ASIA-PACIFIC HUMAN DEVELOPMENT REPORT

OVERVIEW

Empowered lives.
Resilient nations.

ONE PLANET TO SHARE

Sustaining human progress in a changing climate

UNITED NATIONS DEVELOPMENT PROGRAMME

The cover design plays upon a traditional *sepak takraw* ball as a metaphor for the Earth. Hand-fashioned from rattan and unique to Asia-Pacific, the ball symbolises interconnectedness, resilience and creativity — leveraging these can help deal with climate change, while ignoring them will affect human development negatively. Climate change is a threat on a planetary scale. People everywhere, especially the poor, are increasingly exposed to the consequences of global warming regardless of where the causes originate. The woven rattan represents how collaborating for collective good can result in a harmonious future. Equally, humanity could go the other way — if climate change is not managed in a coordinated way, it will unravel human progress now and in the days to come.

One Planet to Share

Sustaining Human Progress in a Changing Climate

Published for the
United Nations
Development Programme

Empowered lives.
Resilient nations.

Routledge
Taylor & Francis Group
LONDON NEW YORK NEW DELHI

UNDP Asia-Pacific Regional Centre
United Nations Service Building, 3rd Floor
Rajdamnern Nok Avenue, Bangkok, Thailand

ISBN: 978-0-415-62570-8
Assigned UN sales number: E.12.III.B.2

British Library Cataloguing-in-Publication Data
A catalogue record of this book is available from the British Library

First published in April 2012
for UNDP by Routledge
912 Tolstoy House, 15–17 Tolstoy Marg, Connaught Place, New Delhi 110 001, India

Routledge is an imprint of the Taylor & Francis Group, an informa business

Photo credits: The separators for chapters 1, 3, 4, 6, and the Indicators feature stills from the film *Hard Rain*, produced by DevTV and supported by the UNDP Asia-Pacific Regional Centre (APRC). Photos for chapters 2 and 5 separators were original entries to an exhibition on 'Cities and Climate Change', held in Bangkok to commemorate World Habitat Day 2011. The exhibition was jointly organised by APRC and UN-HABITAT, Bangkok Office.

Typeset by
Star Compugraphics Private Limited
5, CSC, Near City Apartments
Vasundhara Enclave
Delhi 110 096

Printed and bound in India by
Nutech Photolithographers
B-240, Okhla Industrial Area
Phase-I, New Delhi 110 020

The paper used in this publication is elemental chlorine free. It is manufactured with pulp supplied from sustainable managed forests.

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone.

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One Planet to Share

Sustaining Human Progress in a Changing Climate

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Routledge, New Delhi, Taylor and Francis Group

The Human Development Report Unit

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About the Asia-Pacific Human Development Report

The Asia-Pacific Regional Human Development Report (APHDR) is an important resource and instrument to explore critical development concerns. The Report informs policies and actions from a human development perspective, putting people at the centre of development debates. As a regional public good, the APHDR focuses on issues that are of common concern to several countries in the region, have sensitivities that are better addressed at a regional level, or have clear cross-border dimensions, calling attention to the fact that development challenges are no longer confined within geographic spaces.

The APHDR is an independent intellectual exercise developed through a regional participatory process that draws on the contributions of many. The theme for each Report is also selected through consultations that include participants within and outside UNDP. The more nuanced focus of the Report is guided by substantive and diverse inputs that bring together Asia-Pacific stakeholders from governments, civil society, academia, research institutions, the media, faith-based groups, the private sector and others. Technical sub-regional consultations are held to hear stakeholders' perspectives and experiences relating to the theme; to sharpen the direction and scope of specific issues; and to promote early buy-in among the stakeholders. The stakeholders' consultations provide wide opportunity for country representation through participant nominations sought through UNDP country offices in the region. Multi-stakeholder national workshops are also organised in selected countries, depending on the theme of the Report, to promote national buy-in for the APHDR.

Technical background papers are prepared by eminent experts drawn largely from the region. An established peer review process contributes to the quality and impartiality of the background research. The work is enriched by a moderated discussion on the Asia-Pacific Human Development Network, which comprises members from the region and beyond. Within the overarching framework of the Report, sub-themes are discussed to explore some fundamental debates, promote a dialogue and identify strategic policy solutions.

Drawing from this rich material, the Report is prepared by the Human Development Report Unit team. The team works in close collaboration with the relevant technical team, depending on the theme of the Report, and the regional communications team. At the preparatory stage, the emerging messages of the Report are presented in strategic forums as early advocacy for the Report and to obtain feedback from various stakeholders from the region. The draft Report is shared with HQ, UNDP country offices in Asia-Pacific, technical committee members including representatives of different UN agencies, readers' groups including different practice teams, and the UNDP regional communication team for their views and feedback. The review process is critical for quality assurance and also helps to strengthen the Report's messages.

The APHDR is disseminated widely, helping to promote dialogue and bring together the people of Asia and the Pacific to accelerate human development and advocate for its messages across the globe.

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Foreword

Asia and the Pacific hosts more than half of the world's population, including nearly 900 million of the world's poor, and 30 per cent of the global land mass. This densely-populated region also accounts for a large share of the developing world's deprived people: more than 70 per cent of people lacking access to basic sanitation, close to 70 per cent of underweight children, and 67 per cent of the extreme poor (living below $1.25/day). These large deprivations are compounded by geographic exposure, climate-sensitive livelihoods and low capacity to recover from shocks.

Human beings can no longer continue to think of themselves as distinct from the environment. They have been transforming nature for too long — notably by releasing huge quantities of fossil carbon. The consequences are a warmer earth, with melting glaciers, higher sea levels and altered cycles of precipitation and evaporation. Everyone in Asia and the Pacific is facing the impacts; the poor, who have contributed negligibly, much more so. In this regard, the region has a big challenge to reduce poverty and promote human development in the face of rapid climate change.

Unlike the developed countries of today, Asia-Pacific does not have the option to 'grow now and clean up later' in view of the already accumulated huge amount of greenhouse gases in the atmosphere. The region can further accelerate the accumulation because of its large size and rapid economic growth in recent decades. Although per capita emissions in developing Asia-Pacific remain low, total emissions are on the rise, stemming from diverse circumstances in the region and the continued need for bridging inequalities and improving living conditions. The share of Asia-Pacific developing countries in global greenhouse gas emissions increased from 23 per cent in 1990 to about 32 per cent in 2005, only 4 percentage points lower than that of high-income OECD countries in 2005. The share is expected to increase rapidly in view of the high economic growth, continued urbanization, changing life styles, and the consequent higher demand for energy in future. Between 2005 and 2030, compared with an estimated average world increase in energy demand of 1.5 per cent, the rate in Asia and the Pacific is expected to be 2.4 per cent per year. Against this backdrop, the region has to follow a different growth path using energy-efficient technologies, cleaner sources of energy, and reducing carbon intensity of output more rapidly in years to come. It must do this not only because our shared planet is becoming unsustainable but also because Asia-Pacific itself will continue to be adversely affected by climate change.

The consequences of climate change have already been evident in terms of increased frequency and intensity of climate-induced natural disasters, and the impact is higher on the poor and vulnerable who contributed the least to the global warming. The region was disproportionately hit in terms of natural disasters: 45 per cent of the world's natural disasters occurred in Asia-Pacific in the last three decades. The region was also disproportionately hit in terms of economic losses — though it accounted for 25 per cent of the world's GDP, it suffered from 42 per cent of the total economic losses from disasters.

If emissions cross borders, so do some of the most affected natural systems, such as glaciers, coral reefs and mangroves. Some of them act as natural buffers to the impacts of climate change, but at the same time are increasingly at risk of deterioration and destruction. Melting of Himalayan glaciers, loss of mangroves, stress on coral reefs and desertification pose serious challenges to people living in vulnerable areas of the region, such as coastal and mountain regions. Communities are already adapting to climate challenges. For example, Bhutan's Himalayan mountain dwellers are fortifying themselves against glacial lake outburst flooding. Island communities in the Pacific, such as in Kiribati, are looking at 'migrating with dignity' due to rising sea levels. Deltaic farmers along Asia's great river systems, such as those found in Bangladesh, are adapting their agricultural practices to cope with increasing floods. Growing urban populations experience acute climate vulnerability too, as we saw during the recent floods in Bangkok. But the

poor and vulnerable cannot adapt adequately to such climate shocks.

In this context, the report analyses the climate change impacts from the perspectives of mountain dwellers, delta communities, islanders, indigenous and tribal peoples and the urban poor. The report states that simultaneous action on both adaptation and mitigation is required for building resilient societies in Asia and the Pacific. The report calls for alternative sustainable development paths that fulfill the urgent human development needs of today while preserving a habitable planet. The world's common future is going to be impacted largely by the choices this large and growing region can make today. The goal is clear: reduce poverty, but leave a fainter carbon footprint.

Technology, finance, knowledge and cooperation are required for leveraging these opportunities. Countries from the region, such as China and India, are investing in renewable energy and energy efficiency. Lower-carbon technologies will be instrumental to help adapt production processes to stabilise emissions, sequester carbon better, and improve the quality of rural and urban lives by supporting resilience. Now is the time to consider opportunities for cleaner energy generation and use so that our common future is not locked into using high-emitting technology.

Public interest should not be compromised by interest groups — accurate knowledge needs to be promoted. Building knowledge exchange networks could provide opportunities for sharing and learning best practices for better-informed choices by public and private organisations.

In sum, the report sees climate change as a development issue rather than primarily an environmental one. It argues for the centrality of far more inclusive growth that embeds resilience into the very fabric of change and addresses existing development gaps to strengthen the capacity of poorer societies to face global warming.

These actions are concrete and can infuse tangible ideas into upcoming fora that will shape the direction of global, regional, national and local actions.

The recently concluded conference of parties (CoP 17) in Durban followed by the upcoming Rio+20 conference deals with opportunities to bring issues such as poverty, equity and sustainability back into global development dialogue, grid-locked for years over contentious positions between developed and developing countries. The report hopes to be a knowledge resource for the region for these discussions, re-invigorating climate change dialogue by bringing people's concerns to the fore.

Continuing the practice of the previous Asia-Pacific HDRs, this report — sixth in the series — has been prepared taking into account a diversity of voices from within the Asia-Pacific region. An array of consultations with governments, civil society and the private sector from across the region — East Asia, South Asia and the Pacific — as well as country-level discussions have informed the report. Backed by technical papers produced by experts mainly from the region, the report is prepared by an editorially independent team. We thank everyone from the region and beyond who have been with us in the journey of moving this report from ideation to culmination. Thanks particularly to the Human Development Report team with Anuradha Rajivan at the helm, for steering this report through analytically complex waters. I also thank the members of the Asia-Pacific Human Development Network (AP-HDNet), drawn from all corners of the region for their thoughtful and interesting contributions. We are indebted to our UNDP Administrator, Helen Clark, for her sustained commitment and support to human development. It is our hope that this report spurs debate on a more human-oriented dialogue on the climate challenge facing us all.

Ajay Chhibber
UN Assistant Secretary-General
and UNDP Assistant Administrator and
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Asia and the Pacific

The analysis and policy recommendations of this Report do not necessarily reflect the views of the United Nations Development Programme, its Executive Board or its Member States. Mention of firm names and commercial products does not imply endorsement by the United Nations. The Report is an independent publication commissioned by the UNDP. It is the fruit of a collaborative effort by a team of eminent experts, stakeholders, and the Human Development Report Unit (HDRU) team of the UNDP Asia-Pacific Regional Centre, Bangkok, led by Anuradha Rajivan.

Acknowledgements

A thoroughly collaborative process of consultations and research was instrumental in defining the focus and the messages of this Asia-Pacific Human Development Report. It draws upon the perspectives and expertise of varied stakeholders from the region: governments, experts, academia, think tanks, the media, faith-based groups, the private sector and civil society organisations. Multilateral agencies have also participated in the process. From UNDP, the contributors include Country Offices from the Asia-Pacific; the Asia-Pacific Regional Centre, Bangkok; the Pacific Centre, Suva; the Regional Bureau for Asia and the Pacific; and the Bureau for Development Policy in New York. Those instrumental in shaping this Report are acknowledged below. We are grateful to so many that there could well be some inadvertent omissions — hopefully they are not many.

We would first like to thank past members of the core team who were part of the early stages of this work: Ramesh Gampat, Pradeepa Malkanthi, Ruwanthi Senarathne, Gayathri Sriskanthan and Manoja Wickramarathne.

We would like especially to thank Martin Krause as well as Alex Heikens, Sameer Karki, Faris Khader, Angus MacKay, Manuel Soriano, Yusuke Taishi, Thiyagarajan Velumail and the entire Environment and Energy Team at the UNDP Asia-Pacific Regional Centre for technical inputs and ongoing support throughout the process. They were always generous with their time.

Contributors

Thematic technical background papers, special contributions and notes covering a wide range of issues have informed the Report. The principal contributors were: Patil Balachandra, Sultana Bashir, Anand Prathivadi Bhayankaram, Simon Billet, Brad Blitz, Alice Blondel, Clemens M. Brunhuel, Joan Carling, C. P. Chandrasekhar, Biplove Choudhary, Andrea De Angelis, Mahendra Dev, the Environment and Energy Team, the International Centre for Integrated Mountain Development (ICIMOD), Iqbal Khan, Tommy Koh, Amitabh Kundu, Local Governments for Sustainability (ICLEI), Monirul Mirza, Sunita Narain, Patrick Nunn, Joey Sarte Salceda, Ilham Arief Sirajuddin, R. Sudarshan, The Energy and Resources Institute (TERI), Fe'iloakitau "Fei" Tevi, Lyonchhen Jigmi Yoeser Thinley, Kazuyuki Uji and Zhou Xun.

Members of the United Nations family provided specific inputs and advice. These are: IAEA, UNEP, UNESCAP, UNESCO, UNFAO, UN-HABITAT, UNICEF and UN WOMEN.

Technical Consultations

The Report also draws on the ideas, feedback and opinions expressed in regional technical meetings as part of the Report preparation process. Ivo Besselink, Pieter Bult, Ajay Chhibber, Patrice Coeur-Bizot, Kumi Furuyashiki, Ramesh Gampat, Cherie Hart, Thomas Jensen, Moortaza Jiwanji, Rohini Kohli, Martin Krause, Angus Mackay, Andrew Mears, Roohi Metcalfe, Takaaki Miyaguchi, Anuradha Rajivan, Nicholas Rosellini, Omar Siddique, Preeti Soni, Yusuke Taishi, Jan-Jilles van der Hoeven, Gabor Vereczi, Susan Wong and Sun Xuebing were the participants. The Report also benefited from dialogues with local municipal bodies and private-sector representatives during the Fifth Asia-Pacific Urban Forum (APUF) held in Bangkok on 22–24 June 2011. These events were held in partnership with the CITYNET, Embassy of France in Thailand, ICLEI, LOGOTRI, the Rockefeller Foundation, UNEP, UNESCAP, UN-HABITAT, UNICEF and the World Bank.

Stakeholder Consultations

The Report benefited from rich and fruitful interactions with a wide cross-section of stakeholders in sub-regional (East Asia, South Asia and the Pacific) as well as country consultations. Stakeholders came from governments, academia, the media, the private sector, faith-based groups, CSOs, think tanks and UN entities. Participants were Mohammad Sadegh Ahadi, Matai Akauola, Seema Arora, Seema Arsenio Balisacan,

Mahesh Banskota, Ernesto D. Bautista, Sharon Bhagwan-Rolls, Jaya Bhanot, Anand Prathivadi Bhayankaram, Dinesh Bhuju, Ambrose M. R. Bituura, Tep Boonny, Elizabeth Boulton, Annie Brett, Winnie Byanyima, Cai Wenjia, Ewan Cameron, Malancha Chakrabarty, C. P. Chandrasekhar, Ram Prasad Chaudhari, Anjana Chellani, Chen Minpeng, Jakie Cheng, Dhrupad Choudhury, Ben Chutaro, Suzanne Chutaro, Patrice Coeur-Bizot, Gillian Cook, Cosmin Corendea, Yumi Crisostomo, Pradeep Dadhich, Resham Dangi, Pradip Das, Jope Davetanivalu, Andrea De Angelis, Anne-Isabelle Degryse-Blateau, Seema Deo, Balaka Dey, Rita Dhakal, Ajaya Dixit, Komara Djaja, Lam Dorji, Peter Emberson, Simalua Enele, Michael Foon, Fu Sha, Jai K. Gaurav, Prema Gera, Zachary Gidwitz, Luis Gomez-Echeverri, Dibya Gurung, Cherie Hart, He Jiankun, Goerild Heggelund, Alex Heikens, Brigitte Hoermann, Michael Honeth, Heremoni Suapaia-Ah Hoy, Htun Paw Oo, Kiran Hunzai, Immala Inthaboualy, Chanel Iroi, Kicom Ishighr, Jane Ishiguro, Srinivasan Iyer, Ramesh Jalan, Edlin Jash, T. Jayaraman, Dirk Jena, Thomas Jensen, Robert Jukham, Kifle Kahsai, Meenakshi Kaithel, Asfaazam Kasbani, Zammath Khaleel, Khampadith Khammounheuang, Arshad M. Khan, Nand Kishor, Muttaya Klinhun, Michael Kollmair, Sutharin Koonphol, Martin Krause, Pramod Krishnan, Pulak Kumar, Amitabh Kundu, Russ Kunn, Toily Kurbanov, Anupa Lamichhane, Margaret Leniston, Tubtim Limsoontorn, Ma Jian, Iosefa Maiava, Sumitra Manandhar, Deborah Manase, Ajay Mathur, Ritu Mathur, Prattana Meesincharoen, Roohi Metcalfe, Paula Meyer, Mona Mishra, Muhamad Nahar Hj. Mohd Sidek, Emele Morgan, Taito Nakalevu, Darren Nakata, Subinay Nandy, Napoleon Navarro, Koos Neefjes, Meena Negi, Junan Nimoto, Nishu Nirula, Bernard O'Callaghan, Thangavel Palanivel, L. M. S. Palni, Ruchi Pant, Jyoti Parikh, Himanshu Pradhan, Satya Priya, Batugedara V. R. Punyawardena, Abdul Qadir Rafiq, Atiqur Rahman, Anuradha Rajivan, Karma Lodey Rapten, Asenaca Ravuvu, J. S. Rawat, Felix Ries, Charmaine Rodrigues, Espen Ronneberg, Nicholas Rosellini, Inger Marie Rossing, Satyabrata Sahu, Sulaiman Shah Sallari, Emma Samman, Niranjan Sarangi, S. Satapathy, Andreas Schild, Alfred Schuster, Ruwanthi Senarathne, Thomas Shanahan, Jaishree Sharma, Sonia Shrivastava, Amelia Siamomua, Omar Siddique, Sandeep K. Singh, Vijaya Singh, Siddharth Singla, P. S. Sodhi, Alexandra Solovieva, Preeti Soni, Jackson Soram, Jorn Sorensen, Peter Stalker, Joseph Stanley, Paul Steele, Surekha Subarwal, R. Sudarshan, Sun Xuebing, Sun Zhen, Apichai Sunchindah, Chitra N. Swamy, Pauline Tamesis, Nescha Teckle, Jorelic Tibon, Bishwa Nath Tiwari, Banzragch Tsesed, Ngedikes Olai Uludong-Polloi, Isikeli Valemei, Sann Vathana, Gabor Vereczi, Cynthia Villena, K. R. Viswanathan, Wang Dong, Wang Ke, Tony Weir, Caitlin Wiesen, Zenaida Willison, Garry Wiseman, Susan Wong, Nanette Woonton, Wu Peng, Yang Fang, Benedict Yumamura, Zhang Kunmin, Zhong Lijin and Zou Ji.

Statistical Work

The statistical team was led by Bishwa Nath Tiwari and comprised Supharat Kaewkhonkaen, Panvipa Lekluanngarm and Niranjan Sarangi. Comments provided by Caroline Borchard, Elena Borsatti, Rohini Kohli, Anuradha Rajivan, Omar Siddique and Susan Wong helped greatly.

Reviewers

The technical background papers as well as the draft Report were peer-reviewed internally by the Human Development Report Unit and the larger UNDP Readers' Group comprising: Dipa Bagai, Jennifer Baumwoll, Rebecca Carman, Ajay Chhibber, Clifton Cortez, Alex Heikens, Kim Henderson, Thomas Jensen, Eva Jespersen, Moortaza Jiwanji, Sameer Karki, Faris Khader, Jeni Klugman, Milorad Kovacevic, Martin Krause, Angus Mackay, Khalid Malik, Denis Nkala, Paola Pagliani, T. Palanivel, Nicholas Rosellini, Manuel Soriano, Scott Standley, R. Sudarshan, Yusuke Taishi, Pauline Tamesis, Nescha Teckle, Pia Treichel, Veerle Vandeweerd, Thiyagarajan Velumail and Garry Wiseman.

The technical background papers and draft Report were also reviewed externally by: Mozaharul Alam, Sharon Bhagwan-Rolls, John Connell, Anil Markandya, Amita Shah, Mercedita A. Sombilla, Indra de Soysa, Gopal B. Thapa, Richard Welford, Anoja Wickramasinghe and David Zhang. The Report greatly benefited

from feedback by UNESCAP, UNESCO, UNEP, UNFAO, UN-HABITAT, UNICEF and UN WOMEN.

Asia-Pacific Human Development Network (AP-HDNet) Contributors

Stimulating and focused discussions on AP-HDNet were held from February to July 2010, which enriched the Report. We are very grateful to Pak Sum Low and Bernarditas Muller who moderated the network discussions. The contributors were: Khurshid Alam, Anand Prathivadi Bhayankaram, Maria Melinda Ando, Ernesto Bautista, Heather Bell, Sribas Chandra Bhattacharya, Tep Boonny, Trevor Booth, Elena Borsatti, Inga Fritzen Buan, Kumi Careme, Itzá Castañeda, Chew-Hung Chang, Hasna Cheema, Pornsook Chongprasith, Binoy K. Choudhury, Sarwat Chowdhury, Ioana Creitaru, Va Dany, Purnamita Dasgupta, Andrea De Angelis, Thanakvaro De Lopez, Patrina Dumaru, Nishadi Eriyagama, Hans-Martin Füssel, J. C. Gaillard, Ramesh Gampat, Ma. Consuelo Garcia, Jayati Ghosh, Ulrik Halsteen, Sven Harmeling, David Hastings, Gørild Heggelund, Stephanie Hodge, Aminul Islam, Ilan Kelman, Ohnmar Khaing, Kishan Khoday, Marcia V. J. Kran, Raj Kumar, Alain Lambert, Moisés Herrezuelo López, Pak Sum Low, Lu Qi, Tun Lwin, Shiming Ma, Angus Mackay, Kien Tran Mai, Pradeepa Malkanthi, Michele Martin, Sudip Mitra, Amitava Mukherjee, Bernarditas Muller, Gerardo Munck, Ranjani K. Murthy, Usha Natarajan, Koos Neefjes, Peter Neil, Bonheur Neou, Keith Openshaw, G. Padmanabhan, Anthony Patt, Paula Pons, Abdul Qadir Rafiq, Anuradha Rajivan, Ramachandran Ramasamy, Purba H. Rao, Mukul Sanwal, Niranjan Sarangi, K. Madhava Sarma, Lisa Schipper, Ruwanthi Senarathne, Pradeep Sharma, Ray Shirkhodai, Suchitra Sugar, Sonia Sukdeo, Sumitra Sundram, Amelia Supetran, Sukthawee Suwannachairop, Massimo Tavoni, Tim Taylor, Try Thuon, Linda Too, Mai Van Trinh, Manoja Wickramarathne, Wong Poh Poh, Susan Wong and Yang Youlin.

Drafting Retreat

A significant milestone was the preparation of the first draft of the Report. A pre-drafting workshop with the HDRU and the editor was held in Bangkok. The participation of Daniela Gasparikova, Martin Krause, Angus Mackay, Nicholas Rossellini, Surekha Subarwal, R. Sudarshan and Yusuke Taishi is gratefully acknowledged. The drafting retreat of the HDRU team was held in Korat, Thailand. We are thankful for inputs from the editor, Peter Stalker.

UNDP Country Offices

The following Country and Multi-country Offices provided feedback and support: Afghanistan, Bangladesh, Bhutan, Cambodia, China, Democratic People's Republic of Korea, Fiji, India, Indonesia, Islamic Republic of Iran, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand, Timor-Leste and Viet Nam.

UNDP Regional Bureau for Asia and the Pacific

The support of the Regional Bureau for Asia and the Pacific from initiation to finalising the text was key — we thank all colleagues. In particular, the Regional Strategic and Policy Unit coordinated the process at New York under Thangavel Palanivel, who, along with Scott Standley and Fatma Gül Ünal, provided substantive inputs.

Other

We thank Aparna Basnyat, Radhika Behuria, Ruangkhao Ryce Chanchai, Biplove Choudhary, Joseph D'Cruz, Butchai Gaddih, Rui Gomes, Ramya Gopalan, Alex Heikens, Sanny Ramos Jagillos, Thomas Jensen, Sameer Karki, Tanni Mukhopadhyay, Midori Paxton, Alexandre Sarmento, Manuel Soriano, Yusuke Taishi, Pia Triechel, Thiyagarajan Velumail, Gabor Vereczi and Yumiko Yamamoto for providing substantive input to the background research.

Verania Andria, Bakhodir Burkhanov, Dorji Choden, Goerild Heggelund, Srinivasan Iyer, Sanny Remos Jegillos, Toily Kurbanov, Kamal Malhotra, Renaud Meyer, Subinay Nandy, Tsehring Pem, Yeshi Penjor, Adam Pitt, Budhi Sayoko, Preeti Soni, Beate Trankmann,

Tomoyuki Uno, Claire Van der Vaeren, Dong Wang, Zhang Wei, Caitlin Wiesen, Garry Wiseman and Timothy Wong are gratefully acknowledged for facilitat-ing the Special Contributions.

Production

The Operations Support Team at the UNDP Asia-Pacific Regional Centre provided administrative services. The publishers Routledge, New Delhi, Taylor and Francis Group are acknowledged for copy-editing and overall production of the report. Star Compugraphics Pvt. Ltd is acknowledged for work on the layout. Thanks are due to Rustam Vania for design inputs.

Advocacy and Dissemination

The regional communications and advocacy team of Cherie Hart and Surekha Subarwal handled advocacy and dissemination for this Report. We are grateful to Sian Powell for her support to the Report's media kit. Gretchen Luchsinger provided additional editorial guidance and helped refine the Report's messages. Peter Siris and Matthew Peter Clark developed the website. We are grateful to David Galipeau and Ramya Gopalan of the Knowledge Management Team on using social media as a tool for widening knowledge exchanges on the report. Thanks are due to Maya Nyagolova and Supaporn Daophises for their support to dissemination.

Overall

We gratefully acknowledge the support, guidance and advice of Ajay Chhibber, UN Assistant Secretary-General and Director of the UNDP Regional Bureau for Asia-Pacific. His keen interest and very specific inputs helped in refining the content.

The work reflects the strategic guidance and dedication of Anuradha Rajivan; without her leadership this Report would not have been possible.

Nicholas Rosellini
Deputy Regional Director
UNDP Regional Bureau for
Asia and the Pacific

Abbreviations

ACCCRN	Asian Cities Climate Change Resilience Network
ADB	Asian Development Bank
AECEN	Asian Environmental Compliance and Enforcement Network
AMDGO	Albay Millennium Development Goals Office (Philippines)
AP-HDNet	Asia-Pacific Human Development Network
APHDR	Asia-Pacific Human Development Report
APRC	Asia-Pacific Regional Centre
APSEMO	Albay Public Safety and Emergency Office (Philippines)
ASEAN	Association of Southeast Asian Nations
CCA	Climate Change Adaptation
CCCI	Cities and Climate Change Initiative
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CET	Clean Energy Technology
CFL	Compact Fluorescent Lamp
CIRCA	Centre for Initiatives and Research for Climate Adaptation (Philippines)
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COP	Conference of the Parties (UNFCCC)
CRed	Community Carbon Reduction Programme (UK)
CSE	Centre for Science and Environment (India)
CSO	Civil Society Organisation
DRR	Disaster Risk Reduction
EIA	Energy Information Administration (USA)
EIU	Economist Intelligence Unit
EU FLEGT	Forest Law Enforcement, Governance and Trade Action Plan of the European Union
FAO	Food and Agriculture Organization of the United Nations
FIT	Feed-In Tariff
GBI	Green Building Index
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GLOF	Glacial Lake Outburst Flood
GNI	Gross National Income
GPS	Global Positioning System
GWh	Gigawatt Hour
HDI	Human Development Index
HDRU	Human Development Report Unit
HKH	Hindu Kush-Himalayan
IAEA	International Atomic Energy Agency
ICCTF	Indonesia Climate Change Trust Fund
ICIMOD	International Centre for Integrated Mountain Development
ICLEI	Local Governments for Sustainability
ICT	Information and Communication Technology
IEA	International Energy Agency

IFAD	International Fund for Agricultural Development
IFFCO	Indian Farmers Fertiliser Cooperative Limited
IGIF	Indonesia Green Investment Fund
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IPR	Intellectual Property Rights
kWh	Kilowatt Hour
LDC	Least Developed Country
LED	Light-Emitting Diode
LGU	Local Government Unit
LMMA	Locally Managed Marine Area
LPG	Liquefied Petroleum Gas
MAFF	Ministry of Agriculture, Forestry and Fisheries
MDG	Millennium Development Goal
MEGTW	Ministry of Energy, Green Technology and Water
MSME	Micro, Small and Medium Enterprise
Mt	Million Tonnes
$MtCO_2$	Million Tonnes of Carbon Dioxide
Mtoe	Million Tonnes of Oil Equivalent
MW	Megawatt
NAMA	Nationally Appropriate Mitigation Action
NAPA	National Adaptation Programme of Action
NCCCA	National Conference on Climate Change Adaptation (Philippines)
NDRC	National Development and Reform Commission (China)
NEDA	National Economic Development Authority (Philippines)
NGO	Non-Governmental Organisation
NTFP	Non-Timber Forest Product
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OPEC	Organization of the Petroleum Exporting Countries
PACC	Pacific Adaptation to Climate Change Project
PCT	Patent Cooperation Treaty
PES	Payment for Ecosystem Services
PIFS	Pacific Islands Forum Secretariat
PPP	Purchasing Power Parity
PV	Photovoltaic
R&D	Research & Development
RECOFTC	Regional Community Forestry Training Center for Asia and Pacific
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SAARC	South Asian Association for Regional Cooperation
SAR	Special Administrative Region
SHS	Solar Home System
SID	Small Island Developing State
SME	Small and Medium-Sized Enterprise
SPREP	South Pacific Regional Environment Programme
TERI	The Energy and Resources Institute (India)
toe	Tonnes of oil equivalent
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs

UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
UN WOMEN	United Nations Entity for Gender Equality and the Empowerment of Women
US	United States
USAID	United States Agency for International Development
US$	United States Dollar
VAT	Value Added Tax
VSPP	Very Small Power Producer Programme (Thailand)
WBCSD	World Business Council for Sustainable Development
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WRI	World Resources Institute
WTO	World Trade Organization

One Planet to Share

Sustaining Human Progress in a Changing Climate

Overview

Asia-Pacific not only has many of the world's most climate-exposed territories, it is also home to millions of the most vulnerable people. The unprecedented pace and scale of human activities have been transforming the natural environment and contributing to climate change. Emissions cross borders, and so do some of the most affected natural systems, such as glaciers, coral reefs and mangroves. Some of these natural systems that act as natural buffers to the impacts of climate change are increasingly at risk of deterioration and destruction, posing a serious challenge to people's lives in the region. While the most vulnerable people have contributed little to greenhouse gas (GHG) emissions, they will face some of the most serious consequences. They are not just highly exposed and sensitive to climate events, but also lack adequate adaptive capacity. Unlike the developed countries of today, in a time of climate change, growing first and cleaning up later is no longer an option. Developing nations must grow, support climate resilience, especially among vulnerable populations, and shift to lower-carbon pathways to sustain hard-won human development gains attained in the past decades.

While growth in Asia is important for the world economy as well as for poverty reduction in the region, Asia-Pacific is starting to contribute noticeably to the world's emissions. Progress in overall human development has been accompanied by increasing inequality and rising emissions. Developing countries of the region present a startling contrast: their combined per capita GHG emissions are among the lowest in the world, but their share of global emissions is almost one-third. The challenge is to reduce the emissions intensity of growth while simultaneously improving the access of people living in poverty to cleaner energy as well as far better infrastructure and services — essential not only for poverty reduction, but also to build resilience to the impacts of climate change.

Developing countries in the region have to navigate a two-fold prosperity–emissions dilemma that developed countries did not face in their earlier industrialisation:

More growth is essential but this will also increase emissions. In order to reduce poverty and vulnerability, many countries in region will need more rapid and far more inclusive economic growth. But this will mean using more energy, and thus involve greater emissions. Development agendas will compete with concerns around growing emissions.

In a globalised environment, nation-states have less individual control over their own destinies. Ecology and economics are bypassing borders, making national actions alone insufficient to address the climate change challenge. Many of the richer consumers and growing businesses are able to shift emissions towards poorer locations as a result of globally dispersed and interlinked production and consumption chains. Less effective domestic institutions for environmental management make many poorer countries ecologically vulnerable.

People in the Asia-Pacific region, especially the poor, will face numerous and complex impacts from climate change such as change in precipitation, extreme weather events, drought, floods and sea-level rise. While much of today's warming stems from past industrialisation, mostly in the developed economies, the countries of Asia-Pacific will be most affected, as the region is home to more than half of humanity, including nearly 900 million poor. Addressing climate change is therefore a strong development imperative.

Unless climate change challenges are much more fully addressed, current progress will be difficult to sustain, and the brunt of the impacts will be faced by the poor of Asia-Pacific.

Asia-Pacific is home to millions of the most vulnerable people, who lack adequate adaptive capacity

Unlike the developed countries of today, in a time of climate change, growing first and cleaning up later is no longer an option

Despite uncertainties, the urgency is compounded as some of the losses could be irreversible, like damage to natural ecosystems — undermining the valuable services and livelihood opportunities they provide. While increasing inequalities linked to economic growth can largely be tackled within a country, managing rising emissions from globally interlinked human activities will not be feasible without synchronising national efforts with cross-border cooperation.

The unfinished development agendas in countries of the region provide opportunities to address climate change: Asia-Pacific developing countries are much less locked into traditional ways of production and consumption as compared with industrialised countries. In the face of a global downturn, Asia-Pacific has demonstrated economic resilience. Can it also improve the lives of its people while becoming more resilient to climate change? There are some positive signs. The carbon intensity of developing Asia-Pacific is decreasing, and countries like China and India have shown a growing realisation of the problem.

While all countries are exposed to climate change, they differ greatly in their sensitivity and their adaptive capacity to address its effects. But in all societies, the poor are particularly vulnerable and have fewer options for managing risks. This is often because of where they live — in coastal regions, on river banks, in mountains and remote locations. In urban areas, they are often housed in hazard-prone slums. Apart from low incomes and assets, they also have inadequate transport and limited access to information and social services.

Living in coastal regions, on river banks and in mountains, the poor have fewer options for managing risks; in urban areas, they are often housed in hazard-prone slums

Among the groups most vulnerable to climate change are:

Mountain dwellers: Mountain communities have long been exposed to many kinds of environmental stress, but now they have to adapt to more rapid and intense change. They could face more frequent and severe riverine floods, glacial lake outburst floods, droughts and landslides, among other phenomena.

Delta communities: Many people have settled in delta areas because of their fertile soils and ample water. But low-lying areas adjacent to large quantities of water involve serious risks, such as coastal inundation, soil erosion and the intrusion of saline waters into surface water and groundwater. All these risks will be heightened by a rise in the mean sea level.

Islanders: Small island states and territories are particularly exposed to coastal inundation, soil erosion, the intrusion of saline waters into surface and groundwater, and other consequences of a rise in sea level that threatens infrastructure, settlements and livelihoods.

Indigenous and tribal peoples: Since they depend on fragile ecosystems, indigenous and tribal groups are highly susceptible to changes in the environment. They typically have a deep understanding of their surroundings, which enables them to adapt autonomously, and they have developed considerable resilience. But more rapid, large-scale changes can threaten their collective survival.

The urban poor: Those most affected in cities are households living in fragile dwellings in low-lying, exposed areas, with little or irregular access to basic services such as water, sanitation, health care, electricity and food supplies. The working poor in many cities are more likely to labour outdoors unprotected from the extreme weather, and are more exposed to climate-induced disasters, including flooding.

Within these groups, vulnerability varies by demographic, social and economic features, including gender, age and social status; and access to social services and knowledge. Among all groups, women face particular risks, since they are often managers and users of natural resources and primary caregivers. With little information and restricted rights and voice in decision making, they cannot fully use their skills and knowledge about local conditions, community wellbeing and the management of ecological resources.

These and other groups will face threats to their livelihoods, especially those groups that rely on climate-sensitive livelihoods like cultivation and fisheries. Cultivation will be affected by changes in temperatures, precipitation, including uncertain changes in rainfall, and in levels of CO_2 concentrations. South Asia may be hit hard by these changes, with large declines in yields for almost all crops. Fisheries will be affected not only by changes in water temperatures, but also

by precipitation, salinity, ocean circulation, river flow, sea and lake levels, ice cover and glacial melt, and storm frequency and intensity.

As well as affecting livelihoods, climate change can threaten human health and survival. Much of the direct health impact of climate change will be experienced through mortality and injuries due to climate-related disasters, particularly floods, droughts and extreme weather events. Climate change can spur water-, food- and vector-borne diseases, notably dengue, malaria, diarrhoea and cholera. And increases in heat stress will particularly affect children and the elderly. People across the region will also suffer if climate change depresses agricultural productivity and increases food insecurity and malnutrition, particularly for children.

A further consequence of climate change is likely to be migration. Thus far, migration has often been temporary and seasonal, following agricultural and weather cycles. But future climate change could contribute to migration on an entirely new scale. Many people could relocate if the land can no longer support their livelihoods, or, in some cases, as in smaller island countries, because the land has disappeared altogether. In East, South-East and South Asia, a rise in sea level of 0.5–2 metres over this century could displace 53 to 125 million people. Already, some Pacific Islands such as the Carteret Islands of Papua New Guinea are considering evacuation of their populations.

Migration could also heighten social tensions over limited or shrinking resources. Asia-Pacific has already been widely affected by conflicts, and climate change can act as a threat multiplier. Conflict itself can also damage the environment and reduce resources, thus compounding the cycle of insecurity.

Despite potentially difficult trade-offs, meeting the challenges of climate change will be the only way to sustain existing human development gains and achieve new ones. A moral imperative exists as well, in ensuring equitable access to resources, both among people living now and for the generations to follow. There is a way forward. It involves producing for the future, balancing consumption, raising rural resilience and building greener cities.

One key imperative will be extending clean, efficient energy to everyone, but particularly to vulnerable people. They will reap the greatest benefits in terms of human development and stronger resilience to climate shifts.

Producing for the Future

The prospect of climate change should encourage countries all over the world to reconsider how they produce — how they manufacture goods, raise crops and livestock, and generate energy. Industrial production is of particular concern for Asia-Pacific's developing countries, as industries are producing more and using more energy. Around 26 per cent of greenhouse gas emissions come from industrial production.

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Existing methods of emissions monitoring do not, however, take full account of value chains of production and consumption linked via international trade. These chains enable developed countries with a commitment to reducing emissions to relocate their carbon-intensive industries to countries that have no, or low, caps on emissions — the problem of 'carbon leakage'. Asian countries, anxious to boost domestic economic growth, have often welcomed multinational businesses, even those in 'dirty' industries. As a result, their emissions increase, though the output is destined largely for developed countries.

The benefits of exploiting common ecosystems or damages caused to the environment also go unrecognised — a classic public goods dilemma of being valuable but uncounted; costly but not charged. A country's GDP measures little more than market transactions, and excludes the contribution of ecosystem services. These are typically regarded as 'free', even though replacing them would require massive investment. As a result, producers are generally not required to pay for the depletion of resources, or for carbon emissions or pollution. A first priority in moving towards better environmental accounting would be to strengthen statistical systems to improve the tracking of emissions and the socio-environmental costs.

Another major concern is transport. The proportion of emissions from fuel combustion in transportation shows a rising trend. Between 1990 and 2008, the total amount of carbon dioxide (CO_2) emissions from fossil fuel combustion in transportation in Asia rose by 161 per cent, as compared to the world average of 44 per cent.

Asia-Pacific countries are charting ways of moving to lower-carbon production, dealing with the trade-offs while considering how to sustain development that reaches the poor and the vulnerable. Many countries have started greening production, and have committed to nationally appropriate mitigation actions. For example, China has committed to lowering its emissions per unit of GDP by 40 to 45 per cent by 2020 compared to the 2005 level, and India has committed to lowering its emissions per unit of GDP by 20 to 25 per cent for the same period.

Lower-Carbon Pathways in Industrial Production

Countries need to find better ways of generating energy and using it more efficiently not just for economic development but also for alleviating poverty and improving human welfare

In the face of climate change, countries in Asia and the Pacific will need to change their methods of production. In particular, they will need to find better ways of generating energy and using it more efficiently. There is considerable scope. According to one estimate, deploying commercially available technologies and best practices on a global scale could save between 18 to 26 per cent of current primary energy use in industry. Industries that produce large volumes of GHGs, such as iron and steel, cement, chemicals, and pulp and paper, should be able to make significant progress while also taking advantage of the potential for CO_2 capture and underground storage.

Greening production will mean using more renewable energy and low-carbon technologies while reducing the use of fossil fuels. For this purpose, governments in developing countries should take the lead in encouraging shifts towards cleaner energy generation. Private-sector investments are required to scale up and trigger innovation, while they need to recognise that new markets and efficiencies can be tapped. Meanwhile, enlightened citizen-investors represented by investment institutions can hold companies to account, and better-informed citizens and the media can serve a watchdog role.

A number of countries have demonstrated the potential for moving to low-carbon production. In Japan, for example, the Top Runner Programme requires manufacturers and importers to increase the energy efficiency of goods. In China, enterprises that together account for around half of industrial energy uses have signed energy-saving responsibility agreements. And in Viet Nam, small and medium enterprises in five key industries are receiving technical and financial support to install energy-efficient technologies.

Greener Opportunities in Agriculture

In Asia and the Pacific, around 30 per cent of emissions come from agriculture, including emissions from growing crops and raising livestock, land use changes and deforestation. The principal greenhouse gases are nitrous oxide, especially from the use of fertilisers; methane from livestock and rice production; and CO_2, which is released when soil is ploughed. Another source of CO_2 emissions is deforestation — when trees are burned, harvested or otherwise die. Some of this is a consequence of logging or clearing land for pasture. But a key driver of deforestation is cultivation, either for food crops or for cash crops such as rubber, sugar cane, coffee and oil palm. As with industry, many of these emissions should be attributed to the consuming societies.

To meet growing food needs, Asia-Pacific countries will need to increase agricultural output while minimising emissions and protecting the natural environment. This will require renewed attention to agriculture, which in recent years has been relatively neglected. Giving farmers incentives to reduce carbon emissions from soil and deforestation is one priority. Another is assisting farmers in protecting themselves against the adverse impacts of climate change by adapting agricultural practices.

Countries across the region have demonstrated the potential for greener agriculture. Options include: reducing methane in rice production by flooding fields only for a certain number of days; zero-tillage farming to avoid releasing CO_2 from soils; and sequestering carbon by burning crop residues at low temperatures to produce 'biochar', which can then be buried in the soil. Many more countries now recognise the value of afforestation and reforestation. Others have shown the potential of chemical-free, non-irrigated, organic agriculture.

Cleaner Sources for Energy Generation

In 2005, around 28 per cent of developing Asia-Pacific greenhouse gas emissions came from energy supply. Overall, around 85 per cent of the region's primary energy comes from fossil fuels,

in the form of coal, natural gas and oil — a proportion that has not changed much over the years.

Across the region, the demand for energy is certain to grow to meet current development deficits. Around one quarter of people in the region's developing countries lack electricity. There are also significant disparities in access between and within countries. Even households and businesses with electricity connections experience frequent fluctuations and power cuts.

Countries need more energy not just for economic development but also for alleviating poverty and improving human welfare. Most Asia-Pacific countries are net importers of energy. They could use this more efficiently while looking for alternative sources. For power, this will mean switching from coal to natural gas, and using more renewable energy resources, including biomass, solar, wind, hydro and geothermal energy. These changes will need to happen very soon, since most investments in the new energy infrastructure are normally locked in for 40 to 50 years.

A number of countries make extensive use of renewable energy resources — Nepal and New Zealand, for example, generate more than 60 per cent of their electricity from hydropower and other renewable sources. But governments across the region have taken steps to promote the use of renewable energy, for example, by obliging energy utilities to purchase renewable energy and adopt feed-in tariffs. Indonesia has introduced these measures for small-scale renewable energy plants. Thailand has also used these incentives for small power producers who use biomass and other renewable resources. Singapore has offered guaranteed prices for power based on municipal waste.

The deployment of these new technologies can also be speeded up by North–South and South–South cooperation. For example, under the renewable energy action plan of the Government of Viet Nam, scientists have developed three new types of micro-hydroelectricity generators suitable for remote areas with excellent water flow. These have become popular in other Asian countries, such as Nepal, Papua New Guinea and the Philippines.

The energy sector has also been one of the main beneficiaries of the Kyoto Protocol's Clean Development Mechanism (CDM). Viet Nam, for example, has had 34 registered CDM projects. But the CDM has come under some criticism, including its effectiveness in technology transfer to developing countries, and it will be important to ensure objective assessment of the possible benefits, as well as opening it up more to the least developed countries.

Fair and Balanced Consumption

Asia-Pacific has become the world's dynamo of economic growth and a vast consumer market, but a very unequal one. The region is confronted not just by rising consumption and waste but also by chronic under-consumption: almost one quarter of the region's people live in extreme poverty, on PPP $1.25 or less a day. The region is also home to a major share of the world's population lacking electricity and modern fuels for cooking. Some people consume too little — in 17 countries, 10 per cent or more of the population subsists on inadequate diets. Other people aspire to the high-consumption lifestyles of the global consumer class. While millions of people still live in poverty, lacking many basic resources, economic growth has translated into higher overall household expenditure. Between the decades 1990–99 and 2000–09, global per capita household expenditure increased by 18 per cent, while in a number of Asian countries it increased far more rapidly — by 48 per cent in Cambodia, for example, and 92 per cent in China. At the same time, there has been a rise in inequality. This does not mean that the rich are getting richer and the poor are getting poorer, but rather that the rich are getting richer faster, while the poor are missing out on most of this rising prosperity.

Asia-Pacific is confronted not just by rising consumption and waste but also chronic under-consumption

Global experience indicates that, on average, as per capita incomes increase, carbon emissions also tend to rise. Going up the income scale of country groupings, the sharpest rise is between the middle- and high-income categories.

Asia-Pacific now has a substantial middle class that aspires to lifestyles that could prove unsustainable in the face of climate change. Defining a middle-class income as $2 to $20 per capita per day, between 1990 and 2008 the middle class rose from 21 to 56 per cent of the region's population. Rising incomes have driven up global demand for processed food, water, transport, energy, housing and a wide range of consumer goods.

One of the most visible signs of this expenditure is the growth in the number of cars. Between 1999 and 2009, the production of cars in India increased on an average by 15 per cent annually, and in China by 36 per cent. By 2020, China is expected to have nearly 225 million automobiles plying its roads; and by 2050, India could have 811 million. These increases will have implications for emissions.

As the middle class earns more, they are also changing diets — for better and for worse. Responding to wider choices and to advertising, households in the developing Asia-Pacific countries, particularly those with young people, are eating more, especially meat and dairy products as well as processed food and drinks. The dietary transition includes a strong preference for meat. This has implications for climate change, as livestock is a significant contributor to global emissions.

Countries have to strike a balance between cutting back on the over-exploitation of their resources and simultaneously increasing energy, water and sanitation services

Countries thus have to strike a balance between cutting back on the over-exploitation of their resources and simultaneously increasing consumption of energy services, better food, water and sanitation services that would enable poor communities to become more resilient. The region must also look ahead. Human development involves expanding choices for all, including the generations to come.

Energy for Resilience

Addressing the present levels of under-consumption of basics, such as adequate food, water, shelter, transport and energy services, will need to be prioritised so that communities not only improve their human development but are also prepared to withstand the additional challenges of climate change. An important part of this agenda is to increase access to modern energy services that are not only affordable but now need to be cleaner too. Access to energy is particularly critical — for example, of all the rural people in the world deprived of modern fuels for cooking, 63 per cent are from Asia-Pacific. Extending cleaner energy to the poor supports better emissions management in the process of building energy security. It is also crucial to adaptation, helping vulnerable people build resilience, diversify and secure their livelihoods, and obtain quality health care and education.

At present, much of the debate on energy remains entangled in the issue of rising consumption and associated emissions. Discussions tackle the likely trade-offs between emissions and growth, with less recognition of the levels of 'under-consumption' and the centrality of access to energy services in boosting human development, building resilience and helping communities adapt. While much remains to be done, a number of countries have demonstrated what is possible. In Viet Nam, for instance, between 1986 and 2009 access to electricity grew from about 10 to 97 per cent — with almost all households now connected to the grid.

Switching to Energy-Efficient Technologies

Asia-Pacific presents a wide diversity of lifestyles. While the poor need to improve their consumption levels, the middle classes and the rich need to orient their lifestyles towards lower-carbon pathways. All countries, rich and poor, will need to consider how to manage emissions better as part of the process of adapting to climate change and supporting disadvantaged groups in accelerating their human development. For the developing countries, this will involve producing and consuming more — but differently, recognising the limits of scarce resources and fragile ecosystems. Fortunately, these countries do not need to follow automatically the path taken by the rich economies: grow first, clean up later. Instead, they can choose directions that take finite natural resources into account, such as switching to more energy-efficient technologies.

Governments can help by facilitating access to cleaner technology through international partnerships, and providing regulatory frameworks along with fiscal measures and incentives that influence private-sector and consumer behaviour. China, for example, has started a Green Lighting Programme based on compact fluorescent lamps. Since these lamps have been used mainly by richer urban consumers, in 2008 the government started to subsidise compact fluorescent lamps to make them more affordable.

Reorienting Lifestyles

In addition to using more efficient technologies, it will also be important to help consumers make

more informed and greener choices. Local governments, civil society and consumer organisations can help in this by providing information about the carbon emissions of products and services and the opportunities for sustainable lifestyles. Carbon-labelling initiatives, for example, can help consumers make greener purchases. But in cases of products exported from developing to developed countries, the lack of such labelling should not become an excuse for trade restrictions that could negatively impact livelihoods, especially for the poor.

Values that emphasise sustainability in Asia also provide opportunities for behaviour change, and carry the seeds that can shape consumer choices. These jostle with the values of present-day rising consumerism. For example, concepts like the 'middle path' and newer ideas like the 'sufficiency economy' of Thailand provide entry points. Springing from local realities, they can provide avenues through which scientific knowledge can spur an array of climate-friendly choices in daily lives.

Tapping Co-benefits

While many people may change their behaviour just to play a part in reducing emissions, most people are more likely to act if there are 'co-benefits' — such as cleaner water and less polluted air. Measures to switch from private to public transport will cut emissions and reduce traffic congestion. Another co-benefit is cost savings — for example, more CFL lighting can save costs while lowering emissions.

But there may not always be co-benefits. In some cases, there will have to be trade-offs, requiring some groups to give up privileges for the common good. This could occur, for example, by taxing high-energy consumer durables such as large cars or putting limits on the consumption of energy. Countries across the region already have some experience that can usefully be shared. Singapore, for example, has pioneered systems for managing transport, and in the Republic of Korea some homes and businesses receive incentives for reducing their consumption of electricity and water.

Campaigns for behaviour change can be particularly powerful when spearheaded by youth and children who are keen to take action themselves by saving electricity and reducing waste. Viet Nam, for example, has a green youth movement, '3R', which is promoting the principles of 'reduce, reuse and recycle'.

Counting Emissions by Consumption

Progress in human development expands choices; it also enables people to consume more. As incomes rise in developing countries, it will be important to track greenhouse gases not just through production but also through consumption. Independent researchers can develop norms for emissions over the entire life-cycle of products and services. This will contribute to carbon-labelling initiatives and help richer consumers make greener purchasing decisions.

While people may change their behaviour to play a part in reducing emissions, most people are more likely to act if there are co-benefits

Raising Rural Resilience

In Asia and the Pacific, around 60 per cent of people, and three quarters of the extreme poor, live in rural areas. Rural areas play an important part in Asia and the Pacific as the 'food supplier and carbon sink' for this fast-growing region. More than half the region's economically active population and their dependents — amounting to 2.2 billion people — work in agriculture, fishery or forestry. But much greater investment in infrastructure, institutions and capacities will be needed to ensure that the rural poor will gain resilience to climate change. Significant disruptions to rural lives may come from higher temperatures or concentrations of greenhouse gases. Extreme climatic events can wipe out crops, reduce opportunities for employment, increase food prices and destroy property. They can also lead to deaths, injuries and diseases — and place additional burdens on poor households that lack insurance and safety nets. Repeated climate shocks will reinforce inequality and trigger powerful downward spirals in human development.

Governments in the region recognise the risks, but have yet to build these new scenarios into programmes for reducing rural poverty. At present, rural communities get relatively little support in terms of funds or services; for example, they find it difficult to market goods if they do not have all-weather roads and often do not have reliable and accurate knowledge of climate-related issues. In larger countries, national governments are seldom able to reach out to the poorest rural communities and islands.

And in some countries, communities on remote outer islands rarely receive visits from officials, and so are unaware of government policies on climate change.

Ultimately, the best way to make rural women and men more resilient to climate change is through more sustainable and inclusive rural development. Communities that are well educated and have reliable sources of income and equal rights will be in a much stronger position to adjust to new demands. They can work effectively with local authorities to achieve strategic and planned adaptation, and be a part of greater coordination to manage demands for scarce resources between rural and urban areas. Recognising the value of sustainable rural ecosystem management will be an opportunity to adjust the balance in favour of rural development.

Rural communities are likely to be more resilient if they have a broader range of livelihoods

Rural communities are also likely to be more resilient if they have a broader range of livelihoods. Traditionally, they have diversified from subsistence agriculture by cultivating household vegetable gardens, rearing a few livestock or running small shops. But they can also adopt more modern farm practices as well as rural industries, handicrafts or, in some areas, eco-tourism. For this they will need better markets and economic opportunities that are climate-resilient, as well as stronger public services and infrastructure. These strategies should pay particular attention to gender equity; climate change affects women and men differently, and their skills and needs also differ. Women are still more dependent on agriculture than men, who have shifted in larger proportions to non-farm jobs. While gender gaps in primary education are beginning to close up, women tend to receive less further education and vocational skill training, especially in South Asia, which prevents them from pursuing livelihoods less dependent on natural resources. Women are also less likely than men to be reached by extension services to increase the resilience of agricultural livelihoods.

Linking Autonomous with Planned Adaptation

When it comes to adaptation, rural communities are not starting from scratch. They may have little access to information on climate science, and tend to react to immediate problems rather than anticipating future changes. Nevertheless, they have a broad array of strategies for coping with climate variability; some have evolved over generations and centuries, others have been developed only recently in response to new climatic stresses. These include controls on the cutting of trees, diversifying to more resilient crops and readjusting the methods and timing of cultivation to cope with new circumstances.

More empowered communities can work effectively with local authorities to achieve more strategic, planned adaptation. Building on local knowledge can be more effective than introducing completely new practices that might force poor people into high-risk transitions. Governments should be able to reinforce past experience with the growing body of scientific information.

As well as saving lives, it is also important to protect assets. The rural poor often live in substandard housing in dangerous locations. In rural areas, where structures are smaller and simpler, better standards can often be achieved through redesign and retrofitting. However, this will also require better planning to minimise new settlements in high-risk locations, such as those prone to flooding. Many of these options for adaptation will be 'no-regrets' initiatives: they will pay off under current conditions and bring even higher returns in the event of climate change.

Governments can also strengthen local responses to disaster. Since external support can be slow to arrive, rural communities can also be encouraged to help themselves. To enable them to do so more effectively, they will need better community-based vulnerability and risk assessment planning, as well as financial support. Community-based disaster risk management programmes are thus an important entry point for climate change adaptation, bringing immediate benefits to already disaster-prone communities.

Rural communities can also make use of private-sector involvement. Companies could, for example, help small-holders get irrigation and other technologies that will help them cope with unreliable rainfall. They can also devise finance and climate adaptation insurance products for the poor and develop tools for risk management, scenario planning and disaster preparedness.

In some countries, planned adaptation is already under way, based on national processes like the National Adaptation Programmes of

Action and National Communications under the UNFCCC framework, regional disaster management and adaptation roadmaps, as well as countries' national strategies and policies and action plans. These have largely concentrated on assessing the potential impacts and risks of climate change at a national level, paying relatively little attention to supporting the special needs of local institutions in rural areas.

Difficult Decisions

Climate change opens up many uncertainties and will demand difficult decisions. Policy makers have to assess their proposals carefully, looking at the potential trade-offs and the impacts on different vulnerable groups. They have to be aware, for example, that some adaptation strategies could create other challenges — increasing emissions of greenhouse gases, for example, or disproportionately burdening the most vulnerable, or limiting the choices available to future generations. While one group benefits from a particular measure, others might lose. For example, many governments in the region aiming to increase energy supply and reduce dependency on fossil fuels have built hydropower dams. These large-scale projects can not only displace millions of rural people, but also alter river ecosystems, thus undermining the livelihoods of those living downstream and reducing their resilience to climate change.

Adaptation often requires long-term investment — particularly for making rural infrastructure such as roads more climate-resilient. Poorer countries, as well as poorer households and individuals, will struggle to find the funds to invest today for what may be a distant benefit. Funds can come from a variety of sources. Ministers in the region have recommended that 5 per cent of local government budgets should be allocated for climate-sensitive disaster risk management activities at the local authority and community level. Local governments can also get top-up grants or performance-based grants and use these to provide incentives to households or businesses for responsible, climate-smart investments — for climate-proofing infrastructure, for example, or for home improvements that contribute to household risk reduction.

Building Greener Cities

The Asia-Pacific region has some of the world's largest and most dynamic cities, which must deal with both the causes and the consequences of climate change. On the one hand, cities generate large quantities of greenhouse gases, mainly through energy consumption and local transport. At the same time, they are vulnerable to the effects of climate change, including flooding, extended heat waves and the destruction of key economic assets.

Asia-Pacific has some of the world's largest and most dynamic cities which must deal with both the causes and the consequences of climate change

In a changing climate, many coastal cities are more exposed to storm surges, with those along major rivers inundated by floods that may have originated hundreds of kilometres away. Most sensitive of all are urban poor communities. Asian cities tend to be densely populated, and a high proportion of people live in slums and shantytowns occupying marginal land in flood-prone areas alongside rivers or even directly on watercourses, or on steep and unstable slopes.

Cities are also vulnerable by virtue of their complex systems. Dense, interacting networks of communications, power, transport and trade make cities prone to sudden disruptions — in supplies of electricity, for example, or of food. A failure in one system is likely to have knock-on effects for many others. Severe climate events can also damage key infrastructure vital for lucrative economic activities such as tourism, including airports, ports and roads, with corresponding losses of income and jobs. Climate change that results in droughts or floods will put sanitation systems under further stress, compromising hygiene and increasing the risk of water-borne diseases.

City dwellers are also particularly affected if climate change raises air temperatures or leads to more frequent heat waves. Urban activities consume energy and produce heat, much of which is retained in concrete and asphalt: the 'urban heat island' effect. All city dwellers experience this to some extent, but the working poor are especially vulnerable since they either spend their days labouring out of doors, or work indoors without fans or airconditioning.

City Emissions of Greenhouse Gases

As well as suffering from the effects of climate change, cities are themselves adding to global

warming as major emitters of greenhouse gases. While city-level emissions data do not exist for most cities, by one estimate, cities globally occupy only 2 per cent of land, yet contribute more than two-thirds of greenhouse gases, primarily through transportation and the use of electricity.

Around one-third of emissions are from transportation. This includes private cars, motorcycles, road freight and public vehicles. A number of Asian cities now have well-functioning metro train systems, but many city dwellers still rely on buses, which are often poorly maintained and can contribute significantly to both greenhouse gas emissions and air pollution. As incomes rise and more people buy cars, the emissions will rise even faster.

With rising affluence, Asia-Pacific cities are generating increasing volumes of solid waste, which they typically burn or dump in landfills. Much of this waste emerges from richer households. Poor communities also generate waste, but on a smaller scale, and they are more likely to reuse and recycle. Since slum areas seldom have effective services for waste collection, rubbish accumulates in canals, along roadways or in open ditches, which affects public health.

City governments can encourage climate-friendly energy use, more efficient transport, greener buildings and better waste management

Dynamic Urban Adaptation

Cities are centres of dynamism through innovation and investment, and can learn to navigate newer, carbon-efficient pathways and adapt to a warmer world. Relatively few city administrators appreciate the full implications of climate change, however, and, even if they do, they may not have the institutional frameworks, technical capacity or governance arrangements to respond adequately. Then there is the question of cost. Not all municipalities have strong local revenue bases, and national decentralisation systems typically devolve responsibilities to city administrations without transferring commensurate fiscal resources or authority.

Fortunately, across the region elected city leaders who often have considerable autonomy have taken positive initiatives. From a human development perspective, their main task is to protect the poorest residents, helping people gain better incomes and housing, and providing sufficient social protection, while fully incorporating the voices of both men and women in decision making.

At the same time, poor communities can better protect themselves from urban climate disasters even with small improvements to their houses and by making use of insurance programmes linked to climate disaster.

Seeking Carbon-Efficient Paths

Cities should also have the skills and capacity to adopt more carbon-efficient paths. Across Asia and the Pacific, urban governance institutions are starting to work with citizens on reducing greenhouse gases. Doing this on a large scale will involve a longer-term change in attitudes. Until then, the strategy should be to focus on initiatives that bring immediate benefits by improving the quality of urban life — through less pollution, for example, or a reduction in traffic congestion, or the creation of more pleasant urban spaces. City governments can also encourage climate-friendly energy use, more efficient transport, greener buildings and better waste management.

Finance for these activities can come from city budgets and user payment systems. Cities can also consider innovative market-based mechanisms and strengthen 'green' partnerships with the private sector. External donor agencies can make funds available to complement national and local sources.

Knowledge cannot be taken for granted — not just knowledge about climate change, but also about options to manage it to improve people's quality of life. Given the many interest groups with a stake in the status quo, building awareness based on access to accurate information is important. Cities can also benefit from sharing knowledge and cooperating more widely across borders. Internationally, they can share experiences through the Local Governments for Sustainability (ICLEI) initiative, the Asian Cities Climate Change Resilience Network (ACCCRN), the Cities and Climate Change Initiative (CCCI) and the C40 climate leadership group. These, as well as city twinning programmes, can enable South–South collaboration to exchange knowledge and technology and to develop advocacy positions. Cities can benefit from the relevant experiences of local, national and international NGOs as well as research organisations and capitalise on these to alter the course of urban development and move in lower-carbon, greener directions.

Planning for the Planet

The world cannot turn back the clock or aim unrealistically for zero emissions. Societies need to focus less on emissions per se, and more on managing emissions for humanity to survive and thrive over generations through inevitable change. This requires not just clean energy but equitable access to energy, not just conserving trees but securing livelihoods, not restricting mobility but enabling transport for all. A fundamental rethink needs to take place, based on a shared recognition that the planet's natural resources are not free or inexhaustible. For all countries, managing development differently will require open and honest debate, including identifying the barriers to change. Some bottlenecks are:

Institutional mismatch: The basic unit of governance remains the nation-state, while climate change is borderless. Domestic control over climate change is also limited by globally interlinked economic and ecological value chains. Moreover, democratically elected governments may have limited time horizons, which reduce their incentives to focus on long-term issues. International mechanisms can get locked into a 'rich country' versus 'poor country' dichotomy.

Slow changes in attitudes: People will have to rapidly re-examine and modify old ways. This is harder than adjusting more slowly. There can be understandable reluctance to change familiar ways of doing things. Others may consider climate change to be an issue far removed from their lives. Or they may see global warming as inevitable and do nothing. Public opinion can also be deceived by corporate 'greenwashing' — intensifying green rhetoric rather than adopting environmentally sound practices.

Inadequate assessment tools: National data systems are unsuitable for tracking a cross-border phenomenon in which producers and consumers are geographically dispersed. Official data systems have yet to consider alternative tools like tracking emissions by consumption groups, or by rich and poor people, rather than by countries.

Governments will need to assess the suitability of existing institutions. At the national level, this will entail ensuring better coordination between ministries, merging them if necessary. More effective planning and decision making should enable local administrations to articulate priorities for adaptation and infrastructure. Going beyond electoral politics, deeper and wider participation is needed that extends beyond parliaments to the larger civil society, where climate change issues can also be debated by competitive media, for example, and through social networks. More inclusive participation can expand political voice and reveal who is bearing the costs of climate change. Actions by user groups can influence the use of land and water, and trigger the use of technologies that respond better to local complexities.

Actions on the ground need not wait for international agreements. While global consensus on common directions is important, the private sector, municipalities, civil society and individuals can already take an array of steps that accelerate change. As these initiatives grow in number, they can galvanise government commitment to cooperate better for the good of humanity.

While continuing to push at the larger, structural barriers of institutions, attitudes and assessments identified so far, developing countries in Asia-Pacific can identify priority actions that meet local needs. This Report suggests four priorities:

While global consensus on common directions is important, the private sector, municipalities, civil society and individuals can already take steps that accelerate change

Encourage the Transition to Green Technologies

Governments, international agencies and regional bodies can promote green technologies for more efficient and cleaner processes in energy, agriculture and transport. Through regulations and fiscal incentives, governments can encourage the private sector and individuals to switch to green technologies. Some of the technology is already available, and can be transferred through North–South and South–South cooperation. But governments and the private sector will also need to invest in local capacity to ensure that these technologies are used widely — for example, through retraining workers while avoiding job losses. Households can also consider using green technologies — the use of photovoltaic technology, for example, can be supported by feed-in tariffs.

Expand Sources of Finance

Governments and private actors should harness all potential sources of finance — domestic and international, public and private. Domestic fiscal policy such as carbon taxes and levies can encourage more efficient use of energy, as well as generating revenue for addressing vulnerability. Although public sources of finance through taxes, fees, efficiency gains and lower subsidies may be limited, they can be leveraged to garner growing and varied private sources. Developing countries in Asia and the Pacific should also look further to the globally available public and private funds channelled through multilateral and bilateral agencies. Emissions trading under the Kyoto mechanism could help developing countries have improved access to finance. The REDD+ initiative, if managed well, could contribute to rural resilience while controlling emissions. Additional measures should foster greater equity and voice for developing countries in their access to climate change finance. Developing countries also need domestic reforms in policies and incentives that would facilitate the public sector's ability to leverage private finance.

Addressing the many facets of climate change in the process of development requires effective use of domestic public finance to the fullest extent possible. Measures such as increasing taxes or reducing subsidies require strong political commitment. With greater awareness and improved governance, citizen support will bolster political will.

Strengthen Knowledge to Shape Low-Carbon Preferences

Action on climate change should be built on a common knowledge base derived from independent and credible sources that people can use to shape their preferences and actions. These include North–South and South–South exchanges between universities and research organisations. Governments and media can disseminate the latest information as a high priority. For farmers, for example, this would include seasonal weather forecasts to help them plan planting and harvesting. Consumer organisations can also provide non-partisan information to help buyers make greener and safer choices.

Join Forces across Borders

Concerted action to address climate change requires cooperation and coordination on transboundary issues. Combining endeavours can eliminate duplication of efforts, enhance funding directed at adapting to climate change, and foster sustainable and more creative problem solving. Even as countries cooperate internationally, however, they need to take domestic action for fairer impacts on the ground. Governments and regional organisations can sign up to international agreements that take full account of Asia-Pacific concerns. These should cover cooperation on conservation and protection of ecosystems, technology transfer, water policies, forest management and disaster management. Cooperation is important within countries too — local governments can take progressive steps to cooperate by learning from each other's experiences on the ground, the specific pitfalls faced, innovative financing strategies to support adaptation and practical entry points that work.

People have been transforming nature at an unprecedented pace — human activity is affecting the one planet we have to share. The only alternative is to follow a more sustainable path that fulfils the urgent human development needs of today while preserving a habitable planet. The goal is clear: reduce poverty, but leave a fainter footprint.

From the Human Development Report Unit

UNDP Asia-Pacific Regional Centre, Bangkok

UNDP Asia-Pacific Human Development Fellowships

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Objective: To encourage and strengthen capacity among Ph.D. students from UNDP Asia-Pacific programme countries to analyse issues from a human development perspective, contributing to cutting-edge research on theory, applications and policies.

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- Benchmarking National Legislation for Gender Equality: Findings from Five Asian Countries (2010)
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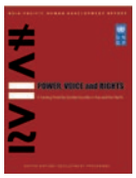

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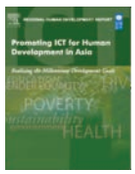

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HIV/AIDS and Development in South Asia

ASIA-PACIFIC HUMAN DEVELOPMENT REPORT

People in Asia-Pacific will be profoundly affected by climate change. Home to more than half of humanity, the region straddles some of the world's most geographically diverse and climate-exposed areas. Despite having contributed little to the steady upward climb in the greenhouse gas emissions that cause global warming, some of the region's most vulnerable communities — whether mountain dwellers, island communities or the urban poor — face the severest consequences.

Poverty continues to decline in this dynamic region, but climate change may undercut hard-won gains. Growing first and cleaning up later is no longer an option, as it once was for the developed countries. Developing nations need to grow and manage climate consequences at the same time. They must both support resilience, especially among vulnerable populations, and shift to lower-carbon pathways. Emerging threats, whether from melting glaciers or rising sea levels, cross borders and demand coordinated regional and global action.

There may be some uncomfortable trade-offs, but the way forward is clear — it lies in sustaining human development for the future we want. When people have equitable access to basics such as livelihoods, clean energy, health and pollution-free air, greater climate resilience and improved emissions management will follow. This report outlines where transformation can begin: in cleaner, more efficient production, in fair and balanced consumption, and in both rural and urban areas. Through better institutions, more accurate knowledge and changed attitudes, Asia-Pacific societies can find smarter strategies for adapting to a warmer world.

ONE PLANET TO SHARE

Empowered lives.
Resilient nations.

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