CENTRE FOR ABORIGINAL ECONOMIC POLICY RESEARCH



Impact of Climate Change on Indigenous Australians: Submission to the Garnaut Climate Change Review

J.C. Altman & K. Jordan

CAEPR Topical Issue No. 3/2008



ANU COLLEGE OF ARTS & SOCIAL SCIENCES

Enquiries should be directed to:

Jon Altman Centre for Aboriginal Economic Policy Research Australian National University Canberra ACT 0200 Email: jon.altman@anu.edu.au Phone: +61 2 6125 2858 Fax: +61 2 6125 2789

Kirrily Jordan Centre for Aboriginal Economic Policy Research Australian National University Canberra ACT 0200 Email: kirrily.jordan@anu.edu.au Phone: +61 2 6125 8509 Fax: +61 2 6125 2789



PROFESSOR JON ALTMAN DIRECTOR Centre for Aboriginal Economic Policy Research Hanna Neumann Building 021 ACT Australia 0200

T: +61 2 6125 2858 F: +61 2 6125 9730 E: Jon.Altman@anu.edu.au

Professor Ross Garnaut Garnaut Review Secretariat Level 2, 1 Treasury Place Melbourne VIC 3002

Dear Professor Garnaut

Please find attached a brief submission 'Impact of Climate Change on Indigenous Australians' prepared by Ms Kirrily Jordan and myself.

This submission is based on some very preliminary and comparative research that is just beginning at the Centre for Aboriginal Economic Policy Research (CAEPR) at ANU. By way of background, CAEPR is a research centre that has been at ANU since 1990. Our role is to contribute to better outcomes for indigenous Australians by engaging in constructive academic and public policy debates based on evidence-based and innovative research. (I will send you a hard copy of our latest annual report (available at: http://www.anu.edu.au/caepr/AnnualReport2007.pdf) under separate cover.

Clearly any proposed assessment of the future impacts of climate change on Indigenous Australians as a subpopulation currently lacks evidence and this is something we will be looking to establish. Our submission though is largely informed by a project completed in 2007 *The environmental significance of the Indigenous estate: Natural resource management as economic development in remote Australia* (available at: <u>http://www.anu.edu.au/caepr/Publications/DP/2007_DP286.pdf</u>) that I will also send to your review in hard copy. This research highlighted that Indigenous Australians now own over 20 per cent of the continent under a number of different forms of tenure; much of this Indigenous estate is in relatively intact environmental condition and has high biodiversity value. While we term our submission 'Impact of Climate Change on Indigenous Australians' highlighting some of the potential costs of climate change to this sub-population, we also note some of the positive contributions that Indigenous Australians might make to ameliorate anthropomorphic causes of global warming. My main aim in providing this contextualising cover letter is to emphasise that this submission is based on some very preliminary research and is submitted to meet your deadline rather than to reflect any finality of view. Nevertheless we believe that at a time when reducing the glaring socioeconomic disparities between Indigenous and other Australians is a high national priority, it is important to include Indigenous Australians as an important and distinct interest group in any climate change mitigation proposals. It would be unfortunate indeed if an unintended consequence of new climate change policy were to further disadvantage Indigenous Australians.

Yours sincerely

don Call

Professor Jon Altman 11 April 2008

Impact of Climate Change on Indigenous Australians: Submission to the Garnaut Climate Change Review

Jon Altman and Kirrily Jordan Centre for Aboriginal Economic Policy Research The Australian National University

Summary of submission

This submission highlights that Indigenous Australians might be especially vulnerable to climate change owing to the geographic distribution of the population and to the location of the vast Indigenous-owned estate. The nature of Indigenous 'hybrid' economies, especially in remote regions, where there is a heavy reliance on customary (or non-market) livelihood activity might also result in additional livelihood hardship. Some of the impacts of cutting carbon emissions might impact on Indigenous people inequitably but available mechanisms to provide compensation to them as low income earners (e.g. via the tax system) might prove ineffective.

On the other hand, given that Indigenous people now own or enjoy exclusive possession to an estimated 20 per cent of the Australian continent under land rights and native title laws, there are potential opportunities in emerging carbon markets where comparative advantage might be enjoyed.

In preparing this submission we are acutely conscious that Australia seems to be lagging behind other developed nations in assessing the possible unequal burden of climate change on Indigenous people. An example is the report *African Americans and Climate Change: An Unequal Burden* published by the The Congressional Black Caucus Foundation nearly four years ago. In this submission we have attempted to raise a number of issues that we believe are worthy of consideration by the Garnaut Climate Change Review. But we are also aware that it is incumbent on the Australian research community, including CAEPR, to address some of the under-researched issues raised more thoroughly and perhaps allow an analysis of both the costs and the benefits that might result from climate change.

Introduction

The terms of reference for the Garnaut Climate Change Review identify the regional, sectoral and distributional implications of climate change and policies to mitigate climate change as core issues for consideration.

This brief submission focuses on the regional and distributional implications of climate change on Indigenous Australians. Are Indigenous Australians more vulnerable than other Australians, and why?

The submission also examines, in a preliminary way, some of the regional and distributional implications of policies to mitigate climate change, in particular the Emissions Trading Scheme and carbon trading.

Impact of Climate Change on Indigenous Australians

There is little research in Australia about these two issues in relation to the Indigenous sub-population, so much of the material referred to here is drawn from a select survey of the international literature that focus on similar issues. We weave together international comparative and some Australian material in our discussions and conclude with some preliminary ideas for future research.

Regional and distributional implications of climate change: Are Indigenous Australians more vulnerable than other Australians, and why?

The World Conservation Union (IUCN) has developed a 'framework for vulnerability' to climate change (Macchi 2008: 15–22). This draws on and is broadly consistent with the concept of vulnerability as proposed by the Intergovernmental Panel on Climate Change. The IUCN suggests that vulnerability incorporates both biophysical and social vulnerability. Biophysical vulnerability factors include: location of residence; exposure to extreme events; availability of natural resources; housing quality; and land use and land cover change. Social vulnerability factors include: poverty and inequality; health and nutrition; marginalisation from power, information and technology; and land tenure and access rights.

Location of residence and exposure to extreme events

The IUCN notes that 'Indigenous and traditional peoples often live in physically isolated, fragile and harsh environments' (Macchi 2008: 21). It suggests that these environments may be 'especially vulnerable to environmental change due to their latitude, topography, distance from the sea, soil's quality etc' (Macchi 2008: 21).

In Australia, the majority of the Indigenous population lives in major cities and regional areas, with just over 25 per cent living in remote and very remote areas (Taylor 2006). Very remote areas make up almost 75 per cent of the Australian land mass (Altman et al. 2007). In total, around 45 per cent of the population of very remote Australia is Indigenous, with the proportion varying significantly by State and Territory. For example, 70 per cent of the non-urban population of the Northern Territory is Indigenous (Altman et al. 2007: 4). When the main mining and service towns are excluded, 'Indigenous people are by far the majority' across very remote Australia (Taylor 2006: 5). Around 85 per cent of the coastline of the Northern Territory is Aboriginal-owned (Altman et al. 2007: 33). Australia's Torres Strait Islands, some with coastlines less than one metre above sea-level and others with interiors below sea-level, are home to around 8,000, mostly Indigenous, residents (McLucas 2006: 1).

While there is still considerable uncertainty about the precise regional implications of climate change, it is predicted that there will be an altered 'type, frequency and intensity of extreme events' such as heat waves, floods, droughts, precipitation events, and tropical cyclones (Macchi 2008: 19). In Australia, while it is expected that the continent as a whole will get hotter, temperatures are expected to rise by 2 degrees more inland than on the coast (Dunlop and Brown 2008: 148). Rainfall events are expected to be more intense and large storms and cyclones more severe, 'with higher winds, causing more damage, flooding and coastal inundation' (Dunlop and Brown 2008: 149). Rising sea levels will inundate some coastal regions (Dunlop and Brown 2008: 149).

Indigenous communities, particularly those living in remote interior or low-lying coastal areas may be particularly adversely affected by these changes. For example, Indigenous communities on Australia's northern coasts are expected to face increased storm disturbance and coastal inundation (Dunlop and Brown 2008: 159). Sea level changes may have severe consequences for those in the Torres Strait (Hennessy et al. 2007: 522). These problems may be compounded by the limited resources available to remote communities in responding to and preparing for extreme climatic events. Recent evidence from cyclones like Severe Tropical Cyclone Monica that devastated the town of Maningrida, coastal Arnhem Land in April 2006 suggests that emergency response can be slow.

Land use and land cover change and availability of natural resources

Climate change is expected to have profound and far-reaching consequences for biodiversity. The Millennium Ecosystem Assessment (2005) suggests it will be the main driver of global biodiversity loss by the end of the century. According to the *National Biodiversity and Climate Action Plan 2004–2007* (NRMMC 2004), climate change will significantly effect the distribution of species in Australia, with 'changes in pollination of plant species, timing of reproduction and migration events' and an 'increase in the frequency of pest and disease outbreaks as well as wildfires'. Both native and exotic plant species may move into new areas, with 'previously benign species possibly becoming invasive' (Dunlop and Brown 2008: 150).

Australia as a whole is expected to get hotter and drier. Combined with an increase in evaporation, the flow rates of many river systems may be significantly reduced (Dunlop and Brown 2008: 148). Water use in drier areas is expected to increase the stress on tropical rivers in Indigenous-owned land in northern Australia (Altman et al. 2007: 34). Northern Australia is also expected to face increased heat stress, increased rainfall in the wet season and salt intrusion in mangroves, coastal wetlands and flood plains (Dunlop and Brown 2008: 159). Across Australia, the combined impacts of climate change may be dramatic, with many vulnerable species facing increased risk of extinction and patterns of biodiversity changing over relatively short timeframes (Altman et al. 2007: 33).

These changes may cause particular problems for Indigenous communities. For example, particularly in remote and very remote areas, Indigenous people may be highly reliant on natural resources for their livelihoods. Altman et al. (2006: 144) analysed National Aboriginal and Torres Strait Islander Social Survey (NATSISS) 2002 data and showed that over 80 per cent of adults living in discrete Indigenous communities fished or hunted for livelihood. Returns from wildlife harvesting are not reflected in standard social indicators because they are 'non market' but clearly loss of access to resources could further impoverish Indigenous people. As primary research undertaken by Gray et al. (2005) indicates, while utilization of wildlife for livelihood is more common in remote Australia, it can also be of economic significance in more settled regions like coastal New South Wales. Indigenous people also rely on natural resources for their cash income, as in the case of commercial farming of native foods or art and craft industries that rely on native plants as materials (see, for example, Altman and Whitehead 2003). Using NATSISS data, Altman et al. (2006: 146) show that just on 10 per cent of all Indigenous adults in remote Australia participated in arts and crafts activities on a commercial basis. Whether in remote or urban areas, the natural environment may also form an important part of Indigenous peoples' culture and spirituality (Hennessy et al. 2007: 522; Macchi 2008).

The IUCN notes that changes to land cover and biodiversity caused by climate change could force Indigenous and traditional peoples to 'alter their traditional ecosystem

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management systems' and, in the extreme, 'eventually lead to a loss of their traditional habitats and along with it their cultural heritage' (Macchi 2008: 22). This may be more likely to occur in remote and very remote communities: recent evidence suggests that environmental threats can be exacerbated where there are too few people to respond to the changes through active land management (Altman et al. 2007: 34). The small population of Indigenous communities scattered throughout the vast Indigenous estate indicate that this could be an issue: there are 1,200 discrete Indigenous communities on Indigenous-owned land in Australia, with 1,000 having populations of under 100 people (Altman et al. 2007: 4).

Housing quality, poverty and inequality, and health and nutrition

The disproportionate effects of climate change on socio-economically disadvantaged groups have been studied in relation to African Americans (see Redefining Progress 2004). A similar situation is to be expected for Indigenous Australians, with a poor socio-economic position likely to compound the adverse effects of climate change on health and wellbeing. For example, poor quality housing may increase the level of risk from extreme climatic events and changes in temperature and rainfall. Indigenous people with poor health and nutrition will have a lower adaptive capacity to climate change than healthy individuals and communities (Hennessy et al. 2007: 522; Macchi 2008: 16). The increasing temperatures and greater number of days of extreme heat predicted for remote Indigenous communities may increase heat stress as well as the spread of infectious diseases (Hennessy et al. 2007: 523). These effects may be compounded by limited access to appropriate health services in remote areas (Macchi 2008: 16). Changes in climate, such as sea level rises or increases in temperature, may also undermine social and cultural cohesion in affected communities (Hennessy et al. 2007: 522).

The disadvantaged socio-economic position of Indigenous Australians is well recognised. In the Council of Australian Governments' 2007 *Overcoming Indigenous Disadvantage: Key Indicators* (OID) report, Indigenous Australians were shown to fare worse than non-Indigenous Australians on almost every headline indicator. The report found that Indigenous Australians have lower life expectancies, higher infant mortality rates, lower rates of education, employment, and homeownership, and higher rates of incarceration, chronic disease and disability. It also found that Indigenous Australians suffer a higher incidence of diseases associated with poor environmental health, such as asthma, scabies, influenza and pneumonia (ABS 2008).

Marginalisation from power, information and technology

Many Indigenous Australian communities, particularly those in remote and very remotes areas, have limited access to information and technology, as well as to appropriate education and health care facilities. There has been heightened national awareness of such shortfalls in the aftermath of the Howard government's Northern Territory National Emergency Intervention from June 2007. Such shortfalls will increase the risks associated with climate change and associated extreme climatic events. For example, isolated communities may have limited infrastructure and limited support from technologies such as early warning systems and improved building strategies (Macchi 2008: 18). Evacuation strategies may be logistically difficult owing to poor communications infrastructure, including poor seasonal overland access or absence of all weather airstrips.

Land tenure and access rights

In areas hardest hit by climate change there may be 'forced or involuntary migration' (Macchi 2008: 21). For example, those in remote or rural areas may be forced to migrate to urban centres. Those living on low-lying islands or coastal zones may be relocated to the mainland or to higher ground. The *Fourth Assessment Report of the Intergovernmental Panel on Climate Change* found that the displacement of Torres Strait Islanders to mainland Australia is likely (Hennessy et al. 2007: 522).

There has been considerable public debate in recent years about the viability of remote Indigenous communities. What is often not recognized in such debates is that some Aboriginal groups have occupied their traditional lands without interruption since pre-colonial times. In such situations, relocation might cause major economic, social, cultural and even psychological damage. In other situations, Indigenous groups have fought long and hard for land and/or native title rights and the associated right to live on their traditional lands. For these groups forced relocations may also have very negative repercussions.

Regional and distributional implications of policies to mitigate climate change: Are Indigenous Australians more adversely affected and why?

The IUCN's 'framework for vulnerability' to climate change includes a system's adaptability to the changes, such as its capacity to 'moderate potential damages, to take advantage of opportunities, or to cope with consequences' (Macchi 2008: 15). Some of the consequences of climate change will be the policies designed to mitigate its effects. These may impact Indigenous Australians in diverse ways. For example, Indigenous Australians may be disproportionately affected by the Emissions Trading Scheme and cutting carbon emissions. On the other hand, some Indigenous communities may find opportunities in carbon trading and biodiversity credits.

Inequitable impacts of the Emissions Trading Scheme (ETS) and cutting carbon emissions

The *Emissions Trading Scheme Discussion Paper* of the Garnaut Climate Change Review identifies that an ETS with a 'permit price that is high enough to secure levels of emissions within targets and budgets will have major effects on income distribution', with low-income households being among the hardest hit (Garnaut Climate Change Review 2008: 6). R. Henderson (2008: 3) argues that the costs faced by businesses in cutting carbon emissions will be passed on to consumers, particularly if they cannot claim tax deductability for expenditures designed to reduce emissions. Stanford (2008) suggests that the costs of emissions cuts will be most felt by lowincome households, particularly through rising household energy and petrol costs (2008: 4).

Indigenous Australians are disproportionately represented among Australia's lowincome households (see Hunter 2006). Where policies to mitigate the effects of climate change have adverse impacts on economic inequality, the low socio-economic position of Indigenous Australians will be exacerbated. Unfortunately, key Australian Bureau of Statistics surveys like the Household Expenditure Survey do not have an Indigenous identifier so it may be difficult to accurately estimate the impacts of likely higher prices for household energy and petrol costs on Indigenous households.

Opportunities in carbon trading and biodiversity credits

Some Indigenous communities may be able to take advantage of opportunities in carbon trading and biodiversity credits when and if trading schemes for such new forms of property emerge. For example, the West Arnhem Land Fire Abatement (WALFA) project is a commercial agreement based on customary knowledge of fire management that produces a tradable carbon offset (Altman et al. 2007; ATSISJC 2007). It is the first such agreement worldwide (P. Henderson 2008). The WALFA project is a partnership between traditional owners of western Arnhem Land, the Northern Land Council, fire ecologists, five Aboriginal community-based ranger groups and the energy company Darwin Liquefied Natural Gas Pty Ltd (DLNG). DLNG is a subsidiary of the multinational company Conoco-Phillips. WALFA is a 17 year agreement, with DLNG committing \$1 million per annum over the period (Altman et al. 2007: 42; ATSISJC 2007: Chapter 12).

Bushfires are the source of around half of the greenhouse gas emissions of the Northern Territory (Altman et al. 2007: 34). The WALFA project aims to reduce wildfires in the Arnhem Land Plateau by 'creating fire breaks and patchy mosaics of burnt country', strategies that are reliant on both Indigenous knowledge and western technology (Altman et al. 2007: 43). Strategic burning is carried out in the early dryseason, when fires are lower intensity and limit the damage to the upper canopy. This prevents the spread of more intense and highly polluting fires in the late dry-season and reduces the total amount of land burnt and greenhouse gases emitted (ATSISJC 2007: 261).

WALFA has an abatement target of 100,000 tonnes per year and in its first two years has abated an estimated 256,000 tonnes of carbon (Altman et al. 2007: 43). It also provides an opportunity for economic development for Indigenous communities. It has provided employment for 30 Indigenous Australians from the five Aboriginal communities involved in the partnership (Altman et al. 2007: 42; ATSISJC 2007: 266). As the recent *Native Title Report 2007* suggests, many remote Indigenous communities face a lack of 'culturally appropriate' employment opportunities (ATSISJC 2007: 271). WALFA is one example of a successful project that 'fits perfectly into the remote communities that it engages with because it represents commercial opportunities from carrying out the cultural activity of fire management' (ATSISJC 2007: 271).

Similar schemes could be developed elsewhere on the Indigenous-owned estate, with particular opportunities in the fire-prone tropical savannas along Australia's north coast (Altman et al. 2007: 43). The *Fourth Assessment Report of the Intergovernmental Panel on Climate Change* acknowledged that Indigenous knowledge about climate change events in the past could be an 'untapped resource' in developing additional adaption strategies (Hennessy et al. 2007: 523).

There will be other types of opportunities such as feral animal management (to reduce methane emissions), carbon sequestration (tree planting) and geo-sequestration that might arise on the 1.5 million sq km Indigenous estate.

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