

THE CLIMATE CHANGE AND DEVELOPMENT ROUNDTABLE



BACKGROUND BRIEFER

December 2007

CLIMATE CHANGE: IMPACTS AND AUSTRALIA'S ROLE IN ASSISTING OUR MOST VULNERABLE NEIGHBOURS

Climate change poses clear risks and new challenges to the sustainable development and poverty reduction efforts of many Asian and Pacific Island nations. It also poses clear risks to Australia's interests in trade, aid and political stability within the region. On the grounds of humanitarianism and self-interest, it is in the Australian national interest to respond effectively to climate change.

Australia's response must be:

- 1) To lead the way in mitigating or reducing its contribution to global warming as a matter of urgency, if we are to keep global warming as far below 2°C as possible. This requires global emissions to peak by 2015 and then be reduced to 50-85 per cent below 1990 levels by 2050. For rich countries this means a reduction in emissions to between 25 to 40 per cent below 1990 levels by 2020 and to between 80 to 90 per cent below 1990 levels by 2050.¹ For Australia, this implies a cut in greenhouse gas emissions of at least 30 per cent below 1990 levels by 2020 and at least 80 per cent below 1990 levels by 2050.
- 2) To help poorer countries follow a low carbon path to development by providing financial and in-kind assistance including substantial technology transfer of low and zero carbon energy sources, and stopping deforestation.
- 3) To contribute adequate, timely and predictable funding to support developing countries in their efforts to adapt and appropriately respond to the impacts of climate change that are already being experienced and future impacts that are unavoidable.

Australia's Contribution to Greenhouse Pollution

The Asia Pacific region accounts for over 35 per cent of global greenhouse gas emissions.² However between nations there are major differences in total emissions, projections of emissions growth, per capita emissions and energy use, and historical

¹ UNFCCC 2007 Synthesis of information relevant to the determination of the mitigation potential and to the identification of possible ranges of emission reduction objectives of Annex 1 Parties, FCCC/TP/2007/1, 26 July, pages 4&5

² Climate Analysis Indicators Tool (2006) Version 3.0, World Resources Institute, Washington, DC. <http://cait.wri.org/>

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contributions to the build-up of greenhouse gases in the atmosphere. This is driven by different levels of development, wealth, population and the greenhouse intensities of energy use.

Although the region has a profound economic, cultural, and environmental influence on the global community, many of the countries within the Asia Pacific region represent developing nations still in transition to mature market economies.

Within the Asia Pacific region, Australia makes a disproportionate contribution to climate change as the highest per capita greenhouse polluter in the industrialised world. Despite our relatively modest population, the average Australian produces more greenhouse pollution, uses more energy and has historically contributed more to the build-up in greenhouse gases in the atmosphere than the average person in any other country in the region. On average, Australians create more than eight times the greenhouse pollution per person than the average Chinese person, and have contributed more than 170 times the amount of greenhouse pollution to the atmosphere than a Bangladeshi.³ Australia's total emissions are comparable to Indonesia, a country of over 200 million people, though Australia's population is only one-tenth the size. Even though China and India do have higher total greenhouse levels than Australia, we are historically responsible for the current situation and therefore have an ethical responsibility to act now and help developing countries to adapt and to enable them to follow a low-carbon path to development.

Australia has a clear responsibility to reduce its own greenhouse gas emissions in line with a global target to keep global warming as far below 2°C as possible to avoid an otherwise climate change induced global catastrophe.

Climate Vulnerability within the Region

While Australia is highly susceptible to the impacts of climate change, we have more resources and expertise and therefore greater resilience to cope with and respond to natural disasters, unlike many of our neighbours in the Asia Pacific region. Vulnerability is generally measured by the potential of climate impacts as well as the ability for people to adapt and respond to these impacts. Australia's near neighbours in this region are very vulnerable to climate change impacts.⁴ Many nations within the region already struggle to cope with the current climate variability which exposes their populations to tropical cyclones, rainfall extremes, frequent droughts and extreme tides.

The Lowy Institute's report on Climate Change and Security articulated this very clearly. "For a handful of small, low-lying Pacific nations, climate change is the ultimate security threat, since rising sea-levels will eventually make their countries

³ Climate Analysis Indicators Tool (2006) *ibid.*

⁴ Preston, B et al (2006) Climate Change in the Asia/Pacific Region A Consultancy Report Prepared for the Climate Change and Development Roundtable, Climate Change Impacts and Risk, CSIRO Marine and Atmospheric Research

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uninhabitable.”⁵ The logical conclusion is that relocation is therefore inevitable and many people in the region are predicted to become climate change refugees, forced to leave their homes due to untenable environmental impacts.

In nations across the region, rising sea levels are already affecting food and water supplies, infrastructure, and the general well being of people. In parts of Fiji and Tuvalu, increased salinity is forcing families to grow their root crops in metal buckets instead of in the ground.⁶ In Majuro, the capital of the Marshall Islands, sea walls have been constructed to try to protect existing infrastructure and halt the impact of erosion⁷. In some areas, permanent displacement because of rising seas is already occurring. Since 2000, two villages in Kiribati have been evacuated,⁸ while the people of the Carteret Islands are now preparing to relocate to Bougainville. Storm surges, rather than erosion or average tidal height, are the greatest concern of sea level rise, as evidenced by the recent Cyclone Sidr in Bangladesh which killed about three thousand people and displaced nearly four million, about the population size of Melbourne, Australia. While it is difficult to ascertain whether climate change has been a primary driver of sea-level rise experienced to date⁹, the fact that impacts are being felt now highlights the vulnerability of people living in low-lying areas to rising sea levels caused by climate change.

The 2006 CSIRO report¹⁰ for the Climate Change and Development Roundtable left little room for optimism. The study reviewed 186 different regional and national estimates of the potential impacts of future climate change to various sectors looking at whether key indicators showed losses, gains or a combination of losses and gains. The clearest losers are those people living in coastal areas. Areas at most risk are the low-lying river deltas of the tropics and sub-tropics as well as the small island states. Water stress is also likely to affect millions of people in the region, and the cost of managing water resources will also rise. Chronic food and water insecurity and epidemic disease may impede economic development in some nations. The graph below¹¹ shows the extent of losses, gains and a mixture of losses and gains as a result of a number of indicators based on the analysis from these reports. It is clear from this graph that coastal communities, water resources, ecosystems/biodiversity and regional economies have most to lose from dangerous climate change impacts.

5 Dupont, A and Pearman, G (2006) Heating Up the Planet, Climate Change and Security, Lowy Institute of Australia

6 WWF Climate Witness brochure [http://www.wwfpacific.org.fj/publications/climate_change/cw_brochure.pdf]

and Price, T. “The Canary is Drowning”, December 3, 2002 [<http://globalpolicy.igc.org/nations/micro/2002/1203canary.htm>]

7 Barnett, J. and Adger, N. Climate Dangers and Atoll Countries, Working Paper 9, Tyndall Centre for Climate Change Research, October 2001.

8 ‘Island nations plan for rising seas, mass migration’, Reuters, Nov 14, 2007

[<http://uk.reuters.com/article/environmentNews/idUKSP27770920071114>]

9 Rosenzweig, C., G. Casassa, D.J. Karoly, A. Imeson, C. Liu, A. Menzel, S. Rawlins, T.L. Root, B. Seguin, P. Tryanowski, (2007): Assessment of observed changes and responses in natural and managed systems. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution

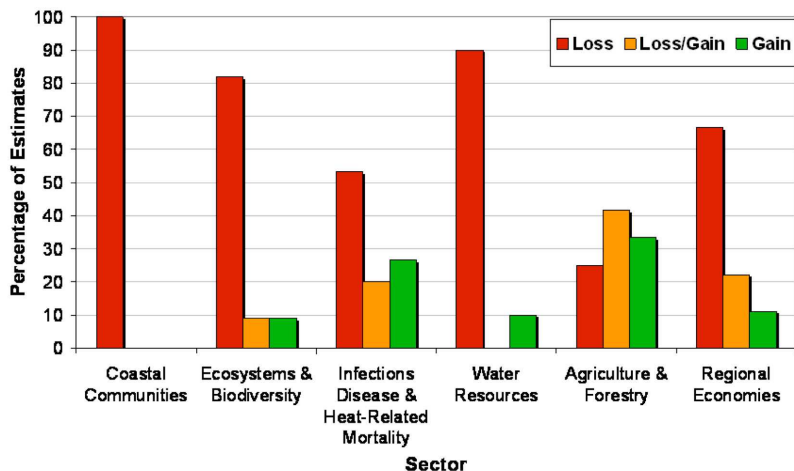
of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P.

Palutikof, P.J. van der Linden and C.E. Hansen, Eds., Cambridge University Press, Cambridge, UK, 79-131.

10 Preston, B et al (2006) op.cit.

11 Preston, B et al (2006) op.cit

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During 2007, the Intergovernmental Panel on Climate Change (IPCC) released its Fourth Assessment Report (AR4) on the science, impacts and economics of climate change. The AR4 report has also found that small island states in the Pacific and many Asian countries face severe impacts from climate changes. Excerpts from the reports on the impacts of climate change on small island states and Asia are outlined below.

Small Island States¹²

Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea-level rise, and extreme events (very high confidence).¹³

In most cases they have low coping and adaptive capacity with disproportionately high emergency relief and adaptation costs relative to their gross domestic product (GDP).

Sea-level rise is expected to exacerbate inundation, storm surges, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities (very high confidence).

There is strong evidence that under most climate change scenarios, water resources in small islands are likely to be seriously compromised (very high confidence).

Most small islands have a limited water supply, and water resources on these islands are especially vulnerable to future changes and distribution of rainfall. In the Pacific, a 10 per

¹² Mimura, N., L. Nurse, R.F. McLean, J. Agard, L. Briguglio, P. Lefale, R. Payet and G. Sem (2007): Small islands. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 687-716

¹³ The uncertainty guidance provided for the Fourth Assessment Report draws, for the first time, a careful distinction between levels of confidence in scientific understanding and the likelihoods of specific results. This allows authors to express high confidence that an event is extremely unlikely (e.g., rolling a dice twice and getting a six both times), as well as high confidence that an event is about as likely as not (e.g., a tossed coin coming up heads). The standard terms used to define levels of confidence are as given in the IPCC Uncertainty Guidance Note, namely: Very high confidence At least 9 out of 10 chance; High confidence About 8 out of 10 chance; Medium confidence About 5 out of 10 chance. (see IPCC <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter1.pdf> - p 28 for more details)

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cent reduction in average rainfall (by 2050) would lead to a 20 per cent reduction in the size of the freshwater lens (i.e. water storage capacity) on Tarawa Atoll, Kiribati. Reduced rainfall coupled with sea-level rise would compound this threat.

Climate change is likely to heavily impact coral reefs, fisheries and other marine-based resources (high confidence).

Fisheries make an important contribution to the GDP of many island states.

It is very likely that subsistence and commercial agriculture on small islands will be adversely affected by climate change (high confidence).

Sea-level rise, inundation, seawater intrusion into freshwater lenses (i.e. water storage capacity), soil salinisation, and decline in water supply are very likely to adversely impact coastal agriculture.

New studies confirm previous findings that the effects of climate change on tourism are likely to be direct and indirect, and largely negative (high confidence).

Tourism is the major contributor to GDP and employment in many small islands.

There is growing concern that global climate change is likely to impact human health, mostly in adverse ways (medium confidence).

Many small islands are located in tropical or sub-tropical zones whose weather and climate are already conducive to the transmission of diseases such as malaria, dengue, filariasis (or elephantiasis), schistosomiasis (or bilharzia), and food and water-borne diseases.

Asia¹⁴

Marine and coastal ecosystems in Asia are likely to be affected by sea-level rise and temperature increases (high confidence).

Projected sea-level rise is very likely to result in significant losses of coastal ecosystems and a million or so people along the coasts of South and South-East Asia will likely be at risk from flooding and displacement.

Future climate change is likely to continue to adversely affect human health in Asia (high confidence).

Increases in endemic morbidity and mortality due to diarrhoeal disease primarily associated with climate change are expected in South and South-East Asia (high confidence). Increases in coastal water temperature would exacerbate the abundance and/or toxicity of cholera in south Asia (high confidence).

Multiple stresses in Asia will be compounded further due to climate change (high confidence).

It is likely that climate change will impinge on sustainable development of most developing countries of Asia as it compounds the pressures on natural resources and the environment associated with rapid urbanisation, industrialisation and economic development.

¹⁴ Cruz, R.V., H. Harasawa, M. Lal, S. Wu, Y. Anokhin, B. Punsalmaa, Y. Honda, M. Jafari, C. Li and N. Huu Ninh (2007): Asia. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 469-506.

What Can Be Done: Adaptation Funding

To reduce climate risks and other subsequent economic and social challenges associated with climate change, developed nations like Australia need to adopt strong mitigation policies and programs. Developed nations must also contribute their share to finance adaptation and help build strong community capacity for adaptation and resilience in our neighbouring countries. To date, not enough is being done to support them in this regard.

Oxfam International has estimated that the global costs of the adaptation needs of developing countries will be at least US\$50bn each year, with these costs rising sharply if global emissions are not cut rapidly and warming continues beyond 2°C. They propose that USA, EU, Japan, Canada, Republic of Korea and Australia should contribute over 95 per cent of the finance needed, given historic responsibility and capacity to pay. To date, countries have only delivered US\$67m to international funds for least-developed country adaptation. Oxfam's analysis reveals that 28 countries are both responsible for, and capable of, financing adaptation in developing countries. While the USA and EU should contribute over 75 per cent of total finance needed, Japan, Canada, Australia and Republic of Korea should contribute a further 20 per cent of the finance, with Japan providing half of that. It is estimated that Australia's contribution should be 2.9 per cent of total cost or about US\$1.45bn per annum.¹⁵

It is unlikely that developed countries like Australia will ever provide the amount of money needed for adaptation for the world's poorest countries through voluntary contributions alone. Therefore, a more consistent, predictable, reliable and substantial source of funding is needed. This could occur through, for example, a levy on all the flexibility mechanisms of the Kyoto Protocol, a domestic emissions levy, a levy on international aviation, and/or all three options.

Adaptation funding should be focussed on the most vulnerable nations and the most vulnerable communities within those countries. The primary objective of adaptation activities must be to build resilience and adaptive capacity in local communities. The participation of local communities in planning, decision-making and implementation of adaptation measures is required to ensure long-term viability of adaptation activities and reduced likelihood of inappropriate adaptation. Adaptation measures must also be integrated into national development plans, poverty reduction strategies and sectoral policies and strategies. This funding must be in addition to any current monies given out of allocated aid and existing development budgets.

¹⁵ Oxfam International (2007) Adapting to Climate Change what's needed in poor countries, and who should pay, Oxfam Briefing Paper 104,

What Can Be Done: Relocation Assistance

H.E. Leo A. Falcam, President of the Federated States of Micronesia, has also drawn attention to the need for the international community to assist with the development of strategies for relocation as well as for adaptation.¹⁶ The need for relocation of people affected by rising sea levels raises questions of who is responsible for paying these costs, and how to prevent cultures being lost when culturally distinct groups of people are displaced from their homes. Australia should play a constructive and leading role in helping any Pacific island neighbours who are forced to relocate through, for example, the development of appropriate international law to protect people displaced due to the environmental or social impacts of climate change, and to also guarantee their rights and protection, including the provision of asylum, and material and social support.

What Can Be Done: Supporting A Low Carbon Development Pathway

Rich countries like Australia will also need to play a role in supporting poorer countries towards a low carbon path of development. Such support might include assisting developing countries to leap frog technologies to low and zero carbon energy sources, support and training for communities to explore such development paths for both rural and urban development, as well as financial and in-kind assistance to stop deforestation and to find alternative sources of income.

¹⁶ Statement at the World Summit on Sustainable Development (2002) [<http://www.un.org/events/wssd/statements/>] August 26-September 4