AUSTRALIAN SECURITY LEADERS CLIMATE GROUP

AUSTRALIAN CLIMATE & SECURITY RISK ASSESSMENT

IMPLEMENTATION PROPOSAL

aslcg.org

EXISTENTIAL RISKS ARE NOT AMENABLE TO THE LEARN-FROM-FAILURE APPROACH OF CONVENTIONAL RISK MANAGEMENT... THE APPROACH TO CLIMATE-RELATED SECURITY RISKS MUST BE HOLISTIC, AVOIDING SILOED, DISCIPLINE-BASED ANALYSIS.

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EXECUTIVE SUMMARY

Climate disruption, together with nuclear war, is the greatest threat to global, national and human security. Both are existential risks.

The Australian Labor Party's 2021 plan, *Powering Australia*, commits the Labor Government to commission a security-focused climate risk assessment. This commitment is a welcome first step, because a climate-specific assessment has never been carried out by Australia, and it must be the basis for a credible climate and security policy.

It should be initiated urgently, and completed as soon as possible, certainly within Labor's first year in office, so that its findings can inform a whole-of-government response to climate change threats.

Existential, civilisation-threatening risks are not amenable to the learn-from-failure approach of conventional risk management. Attention should be given to the question: what are the feasible, worse-case scenarios, and what actions are required to prevent, prepare and protect against their occurrence.

The approach to climate-related security risks must be holistic, avoiding siloed, discipline-based analysis. Risk analysis must account for system complexity and deep uncertainty, cognisant of three inter-related aspects:

- Climate impacts will intensify with further warming, and climatic tipping points are creating large uncertainties over future impacts and their social effects. They may be a source of sudden, unanticipated large risks.
- There has been an underestimation of the scale and scope of climate-related security risks, many of which remain under-researched due to the complexity of cascading consequences.
- The capacity to assess and manage climate-related security risks lags behind the changing risk landscape.

Chatham House's *Climate Change Risk Assessment 2021* provides an appropriate methodology and framework, a plausible scenario and high-quality appraisal on which to build a regional and Australian assessment, thus reducing the analytical workload.

The assessment should be a transparent process led by a well-resourced, independent Expert Panel. Due to time and capacity constraints, the assessment should not be an interdepartmental process within the Australian Public Service and related agencies. Rather, an Expert Panel should be drawn from relevant fields, within and external to the government.

The Panel's work should comprise two work streams: a climate science and impacts update, which then informs the security analysis.

Beyond this initial assessment, regular ongoing climate risk assessment is essential. Two initiatives are proposed:

- Regular coordinated climate science and impact assessments, similar to the practice in the US, overseen by the Climate Change Authority;
- The development of full-spectrum climate security intelligence capacity.

INTRODUCTION

Climate disruption, together with nuclear war, is the greatest threat to global, national and human security. Both are existential risks. If the strategic road ahead is to be successfully navigated, a strong light must be shone on climate change risks encompassing, inter alia, food and water crises, large-scale disruption and population displacement, and social and political breakdown within nations and in the relations between them.

Australia is way behind time and behind our allies in mitigating the risks and being prepared for those that cannot be avoided.

It has been more than three years since the Final Report of the Senate Inquiry into the National Security Implications of Climate Change recommended action on climate-security risks. Australia's last dedicated national security risk assessment was conducted in 2013.

Highlighting the need for an urgent Australian climate-security risk assessment has been the primary focus of the Australian Security Leaders Climate Group (ASLCG), emphasised in our 2021 report, *Missing in Action: Responding to Australia's climate & security failure*, and in subsequent advocacy.

The Australian Labor Party's 2021 plan, *Powering Australia*, commits the Labor Government to commissioning the Director-General of National Intelligence and the Secretary of the Department of Defence to lead the development of an urgent, security-focussed climate risk assessment.[1]

This commitment is welcome as that assessment must be the basis upon which Australia designs and implements a realistic climate and security policy.

This risk assessment must be conducted urgently, as its findings must inform the whole-of-government response to climate change, and the threat that it poses.

The following proposal lays out some core issues around the urgency, methodology and administrative arrangement we suggest are crucial to a sound and effective climate-security risk assessment for Australia.

Admiral Chris Barrie AC
Former Chief of the Defence Force (Retd)

1 Australian Labor Party 2021, *Powering Australia*, https://www.alp.org.au/policies/powering-australia

THE CASE FOR URGENCY

Climate change is an existential risk to society and human security, and the UN warns of possible collapse because risk creation is outstripping risk reduction. The risks are systemic and abrupt system change is happening faster than forecast. At present those risks to Australia are neither fully understood nor incorporated into policy.

Climate change is a grave, existential risk to society and human security. Hosting a climate and security panel on 22 April 2021, as part of US President Biden's Leaders Summit on Climate, US Secretary of Defence Lloyd J. Austin III commenced with these words: "Today, no nation can find lasting security without addressing the climate crisis. We face all kinds of threats in our line of work, but few of them truly deserve to be called existential. The climate crisis does."[2]

Today, unimaginable new climate extremes confront us: record-breaking droughts and floods, cruel heatwaves, unstoppable bushfires, broken infrastructure, and coastal inundation. Emergency-response systems are failing and communities are being destroyed, in Australia and globally. Worse will come.

These threats and costs will likely impact Australia in many ways: disruptions to vital markets, supply-chain interruption, more severe drought, flooding rains and crop failure, increasing demands on the health system, public services and emergency and defence forces, degraded and lost natural systems, and escalating adaptation needs.

Globally there will be regional conflicts over shared resources, climate-change enhanced famine, breakdown in social cohesion, forced displacement of populations, and state failure, including in our region.

At present those risks to Australia are neither fully understood, nor properly assessed by governments, nor incorporated into policy.[3] The 2019-20 bushfires, the 2022 Lismore floods and the failed responses to each are a clear example of all three factors at work.

In 2022, South Asia sweltered through a record-breaking, sustained heatwave that has, amongst other impacts, severely affected grain yields to the point that India, a major wheat supplier, has banned exports. Combined with a global wheat shortage consequent to the war in Ukraine, the global food price index has reached record levels, and there are dire warnings of widespread famine as major grain exporters retreat in the face of surging nationalism. In this case, the intersection of a national security crisis and climate change is producing new climate-security risks with global and regional consequences.

The 2022 UN report, *Our World at Risk: Transforming Governance for a Resilient Future*,[4] comes to a sobering conclusion: despite commitments to build resilience, tackle climate change and create sustainable development pathways, current societal, political and economic choices are doing the reverse. It warns of the risk of collapse because "risk creation is outstripping risk reduction".

Disasters, economic loss and the underlying vulnerabilities that drive risk, such as poverty and inequality, are increasing just as ecosystems and biospheres are at risk of collapse. Global systems are becoming more connected and therefore more vulnerable in an uncertain risk landscape.

2 Austin, LJ 2020, 'Secretary Austin remarks at Climate Change Summit', US Department of Defence, Washington DC, 22 April.

3 Slezak, M & Timms, P 2022, 'Climate change has made old measures predicting weather events in Australia "essentially worthless"', ABC News, 19 May.

4 UN Office of Disaster Risk Reduction 2022, *Our World at Risk: Transforming Governance for a Resilient Future*, https://www.undrr.org/gar2022-our-world-risk

The report concludes that action can reverse this trend, but "only if systemic risk is better understood and risk reduction action is accelerated". This encapsulates the bottom line for Australia's climate-security risk assessment: an urgent analysis of, and response to, growing systemic risks.

The case for urgency is clear. The scientific evidence is that the global average warming will reach 1.5°C in the next decade, irrespective of any emissions reductions in the meantime, and 2°C before 2050, even with higher-ambition emission reductions.[5]

Currently, global emission-reduction actions will lead to around 3°C of warming, and more once significant carbon-cycle feedback loops — which are now becoming active — are taken into account. Impacts of 3-4°C of warming would be catastrophic; even 2°C of warming would mean that many of the largest elements of the climate system would have been irrevocably transformed:[6]

— At the current 1.2°C of global average warming, tipping points have been passed for several large Earth systems. These include Arctic sea ice,[7] the Greenland Ice Sheet,[8] the Amundsen Sea glaciers in West Antarctica,[9] the eastern Amazonian rainforest,[10] and the world's coral systems.[11]

— The Earth climate system is undergoing abrupt change. System-level change is happening faster than forecast only two decades ago. It is not just that individual elements of the climate system are tipping and/or changing rapidly. They also affect each other.

— The observed events are consistent with the cascade of system changes that may drive Earth past the "Hothouse Earth" threshold. Beyond this, climate system feedbacks and their mutual interaction drive the Earth system climate to a "point of no return", whereby further warming would become self-sustaining. This is not to say that this scenario is already locked into the system, but scientists have warned that it may become active in the 1.5-2°C threshold, and that is where we are heading now, likely at an accelerated rate of warming over the next two decades.

Climate risks overall have been severely underestimated. The risks are systemic, but quantifying the probability and severity of systemic risks is not possible due to their complex nature. Because abrupt system change is happening faster than forecast, we are ill-prepared for what may happen. Precautionary action is essential to prevent matters becoming far worse.

5 IPCC 2021, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Masson-Delmotte, V et al. (eds), Cambridge University Press, in press

6 For an overview of recent scientific literature on these issues, see Spratt, D & Dunlop, I 2022, *Climate Dominoes: Have tipping points passed for critical climate systems?*, Breakthrough, Melbourne.

7 Voosen, P 2020, 'Growing underwater heat blob speeds demise of Arctic sea ice', *Science*, 25 August; Monroe, R 2019, 'Research highlight: Loss of Arctic's reflective sea ice will advance global warming by 25 years', Scripps Institution of Oceanography, 22 July

8 Breeze, N 2021, 'Professor Jason Box | Greenland today & [not for] tomorrow #COP26Glasgow', YouTube, 12 November, youtube.com/ watch?v=P6LrGetz10g; nHallgren, W 2021, 'What Greenland's record-breaking rain means for the planet', *The Conversation*, 25 April

9 Petit, EC et al. 2021, 'C34A-07 - Collapse of Thwaites Eastern Ice Shelf by intersecting fractures', presentation to AGU Fall Meeting, 13-17 December, New Orleans LA; Rignot, E et al. 2014, 'Widespread, rapid grounding line retreat of Pine Island, Thwaites, Smith, and Kohler glaciers, West Antarctica, from 1992 to 2011', *Geophys. Res. Lett.*, vol. 41, pp. 3502-3509

10 Lovejoy, TE & Nobre C 2018, 'Amazon tipping point', *Science Advances*, vol. 4, art. eaat2340

11 Hughes, TP et al. 2019, 'Global warming impairs stock–recruitment dynamics of corals', *Nature*, vol. 568, pp. 387–390

METHODOLOGY

Existential, civilisation-threatening risks are not amenable to conventional risk management practices. It is important to understand the potential of, and to plan for, the worst that can happen, using multidisciplinary analysis and scenarios. Mapping first-order impacts onto second order consequences is a complex and challenging task.

A. Risk analysis

There is broad recognition across the scientific community and amongst security leaders and analysts that climate risks are now existential. The 2018 Senate Inquiry found climate change is "a current and existential national security risk".[12]

When such threats exist to the very foundation of modern human societies and the complex and fragile globalised network within which they co-exist, the normal approach to risk management is not appropriate nor fit-for-purpose. Focusing on middle-of-the-range outcomes may ignore the potential for unexpected catastrophic events that should have been foreseen.

Appropriately dealing with this level of threat requires an approach to risk management fundamentally different from conventional practice.

Existential risks are not amenable to the learn-from-failure approach of conventional risk management, nor can reliance be placed on the institutions, moral norms, or social attitudes developed from our experience with managing other sorts of risks. The "fat-tail", high-end possibilities may be damaging beyond quantification and the potential consequences would be devastating for human society. It is important to understand the potential of, and to plan for, the worst that can happen, and be pleasantly surprised if it doesn't.

The following guidelines are appropriate for assessing such climate risks:[13]

1. Use the best available information in an open, transparent and inclusive manner, drawing from diverse sources and methods of analysis, whether this is proven science, or expert judgment.
2. Take a normative approach to managing risks, setting targets and developing strategy, assessing risks in relation to objectives, or interests. Start from an understanding of what it is that we wish to avoid then assess its likelihood.
3. Recognise that the science of climate change is inherently complex because it describes the dynamics of a multi-dimensional, non-linear system, involving many subsystems and networks of adverse cascade effects.
4. Identify the worst, as well as most likely, cases. Properly assess the full range of possibilities, recognising that a low-probability outcome may correspond to a very high risk, if the impact is catastrophic.
5. Apply the precautionary principle when faced with uncertain threats that may cause systemic ruin, implementing measures to ensure those threats do not materialise, to the extent that is possible.
6. Take a holistic view and integrate responses — whether that be across government departments, or across national and regional boundaries — recognising that complexity cannot be treated in separate "silos".

12 Commonwealth of Australia 2018, Implications of climate change for Australia's national security, The Senate Foreign Affairs, Defence and Trade References Committee, Commonwealth of Australia, Canberra ACT, 17 May.

13 Drawing on King, D et al. 2016, *Climate change: A risk assessment*, Centre for Science and Policy, University of Cambridge, Cambridge Cambs.

Figure 1 represents a standard visualisation of a risk matrix, mapping the probability of an event against the magnitude of an event's impact. In many cases, risk-mitigation work would focus on probable and expected threats, with limited attention given to the unexpected but high impact threat possibilities (A3, A4, B3 and B4).

Figure 1: Standard risk matrix example[14]

	A) Not expected	B) Possible	C) Probable	D) Expected
1) Low impact	A1	B1	C1	D1
2) Medium impact	A2	B2	C2	D2
3) High impact	A3	B3	C3	D3
4) Severe impact	A4	B4	C4	D4

In cases of existential threats, focusing on middle-of-the-range outcomes (highlighted as Medium Risk in Figure 1) may result in unexpected catastrophic events that should have been foreseen. Figure 2 illustrates the approach to risk that must be taken when the threat is existential, and the scope for failure nil.

Figure 2: Existential risk matrix example

	A) Not expected	B) Possible	C) Probable	D) Expected
1) Low impact	A1	B1	C1	D1
2) Medium impact	A2	B2	C2	D2
3) High impact	A3	B3	C3	D3
4) Severe impact	A4	B4	C4	D4

Low Risk Medium Risk High Risk Extreme Risk

14 Adapted from U.S. Department of Homeland Security National Cybersecurity and Communications Information Integration Centre's Cyber Incident Scoring System, available at: https://us-cert.cisa.gov/sites/default/files/publications/NCCIC_Cyber_Incident_Scoring_System.pdf and from the Australian Government's National Terrorist Threat Advisory System, available at: https://www.nationalsecurity.gov.au/Securityandyourcommunity/Pages/National-Terrorism-Threat-Advisory-System.aspx

B. Mapping risk in a complex environment

The approach to climate-related security risks must be a holistic one that avoids falling into siloed, discipline-based analysis. This approach is inherently multidisciplinary in nature; the impacts of climate change are wide ranging across every sector of society. Climate change threats create ripples that can reach distant and unexpected shores.

Three types of risk may be distinguished:

- Direct physical (first order) risks, which can be summarised as the direct impacts of climate change including heatwaves, bushfires, floods, and other breakdowns in the Earth's fragile ecosystem that pose a threat to its inhabitants' safety.
- Indirect (second order) risks, which are generated by the interaction between climate change's direct physical impacts, and the complex human systems – political, economic, agricultural, and otherwise – that rely upon a stable climate.
- Risks dependent upon emissions pathways, which take into account the variability in climate and security threats depending upon the emission trajectories of the Earth.

First-order impacts: The science of climate change is inherently complex because it describes the dynamics of a multi-dimensional, non-linear system, involving many subsystems and networks of adverse cascade effects.[15] For example, some responses to increasing levels of greenhouse gases are relatively linear and able to be projected well by climate models, but other responses are non-linear, characterised by sudden changes, rather than smooth progress, possibly with system cascades. Factors contributing to this non-linearity include the existence of tipping points where a threshold exists beyond which large, system-level change will be initiated, and positive feedbacks or self-reinforcing loops driving further change. In a period of rapid warming, most major tipping points, once crossed, are irreversible on human time frames.

Second-order impacts: It is particularly challenging to map first-order physical climate warming effects onto the second-order impacts in the social and security spheres because it depends on the responses of complex human systems, which cannot be reduced to probabilistic terms. Analysis must consider:

- The direct physical climate consequences of rising greenhouse gas levels for temperature and precipitation patterns, the range of extreme events, and impacts on major climate system elements such as the cryosphere, sea levels, carbon stores, ocean and atmospheric circulations;
- How these physical changes impact the biosphere, agricultural land and water resources, and hence the impact on human societies and their ability to fulfil their basic needs for food, water and shelter;

15 Chenet, H et al. 2021, 'Finance, climate-change and radical uncertainty: Towards a precautionary approach to financial policy', *Ecological Economics*, vol. 183, art. 106957.

— How this impacts social and political relationships, and hence stability at local, regional and global levels; and,

— How climate-induced disruptions in one human system interact and feedback on other human system elements to act as climate, security and economic disruption impact multipliers.

There are significant uncertainties in moving through these steps.

The unintended consequences of poorly designed climate and security policies carry their own risks, underlining the importance of having a well-designed, comprehensive and independent risk assessment as the fundamental basis for policy development. For example, military responses to conflict can add further pressure on climate-sensitive livelihoods if planning disregards climate vulnerability. Context and governance play a large role in determining how climate-related security risks manifest, and climate change impacts inhibit peace by adding to existing pressures.

The Australian Climate and Security Risk Assessment should consider the following pitfalls that can impact the accuracy of a risk assessment:

— It is easy to underestimate the scale and scope of climate-related security risks. Many of these risks remain under-researched because of the complexity of cascading risks, and the difficulty of clear attribution, as well as indirect effects through impacts on health and inequality, for example.

— Climate-related security risks will increase and multiply in the future. Impacts will intensify with further warming, and climatic tipping points are creating large uncertainties over future climatic changes and their effect on societies. These might be a source of sudden, large risks.

— The capacity to assess and manage climate-related security risks lag behind the changing risk landscape. There will be a delay between assessment, policy making, implementation and impact, and this must be considered to account for risk comprehensively.

Climate policy-making is affected by what may be called the "inertia paradox" in the climate system – the delay between emissions and their physical impact – providing an illusory opportunity for decision-making procrastination (on the basis that events are not yet critical), whilst unstoppable and catastrophic climate disruption arising from those emissions become locked-in.

C. A scenario approach

Scenario planning can overcome some conventional risk management limitations, provided it is used to explore extremes and unprecedented possibilities.

Examples of climate risk assessments that have utilised an appropriate risk methodology to produce a useful and comprehensive assessment include Chatham House's *Climate Change Risk Assessment 2021*,[16] and the Centre for Strategic and International Studies' (CSIS) *The Age of Consequences: The foreign policy and national security implications of global climate change*.[17]

The climate risk assessment produced by CSIS and the Centre for a New American Security offers a powerful model of indirect risk assessment in particular, with then Project Co-Director Kurt Campbell (now Biden's Indo-Pacific Coordinator on the National Security Council) guiding the assessment. The CSIS scenario-based assessment includes three wide-ranging assessments of direct and indirect risk based on different emissions trajectory scenarios. The assessment is broad and pulls no punches in assessing high impact risks, even if their probability is low.

Chatham House's assessment relies upon a broad research base and performs particularly well in outlining direct physical threats based on the most up-to-date science available. In addition to a strong review of the available literature on climate science itself, Chatham House assembled a wide range of experts in security and related fields to examine the likely cascading, or indirect risks, of climate change. It is based on one scenario, and it is our view that this scenario should be a starting point for the Australian assessment to build on with additional Australian and regional analysis.

The scenario analyses climate risks and their consequences for people, food and water security, as well as national and international security, migration, economies and trade, focusing on impacts that are likely to be locked in for the period 2040–2050 unless emissions drastically decline before 2030, and far faster than current commitments would indicate.

The scenario analysis finds that:

- Without a sharp emissions decline before 2030, impacts "will be devastating in the coming decades".
- Those impacts likely to be locked in for the period 2040-2050, unless emissions rapidly decline, include a 30 per cent drop in crop yields by 2050, while food demand will be 50 per cent higher.
- By 2040, almost 700 million people a year are likely to be exposed to droughts of at least six months' duration, nearly double the global historic annual average.
- Cascading climate impacts will "drive political instability and greater national insecurity, and fuel regional and international conflict".[18]

16 Quiggin, D et al. 2021, *Climate Change Risk Assessment 2021*, Chatham House, London
17 Campbell, KM, et al. 2007, *The Age of Consequences: The foreign policy and national security implications of global climate change*, Washington DC, Centre for Strategic and International Studies /Center for New American Security.
18 Quiggin, D et al. 2021, *Climate Change Risk Assessment 2021*, Chatham House, London

The advantages of using this scenario include:

- Realistic future emissions paths.
- The timeframe of 2040-2050 is relevant for the long lead times required in defence acquisitions.
- It provides a substantial body of high-quality, current analysis on which to build Australian and regional assessments that will reduce the Australian assessment's workload.
- It takes an appropriate approach to risk management. In particular, it recognises that systemic risks that stem from the consequence of direct impacts – materializing as a chain, or cascade, of impacts – compound to impact a whole system, including people, infrastructure, the economy, societal systems and ecosystems; and that quantifying the probability and severity of systemic risks is not possible due to their complex nature. For this reason, the Chatham House assessment included an elicitation exercise conducted with 70 experts to capture the major dynamics and impacts that climate scientists and sector risk experts are concerned will occur as direct climate impacts increase in prevalence and severity.
- It is strong in both scientific analysis and security-relevant impact analysis.

Figure 3. Experts' assessment of systemic cascading climate risks that are likely to lead to food insecurity.

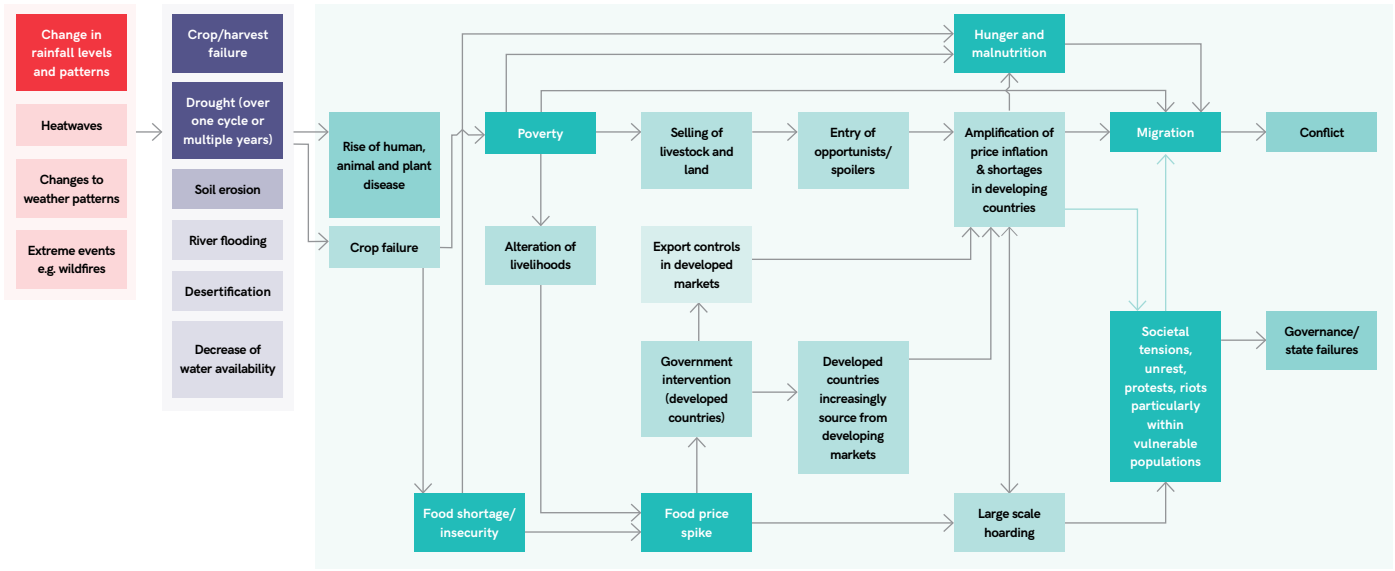


Figure 3: The Chatham House *Climate Change Risk Assessment 2021* analysis of systemic cascading climate risks likely to lead to food insecurity.

IMPLEMENTATION

The assessment should be a transparent process led by a well-resourced, independent Expert Panel drawn from within and external to the government. A climate science and impacts update should then inform the security analysis. Regular ongoing climate risk assessment is essential, comprising regular climate assessment and the development of full-spectrum climate security intelligence capacity.

The Australian Labor Party's climate and energy election platform released in December 2021, *Powering Australia*, states the following:

> **Treating climate change as a security threat**
>
> Climate change has serious ramifications for global security and the Australian Defence Force, including the potential to increase strategic competition in the region.
>
> The Australian Security Leaders Climate Group (ASLCG) argues that Australia has repeatedly ignored the risks and is ill-prepared for the security implications of devastating climate impacts at home and in the Asia-Pacific, the highest-risk region in the world.
>
> Labor will:
>
> — Commission the Director-General of National Intelligence and the Secretary of Defence to lead the development of an urgent climate risk assessment.
>
> — Build an Australian National Prevention and Resilience Framework.
>
> Regular climate risk assessment will then become an ongoing feature of Australia's security and economic wellbeing."[19]

ASLCG suggests the following in regard to implementing these commitments.

An urgent climate risk assessment

The relevant Minister/s should appoint a well-resourced, independent Expert Panel to urgently conduct a comprehensive Australian Climate and Security Risk Assessment, using the best available information, to report publicly within the first year of office.

The Assessment, will, amongst other matters, report on:

— Emerging climate trends, threats and impacts.

— Best international practice in climate science projections, risk assessment, and climate-related strategic analysis and security preparedness.

— Climate-related security implications for Australia and the region, including mitigation and resilience strategies.

— Priority actions and policy implications for the Australian Government.

Due to time and capacity constraints, the Assessment should not be an interdepartmental process wholly within the Australian Public Service (APS) and related agencies. Rather, the Expert Panel should be drawn from the fields of climate science, risk assessment, intelligence, defence and international affairs sectors, both within and external to government, comprising:

— Panel chair having broad experience in public sector climate and risk assessment;

— Two deputy chairs, experienced respectively in climate science and in security assessment;

— Two-to-four other members.

19 Australian Labor Party 2021, *Powering Australia*, https://www.alp.org.au/policies/powering-australia

Administrative arrangements:

- The APS to provide secretariat functions, including liaison between panel members and relevant departments and agencies, and preparation of supporting research papers.
- The capacity to engage staff and external consultants as required.
- Formal briefings to the relevant Minister/s to occur at key points in the development of the Assessment.
- The role of the Expert Panel is advisory and members of the Panel are not acting on behalf of the Government or making decisions on policy, but they would advise on policy implications.
- Panel members will be remunerated at an agreed rate.
- Panel members will provide their expertise, provide feedback and advice in a timely manner, share knowledge and experience across all Panel members in a trusted environment, maintain appropriate discretion and confidentiality with respect to the Panel's business, avoid making public comments about the matters considered by the Panel unless they make clear that they are expressing personal views only, and disclose any relevant interests as soon as practicable.

The Panel's work should comprise two work streams:

- Stream 1. Climate science and impacts update/review (initial report 4-5 months)
- Stream 2. Security analysis (9 months)

Work Stream 1. Climate science update

- The Australian Climate and Security Risk Assessment requires, in the first instance, a comprehensive review and update of climate science and impacts for Australia and the region. This is an essential prerequisite for conducting strategic analysis, since no credible and comprehensive science update for Australia has been done by government in recent years.
- The capacity to do such work within the APS and its agencies including CSIRO and BoM has been severely curtailed in the period 2013-2022. The APS and those agencies, as presently constituted and staffed, are not fit-for-purpose for such a task. Whilst this needs to be remedied as a matter of priority, the urgent task is the production of a climate science and impacts update under the direction of the Expert Panel, working with eminent Australian climate scientists as well as government agencies.
- Such a review would be the basis for the Assessment's security analysis.
- This is a matter of urgency, with an initial report due within four-five months of project initiation.

Work Stream 2. Initial climate and security risk assessment

- Use the science update to inform the security analysis.
- Risk management approaches consistent with the proposals in the Methodology section above.
- International security analysis based on one or more scenarios, as discussed in Methodology section above.
- Draw on APS expertise from DAWE, DISER, ONI, DFAT, Austrade, Defence, National Recovery and Resilience Agency, BoM, Treasury, Health and Home Affairs, and convene experts including in the fields of risk analysis, climate impacts, defence (including preparedness and mobilisation), intelligence, emergency response, adaptation, international and domestic security.
- The assessment should be completed as soon as possible, certainly within the first year of office. Time is critical and implementation should not be delayed.

Regular ongoing climate risk assessment

ASLCG suggests two initiatives beyond the initial risk assessment:

- Triennial climate science assessments, which should be an output of a revamped Climate Change Authority.
- Full-spectrum climate security intelligence capacity.

Triennial climate science assessments

- Based on the model used in the USA, triennial reports to Parliament coordinated by the Climate Change Authority, prepared by a high-level expert group working with relevant agencies including BoM, CSIRO and university researchers, to provide a regular, publicly-available assessment of climate trends, risks and impacts; including reporting between full assessments as required.
- A valuable tool for policy-making, in providing both national and regional projections, impacts and scenarios, and hence mitigation and adaptation frameworks.
- Provides a rigorous risk-management framework for government policy-making and planning across a wide range of portfolios, including transport, health, infrastructure, energy, environment, emergency services, and defence.
- Provides an opportunity for public education and engagement on the issues.

Full-spectrum climate security intelligence capacity

- The government should adopt a "full-spectrum" strategic approach by building an Australian climate risk "early warning system" capacity to identify and respond to current or emerging direct climate risks to national interests.
- The role is to provide ongoing support to key stakeholders across the policy and innovation spheres, noting that:
    - Australia's national interest is threatened by severe, but increasingly plausible, climate change scenarios.
    - Risks are real and physical, requiring adaptation with appropriate warnings.
    - Risks are real and financial, requiring corporate, business, government and NGO behavioural change.
    - Acknowledge that risk mitigation is a whole-of-society undertaking.
- The approach should maximise collective intelligence capacity, and break down thematic and organisational silos, to give longer-term perspectives, and provide regular assessments by consistent monitoring and assessment of climate-security risks.
- Structure: Led by the Department of Prime Minister and Cabinet, with interdepartmental working groups, and external contracted expertise as required.

CONCLUSION

Climate and security issues have been neglected by the Australian Government over the last decade: there has been no credible analysis, no public leadership, and no strategic response. As a consequence, we have also fallen behind our allies in this vital area, and the public service is not currently fit-for-purpose on the issue.

Physical climate change impacts are happening faster than forecast: from the largest-scale climate systems such as polar ice sheets, to the local in Australia where the intensity of the Black Summer bushfires were worse than those projected for the end of the century.

Problems of risk analysis multiply when that level of uncertainty about first-order risks has to be mapped onto a credible picture of second-order social and security consequences. How is the complexity of cascading consequences to be handled? How is uncertainty over climatic tipping points and their effects on societies as a source of sudden and large risks to be dealt with? How are risks to be handled in the rapidly-changing risk landscape that climate represents?

These are challenges that Australia, and the climate-security risk assessment, need to grapple with as a matter of urgency. The risk methodology embraced by the assessment is the key to its efficacy.

A brutally honest risk assessment must be the foundation for the Australian Government to develop a whole-of-government response to climate change that integrates the global, regional, national and human security aspects.

Like the Garnaut Climate Review, it must both inform governments and be a foundation on which a long-overdue public conversation — and public education — can be built in regard to this most fundamental determinant of the future of Australia and the well-being of its people.

From now on, climate change will increasingly impact on every facet of Australian society: the climate itself, energy, foreign affairs and global cooperation, defence, health, immigration, agriculture and technology, to name but a few. That requires an all-encompassing national commitment to a zero emissions transition. Certainly there will be costs, but the costs of ignoring the real risks of climate change, and our real security, will be far greater.

THE UNINTENDED CONSEQUENCES OF POORLY DESIGNED CLIMATE AND SECURITY POLICIES CARRY THEIR OWN RISKS, UNDERLINING THE IMPORTANCE OF HAVING A WELL-DESIGNED, COMPREHENSIVE AND INDEPENDENT RISK ASSESSMENT AS THE FUNDAMENTAL BASIS FOR POLICY DEVELOPMENT.

ABOUT ASLCG

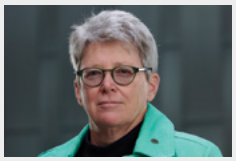
The Australian Security Leaders Climate Group is a non-partisan network of Australian security and policy professionals.

The ASLCG comprises former members of the ADF, the defence sector and Australian national security community, including many senior leaders. The ASCLG Executive members include:

Admiral Chris Barrie AC (Retd) is former Chief of the Defence Force. Chris Barrie retired in 2002 after 42 years in the Royal Australian Navy (RAN). Since then, he has worked on strategic leadership issues as consultant, teacher and mentor at Oxford University, the National Defense University in Washington DC and at the Australian National University.

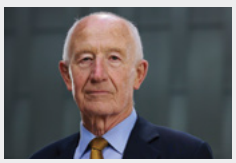
Air Vice-Marshal John Blackburn AO (Retd) is former Deputy Chief of the Royal Australian Air Force and currently the Chair of the Institute for Integrated Economic Research – Australia, and also a consultant in the field of defence and national security. He has extensive experience across the fields of strategy, policy, planning, operational command, capability development and materials acquisition.

Colonel Neil Greet (Retd) is a former Australian Army officer with operational service in Iraq and Timor Leste, who led projects in several remote indigenous communities and played a key role in Defence's response to Victoria's 2009 Black Saturday disaster. He is a Director of the Institute of Integrated Economics Research, and the consultancy Collaborative Outcomes.



Cheryl Durrant is former Director of Preparedness & Mobilisation, Australian Department of Defence, and was the Defence partner with the Australian National Resilience Taskforce's Disaster Vulnerability Profiling Project. Cheryl served 15 years with the Australian Army, specialising in strategic intelligence, information operations and domestic security.

Major Michael Thomas (Retd) is a former Australian Army officer and is a non-resident Senior Fellow with the Washington-based Center for Climate & Security where he co-leads the Indo-Pacific Program. He is also a council member with the International Military Council on Climate and Security and author of The Securitisation of Climate Change (2017).



Ian Dunlop is a Member of the Club of Rome. He was formerly an international oil, gas and coal industry executive, chair of the Australian Coal Association, CEO of the Australian Institute of Company Directors, and chair of the federal government's first emissions trading taskforce, with wide experience in risk management.

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