

A photograph of two young girls, likely from an African country, looking intently at a globe. The girl on the left is pointing at the globe, while the girl on the right looks on. They are both wearing traditional headwraps. The globe is a classic wooden globe with a map of the world. The background is dark, and the lighting is warm, highlighting the girls' faces and the globe.

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FROM THE LOCAL  
TO THE  
**GLOBAL**

KEY ISSUES IN DEVELOPMENT STUDIES

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## 7

# CLIMATE CHANGE AND DEVELOPMENT: WILL GROWTH END POVERTY, OR THE PLANET?

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It has been observed that when the term environment is mentioned, the logical response is, 'Are you a scientist, or are you an activist?' Either way, the politicians in both the rich and the poor nations have become cautious of both these creatures. Even the most well-intentioned individual in the environmental discourse gets sidetracked into this either/or conundrum. However, this debate has become a convenient stick to berate both those who make sense scientifically and those who acknowledge the need to go beyond science into the realm of activism and behavioural change.

There is a 66 per cent probability that the global environment will be affected by global warming, with only a 34 per cent chance that it may not have any effect at all. Despite the growing body of scientific evidence, the debate on climate change has become far more rhetorical and value-laden as it has evolved. There appears to be an alarming gap between our knowledge of the problem and our willingness to act to address it. Thus, despite interest-rate rises and with world recession and inflation looming large, the production of luxury commodities has still not abated, which suggests that important lifestyle changes have yet to be made. Ultimately, political one-upmanship is blurring the boundary between myth and reality. This chapter looks at the vexed issue of climate change and places the debate into the geography of human development.

### Consumption and Global Ecological Footprints: The *Disposable Agenda*

One of the challenges of climate change is the extent to which we are willing to consider the ecological footprints arising from our consumption patterns. If we continue to consume and demand apples from Spain, guavas from Africa and a year-round supply of seasonal vegetables and tomatoes, can we pontificate on global climate change? This is the *disposable agenda* which always rears its head when there is seemingly no crisis in the international context. *New Scientist* stated that '[a] bowl of cereal has the same carbon footprint as a 7-kilometre journey in a 4x4. A steak is equivalent to driving 30 kilometres. But the way we eat doesn't have to cost the earth'. The logical corollary of this analysis is that perhaps the only way to reduce carbon footprints is to go vegetarian (Trivedi 2008, p.30).

One recent report states that China has overtaken the United States of America (USA) as the world's 'biggest polluter' (*Times of India*, 15 April 2008). The main reason for this, it suggests, is that China puts its economy before the environment. According to a Chinese government spokesperson, its overriding priority in tackling climate change is to maintain economic development. Bangladesh, by contrast, faces a climate-change-related refugee crisis resulting from its increasing vulnerability to flooding in low-lying areas (*Times of India*, 14 April 2008). Indeed, climate change means less water and food for the poor in many countries in the developing world. Consequently we have to discern the pace at which climate change is taking place, and the frequency of extreme climatic events is one clear indicator of how global warming is impacting on the environment. Moreover, the poorest communities in the developing world are those most vulnerable to climate change and least well equipped to address the consequences of extreme events such as floods, droughts and failed food harvests.

The whole paradigm of development is based on the concept of prosperity and is measured by consumerism and excess. The concept of prosperity is based on the imposition of costs in order to pursue narrow consumeristic values and tendencies. The per

capita income of the richest individual is now 50 times that of the poorest. However, 200 years ago, this ratio was only 5 to 1. The Intergovernmental Panel on Climate Change (IPCC) in 2007 stated categorically that human activity was primarily responsible for climate change, and what the costs of inaction would be for the future. We can say with 90 per cent certainty that human emissions of greenhouse gases are responsible for warming the planet's surface. The IPCC's report states that climate change over the last 50 years has resulted in changes in frequency and/or intensity of extreme weather events:

- It is very likely that cold days, cold nights and frosts have become less frequent over most land areas, while hot days and hot nights have become more frequent.
- It is likely that heat waves have become more frequent over most land areas.
- It is likely that the frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) has increased over most areas.
- It is likely that the incidence of extreme high sea levels has increased at a broad range of sites worldwide since 1975. (IPCC 2007)

The Maldives, for example, are only about 2 metres above sea level, making them especially vulnerable to rising water levels. Similar scenarios pertain to the Male or Solomon Islands and even Bangladesh. Much of the environmental damage is irreversible, but at this stage in the process of dealing with the problem we are still at the basic point of trying to educate citizens about the environment and global warming.

The Stern Review (2006) has placed into perspective the enormity of the challenges that face the future of the human race. The debate generated by this report has been fairly heated and the deliberations have thrown up key questions amidst a plethora of evidence on climate change. Reactions range from pure speculation on the ethics of risk aversion (Yohe and Tol 2008, p.231) to criticising the inadequate documentation of numerous scientific

and social assumptions (Jensen and Webster 2007; Mendelsohn 2006; Nordhaus, Nyong and Kulindwa 2006; Pielke 2007; Tol 2006; and Yohe and Tol 2007). Some claim that perhaps Stern underestimated the impact of climate change (Neumayer 2007), while others firmly believe that human-induced climate change is a fabrication (Byatt et al. 2006; Carter et al. 2006). This latter idea seems to have resonated in specific conservative quarters in the debate on climate change, and both the sceptics and the pessimists seem prepared to disbelieve the overwhelming scientific evidence. The current consensus in the debate on climate change is that 'the Stern Review is right for the wrong reasons' (Yohe and Tol 2008, p.232). For his part, Stern (2006) argues that climate change could produce risks of major disruption to economic and social activity on a similar scale to those associated with wars and economic depressions. Therefore, critics of the Stern Report largely contend with the methods and assumptions of the review and not with its fundamental conclusions.

There is an overwhelming body of scientific evidence which suggests that climate change is a well-established phenomenon that requires specific, targeted attention and intervention. For example, one of the key factors associated with climate change is the increase in greenhouse gases caused by human activities. The established climate models have made it unequivocally clear that the current doubling of pre-industrial levels of greenhouse gases is likely to raise global mean temperatures between 2 and 5 degrees Celsius. Such a level of increases in greenhouse gases will be attained between 2030 and 2060. A warming of 5 degrees Celsius will be outside the current level of human experience, and the impact will adversely affect human activity in a manner not seen since the dark ages.

The key impact of climate change will be to accelerate warming by triggering the further release of greenhouse gases, leading to higher temperatures. The direct effect of this change will be that plants and soils will be incapable of soaking up carbon from the atmosphere – which will lead to the thawing of permafrost in the polar caps. This may cause a further 1–2 degrees of warming of the earth's atmosphere. Global warming will set in motion a

chain reaction which could disrupt the water cycle and create unseasonal droughts and floods. While higher latitudes will witness higher rainfall, regions with Mediterranean climates will see major droughts. This is already visible in regions such as southern Spain, north Africa and Cyprus, which has not received rainfall for more than three years. Increasing desertification will be the order of the day, as well as increasing frequency of floods, cyclones and hurricanes. Changes in the distribution of heat around the world will disrupt the ocean currents and atmospheric circulation, leading to large-scale disruptions in regional, local and international weather patterns. The melting of the ice sheets will cause a catastrophic rise in sea levels around the world. While science dictates the nature of economics, scientific evidence does not necessarily carry over into the societal response to emerging threats and risk perceptions. Climate change has been regarded as one of the externalities associated with growth.

### **How Climate Change will Affect People around the World**

According to the Stern Report climate change will threaten the basic elements of human life such as access to drinking water, food, health, the use of land – which has always been taken for granted – and the environment. A rise in average global temperatures of between 2 and 3 degrees Celsius would result in frequent droughts and floods. Melting glaciers would result in greater flood risks and interrupt the cycle of seasons that is critical for a biotic existence. This will have a drastic effect on the lives and livelihood of millions of people on the Asian continent who are dependent on agricultural production for their food. At the same time, declining crop yields will leave millions with food insecurity. Likewise, rising ocean acidification due to the higher concentration of carbon dioxide would decimate marine resources, which is part of our food chain cycle. A rise in sea temperatures of 3 to 4 degrees will increase the vulnerability of coastal zone populations from Bangladesh to small islands in the Pacific region, as well as major developed cities such as

Amsterdam, London, San Francisco and Venice. This would result in the permanent displacement of populations, with resulting pressures on governments. It is estimated that climate change will increase the probability of death due to malnutrition and will lead to an increase of vector-borne diseases such as cholera, malaria and dengue fever. At least 15–40 per cent of existing species will face imminent extinction due to global warming; and it will trigger abrupt shifts in the regional weather patterns of El Niño and the monsoons. There will be an increase in environmentally induced refugees, leading to greater geopolitical instability. Clarity over adaptation is critical for work on the impact of climate change, because large amounts of human adaptation could reduce the overall damage caused by climate change.

There are of course costs and implications of climate change for human development. The Stern Report recognises that climate change poses a real threat to the developing world, and without serious mitigation efforts this will become a major obstacle to any poverty reduction programme. Developing countries are most vulnerable to climate change, because the majority of these populations are dependent on the agricultural sector for survival. These countries have a lower adaptability capacity to climate change, with the recurrent cost of cyclones, hurricanes and floods amounting to 5 per cent of the GDP; and that factor is already present. Falling farm production will reduce the average income available to farmers, thus pushing them further below the poverty line. This will have a domino effect on their general security, including reduced access to health care and ultimately to a sustainable livelihood. Increasing poverty would result in 145–220 million more people in the developing world being made vulnerable to the effects of climate change and living below \$2 a day. The increasing instability of the global climate will impact negatively on local climate regimes, resulting in mass migration and exacerbating the potential for conflict. Climate-driven changes are immediate, and we are already seeing evidence of this around the world: for example, in ‘developed’ New Orleans or ‘developing’ Bangladesh and China. Drought and desertification add further to climate-induced shocks to stable populations around the world.

These risks place even greater premium on fostering growth and development to reduce the vulnerability of developing nations to the well-established impacts of climate change.

The big question remains – can we reverse the dire effects of climate change? Here we need to evaluate carefully the deployment of policies that will assist in adaptation to increasing vulnerability to climate change. Responsible mitigation is crucial to avoiding the severity of climate-change impact. Indeed climate change threatens the sustainability of developmental programmes designed to ameliorate the continued sufferings of the poor in the developing world, where ‘tropical geography has a substantial negative impact on output density and output per capita compared to temperate regions’ (Nordhaus, Nyong and Kulindwa 2006, pp.3510–17). Strategies to manage the risks and impacts of adverse climate change can, if not managed correctly, lock people into long-term poverty traps.

### The Impact of Climate Change

The impact of climate change on economic growth prospects and its implications for incomes and health are real. There is a real risk that climate change will have adverse implications for growth and development (Stern 2006, p.123). Income levels and economic growth will be adversely affected because of climate change, particularly with extreme climate variations across regions of the world. Lower levels of output and growth will result in higher levels of poverty. This will affect health and increase rates of mortality across poorer regions of the world. Moreover, extreme weather events can affect growth rates in developing countries. The adverse effect on factors of production will result in a catastrophic impact on the productivity of the agricultural sector, of the labour market, investments and available capital. Falling output and productivity in the agricultural sector will have major consequences across the global economy.

The current interdependence of agricultural products across the globe puts into perspective the consequences of climate change on both the developed and the developing worlds. Variability

in climate regimes, particularly rainfall change, can severely restrict the options available across the rural community, limiting livelihood and trade potential. Studies show that hydrological variability reduces gross domestic product (GDP) growth by close to 38 per cent and increases poverty by 25 per cent. Thus, slower economic growth would increase the incidence of poverty and associated mortality rates among children below the age of five years. Stern's illustrative, integrated assessment model of how climate change affects output and economic growth suggests that the mean cost of climate change to India and South East Asia, Africa, and the Middle East will be between 1.9 per cent and 2.5 per cent loss in GDP by 2100. These figures may be higher, depending on the extreme climate change scenario. As with all models, it is unlikely that the full cost of climate change will ever be known. In all, lower per capita expenditure on health, sanitation and education will limit the capacity of poor countries to meet the United Nations millennium development goals (MDGs) and their specific targets.

Other likely effects of climate change relate to the scarcity of resources, increase in desertification, higher incidence of droughts and floods, and rising sea levels, resulting in the major displacement of population from traditional habitats around the world. Examples of this displacement include environmental refugees in Bangladesh, sub-Saharan Africa and the Pacific Islands. There are already instances of islanders from the Maldives and Tuvalu seeking migration rights and land in Australia and India as collateral security against climate change. The income for this initiative is being financed from the earnings of their tourism industry. It is estimated that at least 200 million people live in coastal regions of South Asia, and rising temperatures would lead to increasing numbers of these people being pushed into extreme hunger and poverty and ultimately seeking to migrate to more secure areas. To prevent such a catastrophe, there have been calls for major investment to protect areas susceptible to rising sea levels, floods, etc. Projected lower outputs resulting from the global financial crisis will provide little incentive to governments

to provide investments on such a gigantic scale. For example, as Stern notes, 'a project to construct 8,000 kilometres (km) of river dykes in Bangladesh, a country with gross national income (GNI) of \$61 billion, is costing \$10 billion' (Stern 2006, p.129).

Furthermore, droughts, earthquakes and other forms of natural disasters could easily trigger conflicts and violence in the least expected parts of the world, let alone in those areas already susceptible to such violence. This could exacerbate religious, ethnic and political conflicts, which have been recognised as the breeding grounds for all forms of extremism in any given society. For example, adverse climatic conditions have fostered internal and international cross-border conflicts, especially in areas such as Darfur in Sudan. This is particularly problematic in areas which are not governed according to the principles of democracy and where resources are scarce. It is important to note that Stern does not attribute climate change as the single most contributory factor to increasing violence in nation states. Indeed, the risk of climate change affecting peace is far more probable in areas which are already poorly governed and suffering from political instability together with ethnic and religious tension. All developmental aspirations can be torn asunder by the challenges of mitigating and adapting to climate change.

Further research is needed to identify the links between climate change and conflict as well as other possible key implications such as gender inequalities, educational attainment and development, and health in poorer countries. It has been well established that increasing our dependence on biomass reduces the time available to study, both among children and adults. If we accept that endemic poverty makes developing countries more susceptible to climate change then it makes sense that facilitating an increase in economic growth and financial output will provide a bulwark in countering the threats posed. This is the only way to reduce vulnerability in developing countries to the inevitability of climate change. As Stern suggests, 'adaptation can only mute the effects and there are limits to what it can achieve' (Stern 2006, p.133).

### Troika of Stabilisation, Adaptation and Mitigation

Progressive responses to climate change call for dealing with the critical issues of stabilisation, adaptation and mitigation. The challenge of stabilisation relates to the fact that the higher the average global temperature, the higher the stable concentration of atmospheric carbon dioxide. Indeed, this still remains a black box in the IPCC prognosis, and the relationship between stabilisation levels and temperature remains conjectural and demands more empirical evidence. There is no doubting that carbon dioxide concentrations have risen by over one-third, from 280ppm (parts per million) in the pre-industrial era to 380ppm in 2005. The current concentration of carbon dioxide in the atmosphere accounts for around 70 per cent of the total warming effect on the planet. Stabilisation requires that annual emissions are brought down to the level that allows the earth's natural capacity to remove greenhouse gases from the atmosphere. Stabilisation calls for a concerted strategy, and action at a global level. Avoiding the risk of global warming also means reducing the costs of mitigation. However, a key question is how we reduce our dependence on high-carbon technologies. As the earth's natural capacity to absorb carbon weakens, this will make it far more difficult to achieve stabilisation. Delays in reducing emissions necessitate the implementation of increasingly more drastic measures for reducing global warming.

The important point to understand is that emissions can peak early and decline gradually and vice versa. Therefore delaying the peak in emissions from 2020 to 2030 would almost double the rate of reduction needed to stabilise at 550ppm of carbon dioxide. But paths requiring rapid cuts in emissions would not be economically viable in either the short or the long run. Historically one can identify major initiatives undertaken by countries to reduce emissions, including the adoption of nuclear power in France in the late 1970s; the Brazilian adoption of biofuels; the restoration of forest in China; the rush for gas in the United Kingdom; and the demise of the erstwhile Russian empire, which resulted in a reduction of emissions in the post-transition era.

Stabilisation of greenhouse gas concentration in the range of 450–550ppm CO<sub>2</sub>e (emissions) will require substantial action from both the developed and the developing worlds in terms of reducing emissions. Indeed, stabilising greenhouse emissions requires a portfolio of options that are technologically oriented and delivered across diverse sectors of the economy.

The costs of mitigation are critical too. All efforts to reduce greenhouse gases are sure to be expensive, including the cost of introducing low-emission technologies and the provision of switching from high-emission-intensive to low-emission-intensive goods and services. Reducing fossil fuel emissions means further costs in alternative forms of energy use. The use of variant pricing mechanisms to cut demand for high carbon, emission-intensive goods and services are also part of the costs of mitigation. Here efficiency gains are a way forward, both to save money and to reduce emissions in the long run. The uptake of efficient technologies will go a long way towards reducing emissions, and a portfolio of technologies will be necessary. Mitigation costs will vary according to how and when the emissions take place. Low-carbon technologies will engage with on- and offshore wind capture technology; wave and tidal energy projects; solar energy technology; carbon capture and storage for electricity generation; production of hydrogen for heat and transport fuels; nuclear power; hydroelectric power; expansion of bioenergy from afforestation, crop and organic wastes; decentralised power generation; and hybrid and electric vehicle technology (with electricity generated using low-carbon technologies).

It can be stated with some confidence that the cost of mitigation will have differential impacts across regions of the world and across varying sectors. The structural adjustments required for climate change will be far more immediate, costly and painful than has been the case with economic adjustments to meet trade deficits. Thus regions which do not have specific policies and regulations in place to deal with climate change will see the migration of carbon-intensive activities into their territory, thereby placing enormous social, economic and political costs on the inhabitants in the region. The possibility of endorsing a

quantitative global stabilisation target to reduce greenhouse gases is an effective risk-reduction policy. In the short term, the use of pricing instruments as a signal calls for tax options to keep a check on the cost of mitigation; tax policies, tradable quotas and regulations can play a more constructive role in the harnessing of markets for mitigation. Another way forward is to accelerate technological innovation to tackle climate change at a global, regional and local level.

### Understanding the Economics of Adaptation

Adaptation to climate change is also critical to dealing with its unavoidable impact. This is particularly important for designing key policies in the developing world. However, it is important to recognise that adaptation in itself cannot resolve the climate change problem. It is possible to limit the negative impact of irrevocable change and, indeed, it is crucial to realise that without the establishment of strong and early mitigation, the costs of adaptation will rise exponentially. The speed of adaptation will likely vary across diverse species within the ecosystem. Strong public policy will go a long way in realising adaptation as well as mitigation targets. In fact adaptation will be *the* key response to reducing and managing vulnerability to climate change.

An understanding of the clear imperatives for adaptation in the developing world is critical in the context of climate change. In this respect, as the Stern report makes clear, 'development itself is key to adaptation'. Such adaptation should be an extension of good development practice and reduced vulnerability, by promoting growth and diversification of economic activity; by encouraging investment in health and education; by making greater efforts in enhancing resilience to disasters and improving disaster management practices; and, finally, by recognising the need for risk pooling and defining safety nets for the poorest. All of these measures require clearly defined policy frameworks to govern the task of effective adaptation by households, communities and firms. Focused and targeted developmental policies will help deal with issues of endemic and aggravated poverty. At any rate,

adaptation actions need to be firmly embedded into development policy and planning principles.

One of the ways forward to deal with the impending consequences of climate change is to support the transition to a low-carbon economy. This calls for increased investment in energy efficiency to counter unchecked growth in demand. The transfer of technology to the poorer countries is possible with the assistance of greater international co-operation. Incentivisation to participate in efficient, low-carbon technologies will go a long way towards prioritising development options, thereby enhancing mitigation policies, which include energy security and improved air quality. There is no substitute for international support towards adaptation.

### Conclusion

Climate change is irreversible and ignoring it is not a viable option. Indeed the cost of inaction would be far higher than the costs of adaptation. To mitigate the consequences of climate change, integrated global action is demanded. Given that the costs of adaptation will increase as the years go by, there is an imperative for greater co-operation between the rich and the poorer countries. Ultimately, there is no easy alternative to adaptation as a means of dealing with the impact of climate change. However, adaptation costs are hard to estimate, largely because of the uncertainties associated with the delineation of the precise impact of climate change. It is now essential to take measures to strengthen adaptation and develop a high-quality information base promoting the impacts of climate change – including vulnerability assessments at all levels and scales. Improving governance by actively involving civil society and strategically working to increase the resilience of livelihoods and infrastructure are critical in this regard. Success in dealing with climate change is possible only by integrating climate change policies at the national, sub-national and sectoral levels. This represents a considerable challenge, particularly when disposable resources are scarce in the developing world.

Mainstreaming adaptation principles to all policy agendas is going to be a major challenge for both the developing and the developed worlds. How do we protect the resilience of natural systems to support the livelihoods of millions of poor communities living in fragile ecological zones? Whereas mitigation is largely a short-term measure, adaptation encompasses a long-term approach in dealing with the impact of climate change. Lack of concerted mitigation efforts will jeopardise the possibilities of adaptation. We need to recognise that the poorer countries are the hardest hit in terms of the impact of climate change, though they have contributed the least to the problem in the first place. Communities in the developing regions of the world with the least draw on environmental capital are those which perform worst in developmental terms, with high proportions of their population lacking safe and sufficient water, sanitation, good quality housing, access to health care, secure livelihoods and basic civil and political rights. The priorities for development that is sustainable will vary depending on the use of resources.

Preventative measures are only effective if we understand the impact of our actions and our role in maintaining the ecological balance of the planet. This is where education for sustainable development (ESD) has a major role to play. Development education, environmental education and ESD have real potential to engage with the public on both environmental and sustainability issues as well as those concerning social welfare and development – such as food security and poverty alleviation. These agents of education can provide a starting point for engaging the general population on the question of climate change. Mahatma Gandhi was once asked by a British reporter: ‘Mr. Gandhi, wouldn’t you want India to reach the same level of prosperity that Britain has attained?’ His answer then was very simple but at the same time very profound. He said: ‘Well it took Britain conquering half this planet to reach its level of affluence. How many planets would India have to conquer to reach the same level of prosperity?’ Ultimately, the starting point in addressing climate

change is the action of taking responsibility for our planet and our vulnerable peoples.

## References

- Byatt, I. et al. (2006) 'The Stern Review: A Dual Critique – Economic Aspects', *World Economics*, vol.7, no.4, pp.199–229.
- Carter, R.M. et al. (2006) 'The Stern Review: A Dual Critique – The Science', *World Economics*, vol.7, no.4, pp.167–198.
- IPPC (2007) 'Climate Change: Synthesis Report'. [www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf)
- Jensen, P.H. and E. Webster (2007) 'Is Stern Correct? Does Climate Change Require Policy Intervention?' *Australian Economic Review*, vol.40, no.4, pp.421–31.
- Mendelsohn, R.O. (2006) 'A Critique of the Stern Report', *Regulation*, Winter, pp.42–6.
- Neumayer, E. (2007) 'A Missed Opportunity: The Stern Review on Climate Change Fails to Tackle the Issue of Non-sustainable Loss of Natural Capital', *Global Environmental Change*, vol.17, pp.297–301.
- Nordhaus, J.C., A. Nyong and K. Kulindwa (2006) 'Geography and Macroeconomics: New Data and New Findings', *PNAS*, vol.103, no.10, pp.3510–17.
- Pielke, R.A. (2007) 'Mistreatment of the Economic Impacts of Extreme Events in the Stern Review Report on the Economics of Climate Change', *Global Environmental Change*, vol.17, pp.302–10.
- Stern, N. (2006) *The Economics of Climate Change: The Stern Review*, Cambridge University Press, Cambridge.
- Tol, R.S.J. (2006) 'The Stern Review of the Economics of Climate Change: A Comment', *Energy Environment*, vol.17, no.6, pp.977–81.
- Trivedi, B. (2008) 'Dinner's Dirty Secret', *New Scientist*, 13 September, pp.28–32.
- Yohe, G.W. and R.S.J. Tol (2007) 'The Stern Review: Implications for Climate change', *Environment*, vol.49, no.2, pp.36–42.
- Yohe, G.W. and R.S.J. Tol (2008) 'The Stern Review and the Economics of Climate Change: An Editorial Essay', *Climate Change*, vol.89, pp.231–40.

## Websites

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| Climate Neutral Network | <a href="http://www.climateneutral.unep.org">www.climateneutral.unep.org</a>  |
| Europa                  | <a href="http://ec.europa.eu/environment/climat/home_en.htm">http://ec.europa.eu/environment/climat/home_en.htm</a> |

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