

widely read. Richard Klein, Senior Research Fellow, Stockholm Environment Institute (SEI), Sweden The award of the Nobel Peace Prize for 2007 to the IPCC brings needed attention to the threats from climate change for highly vulnerable regions of the developing world. This authoritative volume (along with its companion covering adaptation) resulting from the work of the Assessments of Impacts and Adaptations to Climate Change (AIACC) project launched with the IPCC in 2002, is the first to provide an in-depth investigation of the stakes in developing countries. It discusses who is vulnerable and the nature and causes of their vulnerability for parts of the world that have been poorly researched till now. It also provides researchers with new examples of applications of vulnerability assessment methods, an approach that is of growing interest in the climate change area but for which there are relatively few applications in the literature. Published with TWAS and START

Climate change is occurring, is caused largely by human activities, and poses significant risks for--and in many cases is already affecting--a broad range of human and natural systems. The compelling case for these conclusions is provided in *Advancing the Science of Climate Change*, part of a congressionally requested suite of studies known as *America's Climate Choices*. While noting that there is always more to learn and that the scientific process is never closed, the book shows that hypotheses about climate change are supported by multiple lines of evidence and have stood firm in the face of serious debate and careful evaluation of alternative explanations. As decision makers respond to these risks, the nation's scientific enterprise can contribute through research that improves understanding of the causes and consequences of climate change and also is useful to decision makers at the local, regional, national, and international levels. The book identifies decisions being made in 12 sectors, ranging from agriculture to transportation, to identify decisions being made in response to climate change. *Advancing the Science of Climate Change* calls for a single federal entity or program to coordinate a national, multidisciplinary research effort aimed at improving both understanding and responses to climate change. Seven cross-cutting research themes are identified to support this scientific enterprise. In addition, leaders of federal climate research should redouble efforts to deploy a comprehensive climate observing system, improve climate models and other analytical tools, invest in human capital, and improve linkages between research and decisions by forming partnerships with action-oriented programs.

Swidden agriculture has long been considered the primary cause of deforestation throughout Southeast Asia, and the Philippine government has used this belief to exclude the indigenous people of Palawan Island from their ancestral lands and to force them to abandon traditional modes of land use. After adopting ostensibly modern and ecologically sustainable livelihoods, the Pala'wan people have experienced drought and uncertain weather patterns, which they have blamed on their own failure to observe traditional social norms that are believed to regulate climate--norms that, like

swidden agriculture, have been outlawed by the state. In this ethnographic case study, Will Smith asks how those who have contributed least to greenhouse gas emissions and environmental degradation have come to position themselves as culpable for the devastating impacts of climate change, examining their statements about changing weather, processes of dispossession, and experiences of climate-driven hunger. By engaging both forest policy and local realities, he suggests that reckoning with these complexities requires reevaluating and questioning key wisdoms in global climate-change policy: What is indigenous knowledge, and who should it serve? Who is to blame for the vulnerability of the rural poor? What, and who, belongs in tropical forests?

FOR MOST COUNTRIES, HIGH PRODUCTIVITY GROWTH IN THE AGRICULTURAL SECTOR HAS BEEN A KEY DRIVER of structural transformation promoting long-term economic growth. Historically, low agricultural productivity growth has hindered economic growth and employment creation in the Philippines, where agriculture—which accounts for one-third of employment—remains a key sector. Climate change has the potential to disrupt crop productivity, and in turn affect domestic agricultural production, consumption, and food security. Moreover, the global impact of climate change could stimulate changes in international and domestic commodity prices, ultimately having negative effects on both Philippine agriculture and the country's overall economy. Developing agricultural adaptation and growth strategies is of utmost importance, not only to maintain domestic agricultural production, but also to underpin broader economic growth and structural transformation. Sustaining agricultural production growth to help achieve inclusive growth and poverty reduction is a key goal for the Philippine government.

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