

Oxfam Australia Submission to the Senate Select Committee on Climate Policy

16 April 2009

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Summary of Recommendations

1. The Australian Government should champion a mechanism for determining fair and equitable contributions that incorporates the following steps:
 - Step 1: Determine and agree aggregate Annex 1 (Developed Country) mitigation target of at least 40 per cent below 1990 levels by 2020 and at least 95 per cent below 1990 levels by 2050.
 - Step 2: Determine individual Annex 1 Targets using key criteria including responsibility and capability.
 - Step 3: Calculate how much of a country's target must be done 'at home'.
 - Step 4: Calculate financial contribution to developing country mitigation and adaptation.
2. The Australian Government should demonstrate unequivocally its commitment to an aggregate emissions target for Annex 1 countries of at least 40 per cent below 1990 levels by 2020 by advocating for this within the international climate negotiations
3. While welcoming the Government's recent calls for the level of ambition within the Copenhagen deal to be set at 450ppm, Oxfam Australia recommends the Government goes further by adopting a level of ambition which would keep warming as far below 2 degrees as possible, that is 350-400ppm.
4. The Australian Government should champion an approach that uses measures of responsibility and capability to allocate Annex 1 individual country targets, and move away from its overly simplistic and biased approach of using projected population growth.
5. The large majority of Australian and other Annex 1 countries' emission targets should be met through domestic emission reductions.
6. Australia should:
 - (a) Acknowledge that developed countries have the responsibility and capacity to finance the mitigation and adaptation requirements of developing countries.
 - (b) Re-assess the true needs of developing countries for mitigation and adaptation support based on current authoritative estimates, which show that Australia's fair share is in the order of \$3.9 - \$6.9 billion per annum, and start to rapidly increase adaptation funding over and above aid commitments.
 - (c) Replace current proposals for free permits and compensation to big polluters with contributions to meet Australia's international mitigation and adaptation obligations.
 - (d) Explore other mechanisms for generating this level of funding, including applying a levy to international flights leaving Australia and to international shipping arriving in Australia, in preparation for an international levy being applied.
7. Australia should:
 - (a) Commit to emissions reduction targets of at least 40 per cent below 1990 levels by 2020 and at least 95 per cent below 1990 levels by 2050.
 - (b) Ensure that its domestic greenhouse gas emissions peak no later than 2010.
 - (c) Support Pacific Islands' calls to keep warming to within 1.5 degrees Centigrade of pre-industrial temperatures, which would also be in line with Australia's national interest.

1. About Oxfam Australia

- 1.1 Oxfam Australia is a not-for-profit, secular, community-based international development agency. We are a member of Oxfam International, a global confederation of 13 Oxfams that work together to fight poverty and injustice in more than 100 countries around the world. We have worked with local communities around the world to combat poverty and injustice for over 50 years.
- 1.2 Climate change has rapidly become a core focus of our work because of its disproportionate impact on poor communities and the deleterious effect it will have on efforts to tackle extreme poverty. These impacts are already being felt by poor and vulnerable people around the world. Droughts are leading to an increase in hunger, and floods and rising sea levels are taking away people's homes and homelands. If climate change continues unabated it will be impossible to achieve the Millennium Development Goals. There is an urgent need to identify and implement equitable and fair solutions to climate change.

2. Focus of this submission

- 2.1 This submission focuses on the devastating impacts that climate change will have on poor communities around the world and is limited to addressing the following terms of reference for the inquiry:

“an appropriate mechanism for determining what a fair and equitable contribution to the global emission reduction effort would be”, and

“whether the Government's Carbon Pollution Reduction Scheme is environmentally effective, in particular with regard to the adequacy or otherwise of the Government's 2020 and 2050 greenhouse gas emission reduction targets in avoiding dangerous climate change”.

3. Poverty Implications of Climate Change

- 3.1 Global warming should be kept as far below 2°C as possible, compared to pre industrial temperatures. This is important for the world's inhabitants and species, but it is most pressing for the world's poor. The impacts of climate change will affect poor people in developing countries first and worst, as illustrated in the following table.

Table 1: Levels of warming and their implications for people living in poverty¹

Global target	Selected poverty implications
2°C 350-400 ppm CO ₂ -equivalent ²	<p>Decline in crop yield in much of Africa, and in other tropical regions. Up to 200 million more people at risk of hunger.</p> <p>40–60 million more people exposed to malaria in Africa. At least 300,000 people die each year as a result of climate change, including from diseases, such as diarrhoea, malaria, and malnutrition.</p> <p>Potentially 20–30 per cent decrease in water availability in some vulnerable regions, for example Southern Africa and the Mediterranean. Up to 1.8 billion more people affected by water stress, including up to 250 million Africans, and 50 million people in the Andean region as glaciers shrink. Altered monsoon patterns in Asia lead to increased flooding, affecting hundreds of millions of people.</p> <p>Sea-level rise threatens existence of small-island states. Up to 10 million additional people affected by coastal flooding each year. Warming likely to destabilise Greenland and West Antarctic ice sheets, triggering a sea-level rise of several metres.</p> <p>Climate change impacts contribute to the displacement of 50 million people by 2010.</p> <p>15–40 per cent of land, animal and plant species facing extinction.</p>
3°C 400-500 ppm CO ₂ -equivalent	<p>Severe decline in agricultural yields, for example, up to 30 per cent lower yields for rice or wheat in India. Up to 600 million more people at risk of hunger, over half of them in Africa and western Asia. Globally, hunger and malnutrition attributable to climate change might kill 1–3 million more people per year.</p> <p>All-year-round droughts in much of Southern Africa. Disappearance of glaciers in South America and Asia, affecting water supply. Water shortages affecting up to 4 billion additional people. Serious droughts in Europe every ten years instead of every 100 years.</p> <p>Up to 170 million people affected by coastal flooding each year. Adapting African coastlands will cost up to 10 per cent of these countries' GDP. Melting of Greenland and West Antarctic ice sheet very likely, many Pacific islands lost.</p> <p>20–50 per cent of land, animal and plant species facing extinction. Most coral reefs bleached beyond recovery, severe impacts on fish stocks and animal-protein supply for tens of millions of people.</p>
4°C and above 450-600 ppm CO ₂ -equivalent	<p>Up to 50 per cent decrease in water availability in South America, Southern Africa, and the Mediterranean. Disappearance of large glaciers in the Himalayas causes water shortages for a quarter of China's population and hundreds of millions of people in India.</p> <p>Crop yields fall in all world regions. Africa and Western Asia face up to 35 per cent loss in yields; some regions fall out of production completely, for example, parts of Southern Africa and Australia.</p>

1 Derived from Meinshausen (2005) 'On the Risk of Overshooting 2°C'. Source: IPCC 2007, Stern 2006, and Tyndall Centre 2006.

2 Concentration ranges assume a precautionary approach: no more than a 33 per cent chance of exceeding the given temperature.

4. An appropriate mechanism for determining a fair and equitable contribution to the global emission reduction effort

4.1 An appropriate mechanism for determining a fair and equitable contribution to the global emission reduction effort must take into account:

4.1.1 The core principles of responsibility and capability set out in the United Nations Framework Convention on Climate Change (UNFCCC);

4.1.2 That developed countries, including Australia, have caused the majority of climate change already experienced and that high levels of per capita pollution continue to add disproportionately to the climate problem;

4.1.3 That developed countries, including Australia, have grown wealthy whilst emitting high levels of greenhouse gases and hence have a responsibility to help less wealthy developing countries to reduce their own emissions and to adapt to the unavoidable impacts of climate change;

4.1.4 That developing countries are taking actions to reduce their emissions now;

4.1.5 The urgent need to reduce emissions in order to prevent catastrophic climate change.

4.2 Recommendation 1:

The Australian Government should champion a mechanism for determining fair and equitable contributions that incorporates the following steps:

Step 1: Determine and agree aggregate Annex 1 (Developed Country) mitigation target of at least 40 per cent below 1990 levels by 2020 and at least 95 per cent below 1990 levels by 2050.

Step 2: Determine individual Annex 1 Targets using key criteria including responsibility and capability.

Step 3: Calculate how much of a country's target must be done 'at home'.

Step 4: Calculate financial contribution to developing country mitigation and adaptation.

5. Step 1: Determine Aggregate Annex 1 Mitigation Target

5.1 Rationale:

5.1.1 Developed countries are responsible for approximately 76 per cent of the emissions released to date into the atmosphere.³ Per capita rates of pollution are significantly – and, in some cases, orders of magnitude – higher in developed than developing countries. Australia's contribution to total global greenhouse emissions at 1.5 per cent⁴

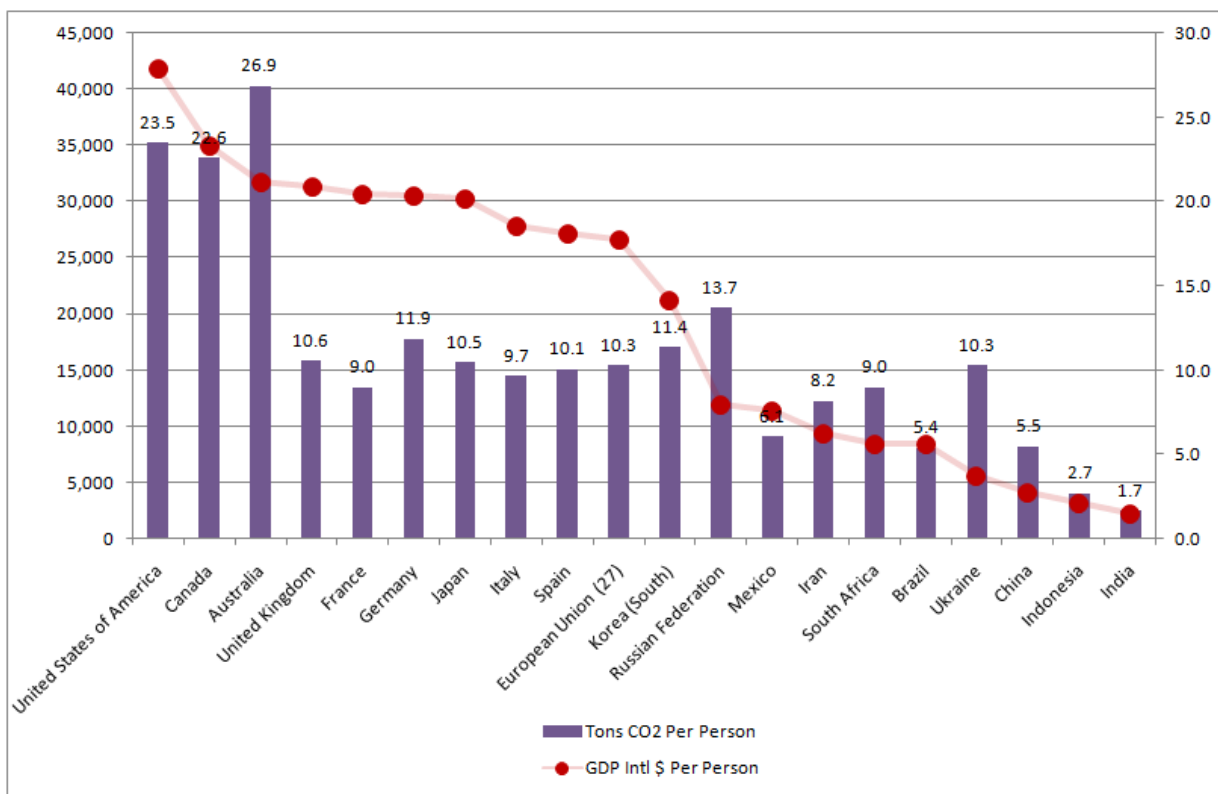
3 Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang (2007), 'Dangerous human-made interference with climate: A GISS model E study', *Atmos. Chem. Phys.*, 7:2287-2312.

4 Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009). Total greenhouse gas emissions in 2005, excluding land use change. Including LUC = 1.25% for 2000.

is comparatively small. This is, however, a result of our small population. As illustrated in Figure 1, our per capita emissions are amongst the highest in the world, at 26.9 tonnes of CO₂e⁵. This compares to 23.5 tonnes of CO₂e for the United States, 5.5 tonnes for China and 1.7 tonnes for India

5.1.2 Developed countries have greater economic capability to make the adjustments that are needed to reduce emissions. As can be seen in Figure 1, Australia's GDP per person is about eight times that of China and about 14 times that of India⁶. The United Nations estimates that, on current trends, there will still be 1.4 billion people lacking access to electricity in 2030, yet these people will be profoundly affected by climate change.⁷ Developed countries have far greater capacity and many more resources to focus on reducing emissions. Developing countries need to focus on bringing their populations out of poverty.

Figure 1: Top 20 World Emitters: per capita pollution versus income



source: Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009). Total greenhouse gas emissions in 2005, excluding land use change. 2005 GDP per capita in international \$

5.1.3 The impacts of global climate change on the world's poorest countries will be far greater than on developed countries, despite these countries being the least responsible for climate change. As can be seen in Table 2, the impacts of climate change could lead to 50 million climate refugees by 2010, large scale water and food shortages across Asia, Southern Africa and South America, and the loss of many

5 CO₂e = carbon dioxide equivalence, all greenhouse gases expressed in units of carbon dioxide warming potential. Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009). Total greenhouse gas emissions in 2005, excluding land use change.

6 Calculated using 2005 GDP per capita in international \$, source Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009).

7 UNDP (2008), Human Development Report 2007/2008: Fighting climate change – Human solidarity in a Divided World, United National Develop Program, New York.

Pacific Islands. Given the responsibility for emissions and the economic capacity of developed countries, combined with these injustices, Annex I (developed) countries must take on a significant share of the required emission reductions.

- 5.1.4 For these reasons developed countries need to take on more immediate and steeper pollution reduction commitments than developing countries. This principle is enshrined in the United Nations Framework Convention on Climate Change, and in the Kyoto Protocol:

“The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”⁸

- 5.1.5 In its 2007 report, the IPCC indicated that in order to keep warming between 2.0 and 2.4 degrees above pre industrial temperatures (445 – 490ppm CO₂e), Annex 1 countries would need to reduce their emissions by 25 to 40 per cent below 1990 levels by 2020 (see Table 2 below). There are likely, however, to be severe climate impacts even at these low levels of 2.0 to 2.4 degrees of warming. As outlined in Table 2, such impacts could include 200 million more people at risk of hunger; up to 1.8 billion more people affected by water stress; sea level rise that could threaten the existence of small island states; and 50 million people displaced by climate change by 2010. Unfortunately, the IPCC has not yet analysed emission pathways that would make it 'very likely' to keep warming below 2 degrees - that is pathways to keep concentrations of greenhouse gases between 350 and 400ppm.

Table 2: IPCC emissions reductions

Table 1. Characteristics of greenhouse gas stabilization scenarios

Category	CO ₂ equivalent concentration (parts per million CO ₂ equivalent)	Global mean temperature increase above pre-industrial at equilibrium using 'best estimate' climate sensitivity ^a (°C)	Change in global CO ₂ emissions in 2050 (% of 2000 emissions)	Range of reduction in GDP in 2050 because of mitigation (%)	Allowed emissions by Annex I Parties in 2020 (% change from 1990 emissions)	Allowed emissions by Annex I Parties in 2050 (% change from 1990 emissions)
I	445–490	2.0–2.4	-85 to -50	Decrease of up to 5.5	-25 to -40	-80 to -95
II	490–535	2.4–2.8	-60 to -30			
III	535–590	2.8–3.2	-30 to +5	Slight gain to decrease of 4	-10 to -30	-40 to -90
IV	590–710	3.2–4.0	+10 to +60	Gain of 1 to decrease of 2	0 to -25	-30 to -80
V	710–855	4.0–4.9	+25 to +85			
VI	855–1,130	4.9–6.1	+90 to +140			

Source: IPCC. Fourth Assessment Report (AR4), Contribution of Working Group III. Columns 1–4, table SPM.5; column 5, table SPM.6, columns 6 and 7, box 13.7.

^a According to the AR4, the best estimate of climate sensitivity is 3 degrees Celsius.

8 UNFCCC, <http://unfccc.int/resource/docs/convkp/conveng.pdf>

5.1.6 Based on the available data, in order to keep warming as far below 2 degrees as possible, and concentrations of greenhouse gases in the atmosphere between 350 and 400ppm, Oxfam estimates that developed countries in aggregate will have to reduce their emissions by at least 40 per cent below 1990 levels by 2020. Reduction of emission trajectories in developing countries is also required as discussed below.

5.1.7 Achievement of the 40 per cent target will require considerable new effort by developed countries. Countries which take early and comprehensive action will, however, reap the greatest benefits arising from speedier economic transformation, innovation, increased technological capacity and reducing the need to 'catch-up' in the future. Greenhouse gas reduction actions have repeatedly been modelled as having limited impact on economic growth. Australian Treasury modelling, for example, showed that:

"Australia and global economies could maintain strong long-term economic growth while cutting emissions to achieve stabilisation. Even ambitious goals have little impact on global and national economic growth."⁹

Of course, other factors – such as the global financial crisis – may impact economic growth. However, even in the context of the current global downturn, focusing on the development of green technology and rapid transition to a low carbon economy has the potential to provide significant new business development and export opportunities.

5.2 **Recommendation 2:**

The Australian Government should demonstrate unequivocally its commitment to an aggregate emissions target for Annex 1 countries of at least 40 per cent below 1990 levels by 2020 by advocating for this within the international climate negotiations

Recommendation 3:

While welcoming the Government's recent calls for the level of ambition within the Copenhagen deal to be set at 450ppm, Oxfam Australia recommends the Government goes further by adopting a level of ambition which would keep warming as far below 2 degrees as possible, that is 350-400ppm.

6. **Step 2: Establish Individual Annex 1 Targets**

6.1 Rationale:

6.1.1 For Annex 1 countries to reduce their emissions by 40 per cent below 1990 levels by 2020, individual country targets need to be established and achieved. A range of mechanisms to determine targets have been discussed. The two principles that must be taken into account are responsibility and capability, as enshrined in the UNFCCC.¹⁰

6.1.2 The European Commission has suggested using the mitigation potential measures of GDP per capita, greenhouse gas emissions per GDP, population growth and early action in order to calculate targets for Annex 1 countries.

⁹ Australian Treasury Low Pollution Future Modelling, Chapter 5, Page 89, available <http://www.treasury.gov.au/lowpollutionfuture/>

¹⁰ UNFCCC Principle 1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.

6.1.3 The UNFCCC Secretariat has undertaken an in-depth review of mitigation potential. The Secretariat notes that:

“The IPCC, in its special report on emission scenarios, states that the major driving forces of past and future anthropogenic greenhouse gas emissions include demographics, economics, resources, technology and (non-climate) policies. Hence the extent to which these emissions can be reduced is largely determined by the social, political and economic structure of each country and how these are expected to develop in the future.”¹¹

6.1.4 The Australian Government has suggested using a single metric of projected population growth to determine the effort sharing approach within Annex 1 countries. As a result of Australia’s comparatively high population growth, calculating effort sharing using population growth as the only metric would result in easier targets for Australia than for other Annex 1 countries. This is not a fair method of calculating effort amongst Annex 1 countries, nor is it likely to be effective, because it:

- (a) ignores the historic responsibility and the capability of countries to take action;
- (b) ignores the majority of driving forces behind emissions, and therefore mitigation potential, identified by the IPCC (as noted above);
- (c) locks in Australia’s high per capita pollution level, and does not address the fundamental unfairness of this position;

6.1.5 As identified in a recent European Commission staff working document:

“Using an allocation option based on a single indicator leads often to disproportional costs or gains for single countries. ... Using a combination of criteria in order to define a target instead of a single indicator seems to have a much higher likelihood of being accepted by all developed countries.”¹²

6.1.6 The key question is how to define, measure and weigh criteria to establish individual country targets. Responsibility and capability are two key principles appropriate to establishing emission reduction targets for Annex 1 countries. They have already been agreed to by all countries and are enshrined within the UNFCCC.¹³ Australia should champion a model that uses measures of responsibility and capability to determine individual Annex 1 country targets, whilst ensuring that the total Annex 1 mitigation effort adds up to at least 40 per cent below 1990 levels by 2020 and 95 per cent below 1990 levels by 2050. The 2020 target is particularly crucial as it recognises the need for immediate and urgent action by current governments and avoids pushing the responsibility for emissions reductions to future generations.

11 <http://unfccc.int/resource/docs/2007/tp/01.pdf> FCCC/TP/2007/1 Synthesis of information relevant to the determination of the mitigation potential and to the identification of possible ranges of emission reduction objectives of Annex I Parties Technical paper, 26 July 2007

12 COMMISSION STAFF WORKING DOCUMENT accompanying the COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Towards a comprehensive climate change agreement in Copenhagen - Extensive background information and analysis -PART 1- January 2009

13 UNFCCC Principle 1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.

(a) Responsibility:

Greenhouse gas emissions have been contributing to global warming and to economic growth for well over a century. The increases in living standards and opportunity across the developed world have come at the expense of the stability of the global climate. Past emissions have used up the carbon available in the atmosphere and therefore must be taken into account in planning forward emissions.

Responsibility should be measured using historical emissions in order to calculate what proportion of the climate change experienced to date a country is responsible for. There have been numerous proposals regarding when to start measuring responsibility, including the Brazilian proposal which recommends measuring emissions from the beginning of the industrial revolution. The minimum period that should be used to calculate emission reduction targets is from 1990. This is because the damaging impact of emissions has been recognised since the 1980s and, in 1990, the IPCC issued its first report, providing irrevocable evidence of the existence of climate change and humankind's contribution to it.

(b) Capability:

Oxfam suggests measuring capability within developed countries using Gross National Income (GNI) per capita. Countries can be considered capable of taking action to reduce their greenhouse gas emissions and prevent further climate change if they have achieved national wealth in excess of meeting their population's welfare needs, and GNI per capita is a way of measuring relative wealth and hence capability to take action on climate change.

6.2 Recommendation 4:

The Australian Government should champion an approach that uses measures of responsibility and capability to allocate Annex 1 individual country targets, and move away from its overly simplistic and biased approach of using projected population growth.

7. Step 3: Calculate how much of a country's target must be done "at home"

7.1 Rationale:

- 7.1.1 It is an imperative to move countries across the globe to low carbon economies as quickly as possible, while ensuring the economic development of poor countries. This is essential to future global growth and stability. This imperative requires a far more stringent method for both achieving developed world targets and funding and transferring mitigation technology and potential to developing countries than is offered by the "flexibility mechanisms" of the Kyoto Protocol.
- 7.1.2 There is currently no quantitative limit specified under the Kyoto Protocol's "flexibility mechanisms" regarding the amount of credits that Annex 1 countries can obtain from offsets in other countries in order to meet their targets. A strict quantitative limit is required for two reasons. First, offsets in developing countries do not provide guaranteed emission reductions against a global target and, second, offsets reduce the incentive to develop new technology and change practices in developed countries. Any significant use of offsets against Annex 1 targets places at risk the capacity to prevent dangerous climate change. A pathway to prevent dangerous warming

requires that Annex 1 countries meet the majority of their targets through domestic, “at home”, emission reductions.

- 7.1.3 If developed countries are able to purchase credits in order to meet their targets, the pressure to generate innovative solutions in the form of new technology and changed behaviour will be reduced and it is significantly less likely that the new technologies and policies required to achieve a low carbon future will be developed. The Australian Treasury has said that:

“Economies that defer action face higher long-term costs, as more emission-intensive infrastructure is locked in place and global investment is redirected to early movers.”¹⁴

- 7.1.4 Germany and the United Kingdom provide positive examples of reducing emissions whilst increasing economic growth. Germany reduced its emissions by 18 per cent¹⁵ while growing its economy by 27 per cent¹⁶ and the United Kingdom reduced emissions by 15 per cent¹⁷ while growing its economy by 43 per cent¹⁸ in the period 1990 to 2005.
- 7.1.5 Investment by developed countries in projects in developing countries can provide essential technological development but cannot be relied upon to achieve the major global emission reductions which are essential to prevent dangerous warming. The UNFCCC Secretariat has itself noted that “the use of offsets may not necessarily lead to stabilizing GHGs (greenhouse gases) in the atmosphere at a specified level”.

7.2 Recommendation 5:

The large majority of Australian and other Annex 1 countries’ emission targets should be met through domestic emission reductions.

8. Step 4: Australia's Contribution to Developing Country Mitigation and Adaptation

8.1 Rationale:

- 8.1.1 Whilst developed countries are responsible for approximately 76 per cent of the emissions already released into the atmosphere,¹⁹ a large portion of future emissions will be generated in developing countries. In its 2007 report, the IPCC made it clear that developing countries’ emissions will have to be reduced substantially below the business as usual baseline by 2020 if we are to prevent catastrophic climate change. This has since been quantified by IPCC scientists, who found that developing

14 Australian Treasury Low Pollution Future Modelling, Chapter 5, Page 89, available <http://www.treasury.gov.au/lowpollutionfuture/>

15 UNFCCC, Total aggregate greenhouse gas emissions of individual Annex I Parties, 1990-2006 (excluding LULUCF), http://unfccc.int/ghg_data/ghg_data_unfccc/items/4146.php accessed 28/03/09

16 GDP growth 1990-2005, Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009)

17 UNFCCC, Total aggregate greenhouse gas emissions of individual Annex I Parties, 1990-2006 (excluding LULUCF), http://unfccc.int/ghg_data/ghg_data_unfccc/items/4146.php accessed 28/03/09

18 GDP growth 1990-2005, Climate Analysis Indicators Tool (CAIT) Version 6.0. (Washington, DC: World Resources Institute, 2009)

19 Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang (2007), 'Dangerous human-made interference with climate: A GISS model E study', *Atmos. Chem. Phys.*, 7:2287-2312.

countries' emissions will need to be reduced by 15-30 per cent below a business as usual baseline by 2020, in aggregate.²⁰

- 8.1.2 Developing countries' essential first priority must, however, remain lifting their populations out of poverty. Most developing countries have very limited or negligible capacity to achieve the emission cuts required themselves. Emissions reductions in poor countries must therefore be funded through assured transfers of finance, technology and the building of technical, institutional and implementing capacity by developed countries. These transfers must be in addition to official development assistance commitments. This is because mitigation and adaptation support is not aid; rather it is part of developed countries' fair share of the global effort.
- 8.1.3 The Bali Action Plan (BAP),²¹ agreed at the December 2007 UNFCCC conference, indicates developing country willingness to take mitigation action. The BAP outlines that:
- (a) developing countries will take nationally appropriate mitigation actions in the context of sustainable development;
 - (b) these mitigation actions would be supported and enabled by technology transfer, finance and capacity-building from developed countries;
 - (c) while all countries should tackle emissions, actions by developing countries require measurable, reportable, and verifiable support from rich countries; and
 - (d) there is a need for adequate, predictable, new and additional finance as well as increased development and transfer of urgently required technologies.
- 8.1.4 Negotiations regarding developing countries' actions should also recognise the mitigation efforts some developing countries are already making independently. For example, China's renewable-energy policies or India's measures to increase energy efficiency in the housing sector and the commitments of Brazil, China, India, South Africa, and Mexico to undertake "nationally appropriate mitigation and adaptation actions which also support sustainable development."²²
- 8.1.5 Least-developed and other poor and vulnerable countries, as well as small-island developing states, must keep development and adaptation as their overriding priorities, including measures to increase access to basic energy services. These countries should not be expected to prioritise emissions cuts, but should still be eligible to receive support from developed countries for low-carbon development as well as for adaptation.
- 8.1.6 Significant and reliable finance is required to fund global mitigation and adaptation efforts. A range of organisations and institutions have endeavoured to calculate the amount of finance required as follows:
- McKinsey & Company estimates that reaching 450ppm will require AUD\$133-\$200 billion a year on average between 2010 and 2020 for adaptation and

20 Holne and den Elzen, Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilisation targets, *Climate Change* 91: 249-274.

21 UNFCCC, CMP, Decision 1/CP.13, Bali Action Plan, <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3>

22 Statement made by the G5 countries (Brazil, China, India, South Africa, and Mexico) in July 2008, at the G8+5 meeting.

mitigation.²³

- The UNFCCC estimates that financial flows of around AUD\$240 billion will be required for adaptation and mitigation by 2030.²⁴
- The United Nations Development Program calculates that by 2015 around AUD \$124 billion will be required for adaptation financing alone in developing countries. It notes that this represents 0.2 per cent of developed country GDP or around one-tenth of what is currently allocated to military expenditure.²⁵
- Oxfam estimates that at least AUD \$72 billion is needed annually for adaptation financing alone in developing countries.²⁶

8.1.7 Considering these various estimates, it appears clear that around AUD \$133 - \$240 billion will be required annually to fund global mitigation and adaptation efforts. Oxfam calculates that Australia's fair share of this financing is between AUD \$3.9 - \$6.9 billion.²⁷

8.1.8 A range of mechanisms to generate Australia's fair share of the international finance required have been suggested. They include replacing current proposals for free permits and compensation to big polluters with contributions to meet Australia's international mitigation and adaptation obligations, as well as applying a levy to international flights leaving Australia and to international shipping arriving in Australia, in preparation for an international levy being applied.

8.2 Recommendation 6:

Australia should:

(a) Acknowledge that developed countries have the responsibility and capacity to

23 McKinsey & Company, Project Catalyst, February 2009 (not yet published) estimates that reaching 450ppm will require financing flows of €70-105bn a year on average between 2010 and 2020. Using an exchange rate of 0.52 this calculates as \$133 - \$200 billion Australian dollars. See also McKinsey & Company, (January 2009) 'Pathways to a Low Carbon Economy: The Global Greenhouse Gas Abatement Cost Curve, Version 2' of the global greenhouse gas abatement cost curve',

24UNFCCC, October 2007, 'Investment and Financial Flows to Address Climate Change', http://unfccc.int/press/news_room/newsletter/in_focus/items/4060.php This article estimates that global additional investment and financial flows of USD \$200 – 210 billion will be necessary in 2030 to return global greenhouse gas emissions to current levels, with investment flows in non-Annex I Parties estimated at about 46 per cent of the total needed in 2030. Therefore estimated investment flows to non-Annex 1 countries for mitigation will be USD \$92 - 97 billion. The article further estimates that adaptation financing of between USD 28 – 67 billion will be required by 2030, of which a "significant share" will be needed in non-Annex 1 countries. So, the total mitigation and adaptation finance required is about AUD \$240 billion, using an exchange rate of 0.69.

25 UNDP, 2008, 'Fighting Climate Change: Human solidarity in a divided world', Human Development Report 2007/08, p15. http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf Estimates that adaptation financing of USD \$86 billion will be required in developing countries by 2015. Conversion rate of 0.69 used to calculate amount in AUD.

26 Oxfam, May 2007, 'Adapting to climate change - What's needed in poor countries, and who should pay', Oxfam briefing paper 104. http://www.oxfam.org/en/policy/briefingpapers/bp104_climate_change_0705 Estimates that at least USD \$50 billion is required each year for adaptation financing in developing countries. Conversion rate of 0.69 used to calculate amount in AUD. See also Peter Russ, Juan-Carlos Ciscar, Bert Saveyn, Antonio Soria, Laszlo Szabó, Tom Van Ierland, Denise Van Regemorter, Rosella Viridis, February 2009, 'Economic Assessment of Post-2012 Global Climate Policies', <http://ftp.jrc.es/EURdoc/JRC50307.pdf>, which finds that annual global abatement costs, mainly in the energy and industrial sectors, are about €150 billion in 2020 and that approximately 55% of those costs arise in developed countries.

27 Calculated by applying the adaptation financing index developed by Oxfam International to mitigation and adaptation global requirements of developing countries. Oxfam, May 2007, 'Adapting to climate change - What's needed in poor countries, and who should pay'. Oxfam briefing paper 104. See link in note 26 above. Australia's adaptation financing index = 2.9%, for comparison the US = 43.7%, and the UK = 5.3%.

finance the mitigation and adaptation requirements of developing countries.

- (b) *Re-assess the true needs of developing countries for mitigation and adaptation support based on current authoritative estimates, which show that Australia's fair share is in the order of \$3.9 - \$6.9 billion per annum, and start to rapidly increase adaptation funding over and above aid commitments.***
- (c) *Replace current proposals for free permits and compensation to big polluters with contributions to meet Australia's international mitigation and adaptation obligations.***
- (d) *Explore other mechanisms for generating this level of funding, including applying a levy to international flights leaving Australia and to international shipping arriving in Australia, in preparation for an international levy being applied.***

9. Adequacy or otherwise of the Government's 2020 and 2050 greenhouse gas emission reduction targets in avoiding dangerous climate change

9.1 Background:

- 9.1.1 Global temperatures have already risen by around 0.76°C, compared with pre industrial temperatures, with a further 0.6°C locked in due to past emissions.²⁸ The momentum of the international economic system is sending emissions well beyond dangerous climate change. The International Energy Agency has concluded that we are currently on track to reach 6°C of warming before the end of the century.²⁹
- 9.1.2 The IPCC has indicated that to keep warming between 2 to 2.4°C, the reductions in greenhouse gas emissions required from Annex 1 countries are 25-40 per cent below 1990 levels by 2020 and 80-95 per cent below 1990 levels by 2050.³⁰ So, in order to keep warming as far below 2°C as possible, Annex 1 countries will need to reduce their emissions by at least 40 per cent below 1990 levels by 2020.
- 9.1.3 We also acknowledge the calls from vulnerable nations, the Association of Small Island States³¹ and the group of least developed countries³² to keep global warming to 1.5 degrees above pre-industrial temperatures in order to protect their countries and peoples from catastrophic climate change. Climate change above this level could cause entire countries to disappear, as well as massive challenges for others. However, there are currently no scientifically modelled pathways to stay at or below 1.5 degrees of warming. It is therefore urgent for scientists to model these pathways so that targets commensurate with these levels of warming can be set. In the absence of such pathways, we must minimise our risks of exceeding 1.5 degrees of warming by adopting a precautionary approach.

28 IPCC, (2007a) "Summary for Policymakers", In Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change ed. Solomon, S. et al.; Cambridge University Press, Cambridge & New York, pp. 1-17. <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

29 International Energy Agency World Energy Outlook 2008

30 IPCC, (2007a) "Summary for Policymakers", In Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change ed. Solomon, S. et al.; Cambridge University Press, Cambridge & New York, pp. 1-17. <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

31 http://unfccc.int/files/kyoto_protocol/application/force-download/7-awgkp_6.2-tuvalu_aosis_mr._fry.pdf

32 LDC Group demands, "We urge the parties to consider that temperature must not exceed 1.5 degree celcius and global concentration of 350 ppm as long term target." Source: Statement of the Least Developed Countries in the High Level Segment by Maldives on behalf of the Group.

- 9.1.4 Delaying action, by adopting lower targets in the immediate future, with a view to increase targets in the medium (post-2020) term, is dangerous. A group of IPCC scientists has found that delaying emissions reductions by Annex 1 countries from 2020 to 2030 would result in “significantly higher cumulative greenhouse gas emissions and [increase] the rate of emission reduction in future decades”. They also found that this would increase the probability of exceeding 2°C warming by about 15 per cent and would convert an emission pathway with about a 1 in 7 chance of exceeding 2°C to a 1 in 4 chance.”³³

9.2 The latest climate science:

- 9.2.1 The most recent meeting of the world's climate scientists, the International Scientific Congress on Climate Change in Copenhagen in March 2009 stated:

“The worst-case IPCC scenario trajectories (or even worse) are being realised.... the climate system is already moving beyond the patterns of natural variability within which our society and economy have developed and thrived. These parameters include global mean surface temperature, sea-level rise, ocean and ice sheet dynamics, ocean acidification, and extreme climatic events. There is a significant risk that many of the trends will accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.”

“Recent observations show that societies are highly vulnerable to even modest levels of climate change, with poor nations and communities particularly at risk.”

“Weaker targets for 2020 increase the risk of crossing tipping points and make the task of meeting 2050 targets more difficult. Delay in initiating effective mitigation actions increases significantly the long-term social and economic costs of both adaptation and mitigation.”

“There is no excuse for inaction. We already have many tools and approaches - economic, technological, behavioural, management - to deal effectively with the climate change challenge. But they must be vigorously and widely implemented to achieve the societal transformation required to decarbonise economies. A wide range of benefits will flow from a concerted effort to alter our energy economy now, including sustainable energy job growth, reductions in the health and economic costs of climate change, and the restoration of ecosystems and revitalisation of ecosystem services.”³⁴

9.3 Adequate targets for Australia:

- 9.3.1 As the developed country most at risk from climate change,³⁵ Australia has much to gain from an international deal focused on keeping warming as low as possible. We should join with our Pacific Island neighbours in calling for a level of ambition in the global agreement to ensure warming does not exceed 1.5°C.
- 9.3.2 Australia's industrial emissions – that is, those which don't include land use change and forestry – have increased by 29 per cent since 1990, compared to an increase in New Zealand by 26 per cent, Canada by 22 per cent and the United States by 14 per

33 Hare, Bill Hare, Schaeffer, Michiel, Meinshausen, Malte, Emission reductions by the USA in 2020 and the risk of exceeding 2°C warming, March 2009

34 International Scientific Congress on Climate Change, 'Key Messages from the Congress', 12 March 2009, http://climatecongress.ku.dk/newsroom/congress_key_messages/

35 The Garnaut Climate Change Review

cent.³⁶ It is only by incorporating land use change and forestry into Australia's emissions profile that Australia has been able to achieve the Kyoto Protocol requirements. This approach may have provided some incentive for reductions in land clearing, but it reduced the important incentives for technological development and policy and behavioural change required to establish a low carbon economy. We cannot afford continued delay – economically or environmentally.

9.3.3 McKinsey & Company found that Australia could achieve a 30 per cent reduction in its greenhouse gas emissions below 1990 levels by 2020, and 60 per cent below 1990 levels by 2030, without any significant lifestyle sacrifices, technological breakthroughs or massive investments in public transport.³⁷ Australian Treasury modelling shows that the difference between a 5 per cent target and a 25 per cent target for Australia is only 0.5 per cent of foregone GDP growth by 2020.³⁸

9.3.4 Australia has abundant renewable energy resources. We have a high level of technological capacity, a comparatively well-educated population and a comparatively strong institutional and governance system. We have more capacity than most in transitioning our economy and in seizing the opportunities that a new, low carbon economy creates. We cannot afford inadequate targets which fail to control warming or provide incentives for change. Nor can we afford continued protection of high polluting industries.

9.3.5 For these reasons, and taking into account Australia's high responsibility (per capita emissions) and high capability (relative wealth) to take action, Australia should adopt an emissions reduction target of at least 40 per cent below 1990 levels by 2020 and 95 per cent below 1990 levels by 2050. As stated above, the 2020 target underscores the need for immediate and urgent action by the current government.

9.4 Recommendation 7:

Australia should:

- (a) Commit to emissions reduction targets of at least 40 per cent below 1990 levels by 2020 and at least 95 per cent below 1990 levels by 2050.***
- (b) Ensure that its domestic greenhouse gas emissions peak no later than 2010.***
- (c) Support Pacific Islands' calls to keep warming to within 1.5 degrees Centigrade of pre-industrial temperatures, which would also be in line with Australia's national interest.***

36 UNFCCC, Total aggregate greenhouse gas emissions of individual Annex I Parties, 1990-2006 (excluding LULUCF), http://unfccc.int/ghg_data/ghg_data_unfccc/items/4146.php accessed 28/03/09

37 McKinsey & Company, (2008) "An Australian Cost Curve for Greenhouse Gas Reduction", McKinsey Australia Climate Change Initiative, February.

http://www.mckinsey.com/client-service/ccsi/pdf/Australian_Cost_Curve_for_GHG_Reduction.pdf

38 Australian Treasury Low Pollution Future Modelling, Summary, page 18, <http://www.treasury.gov.au/lowpollutionfuture/>