The Good Ancestors Project

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Dear Chair and Committee

The Good Ancestors Project is an Australian not-for-profit organisation dedicated to reducing existential risk and improving the long-term future of humanity. We write to explain why the Australian Defence Force (ADF) should play a central role in preparedness, response and recovery workforce models for a special class of risk: global catastrophic risk (GCR). New thinking about workforce approaches must ensure that more advanced capabilities are available to the emergency management community, including at the preparedness stage.

Global catastrophic risks can be broadly defined as risks consequential enough to significantly harm human civilisation on a global scale. These risks - such as extreme climate change, pathogens, and space weather - represent worst-case scenarios. They might be highly unlikely or uncertain. But they are not speculative or unrealistic. Indeed, it is these "tail" risks that require special attention from the Australian emergency management community generally, and the ADF specifically.

Our closest allies are already considering these risks in their approach to governance, risk assessment, preparedness, response and recovery. The US's *Global Catastrophic Risk Management Act of 2022* is now in force and establishes governance approaches and an exercising regime focused on global catastrophic risks.

The UK Government's newly released National Resilience Framework prioritises the handling of catastrophic risk, noting that changes to governance are necessary to ensure these kinds of risks are fully owned and managed:

> To ensure, therefore, that all risk continues to be fully owned and managed, the UK Government will clarify roles and responsibilities… [F]or a small number of complex or catastrophic risks we may need a change to roles and responsibilities.
>
> By 2030, [o]ur understanding of national and local risks will be dynamic, driven by data and insight where appropriate, and informed by the best UK and international expertise and experience. Within the UK Government there will be clear ownership of all risks, including complex and catastrophic risks, underpinned by sharpened governance and accountability.
>
> This is important because the economic impact of catastrophic events has continued to grow and the estimated resilience investment requirements have grown accordingly as threats such as cybersecurity and climate change increase in severity. There is still an average worldwide gap between the economic cost of a catastrophic event and private sector insurance coverage for costs of over 60%.

There can be no doubt that the UK is ahead of Australia in its thinking about catastrophic risk. The UK first published a National Risk Register in 2008. National risk assessments have been implemented largely successfully across multiple jurisdictions, including in the UK, New Zealand, Canada and many other OECD countries. Australia has no equivalent document.

The Secretary General of the United Nations also recognised global catastrophic risks in his 2021 'Our Common Agenda' report:

> These risks are now increasingly global and have greater potential impact. Some are even existential: with the dawn of the nuclear age, humanity acquired the power to bring about its own extinction. Continued technological advances, accelerating climate change and the rise in zoonotic diseases mean the likelihood of extreme, global catastrophic or even existential risks is present on multiple, interrelated fronts. Being prepared to prevent and respond to these risks is an essential counterpoint to better managing the global commons and global public goods.

Defence's primary focus is, justifiably, on conventional national security challenges. However, the globally catastrophic end of the risk spectrum is rarely, if ever, explored or factored into contingency planning. Intense and cascading global risks are likely to occur more frequently in the coming decades. These will require more advanced capabilities and all stages of the "PPRR cycle".

In addition to urging the creation of an all-hazards national risk assessment to bring Australia into line with our peers, this Inquiry should give practical and urgent direction regarding several major areas of global catastrophic risk with the goal of ensuring clear lines of responsibility and adequate focus on preparedness.

Efforts towards understanding or reducing global catastrophic risks do not necessarily require significant resourcing, nor a change in remit. Government's assets and capabilities – particularly the ADF's expertise in the intelligence, science and technology domains - could relatively easily dedicate a minimal effort to global catastrophic risk with a potentially very high pay-off for national resilience and international security.

An inherent concern with GCRs is that they will overwhelm the capacity and capability of many of the smaller organisations in the emergency management ecosystem. It is not realistic to imagine that a volunteer or not-for-profit organisation has a plan for these kinds of events. This is why the largest entities in the ecosystem – specifically the ADF and the National Emergency Management Agency – need to take clear responsibility for having robust and exercised plans based on an intelligence-informed understanding of the risks. Plans need to include both the ability to provide leadership in one of these kinds of crises, and to have prevented and prepared as necessary where response and recovery are impractical or have unacceptable consequences.

Guided by the Terms of Reference, this submission does not cover all the global catastrophic risks. More information is provided at the end of the submission about the limitations of focusing on 'natural disasters' rather than the established practice of taking an 'all-hazards' approach. Instead, the submission highlights four key areas where the ADF has a critical role to play in helping the Government and the nation better understand, prevent and prepare for these risks. For each area, the submission provides practical recommendations with modest resource requirements. Specifically, this submission covers:

- Understanding and assessing global catastrophic risk
- Catastrophic climate change
- Pathogens, including engineered pathogens
- Space weather and Near-Earth objects

Fundamentally, global catastrophic risk represents one of the greatest shared challenges of the coming decades, and Australia has an opportunity to lead regionally and globally.

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Understanding and assessing global catastrophic risk

Future strategic challenge: Global catastrophic risk (GCR) refers to the potential for certain threats or hazards to inflict significant damage to human wellbeing on a global scale. Global catastrophic risks are a particularly difficult challenge because they are highly uncertain, novel and with global implications. Navigating the complexity of such threats requires urgent and substantive support from Defence's intelligence, scientific and technology community.

Recommendation: Defence should devote a small but specific intelligence resourcing towards GCR. Defence could also better leverage the expertise of the Defence Science and Technology Group (DSTG) to model risks and produce robust and regular strategic assessments on relevant worst-case scenarios. Greater inter-agency coordination, including explicit ownership, of these risks is also critical.

This work would benefit from Australia conducting a national risk assessment.

Global catastrophic risk (GCR) refers to the potential for certain threats or hazards to inflict significant damage to human wellbeing on a global scale. The community of academics, researchers and practitioners that study these risks continue to debate, assess and analyse specific global catastrophic risks. There is strong consensus that certain risks could cause billions of deaths or put humanity so far back in its development it might never recover.

The study of these risks is based on scientific and empirical approaches. It is not a speculative or unsophisticated endeavour. In the past two decades, an integrated field of acclaimed institutions have formed specifically to study this tail risk to humanity. The Centre for the Study of Existential Risk at the University of Cambridge and the Future of Humanity Institute at the University of Oxford, for example, are pioneers in the field. Academic and scientific research mostly revolves around the set of risks, their potential likelihood and impact, the pathways and scenarios, possible solutions to reduce the risk, ways to build resilience, and the broader human, societal, political, economic and security implications.

Global catastrophic risk deserves explicit focus for two reasons.

First, despite being low-likelihood, the consequences are so catastrophic that the overall risk remains very high. The scale of death and suffering of a global catastrophe would be high – much higher than disasters that are called 'catastrohpic' in common parlance. Phrased another way, GCRs may be 10 or 100 times less likely than other disasters, but their consequences can be many thousands of times worse. COVID-19 gives us a lived example of how a comparatively rare disaster can be more impactful than many more common disasters combined.

Second, there remains a high degree of uncertainty and complexity surrounding these risks. Analysis, tracking and warning of the risks is an important function. How these risks could unfold, when they could occur and how likely the scenarios are renders them difficult problems to analyse and devote policy resources towards. The ADF can help the broader emergency management community navigate this difficulty. As the National Intelligence Council emphasises in their Global Trends 2040 report, "such low-probability, high-impact events are difficult to forecast and expensive to prepare for but identifying potential risks and developing mitigation strategies in advance can provide some resilience to exogenous shocks."

Implications and recommendations for Defence

A GCR would fundamentally alter Australia's strategic environment. The impact would be accentuated by today's uncertain geostrategic landscape.

Defence, notably its intelligence agencies, already play a critical role in detecting, analysing and understanding global risk. Informing the Government and broader emergency management community on emerging, uncertain and extreme risks is a key activity in Defence's remit.

At a minimum, Defence should devote small but specific intelligence resourcing towards global catastrophic risk. For example, an *extreme global threats warning team* could work across the emergency management community to identify and track these risks. This team could assess or back-cast potential extreme pathways and worst-case scenarios, and advise on their implications. This team or mission would present a central point of responsibility for policymakers.

Defence could also better leverage and equip the Defence Science and Technology Group (DSTG) to analyse, monitor and model risk. DSTG has world-leading scientific and technical expertise. And its recently developed horizon scanning function analyses trends in emerging science and technology areas over a 10-20 year timeframe. GCR should receive dedicated attention in DSTG's work. DSTG could work more systematically with DIO to produce strategic assessments on potential global catastrophic risks.

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Catastrophic climate change

Future strategic challenge: A catastrophic climate change scenario refers to an abrupt, non-linear, and irreversible environmental change triggered when planetary 'tipping points' are crossed. The study of this tail risk remains limited. But the few scientific studies with estimates conclude that the probability of catastrophic climate change is between 5-20 percent, depending on different emissions pathways. This is far too likely to not robustly plan for.

Catastrophic climate scenarios could cause significant disruptions to ecosystems, society and economies. It could potentially make large areas of Earth uninhabitable. The factors leading to these tipping points remain unclear. But catastrophic climate change is much more likely if warming is above 6°C this century. Even if significant headway is made towards achieving the UN Paris Agreement target of 1.5-2 degrees Celsius level of global warming, catastrophic climate scenarios caused by unforeseen 'tipping points' cannot be ruled out.

Recommendation: Defence should pre-empt worst-case climate scenarios by increasing investment in climate intelligence capabilities, undertaking new war-gaming exercises, and enhancing intelligence cooperation with regional partners and the emergency management community. Defence should also factor worst-case climate scenarios into contingency planning.

The impact of climate change on Australians has been a theme of previous reviews, which is important because climate change will almost certainly cause disruptions to food, water and energy in our region. However, catastrophic climate change scenarios receive very little attention. The public and the media commonly label climate change as 'catastrophic' or 'existential'. But, truly catastrophic climate scenarios are poorly understood and overlooked in both academic literature and by Australian policymakers.

These scenarios refer to the abrupt, non-linear, and irreversible environmental changes triggered when planetary 'tipping points' are crossed. A deeper understanding of potential tipping points and their triggers is necessary. But research shows that catastrophic climate change is much more likely if warming is above 6°C this century. It could trigger feedback loops and cascade effects in our climate. Some tipping points - such as melting arctic permafrost leading to catastrophic amounts of methane emissions being released - are already looming. Others, such as cloud feedback loops, remain underexplored and highly uncertain dangers. Such scenarios warrant more serious consideration by the Government, including Defence.

Despite increasing global efforts to control emissions, catastrophic climate change remains a possibility worth preparing for. A recent scientific study found that five major planetary tipping points could be crossed even at the level of global warming already reached, while six others would become "likely" at 1.5°C global warming - the target identified by the UN Paris Agreement. Three separate studies conclude that the probability of catastrophic climate change is between 5 and 20 per cent, depending on different emissions pathways. The 2015 book, *Climate Shock*, assessed an 11 percent chance of a greater than 6°C temperature under a realistic medium-high emissions pathway. A 2015 study notes that the possibility of a rise of 6°C out to 2100 at 20 percent if the world continued its focus on fossil fuels and significantly increased its greenhouse gas use. A 2017 study finds that exceeding 5°C of warming by the end of the century - defined as 'beyond catastrophic, including existential threats' - is a 5 percent probability without climate policies.

We are equally uncertain about what the world looks like with temperatures increasing at these levels. It is difficult to assess humanity's resilience to climate disruption, dynamics of global ecological and social systems, and when and how feedback loops kick in. With global temperatures

currently predicted to increase by 2.3 - 3.5°C by 2100, according to data from the UN's Intergovernmental Panel on Climate Change (IPCC), the world is on course to cross multiple disastrous tipping points. More alarmingly, scientists assess that tipping elements are interlinked; crossing one boundary may cause others to be crossed, creating a 'cascading collapse'. Higher temperature pathways could also trigger other systemic risks by causing famine and malnutrition, extreme weather, increased violence and conflict and vector-borne diseases.

Implications and recommendations for Defence

As President Biden's administration highlighted in the October 2022 National Security Strategy, "climate change is the greatest [of all of the shared problems we face] and potentially existential for all nations." Given the stakes, this Inquiry should pre-empt worst-case climate scenarios by recommending that they are factored into contingency planning for the next decade. Currently, there appears to be limited information-gathering or assessment of these worst-case scenarios, including the potential for climate change to contribute to systemic risk.

Defence should take measures that inform the Government of these worst-case scenarios and potential government responses. For example, it could increase its investment in climate intelligence capabilities. These efforts would help identify and develop a meaningful understanding of the plausible yet complex worst-case scenarios. The emergency management community, including the ADF should also undertake new simulation and war-gaming exercises to prepare for catastrophic climate impacts.

Defence is already assessing the climate resilience of its infrastructure. This Inquiry could call for those efforts to be expanded to a more comprehensive consideration of the implications of extreme climate scenarios, including the possible need for new skills, equipment and supplies.

ADF force structure recommendations emerging from this Inquiry should explicitly take account of the need to meet the threat of natural disasters occurring at "unimagined scales, in unprecedented combinations and in unexpected locations," which was a dangerous potential highlighted in Australia's National Disaster Risk Reduction Framework. Physical and social impacts of extreme climate change would transcend political boundaries, increasing the risk that crises cascade beyond any one region. This could require Defence to shift its high-priority focus on Australia's immediate region to contribute to military stabilisation operations in regions further afield, stretching ADF human capability and logistical resources.

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Pathogens

Future strategic challenge: Pathogens, including bioengineered pathogens, are a growing risk over the coming decades. This emerging risk is driven by both climate change and the democratisation of synthetic biology, widespread availability of genetic data, and growth in the number of high-containment laboratories for working with very high-risk pathogens.

Recommendation: This Inquiry should formally recognise the fact that pandemic preparedness crosses boundaries between public health, natural disasters, human-caused disasters and national security. From that broader perspective, the ADF should enhance its scientific, technology and intelligence capabilities to better identify emerging extreme biological threats. It should also allocate additional resources to Defence Science Technology Group's 'disease modelling' research program, including enhancing preparedness for engineered pandemics. Defence should also review its operational plans for different levels of pandemic risk, including both natural and engineered.

Given the inherent challenges and immense costs to society in responding to and recovering from catastrophic pandemics, significant effort should be put towards pandemic prevention.

Catastrophic biological risks, including engineered pathogens, are a major strategic challenge that requires attention from planners, including in the ADF. COVID-19 highlighted the profound societal impact caused by the spread of a novel biological agent – whether naturally occurring or not. Indeed COVID-19 showed why the distinction between natural and human-caused events is unclear and unhelpful. Engineered pathogens could pose a more extreme threat to human health and economies by enabling a nefarious actor to strike a balance between virulence and infectivity. Factors outlined below demonstrate the increasing plausibility of bioengineered agents being released within the century.

In addition to climate change and other environmental factors increasing the likelihood of novel pathogens, the biosecurity threat paradigm is also expanding due to rapid improvements in dual-use technology – notably synthetic biology. These advances in, and decreasing costs of, synthesis tools techniques and methods, as well as the availability of genetic data in public datasets, mean that researchers are now able to engineer biological agents with greater ease and precision. This democratisation of biotechnology has begun to reduce the level of technical proficiency, cost and equipment thresholds required for an unsophisticated but motivated adversary to soon procure and later engineer pathogens that are deadlier, more contagious and more difficult to treat than natural ones. The recent publication "Delay, Detect, Defend: Preparing for a Future in which Thousands Can Release New Pandemics" from the Geneva Council of Security Policy stated:

> "[T]he typical advance made in a cutting edge laboratory by individuals with doctorates has required just one year to be reproduced in other laboratories, three years to be adapted for use in other contexts, five years to be reproduced by undergraduates and individuals with moderate skills, and 12-13 years to become accessible to high school students and others with low skills and resources".

The fact that such technology is not currently accessible, or has not yet been misused, is a poor predictor of its potential future misuse. The society-wide impacts of COVID-19 could serve as a catalyst for "the most creative and dangerous groups and individuals to reconsider bio-terrorist attacks" against Australia or its allies, including through engineered pathogens or the simultaneous release at multiple airports of pathogens modern populations no longer have immunity to. Additionally, the global shortcomings in preparedness for COVID-19 and questions surrounding its origins may further motivate actors with nefarious intent to misuse such technology. As technology is

democratised, students, insiders or other malicious or negligent actors could produce and release a virus more consequential than COVID-19.

Increasingly advanced artificial intelligence is exacerbating the risk: "AI could potentially lower some of the barriers for a malicious actor to design dangerous pathogens with custom features," according to a 2019 study seeking to understand the risks of AI intersecting with synthetic biology. AI could reduce design and testing time, help more easily find mutations of pathogens that could increase its virulence, transmission and lethality, and reduce the pathogen's ability to be screened or detected. As the study states, eventually, a bad actor could perform "complete hands-off, in silico [that is, computer simulated] design, building, and testing of a novel or recreated pathogen."

While this may sound like science fiction, this risk is upon us now. In a recent letter to the US National Security Agency, urging action on these kinds of risks, Congresswoman Eshoo said:

> Researchers at the drug discovery company Collaborations Pharmaceuticals, Inc. demonstrated [the ability to use AI in biotechnology to cause significant harm] recently by simply inverting their open-source machine learning model and transforming their "innocuous generative model from a helpful tool of medicine to a generator of likely deadly molecules." In less than 6 hours, the AI had designed one of the most toxic nerve agents and many other known chemical warfare agents, as well as new molecules that were predicted to be more toxic than publicly known chemical warfare agents.

In the same way a bushfire started by arson would be considered within the scope of the terms of reference, a pandemic started by bioengineering should as well.

Implications and recommendations for Defence

In light of the potential consequences, the threat of pathogens (however they occur) should be regularly assessed, anticipated and planned for at all levels of government, including within the ADF. Recent public-facing Defence documents such as the 2020 Defence Strategic Update and the 2016 Defence White Paper briefly allude to the threat. They state that non-state actors can "adapt new technologies and techniques requiring minimal preparation for their purposes." But this assessment falls short in conveying the scale of the threat, and neglects the potential existential risk posed by engineered pathogens and the implications for the emergency management community.

The US National Security Strategy recognised the threat, stating that the US must "prepar[e] for catastrophic biological risks, including by improving early warning and disease surveillance, data sharing and forecasting; speeding development, domestic manufacturing, and delivery of medical countermeasures; advancing safe biotechnology development and manufacturing; and overcoming inequities in care quality and access." Indeed, on 18 October 2022, the US released its National Biodefense Strategy, which envisions a US that "creates a world free from catastrophic biological incidents."

The general argument for taking action about global catastrophic risks is that, although their likelihood is low, their consequence is very high. However, biosecurity threats worse than COVID-19 seem almost inevitable unless action is taken. If something is inevitable and catastrophic, action is necessary. This means two things:

First, given the consequences, the emergency management community should greatly increase focus on pandemic prevention. In the same way the emergency management community seeks to prevent bushfires from occurring, it should also be seeking to prevent pandemics from occurring. Preparation, response and recovery from a pandemic significantly worse than COVID-19 may be simply impractical, whereas a range of simple and cost-effective policies exist as "low-hanging fruit" to seek to prevent pandemics.

As pandemics, both natural and engineered, become a potentially increasing risk, pandemic monitoring, and preparedness should also increase in focus. This could look like the ADF, in support of the rest of the emergency management community, offering its scientific, technological and intelligence capabilities to better identify and respond to emerging extreme biological threats. Enhanced understanding of the threat would require continuous monitoring and reassessing bioengineering developments and their security implications.

Second, in the event that the Inquiry is not persuaded to recommend a substantially increased focus on pandemic prevention, the Inquiry should recommend that Government conduct a robust risk assessment of future biosecurity risks – focusing on changes of likelihood over time, potential consequences, and the adequacy of response and recovery capabilities.

This could be assisted by an ADF-led assessment of the prospect of novel pathogens with pandemic potential, in coordination with other relevant government agencies. For example, DSTG's 'disease modelling' research program is worthy of additional resourcing, to strengthen and diversify understanding of ways to counter biological agents. This could include the investigation of potential medical countermeasures to pandemic threats, as well as the development of nucleic acid biosurveillance systems that would enable rapid identification of microbial pathogens in the event of an accidental or intentional release of a bioengineered pathogen.

Such a risk assessment would guide the government towards making a conscious decision about the expected harm of future pandemics, the viability of prevention versus other approaches, and hence the best path to mitigate the risk.

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Eshoo Urges NSA & OSTP to Address Biosecurity Risks Caused by AI | Congresswoman Anna Eshoo (house.gov)

Space weather and Near-Earth Objects (NEOs)

Future strategic challenge: The frequency and scale of solar eruptions, known as Coronal Mass Ejections (CME), vary with the 11 year solar cycle. A major concern is the possibility of a severe-scale CME of a similar magnitude to the 'Carrington Event' – named after the space weather superstorm of 1859. A 2020 scientific study found a 28 percent chance of at least one severe storm per year and a 0.7 percent chance of a Carrington-class storm per year. Such an event could cause global power grid failure, collapse in GPS systems and wide-scale communications outages. Near-Earth Objects, such as asteroids above 1m in diameter, impact Earth about once per 100 years and could, in the worst case, be misidentified as a nuclear launch event. They frequently cause localised damage, but also occasionally cause global environmental damage.

Recommendation: Defence should prepare for the space weather threat and the support it could offer the rest of the emergency management community during such an event, including by exercising how it would respond to a Part IIIAAA (Defence Force call out) request in response to a catastrophic space weather event.

A better understanding of risk would help the government to understand whether a response plan is sufficient to respond to a CME of similar magnitude to the 'Carrington Event', or whether an investment in hardening electrical infrastructure is also required.

Outer space presents another vector of tail risk with global implications. Space weather, particularly solar storms, and near-earth objects, particularly asteroids, could cause significant harm to human life and critical infrastructure.

According to NASA, "Space weather includes any and all conditions and events on the sun, in the solar wind, in near-Earth space and in our upper atmosphere that can affect space-borne and ground-based technological systems". Depending on the nature and magnitude of the event, space weather can interfere with electrical and communications infrastructures.

The frequency and scale of CMEs varies with the 11-year solar cycle. Significant CMEs, such as that which affected parts of Scandinavia in 1921, or another which missed Earth by a week in 2012, are a cause for concern. Most concerning is the possibility of a Carrington-class CME, named after the space weather superstorm of 1859, which today would probably result in severe disruption. According to a 2020 scientific study, there is on average a 28 percent chance of at least one severe storm per year and a 0.7% chance of a Carrington class storm per year.

On very rare occasions, Earth is struck by an object capable of causing global environmental damage. These Near-Earth Objects, particularly asteroids, more frequently cause localised damage. For example, the Tunguska event, which occurred in 1908 in Eastern Siberia, involved a 50-60 metre asteroid striking the atmosphere. The resulting blast is thought to have been on par with the largest hydrogen bombs ever tested. It created a shock wave that flattened trees over hundreds of kilometres. If a similar-sized object struck a major city today, it would likely kill millions. A further example is when, in 2013, a 20-metre asteroid exploded above Chelyabinsk, Russia, causing around 1,500 injuries and damage to thousands of buildings. It reportedly carried 20 to 30 times the energy of the Hiroshima atomic bomb.

NASA's Planetary Defence Coordination Office (PDCO) provides early detection of some of the most hazardous NEOs, which are those greater than 30-50 metres. NASA estimates it has mapped over 99 percent of those objects in our solar system that would be extinction-level events. However, NEOs

the size of the Chelyabinsk object and somewhat larger are not mapped. That the world could be surprised by an object that causes a blast the size of several nuclear weapons is plausible.

Implications and recommendations for Defence

Defence must have the capability to monitor and prepare for the space weather threat. Currently, the monitoring function is largely fulfilled by the Bureau of Meteorology's Australian Space Weather Alert System, which produces warnings and real-time observations of severe space weather, with accompanying basic safety measures. The National Space Agency is responsible for coordinating the Government's civil space work, including facilitating international space engagement. The newly established Defence Space Command within Australia's Air force seeks to ensure space access and power in an increasingly "contested space," and to protect commercial and military assets against space debris, collisions and destructive acts.

The strategies adopted by the US and UK to respond to the threat of space weather and NEOs, alongside relevant academic research, provide examples of clear policy paths Defence could take towards managing the risk.

War-gaming how other nations might respond in the aftermath of extreme space weather or NEO event would also be constructive. Considerations include how countries might take advantage if a neighbour competitor was crippled for an extended period, how Defence capabilities would operate in such an environment, and how critical supply chain issues might impact security. For example, an extreme space weather event could damage grid-scale transformers made overseas, and in optimal situations could take many months to be manufactured, shipped and delivered.

Defence should also play an active role in preparing mitigating actions for the event when the Bureau of Meteorology makes an extreme space weather observation or forecast. This requires exercising how it would respond to a part IIIAAA Call Out order in response to an extreme space weather forecast. Such exercising would help other elements of the emergency management community understand the risk and how they could support the response, as well as identify capability and capacity gaps.

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A “disaster relief force” as an alternative to the ADF

In some situations, the creation of a disaster relief force that displaces the relationship between the ADF and the rest of the emergency management community could be harmful. A Disaster Relief Force that has all the kinds of capabilities that reside in the ADF and its support structures and are relevant to a GCR is unlikely to be practical. As this document shows, many advanced capabilities might be relevant at all stages of the ‘prevent, prepare, respond, recover’ cycle as it relates to GCRs. Moving into a world of ‘next generation’ disasters and increasing risk of GCRs, we need more access to advanced capabilities, not less. If the ADF ceased making these kinds of high-level capabilities available to the emergency management community, and it was not replaced, the overall emergency management response would be weaker.

This concern could largely be mitigated if the shared agreement was that the disaster relief force only displaces the ADF to the extent that the relief force has like-for-like capability and capacity. However, even in that case, the ADF’s reduced involvement in more-common disasters may impede its ability to integrate during a catastrophic disaster when it is called upon. This concern could be further mitigated by an exercise regime that focuses on the whole-of-community effort before, during and after catastrophic disasters.

The Good Ancestors Project does not have a strong view about the merits of a disaster relief force relevant to the kinds of disasters that we regrettably experience each year. If the overall weight of evidence is in favour of a disaster relief force, thought should also be given to its functions during each type of GCR, taking an all-hazards approach.

The Good Ancestors Project notes that many kinds of GCR, natural and anthropogenic, will have broader strategic implications and may increase the risk of conflict (or be caused by conflict). That creates an obvious tension when the ADF is called upon to discharge its core mission at the same time as domestic response capabilities being exceeded. Any decision should have to assess the positive impact that the ADF could achieve with each use case for each capability. It is conceivable that in some cases supporting domestic recovery efforts could generate a more positive impact than the ADF fulfilling its defence functions. For instance, if a solar storm damages power and communications equipment, ADF communications support to reboot the power grid could save very many lives by allowing power to be restored much sooner. That could be more impactful than if the capability was used in its traditional function.

The shift from ‘natural disasters’ to an ‘all-hazards’ approach.

The terms of reference for the Inquiry, with the exception of (d), refer to the idea of a ‘natural disaster’ that is out-of-date and contrary to the justified trend towards taking an ‘all-hazards’ approach. While we might have an intuitive sense for what a ‘natural disaster' is, that intuitive sense does not withstand scrutiny. Many seeming natural disasters are actually man-made. Thinking back to recent bushfire seasons, many fires that damaged property and killed people were deliberately lit or caused by infrastructure like powerlines.

- An individual is serving a 17-year sentence for lighting one of the Black Saturday fires that killed 10 people in Victoria.
- Victims of the 2010-2011 Queensland floods settled for almost half a billion dollars in compensation for the negligent operation of the Wivenhoe and Somerset dams.

Conversely, pandemics – which we might not instinctively think of as natural disasters – can result from naturally occurring viruses that mutate in nature. Pandemics are often natural disasters. Even where a pandemic virus is engineered by humans, the response is likely to be very similar, in the way

that the response to a fire started by arson is similar to a fire started by lightning. If a fire started by arson is a 'natural disaster', an engineered pandemic is also a natural disaster.

The terms of reference at (a)(ii) are right to highlight the influence of climate change. Of course, human-caused climate change blurs the concept of 'natural disaster' in both directions – both increasing the risk of fires, floods, and pandemics; while also increasing the risk of conflict and other anthropic risks (an environmental crisis can be a cause for war). This is a single, self-reinforcing cycle. There are not two concepts of a 'natural disaster' and a 'human caused' disaster.

Governments, in Australia and around the world, have moved to an 'all hazards' approach precisely to avoid this kind of confusion. Limiting thinking to 'natural disasters' creates challenges for taking an evidence-based approach because many disaster mitigations will treat both natural and human-caused disasters. Any analysis which sets-aside half the problem will be inherently misleading. Further, whether a disaster is "natural" will often not be known at the time (or may never be known) and often will have no bearing on the approach taken during response and recovery. Building legal and operational frameworks and developing capabilities around an uncertain distinction creates unnecessary risk. Specifically, if a person is authorised to take an action during a natural disaster, they may not be able to do that action until it is ascertained if the disaster is natural or human-caused.

There is no doubt that the Committee and the submissions it receives will, at minimum, be forced to turn a blind-eye to this tension. Drawing a distinction between fires caused by arson and fires caused by lightning (and similar examples) is impractical and unhelpful. We recommend that, instead, the Committee tackle this issue directly explicitly by re-endorsing the all-hazard approach and seeking to apply it wherever possible.

This submission primarily focuses on the role of the Australian Defence Force with respect to Global Catastrophic Risks (GCRs). Our allies, including the UK and US, and international bodies, including the united nations, often discuss natural, human-caused and hybrid GCRs together. For practical reasons, this submission does the same.

Summary of recommendations

- **The Australian Defence Force (ADF) should play a central role in preparing for global catastrophic risks (GCRs).**
- Australia should develop an all-hazards **national risk assessment.**
- ADF force structure recommendations emerging from this Inquiry should explicitly take account of the need to meet the threat of natural disasters occurring at "unimagined scales, in unprecedented combinations and in unexpected locations".
- The ADF should devote a small but specific intelligence resourcing towards GCR, and appropriately share its findings with the broader emergency management community.
- The ADF should factor worst-case **climate** scenarios into its contingency planning, in recognition that these worst-case scenarios, driven by interlinked tipping points, remain possible. This should feed into planning and exercising across the broader emergency management community.
- Given the way in which **biosecurity** crosses interagency administrative boundaries, the Inquiry should reinforce that pandemics are natural disasters. In that light, the ADF should

contribute to preparations for catastrophic biological risks, including by improving early warning and disease surveillance.

- Given the inherent challenges in responding to and recovering from catastrophic **pandemics**, significant effort should be put towards pandemic prevention.

- Government should conduct a robust **assessment of biosecurity risks** - focusing on changes of likelihood over time, potential consequences, and the adequacy of response and recovery capabilities.

- The ADF should prepare for the **space weather** threat and understand the capability it could offer the rest of the emergency management community during such an event, including by exercising how it would respond to a Part IIIAAA (Defence Force call out) request in response to a catastrophic space weather event.

- Government should develop a response plan for **space weather** of similar magnitude to the 'Carrington Event' and explore investment in hardening electrical infrastructure where required.

- In the event that a disaster relief force is created, **the ADF should remain involved in the emergency management community**, particularly for its advanced capabilities relevant to global catastrophic risks. The integration of those capabilities should be robustly exercised against each type of GCR.

- The Committee should **re-endorse the 'all hazards' approach**, rather than drawing a misleading distinction regarding 'natural disaster'.