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## **Climate Change and Security: The Test for Australia and Indonesia – Involvement or Indifference?**

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## **Synopsis**

Allan Behm from the Canberra security consultancy firm Knowledge Pond writes that “the geophysical and ecological forces that are currently (re)shaping the physical environment add another layer of complexity to the political and economic forces that have hitherto determined the longer-term strategic prospects of Indonesia and Australia. How competently – and proactively – Indonesia and Australia deal with this complexity, inter alia, will largely determine the vitality of the bilateral strategic relationship over the next four decades or so.” Behm argues that if “climate change is inherently non-linear, changes in the strategic environment are inherently discontinuous.” After setting out integrated policy recommendations at national, bilateral, regional and global levels, Behm concludes by stressing the need for “a diplomatic and scientific strategy that deals with the issue proactively. To address the consequences of climate change in a piecemeal and reactive manner would almost certainly create the pre-conditions for misunderstanding and consequent miscalculation.”

## **About the Author**

Allan Behm is a director of Knowledge Pond, an international group advising on strategy and risk, and a former head of the International Policy and Strategy Divisions of the Department of Defence.

## Introduction

Geography, and history to an extent, inextricably links the strategic futures of Australia and Indonesia. This is not simply a question of proximity, though that has its own consequences. Rather, it is the fact that the geophysical and ecological forces that are currently (re)shaping the physical environment add another layer of complexity to the political and economic forces that have hitherto determined the longer-term strategic prospects of both countries. How competently – and proactively – Indonesia and Australia deal with this complexity, *inter alia*, will largely determine the vitality of the bilateral strategic relationship over the next four decades or so. And if the past is anything to go by, the governments of both countries will need to embark on a quantum change in relationship management if the consequences of uncertainty are to be managed effectively.

Climate change is multi-dimensional and multi-factorial. It is an issue the boundaries of which are unknown, and possibly unknowable. It is an issue the dynamics of which are not understood, and are possibly not understandable. Consequently, enormous complexity stands in the way of robust, evidence-based and quantitative analysis that should, *ceteris paribus*, provide the basis for the forecasting of effects and the development of appropriate management strategies. Hitherto, many of the studies, essays and monographs on the potential effects of climate change have drawn on qualitative assessment rather than quantitative analytical techniques. That fact simply reflects the enormous variability of the data sets, the breadth of the data fields, and the fact that data and analyses that appear to deal with the same problem are often methodologically quite different, and hence cannot be fused into a single conclusion. This may suggest that the process best suited to the long-term evaluation of climate change effects is stochastic rather than deterministic. Even Professor Ross Garnaut's groundbreaking study<sup>1</sup>, which is probably the best source document for Australian policy development in the field of climate change, was not able to produce a fully integrated picture due to the variability of the data, the differences in sampling and methods, statistical variability, and so on. This is not to doubt the usefulness of the review, or the validity of its recommendations. It is simply to note that the problem is extremely complex and multi-dimensional, and that the scientific data does not yet capture the whole of the problem.

At this point, it is not possible to predict the vectors along which climate change might generate impacts, even less to identify the sorts of inter-dimensional interactions that might distinguish an altogether new form of complexity. But a sense of the scale of the problem can be derived from the table at Annex 1 to this paper, where a range of possible climate scenarios are set out indicatively, and a range of human security and national security consequences identified. This table is both informative and disturbing.

## Non-linearity and Discontinuity

In any consideration of the relationship between climate change and security, it is particularly important to recognize the non-linear nature of climate change and the fundamental discontinuities that characterise both climate change and security. While, at first glance, this might appear to be an attempt to define a state of being by

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<sup>1</sup> Cf *The Garnaut Climate Change Review: Final Report* (Melbourne: Cambridge University Press, 2008) at [www.garnautreview.org.au](http://www.garnautreview.org.au)

what it is not (i.e., linear and/or continuous), it in fact discloses a critical property of the climate change/security problem: none of the many variables are homogeneous, they are to varying degrees different, and none of them can be replaced by an alternative value that might allow the problem to be reduced to a summation of factors or effects. In other words, the “lumpiness” problem cannot be evened out or the problem resolved by associating effects with causes. For the fact is that any given effect will always have a variety of causes, but not necessarily always the same ones and not necessarily in concert.

If climate change is inherently non-linear, changes in the strategic environment are inherently discontinuous. The factors that contribute to any nation’s strategic outlook are so variable and so random in their mutual effects that robust projections and confident predictions are not possible. While some of the issues that establish the boundaries of strategic change can be identified with some reliability (e.g. population and demographic change, economic growth models and military capability projections), the fact is that the strategic and security environment is more a function of policy settings and political decision-making than of more “objective” factors.

## **Climate Change and Security: Analytical Tools**

The past three decades have seen the development of a range of new analytical tools that provide some assistance in dealing with non-linear and discontinuous events. None of these tools are deterministic, and few are capable of incorporating quantitative analysis to any real effect. Some appear to rely heavily on subjective judgments and assertions supported by a quasi-systematic “sampling” of a field of more or less “informed” correspondents – a kind of opinion polling that may have some utility in forecasting the result of political elections (where it is assumed that inherent biases mutually cancel each other), but are of more doubtful utility where the product is little more than trawling through the collective ignorance.

For this reason, there are varying degrees of confidence in the various landmark studies and essays on the effects of climate change, or on the potential security implications of climate change. While some of these studies reach somewhat more extreme (and/or alarmist) conclusions than others, the problem seems to rest less with the methodologies employed than with the way those methodologies are used. Most of them use a form of scenario-based analysis derived from the work conducted by Shell in the late 60s. So, for example, Peter Schwartz and Doug Randall, in their groundbreaking essay *An Abrupt Climate Change Scenario and Its Implications for United States National Security*, posit an “unthinkable” scenario in order to examine a range of possible preparedness and capability consequences for the US.<sup>2</sup> The focus of their analysis is plausibility rather than likelihood. While some of their conclusions, at this juncture at least, appear to be more pessimistic than current circumstances might warrant, the effect of their study was both to identify a gap in US planning and to pose a set of questions that US defence planners might need to answer.

In this sense, at least, the utility of scenario-based planning is less a function of whether the answers it provides are right than a function of whether the questions it exposes are right. For the inevitable fact is that one cannot plan for what one has not yet conceived or considered. But, over the past two decades, there have been

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<sup>2</sup> Peter Schwartz and Doug Randall, *An Abrupt Climate Change Scenario and Its Implications for United States National Security*, October 2003, at [www.earthscape.org/p1/ES16399/](http://www.earthscape.org/p1/ES16399/)

important advances in the development of more systematic and disciplined approaches to long-term planning. In a particularly thoughtful study conducted in 1996, Paul Davis and Zalmay Khalilzad of the RAND Corporation reviewed the various analytical and planning models then available, and concluded that it is important that the methodologies chosen be “fit for purpose”.

Strategic planning methods [are] a package with different methods for different purposes. We see right-brain exercises in creative divergent thinking as crucial in the formation of strategy (e.g., Uncertainty Sensitive Planning). We see a different set of methods (Objective-Based Planning with some features from Mission-Pull Planning) as essential for providing structure and managerial priorities. We see still other methods (e.g., the Concept Action Groups) as well suited to turning broad strategies and priorities into down-to-earth system concepts that can be used to define acquisition strategies, programs, doctrinal change, and so on. We see Adaptive Planning (capabilities-based planning) as the method of choice for making resource-allocation decisions across programs.<sup>3</sup>

While the focus of the work of Davis and Khalilzad is clearly on defence and security planning, their observations are relevant to all spheres of planning where uncertainty is the dominant element. It is interesting to note that, in an earlier study, Davis had already identified three critical phases in the development of “grand strategy” that need to be developed and implemented in combination: environment shaping; deterrence (that is, constraints upon unacceptable outcomes); and contingency management (that is, response to and management of events as they occur).<sup>4</sup>

Davis has taken his work considerably further, into what may offer those who wish to analyse the extended effects of climate change the most robust analytical model to date. With his co-authors, Davis postulates the *Massive Scenario Generation* model as providing a more reliable (or perhaps more credible) method for dealing with convergent and divergent approaches to multi-dimensional problems in which uncertainty is inherent.<sup>5</sup> Of course, while considerable provision still has to be allowed for “structural uncertainty” (the unknown unknowns), *Massive Scenario Generation* should serve to enhance the broader understanding of system phenomena, which, in turn, should lead to a better ability to ask the right questions, to identify what tests should be conducted, and to select prospective developments that need to be monitored.<sup>6</sup>

In examining the security challenges that climate change might impose on Indonesia and Australia, and how both parties might best plan for them and respond to them, this paper attempts to inform the identification of appropriate strategies by applying the conceptual constructs identified by Davis and his associates in the experiments conducted to test their *Massive Scenario Generation* model.

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<sup>3</sup> Paul K. Davis and Zalmay Khalilzad, *A Composite Approach to Air Force Planning* (Santa Monica CA: RAND, 1996), p. 42

<sup>4</sup> Paul K. Davis, “Protecting the Great Transition” in Paul K. Davis (ed.), *New Challenges in Defense Planning: Rethinking How Much is Enough* (Santa Monica CA: RAND, 1994), p. 135

<sup>5</sup> Paul K. Davis, Steven C. Banks and Michael Egner, *Enhancing Strategic Planning with Massive Scenario Generation: Theory and Experiments* (Santa Monica CA: RAND, 2007) at [www.rand.org/pubs/technical\\_reports/2007/RAND\\_TR392.pdf](http://www.rand.org/pubs/technical_reports/2007/RAND_TR392.pdf) Further background on non-linear planning techniques can be found in Paul K. Davis, “Uncertainty-Sensitive Planning,” Chapter 5 in Stuart E. Johnson, Martin C. Libicki, and Gregory F. Treverton, *New Challenges, New Tools for Defense Decisionmaking* (Santa Monica CA: RAND, 2003).

<sup>6</sup> *loc.cit.*, p. 22

## Climate Change and Security: Initiating Factors

Among the better studies so far into the relationship between climate change and security are assessment of the Intergovernmental Panel on Climate Change (IPCC) entitled *Climate Change 2007: Synthesis Report – Summary for Policymakers*<sup>7</sup>, and the report of the German Advisory Council on Global Change (WBGU) entitled *Climate Change as a Security Risk*.<sup>8</sup> The IPCC Report provides a sobering portrait of the symptoms of global climate change, and suggests a range of thoughtful mitigation strategies. The WBGU Report was prepared by an expert panel that included economists, lawyers, engineers, scientists and political scientists, though, interestingly, no military experts or strategists. Nonetheless, the report is a comprehensive review of the likely effects of climate change. Its fundamental conclusion of both reports is that climate-induced interstate wars are unlikely to occur, but that climate change could well trigger national and international distributional conflicts and intensify problems already hard to manage such as state failure, the erosion of social order, and rising violence.<sup>9</sup>

The WBGU study notes six major threats to international stability and security:

- An increase in the number of weak and fragile states.
- Risks for global economic development
- Risks of growing international distributional conflicts between the main drivers of climate change and those most affected.
- The risk to human rights and the industrialized countries' legitimacy as global governance actors
- Triggering and intensification of migration. And,
- Overstretching of classic security policy.<sup>10</sup>

Given Australia's geo-strategic position, each of these factors would come into play in South East Asia and the South West Pacific. Notwithstanding the quality of its analysis, however, the WBGU report pays scant attention to the problems that might be faced by Indonesia (referred to only in passing) or any of the consequences (either cooperative or dissociative) that Australia might be expected to face (indeed, Australia is not referred to at all in the report). Yet by the middle of this century, Indonesia will be the world's sixth most populous country, as well as being the largest Islamic country. The WBGU report nonetheless contains a wealth of advice and recommendations that, *mutatis mutandis*, are applicable to the situation in which Australia and Indonesia find themselves.

In their deservedly well-received Lowy Institute Paper of 2006, Alan Dupont and Graeme Pearman fired the first salvo in what has become a growing preoccupation with the regional security effects of climate change.<sup>11</sup> In their study, they identified the possible consequences that climate change might have for migration, food production, water scarcity and infectious disease outbreaks, and suggested that

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<sup>7</sup> IPCC Plenary XXVII (Valencia: 12-17 November 2007)

<sup>8</sup> R.Schubert (Chair) et al. *Climate Change as a Security Risk* (London and Sterling VA: Earthscan, 2007) at [www.wgbgu.de/wgbgu\\_jg2007\\_engl.pdf](http://www.wgbgu.de/wgbgu_jg2007_engl.pdf)

<sup>9</sup> *loc. cit.*, p. 1

<sup>10</sup> *loc. cit.*, pp. 5-6

<sup>11</sup> Alan Dupont and Graeme Pearman, *Heating Up the Planet: Climate Change and Security* (Sydney: Lowy Institute, 2006) at [www.lowyinstitute.richmedia-server.com/docs/AD\\_GP\\_ClimateChange.pdf](http://www.lowyinstitute.richmedia-server.com/docs/AD_GP_ClimateChange.pdf)

“Australia should take the lead in working with like minded governments to examine the implications of climate change for regional security and stability”.<sup>12</sup> Progress in implementing this recommendation has been glacial. The authors note that Australia cannot quarantine itself from the international impact of climate change because climate change is, by definition, a global problem. That is doubtlessly true. But, for Australia, there is a more immediate security problem: Indonesia’s stability and security is central to Australia’s ability to maintain its own long-term security. Consequently, the security impacts on Indonesia of climate change are of greater strategic significance than, say, the impacts of climate change on the Caribbean.

Australia could conceivably deal with this problem with characteristic caution, indecision and pragmatic adhocism, applying a succession of temporary reactive fixes to a problem that might have been amenable to a measure of proactive management. As Schwartz and Randall pointed out in 2003, “the United States and Australia are likely to build defensive fortresses around their countries because they have the resources and reserves to achieve self-sufficiency”.<sup>13</sup> But to do so would be tantamount to a “beggar thy neighbour” policy by separating Australia from the problem and would, in fact, invite the very consequence that Australia would most wish to avoid – militant aggression from millions of “have-nots” against the self-absorbed indifference of the “haves”. And whether Australia could sustain the consequences of such aggression either military or morally is moot.<sup>14</sup>

In terms of human security, it is feasible that the greatest immediate consequence of climate change would show up in substantial population movements as mass migration became the inevitable result of the loss of agricultural lands close to the sea and crop failures as weather conditions (rainfall and temperature) changed abruptly. This is well documented by Nils Petter Gleditsch, Ragnhild Nordås and Idean Salehyan in their 2007 study *Climate Change and Conflict: The Migration Link*.<sup>15</sup> As these authors point out, the relationship between climate change and migration is at least twofold: climate change may cause environmental changes that force people to migrate in search of food, water and livelihood; and climate change may cause civil unrest over land and water resources (the African experience) that in turn causes people to flee as refugees.

But it is also important to recognize that, in a climate change system that is inherently discontinuous, other non-related or semi-related factors could exacerbate the effects of climate change enormously. These include pandemic influenza – which may itself become more likely in situations of human overcrowding and close human proximity to livestock and domesticated birds and/or higher ambient temperatures – or natural disasters such as earthquakes, volcanic disturbances or tsunamis.

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<sup>12</sup> *op. cit.*, Recommendation 4, p. 87

<sup>13</sup> Peter Schwartz and Doug Randall, *art.cit.*, p. 18

<sup>14</sup> This consideration also links to the vexed question of nuclear energy and Australia’s nuclear exports policy. Indonesia – along with a number of other South East Asian nations – may well decide that they have no other option but to meet carbon targets by choosing nuclear power generation. Australia will need to decide whether it wishes to maintain restrictions on uranium sales and/or the development of an integrated Australian nuclear fuel cycle program on the basis of “national security” and nuclear non-proliferation considerations, or whether its security might be better enhanced by being part of the nuclear energy solution. That might entail, for instance, a decision to develop a nuclear industry to supply beneficiated uranium and/or processed fuel rods under full-scope safeguards to strengthen the nuclear non-proliferation regime.

<sup>15</sup> Nils Petter Gleditsch, Ragnhild Nordås and Idean Salehyan, *Climate Change and Conflict: The Migration Link* (International Peace Academy, May, 2007) at [www.ipacademy.org/asset/file/169\\_Working\\_Paper\\_Climate\\_Change.pdf](http://www.ipacademy.org/asset/file/169_Working_Paper_Climate_Change.pdf)

As noted above, Annex 1 provides a tabulated overview of the impacts of a series of plausible climate changes. What the Annex suggests is a cascade of possible security consequences that range from the relatively minor (local food riots) to the significant (ethnic conflicts and/or substantial economic migration). Indeed, across a number of the scenarios, the national and international security consequences are remarkably similar.

| National Security Consequence(s)   | International Security Consequence(s)  |
|--|--|
| <ul style="list-style-type: none"> <li>• Population displacement</li> <li>• Intra-national migration</li> <li>• Civil unrest</li> <li>• Ethnic violence</li> <li>• Food riots</li> <li>• Insurgency</li> <li>• Terrorism</li> <li>• Piracy</li> <li>• Failure of state institutions</li> <li>• Intra-state competition for potable water</li> <li>• Inter-state competition for potable water</li> </ul> | <ul style="list-style-type: none"> <li>• Humanitarian assistance</li> <li>• Cross-border economic migration</li> <li>• Undocumented migration (boat people)</li> <li>• Border tension</li> <li>• Security stabilization operations (peace-keeping, peace-enforcement)</li> <li>• Armed conflict</li> </ul> |

Australia has a reasonable amount of experience in dealing with some of the international security consequences that arise either from state failure or natural disaster. Humanitarian assistance deployments to PNG, West Papua, East Timor and the Solomon Islands have demonstrated both a willingness and a capacity for appropriate intervention in reaction to events. And Indonesia, for its part, has reasonable experience in dealing with the domestic security consequences of local events. In both cases, however, responses have been event-driven. What climate change forces on both Australia and Indonesia is the need to be able to embark upon mitigation and control policies that reduce the likelihood of such social and economic dislocations, and, as a result, the need for such responses.

An analysis of the table at Annex 1 reveals six important principles that will need to be factored into any longer-term strategy that Australia and Indonesia might adopt to mitigate the effects of climate change bilaterally.

- First, the human security consequences of climate change are both serious and severe. The demands on regional countries (such as Australia) and the international community for humanitarian aid – food, shelter and medicines – are likely to grow.<sup>16</sup>
- Second the human, national and international security consequences are extensive and substantial in any climate change scenario.
- Third, human security and national security issues are increasingly intermeshed. Human, national and international security planning will become increasingly intermeshed, with national security planning necessarily incorporating significant elements of human security planning.
- Fourth, and partly in consequence, national policies that give expression to human and national security concerns will become increasingly convergent. Military operational planning will need to factor in humanitarian operations as

<sup>16</sup> This is rendered even more likely if sustainable agricultural land is dedicated to the production of ethanol, thereby impacting on food prices and stocks, as distinct from the allocation of more marginal agricultural land to the production of biodiesel.

an intrinsic part of the operational plan. That has already become evident in Iraq and Afghanistan, as it did in East Timor and the Solomon Islands. This means that the imperatives of national security planning will need to be increasingly sensitive to human rights issues, international humanitarian law and SOLAS (Safety of Life at Sea) requirements. An important corollary of this principle is that conventional concepts of alliance obligation and contribution will become increasingly irrelevant to the new security issues that climate change generates. ANZUS is likely to be no more relevant to protecting Australia's borders against significant regional migration pressures than is NATO likely to be relevant to similar pressures emanating from Africa, the Middle East, Central Asia, or Eastern and Northern Europe.

- Fifth, planning for climate change needs to comprehend parallel planning for major social, economic and political discontinuities such as pandemic influenza, national economic collapse and/or national political collapse in vulnerable countries such as the PICs, Papua New Guinea and East Timor.
- Sixth, regional and global problems will only be solved via regional and global mechanisms: the military, political or economic will of any individual nation cannot be imposed on the international community in the face of a globalised problem. This will impose significant demands on individual nations to develop integrated and multi-faceted policies, and to sustain policy implementation programs over substantial periods of time. For its part, Australia will not be able to rely on border control measures either politically or morally in the face of mass migrations of effected people.

## **A Four-Part Strategy for Dealing with the Security Implications of Climate Change**

The security implications of climate change become graver as the impact of climate change becomes more severe. To that extent, there is a direct though still non-linear relationship between cause and consequence. The problem is, however, that it is not an increase in the mean temperature of the ocean, or the increasing severity of tropical storms, or the change in the nature of monsoons that directly causes security effects. Rather, it is the cumulative effects of climatic changes that impact on the accessibility of arable land, the maintenance of crop yields and the availability of potable water, among other things. For this reason, a strategy designed to prevent or minimise the security implications of climate change needs to address a multiplicity of factors in a broad range of dimensions. It would not be sufficient, for instance, for Australia to invest in a large maritime surveillance and interception capability to ward off potential illegal immigrants from Indonesia when the immediate consequence of internal displacement of the Indonesian population might be civil unrest, riots, ethnic violence, separatism and associated insurgencies – all leading to the destabilization of the Indonesian government and the breakdown of the Indonesian state. A second- or third-order surface fleet would do nothing to enhance Australia's security in such circumstances – a problem that would be exacerbated by the constraints on public spending that would accrue from the continued flow of "exceptional circumstances" drought relief funds to indigent Australian farmers. Rather, what both Australia and Indonesia need is a set of interlocking strategic interventions that both mitigate the possible effects of climate change and introduce adaptability and resilience at both the national and bilateral levels.

Strategy is always purposive, that is, it correlates ends and means. The problem for planners seeking to develop strategies to mitigate or minimise the security effects of

climate change is that the “ends” are not univocal, and the “means” are both manifold and multi-dimensional. The issue is complicated by the fact that there are many stakeholders, many agendas and many skill sets distributed broadly across government, industry, academe and non-governmental organisations – nationally and internationally. The problem is complicated (that is, “wicked”), but not intractable.

This paper proposes a four-part strategy that integrates political, economic, scientific, diplomatic and military elements at the domestic, bilateral, multilateral and global levels.

### *1. The Australian Dimension*

As a matter of urgency, the Australian government needs to establish a high-level climate change authority whose role would include both the provision of leadership in establishing climate change management and response mechanisms and the coordination of national research and development. At the 2020 Summit convened in Canberra on 19 and 20 April 2008, participants suggested the establishment of an Australian Climate Information Authority to act as a clearing-house for information and data about climate change.<sup>17</sup> This constructive idea has yet to take shape. What is needed, however, is something more than an information exchange: to have effect, an Australian Climate Change Authority must have an executive mandate and a funding base that makes it a role player rather than a clearing house. While it is ultimately for the Council of Australian Governments (COAG) to provide overall direction to national efforts to mitigate the effects of climate change in Australia, the issues are so pressing, the solutions so complex and the stakeholders so diverse that the establishment of a high-level, authoritative and expert body is needed urgently if progress is to be made.

It may be argued that sufficient expertise and authority is already available in the form of the Commonwealth and State bureaucracies that deal with the environment, sustainability, and the raft of other matters for which Governments have policy responsibilities. The fact is, however, that the energies of Departments such as the Commonwealth Department of the Environment, Water, Heritage and the Arts are dissipated across a range of special-interest sectors that, together, do not lend sufficient impetus or momentum to resolving what is possibly the most serious set of issues confronting the global community in this century. Issues such as water, the state of the Barrier Reef, national parks and so forth are important, and deserve the establishment of appropriate Ministries and Departments to service them. But climate change is so broad in its political, economic and social effects that it demands the establishment of a properly national enterprise if it is to be addressed quickly and effectively.

Due to the importance of its work, an Australian Climate Change Authority would need to be established under the auspices of the Prime Minister, and should be led by a person with the intellectual and personal toughness to resist and overcome the tide of bureaucratic resistance that would inevitably greet the creation of such a body. It should be established under legislation – legislation which would confer on it the power to bring together the many inputs needed in order to mark out a strategy for dealing with the effects of climate change at the national level. These would obviously include fields such as agriculture, agronomy and plant biology, meteorological and oceanographic sciences, power generation and water

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<sup>17</sup> Cf *Australia 2020 Summit Final Report*, ch. 3., p. 68 at [www.2020\\_summit\\_report\\_3\\_sustainability.doc](http://www.2020_summit_report_3_sustainability.doc)

management, transport and communications, emergency services and health, as well as the less obvious disciplines of architecture, urban design, population studies, and so forth. Climate change is, at the national level, a “wicked” problem that demands a “wicked” solution.

## *2. The Bilateral Dimension*

The management of climate change consequences cannot be achieved at the national level alone. Both the causation factors, and the consequences, are transnational, and consequently demand transnational approaches to problem solving. Indonesia’s size, location and political significance both within South East Asia and on the global stage make it imperative that Australia address global climate change issues in concert with Indonesia. More significantly, however, the consequences of climate change - both biophysical and socio-ecological – are likely to impact more heavily on Indonesia than on Australia. The impacts on Indonesia are likely to transcend the economic costs to include substantial political ferment with inevitable consequences for domestic security. Indonesia’s domestic security is a key factor in regional strategic stability – a matter of crucial significance to Australia.

For that reason alone Australia has a direct stake in how Indonesia sets about addressing its problems. This is not to assume that Australia might hold some key or other to the problem that Indonesia does not have, or that Australia might in some way or other be better placed to deal with the matter. Nor is it about some form of “aid” arrangement where Australian largesse might substitute for a substantive relationship. Rather, it reflects the fact that Australia and Indonesia are in it together.

Accordingly, to support and complement the work of an Australian Climate Change Authority at the national level, the Australian and Indonesian governments need to establish an Inter-governmental Climate Change Commission, under treaty arrangements, the purpose of which would be to direct bilateral cooperation that would both mitigate the likely effects of climate change and provide a standing mechanism for responding to unforeseen or overwhelming events.

The 2004 tsunami offers an illustrative example of a situation where bilateral cooperation can make a real difference. The response of the Howard government was quick and generous. And, in the circumstances, it was necessarily reactive. But, without pre-existing management and coordination arrangements, the flow of assistance was slow to start, inefficient in its management, and, as a consequence, piecemeal and untargeted in its delivery. This is not to offer criticism, but simply to state a set of facts that might have been ameliorated by the existence of established coordination mechanisms.

Were both Australia and Indonesia to apply the lessons of the 2004 tsunami experience to a set of conditions significantly more complicated and more far-reaching in their consequences, an Australia Indonesia Inter-governmental Climate Change Commission would offer a promising path to early wins. Such a Commission would bring together appropriately qualified people from both sides of the Arafura Sea in much the same disciplines that an Australian Climate Change Authority might address. But the guiding principle of an Inter-governmental body would focus on cooperation and partnership, rather than coordination for its own sake. So, for example, work on rice cultivars that might require less water and grow more quickly, new approaches to paddy management and improved land management techniques would be conducted jointly – focused on managing the effects of climate change rather than “agricultural research” for its own sake.

But there should necessarily be additional dimensions to any Inter-governmental arrangements to deal with climate change. These would focus on institution building around monitoring and enforcement of laws and regulations that would be essential for any forward-looking regime that might relate preventive measures (such as re-forestation, bans on land clearance, management of logging, fisheries protection and so on). They would also include enhanced emergency management techniques, including pre-positioning of stores, medicines and food stocks, the identification of re-location areas, safety and security management, and most importantly, the embedding of pre-emptive measures that encourage resilience at the local level. As distinct from Australian practice, Indonesian society is largely built on *gotong-royong* (mutual assistance), and this cultural vector is a critical path to broader national resilience in Indonesia – a matter that has been at the forefront of Indonesian national policy for over four decades.<sup>18</sup>

### 3. *The APEC Dimension*

The fact is, of course, that the impacts of climate change will be felt much further afield than Indonesia. The Philippines, given its archipelagic nature and the relative shallowness of the South China Sea, is just as likely as Indonesia to suffer the effects of rising mean ocean levels, changes to monsoon patterns and an increase in the number of typhoons. Similarly, parts of Malaysia and Thailand are likely to suffer coastal effects similar to those in the islands of Indonesia and the Philippines. Burma, with the Irrawaddy Delta, Vietnam, with the Mekong Delta, and Bangladesh, with the Ganges Delta, are likely to suffer even more serious effects as critical agricultural lands suffer combined flooding from raised river states and inundation from the sea.

As the 2004 tsunami demonstrated, there are evident knock-on effects deriving from natural disasters. What might seem at first blush to be a local problem quickly becomes a regional one. Hence, there is a need for an effective multilateral mechanism at the regional level to prepare South East Asia, Indo-China and the Indian sub-continent for the effects of climate change. ASEAN, or “ASEAN-plus” may provide a suitable vehicle for such a mechanism, though its wider membership and the role of the US might suggest APEC as a more promising home for the creation of APEC Climate Change Task Force to coordinate efforts more broadly. Clearly, such a mechanism would engage the broader interests of both the Australian Climate Change Authority and the Australia-Indonesia Inter-governmental Climate Change Commission.

### 4. *The UN Dimension*

As the German Advisory Council’s study, touched upon at page 4 above, argues strenuously, there is a pressing need for action at the global level. In this, the UN is clearly the best-positioned multilateral institution for harnessing the energies of the global community. Of course, that is no easy matter, given both the inertia that generally characterizes the activities of the UN and the self-serving role of many of the UN members. The German Advisory Council study strongly recommends the strengthening of the United Nations Environment Program, and its transformation into a UN specialized agency. Australia and Indonesia need to get behind the initiatives of the French and German governments to strengthen UNEP, and to enhance UNEP’s inter-connections with the UNHCR and the UNDP.

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<sup>18</sup> Cf for example, Dewi Fortuna Anwar, “Indonesia: Domestic Priorities Define National Security” in Muthiah Alagappa, *Asian Security Practice: Material and Ideational Influences* (Palo Alto: Stanford University Press, 1998), pp. 477-512

It has been fashionable for most western governments – those of Australia and the United States included – to ventilate their lack of confidence in both the effectiveness and the competence of the UN. Australia, for its part, has been, at best, a fair weather friend of the UN. So, for instance, Australia relied heavily on the Security Council mechanisms of the UN, and contributed substantially to the planning capacities of the Peace-keeping Organisation (PKO) during the security destabilization of East Timor in 1999, a destabilization that eventually led to the establishment of the INTERFET organization to secure East Timor's transition to independence. But, for the most of the past decade, Australia has been a more notable critic of the UN than a contributor.

In a speech to the Annual Diplomatic Corps Christmas Party on 3 December 2007, the incoming Minister for Foreign Affairs, the Hon. Stephen Smith MP, said that Australia's membership of the UN was a key pillar of Australia's foreign policy approach. While identifying the UN as a key foreign policy tool is one thing, it is altogether a different thing to identify those areas of activity where the UN is uniquely positioned to play a role. Climate change, and the management of its consequences, is evidently one such area. Moreover, support for the UN's role in dealing with the global consequences of climate offers a unique opportunity for Australia and Indonesia, building on their bilateral efforts in addressing climate change issues (the Australia Indonesia Inter-governmental Climate Change Commission), to take a joint initiative to the UN. This would not only provide a powerful signal to both the Australian and Indonesian communities that both countries were serious in their joint efforts to deal with climate change but would also provide a powerful stimulus to regional endeavours in this critical arena.

## Conclusion

Climate change has the potential to inject new and perhaps intractable uncertainties into the regional and global security environments. To address the consequences of climate change in a piecemeal and reactive manner would almost certainly create the pre-conditions for misunderstanding and consequent miscalculation. That can only be avoided if countries with the capacity and the will embark on a clearly defined strategy aimed at "heading off the issue at the pass". This is not so much a military strategy, though military capacities may have some utility in meeting the more extreme human security challenges that might arise, but a diplomatic and scientific strategy that deals with the issue proactively. Through the use of *Massive Scenario Generation* planning tools in order to scope the problem(s), and the application of jointly designed scientific measures, Australia and Indonesia have the chance to improve both the security and the quality of life of both their communities. All that is needed is imagination, energy and commitment.

| Global Warming Event                | Geophysical consequence(s)  | Possible Complicating Factors  | Nations Affected   | Human Security Consequence(s)   | National Security Consequence(s)   | International Security Consequence(s)  |
|-------------------------------------|---|--|--|---|--|--|
| Rise in mean sea level by <0.5m     | <ul style="list-style-type: none"> <li>Atoll/reef inundation</li> <li>Riverine/delta inundation</li> <li>Coastal inundation</li> </ul>  | <ul style="list-style-type: none"> <li>Pandemic Influenza</li> <li>External Economic shocks</li> <li>Poor economic performance</li> <li>Economic collapse</li> <li>Inadequate state service institutions</li> <li>Low national resilience levels</li> </ul>                    | <ul style="list-style-type: none"> <li>Kiribati</li> <li>Tuvalu</li> <li>The Solomons</li> <li>Papua New Guinea</li> <li>Indonesia</li> <li>The Philippines</li> <li>Vietnam</li> <li>Burma</li> <li>Bangladesh</li> <li>Malaysia</li> <li>Singapore</li> <li>India</li> <li>Sri Lanka</li> <li>Australia</li> <li>Japan</li> <li>Taiwan</li> <li>China</li> </ul> | <ul style="list-style-type: none"> <li>Up to 120 million people affected</li> <li>Loss of life (drowning)</li> <li>Loss of property (housing)</li> <li>Loss of livelihood</li> <li>Disease (cholera, malaria)</li> <li>Malnutrition</li> <li>Famine</li> <li>Refugees</li> <li>Increased urban population</li> <li>Population resettlement</li> <li>Ethnic tensions</li> <li>Land disputes</li> </ul> | <ul style="list-style-type: none"> <li>Population displacement</li> <li>Intra-national migration</li> <li>Civil unrest</li> <li>Ethnic violence</li> <li>Insurgency</li> <li>Terrorism</li> <li>Food riots</li> <li>Piracy</li> <li>Failure of state institutions</li> <li>Intra-state competition for potable water</li> <li>Inter-state competition for potable water</li> </ul> | <ul style="list-style-type: none"> <li>Humanitarian assistance</li> <li>Cross-border economic migration</li> <li>Undocumented migration (boat people)</li> <li>Border tension</li> <li>Security stabilization operations (peace-keeping, peace enforcement)</li> <li>Armed conflict</li> </ul> |
| Rise in mean sea temperature by 2°C | <ul style="list-style-type: none"> <li>Increased oceanic acidity</li> <li>Death of coral reefs</li> <li>Decline in tropical fisheries</li> <li>Changed distribution of pelagic species</li> <li>Relocation of major pelagic species</li> <li>Extinction of many marine species</li> <li>More frequent typhoons</li> </ul> | <ul style="list-style-type: none"> <li>Pandemic Influenza</li> <li>Poor economic performance</li> <li>Economic collapse</li> <li>Inadequate state service institutions</li> <li>Low national resilience levels</li> <li>Lack of emergency management infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>All PICs</li> <li>All tropical nations, especially Indonesia, Burma, the Philippines, Bangladesh and India</li> <li>Sri Lanka</li> <li>Australia</li> </ul>   | <ul style="list-style-type: none"> <li>Up to 120 million people affected</li> <li>Decline in food stocks</li> <li>Loss of livelihood</li> <li>Decline in nutrition standards</li> <li>Famine</li> </ul>   | <ul style="list-style-type: none"> <li>Civil unrest</li> <li>Ethnic violence</li> <li>Insurgency</li> <li>Terrorism</li> <li>Food riots</li> <li>Piracy</li> <li>Failure of state institutions</li> <li>Intra-state competition for potable water</li> <li>Inter-state competition for potable water</li> </ul>  | <ul style="list-style-type: none"> <li>Humanitarian assistance</li> <li>Cross-border economic migration</li> <li>Undocumented migration (boat people)</li> <li>Border tension</li> <li>Security stabilization operations (peace-keeping, peace enforcement)</li> <li>Armed conflict</li> </ul> |

|  |   |   |  |  |   |  |
|--|---|---|--|--|---|--|
| <p>Rise in mean atmospheric temperature by 2°C</p>                       | <ul style="list-style-type: none"> <li>• Rising mean sea levels</li> <li>• Increase in no of “hot” days above 45°C</li> <li>• Occurrence of “super hot” days at 50°C</li> <li>• Potable water shortages</li> <li>• Urban paralysis</li> <li>• Drought</li> <li>• Dust pollution</li> <li>• Deforestation</li> <li>• Increased salinity</li> <li>• Failure of critical energy infrastructure (“brown outs”)</li> <li>• Failure of critical transport infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>• Pandemic Influenza</li> <li>• Poor economic performance/economic collapse</li> <li>• Inadequate state service institutions</li> <li>• Low national resilience levels</li> <li>• Lack of emergency management infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>• Australia</li> <li>• All SEA countries</li> <li>• All Indo-China countries</li> <li>• Japan</li> <li>• China</li> <li>• Taiwan</li> <li>• India</li> <li>• Bangladesh</li> <li>• Sri Lanka</li> <li>• Pakistan</li> </ul> | <ul style="list-style-type: none"> <li>• Death from heat stress and dehydration among children and the elderly</li> <li>• Significant productivity losses</li> </ul>   | <ul style="list-style-type: none"> <li>• Civil unrest</li> <li>• Ethnic violence</li> <li>• Insurgency</li> <li>• Terrorism</li> <li>• Failure of state institutions</li> <li>• Intra-state competition for potable water</li> <li>• Inter-state competition for potable water</li> </ul> | <ul style="list-style-type: none"> <li>• Humanitarian assistance</li> <li>• Cross-border economic migration</li> <li>• Undocumented migration (boat people)</li> <li>• Border tension</li> <li>• Security stabilization operations (peace-keeping, peace enforcement)</li> <li>• Armed conflict</li> </ul> |
| <p>Shorter duration tropical monsoon season – below average rainfall</p> | <ul style="list-style-type: none"> <li>• Drought</li> <li>• Salinity</li> <li>• Land degradation</li> </ul>   | <ul style="list-style-type: none"> <li>• Pandemic Influenza</li> <li>• Poor economic performance/economic collapse</li> <li>• Inadequate state service institutions</li> <li>• Low national resilience levels</li> <li>• Lack of emergency management infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>• All SEA countries</li> <li>• All Indo-China countries</li> <li>• China</li> <li>• Taiwan</li> <li>• India</li> <li>• Bangladesh</li> <li>• Sri Lanka</li> <li>• Pakistan</li> </ul>                                       | <ul style="list-style-type: none"> <li>• Malnutrition</li> <li>• Famine</li> <li>• Refugees</li> <li>• Increased urban population densities (overcrowding)</li> <li>• Population resettlement</li> <li>• Ethnic tensions</li> <li>• Land disputes</li> </ul> | <ul style="list-style-type: none"> <li>• Population displacement</li> <li>• Intra-national migration</li> <li>• Civil unrest</li> <li>• Ethnic violence</li> <li>• Insurgency</li> <li>• Terrorism</li> <li>• Food riots</li> <li>• Failure of state institutions</li> </ul>              | <ul style="list-style-type: none"> <li>• Humanitarian assistance</li> <li>• Cross-border economic migration</li> <li>• Undocumented migration (boat people)</li> <li>• Border tension</li> <li>• Security stabilization operations (peace-keeping, peace enforcement)</li> <li>• Armed conflict</li> </ul> |

|   |  |   |  |  |  |  |
|---|--|---|--|--|--|--|
| Shorter duration tropical monsoon season – average rainfall           | <ul style="list-style-type: none"> <li>• Flooding</li> <li>• Landslides</li> <li>• Crop failure due to shortened growing season</li> <li>• Deforestation</li> <li>• Change in agricultural practices (e.g. move to cash cropping at the expense of food production)</li> </ul> | <ul style="list-style-type: none"> <li>• Pandemic Influenza</li> <li>• Poor economic performance</li> <li>• Economic collapse</li> <li>• Inadequate state service institutions</li> <li>• Low national resilience levels</li> <li>• Low national food stocks</li> </ul> | <ul style="list-style-type: none"> <li>• All SEA countries</li> <li>• All Indo-China countries</li> <li>• China</li> <li>• Taiwan</li> <li>• India</li> <li>• Bangladesh</li> <li>• Sri Lanka</li> <li>• Pakistan</li> </ul> | <ul style="list-style-type: none"> <li>• Malnutrition</li> <li>• Famine</li> <li>• Refugees</li> <li>• Increased urban population densities (overcrowding)</li> <li>• Population resettlement</li> <li>• Ethnic tensions</li> <li>• Land disputes</li> </ul> | <ul style="list-style-type: none"> <li>• Population displacement</li> <li>• Intra-national migration</li> <li>• Civil unrest</li> <li>• Ethnic violence</li> <li>• Insurgency</li> <li>• Terrorism</li> <li>• Food riots</li> <li>• Failure of state institutions</li> </ul> | <ul style="list-style-type: none"> <li>• Humanitarian assistance</li> <li>• Cross-border economic migration</li> <li>• Undocumented migration (boat people)</li> <li>• Border tension</li> <li>• Security stabilization operations (peace-keeping, peace enforcement)</li> <li>• Armed conflict</li> </ul> |
| Shorter duration tropical monsoon season – above average rainfall     | <ul style="list-style-type: none"> <li>• Flooding</li> <li>• Landslides</li> <li>• Crop failure due to shortened growing season</li> <li>• Deforestation</li> <li>• Change in agricultural practices (e.g. move to cash cropping at the expense of food production)</li> </ul> | <ul style="list-style-type: none"> <li>• Pandemic Influenza</li> <li>• Poor economic performance</li> <li>• Economic collapse</li> <li>• Inadequate state service institutions</li> <li>• Low national resilience levels</li> <li>• Low national food stocks</li> </ul> | <ul style="list-style-type: none"> <li>• All SEA countries</li> <li>• All Indo-China countries</li> <li>• China</li> <li>• Taiwan</li> <li>• India</li> <li>• Bangladesh</li> <li>• Sri Lanka</li> <li>• Pakistan</li> </ul> | <ul style="list-style-type: none"> <li>• Malnutrition</li> <li>• Famine</li> <li>• Refugees</li> <li>• Increased urban population densities (overcrowding)</li> <li>• Population resettlement</li> <li>• Ethnic tensions</li> <li>• Land disputes</li> </ul> | <ul style="list-style-type: none"> <li>• Population displacement</li> <li>• Intra-national migration</li> <li>• Civil unrest</li> <li>• Ethnic violence</li> <li>• Insurgency</li> <li>• Terrorism</li> <li>• Food riots</li> <li>• Failure of state institutions</li> </ul> | <ul style="list-style-type: none"> <li>• Humanitarian assistance</li> <li>• Cross-border economic migration</li> <li>• Undocumented migration (boat people)</li> <li>• Border tension</li> <li>• Security stabilization operations (peace-keeping, peace enforcement)</li> <li>• Armed conflict</li> </ul> |
| Prolonged <i>el Niño</i> effect, in conjunction with any of the above | <ul style="list-style-type: none"> <li>• Drought</li> <li>• Deforestation</li> <li>• Increased soil salinity</li> <li>• Crop failure</li> </ul>  | <ul style="list-style-type: none"> <li>• Pandemic Influenza</li> <li>• Decline in economic performance</li> </ul>   | <ul style="list-style-type: none"> <li>• Australia</li> <li>• New Zealand</li> </ul>   | <ul style="list-style-type: none"> <li>• Unemployment</li> <li>• Food shortages</li> </ul>   | <ul style="list-style-type: none"> <li>• Lower national security spending</li> </ul>   | <ul style="list-style-type: none"> <li>• Reduced capacity to meet external demands</li> </ul>  |

## Six key observations:

- The human security consequences of the climate change scenarios are both serious and severe.
- The human, national and international security consequences are extensive and substantial in any of the climate change scenarios.
- Human, national and international security issues are inextricably enmeshed. Moreover, the conduct of armed conflict needs to envisage the concurrent conduct of humanitarian activities both within and external to the Area of Operations.
- Consequently, the national policies that give expression to human security and national security concerns will need to be increasingly convergent.
- Planning for any Climate Change event needs to comprehend parallel planning for major social, economic and political discontinuities such as pandemic influenza, political failure at the state level (e.g. East Timor, Papua New Guinea, Kiribati and Tuvalu), as well as any continuing impacts of economic downturns.
- For Australia, reliance on strong border control measures to prevent mass population movements towards the Australian continent may not be politically or morally defensible in the face of the numbers of people that may be affected – potentially around 120 million

## Disclaimer

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