

Cundall submission to the Australian Government National Climate Adaptation Plan Issues Paper

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CUNDALL

As specialist consultants in systems approaches to environmentally sustainable design, engineering and ESG strategy and reporting, Cundall welcomes the opportunity to respond to the Australian Government's National Climate Adaptation Plan (NCAP) Issues Paper.

We commend the government for taking this extremely important step in synthesising policy across multiple domains to map out a potential program of actions and further policy measures that will aim to protect lives, livelihoods and the natural environment on which we all depend. This is much-needed progress, which aligns with the statements from the Intergovernmental Panel on Climate Change 6th Synthesis report that there is an urgent need to accelerate progress on mitigation and adaptation.

In many respects the NCAP proposes an approach that if enacted will both support continued efforts in emissions reduction (mitigation) and build increased resilience in the Australian community via adaptation to impacts we are already experiencing and those emerging due to locked-in climate change escalation.

Our feedback on the Issues Paper is based on our own experience and expertise as agents for positive change and progress towards net zero in the urban environment, infrastructure and investment sectors. As we operate globally, with a presence in Australia, Southeast Asia, Middle East, United Kingdom, Ireland and Europe, our perspective is informed by a deep understanding of the wide spectrum of vulnerabilities that exist and the intersection between community wellbeing, policy, built environment practices and the finance sector.

Topics we will cover in this submission include:

- Centralising social value and social indicators of vulnerability
- Addressing risks inherent in the majority of existing buildings and urban settlements
- Ambition levels in embedding resilience and adaptation into relevant codes and policies
- The adaptation gap, and specific areas where implementation is lagging and escalating risks
- Recommendations for holistic approaches to improving access to climate refuge spaces across all communities
- Dissolving the silos between health and built environment; and regional/rural and city systems
- Utilising a broader range of effective policy levers
- Benchmarking and evaluating adaptation initiatives
- Linking mitigation and adaptation more coherently
- We look forward to being engaged in the ongoing progress towards the development and the implementation of the National Climate Adaptation Plan.

Sincerely



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Introduction

In response to the question, “*what do you think a well-adapted and resilient Australia looks like?*” and the subsequent questions in the first section of the NCAP Issues Paper, it is important to consider the social and the environmental domains as an integrated whole. In addition, in alignment with the principles of climate justice and climate equity, accelerating progress towards the UN Sustainable Development Goals and taking a ‘bottom-up’ approach that addresses the most vulnerable and those with the least personal agency or resources is essential.

Australia currently ranks 40th out of 166 nations in progress on the UN Sustainable Development Goals¹ dashboard, and is scoring below the regional average. This is despite the Australian economy consistently rating in the top 20 globally for GDP per capita, indicating that disadvantage is not being adequately captured by the simple GDP indicator often used to benchmark a nation’s relative financial health and general standard of living.

The 2023 SDG dashboard showed progress has been retrograding on more than 30% of the SDGs including: no poverty (SDG1) reducing inequality (SDG 10) and Life on Land (SDG 15). We are stagnating on zero hunger (SDG2), quality education (SDG 4), climate action (SDG 13), life below water (SDG 14), and peace, justice and strong institutions (SDG 16). Notably, the SDG progress review shows we are not on track for achieving any of the SDGs.

This points to the major opportunity missing in the NCAP Issues Paper, which is applying an integrated resilience thinking lens that aligns the SDGs to climate adaptation and mitigation in a unified and bottom-up approach.

A well-adapted and resilient Australia is one where social values are uppermost, with the achievement of the SDGs embedded into every aspect of governance at the institutional and policy level. Some of our clients are already recognising the value of the SDGs for informing sustainability strategy, using them as a way of framing material concerns and operational sustainability targets and goals.

Economic value flows from a healthy, educated and safe population, however, too often policy and discussion frames economics as something the community exists to serve. In our work and in our industry, best practice in design and delivery of any physical place puts the human experience and wellbeing at the heart of decisions, and policy must do the same.

In a well-adapted, resilient Australia, urban planning, real estate practices and urban governance must centralise the role of buildings as places that serve human needs, protect people from weather, and enable family life and social life. Buildings that are not adapted to extremes of heat, do not protect from cold, and are high in energy demand, cause new forms of energy poverty for households and small businesses, and need to be addressed through a combination of policy, regulation and financial levers. This is captured in SDG 11 – making cities and human settlements safe, resilient, and sustainable.

A focus on SDG 11 as an enabler and a foundation of the strategy is where the other SDGs are mobilised at the city/state scale. Furthermore, the words ‘human settlements’ are key. Currently in the NCAP issues paper, regional/remote communities are somewhat siloed from the ‘built environment and infrastructure’ system, and within the regional/remote system there needs to be more consideration of the buildings people occupy and the quality and sufficiency of infrastructure across energy, water, ICT and transport.

This also opens up opportunities for decarbonisation approaches through strategic enabling of progress on addressing deficiencies in areas including public facilities, public transport, quality education, quality healthcare. It also creates opportunities for stimulating the establishment of co-working commercial spaces and facilities for micromanufacturing to facilitate the transition of regional/remote workers into both the new skill areas required for the physical and institutional aspects of adaptation, alternative employment, and business options to replace those that are becoming increasingly untenable due to climate impacts and/or environmental impacts.

This may also be of value in supporting any planned retreat strategies for populations in the coastal zones or flood plains that are exposed to unacceptable levels of risk. Logic suggests retreat inland will be the optimal strategy, which will require boosting the necessary social infrastructure and regional economic infrastructure to provide for the population influx and ensure quality of life, dignity and social cohesion.

Another group that needs to be explicitly addressed in adaptation planning is the growing cohort of Australians who are unsheltered due to the current state of the housing market. As the 2022 Australian Homelessness Monitor Report² stated, the rate of persons accessing homelessness support services grew by 8% during 2021-22, more than double national population growth.

These are the most vulnerable persons in our society, unhoused and exposed to the elements. This must be addressed urgently to achieve a resilient, well-adapted nation and accelerate progress towards achieving the SDGs.

¹ Source: <https://dashboards.sdgindex.org/map>

² Pawson, H. et al (2022). Retrieved from <https://espace.library.uq.edu.au/view/UQ:b1aa39b/Pawsonetal2022AHM.pdf>

Vision, objectives and significant risks

While it is commendable the government is creating a clear vision and developing objectives for the NCAP, we have undertaken a gap analysis based on our experience as a practice in developing practical strategies that capture social dimensions and ensure the interconnections between system, process and outcome are adequately addressed.

There are six key points we identified:

1. Objectives ideally are specific and measurable. The word 'future' is problematic and open to interpretation and politicisation. It could mean next election, or it could be 2040, which means the draft vision statement exposes the plan to the vagaries of the political cycle.
2. Terms like '*harness any opportunities*' sound positive, but the use of 'any' opens the door to scientifically and socially questionable policies, practices and programs including continued property development in high-risk areas if the proponent can prepare an eloquent justification.
3. Language needs to stress urgency and the scope of the problems we face - **our ecosystem is on the brink of collapse, our social fabric is fraying, and lofty language has accompanied every ratchet downhill**. This moment calls for rigorous, technically robust, community-minded solutions that clearly delineate what is and is not acceptable.
4. Action must be immediate, to reflect the level of peril - Australia is already at around 1.43 degrees average warming since 1910 and has potentially already exceeded the 'safe' warming threshold of 1.5 degrees average temperature rise cited in the Paris Accord. Heatwaves and cold are already both drivers of mortality and impose an increasing burden on the health sector, workforce productivity and social cohesion.
5. The issues paper recognises the impact of heat on outdoor workers and health sector workers, in our experience the majority of workers are exposed to risks associated with poorly-adapted buildings and this is a critical vulnerability across the entire community due to the nation's failure over recent decades to implement appropriate standards for the design, delivery and management of buildings to ensure thermal performance.
6. We agree with the proposal to potentially align changes to the National Construction Code, NatHERS and NABERS with a more stringent focus on passive thermal performance and climate resilience for new builds, however, most buildings that will house and host Australians in the coming decades are already built and are not fit for purpose in the changing climate. This also signals that relying on the market – developers, designers, builders, asset managers and asset owners – to make better decisions purely on the basis of information and guidance being available is not effective.

Defining climate risk

The main areas of climate risk identified are largely in the domain of physical hazards including disaster. Social risks such as growing inequality, social isolation, increasing vulnerability and fragmenting of social cohesion need equal emphasis.

Climate risk as defined in the IPCC AR6 synthesis report is not confined to natural hazard, so when considering Australia's built environment, it is pertinent that mandatory disclosure of thermal performance and energy efficiency for all buildings and adoption of minimum standards becomes business as usual. By generating better policy that regulates the standard of buildings, rather than advises or gives guidance, social vulnerabilities can be addressed, particularly supporting the high risk/vulnerable socio-economic groups including older persons, low-income persons, sole parents, people with disability and First Nations persons that often do not have capacity to exercise 'choice' in response to energy rating disclosures.

The language around housing needs to change, recognising it as a human right, something that exists to protect people from the elements. Poorly-located housing (for example, in flood risk zones, bushfire prone regions, and areas affected by the urban heat island effect) could be addressed at the masterplan scale to improve resilience – this protects asset value which has direct benefits for the stability of the financial system and the economy.

At the micro level, there is a substantial tranche of persons who are at the mercy of landlords that do not care about the quality of the property, as seen in the findings of the Sweltering Cities survey³ over the summer of 2023/24. More than 50% of the 2,313 respondents were renters who reported living in a low energy-efficiency home, with many also stating they experience health impacts on hot days due to lack of effective cooling. This will require policy and leadership to address, and the focus must centre on those with power and agency - the stakeholder groups of real estate agents and the lenders that finance these properties.

³ Sweltering Cities (2024). [2024 Summer Survey report v1.3 \(swelteringcities.org\)](https://www.swelteringcities.org/)

Adaptation policy governance

Adaptation policy governance is currently deficient, as it has to date achieved no tangible changes in practices that contribute to risks. Planning systems still allow development in flood plains, the National Construction Code still allows buildings that are not optimised for passive performance, retrofits particularly in healthcare, education, aged care and residential housing are minimal and the ERF methodology for generating carbon credits from commercial building retrofits has to date not generated any credits. This demonstrates that information alone has not succeeded in shifting the private sector far enough. One of the greatest threats to Australia's adaptive capacity is the oft-heard mantra of 'reduce regulation and then the private sector will do better'. It didn't work for drink driving, it didn't work for land clearing, and it absolutely will not work for community-scale adaptation and resilience. The default toward letting the market set the agenda is, in fact, a national risk.

Furthermore, transport planning and public realm planning across the majority of communities including suburban capital city, regional cities and towns and remote/rural communities has not ensured adequate provision for safe mobility of persons during extreme weather events or high risk periods (such as high levels of bushfire smoke or other aeroallergens) nor are there widely available refuge spaces for persons who are either unhoused or have inadequate means (financial or due to building deficits) to behave protectively during climate-related events. The leadership of the C40 cities including Sydney and Melbourne has demonstrated feasible and practical steps towards achieving simultaneous climate mitigation and adaptation. The breadth of case studies within C40 members globally also provides ample evidence of diverse initiatives and approaches which can be applied at both the state and the local government level to operationalise national adaptation plans and policies.

Enhancing disaster resilience

We still respond reactively to disaster – establishing temporary supports after the event. As the NCAP has noted, many climate impacts are slow-moving, and that includes the absolutely predictable impact of extreme heat every year, and the absolutely predictable impact of bushfire smoke (or smoke from preventative burnoffs) every year. Equally, extreme storms that compromise transport connectivity and result in people being stranded, and the exposure of unhoused persons to all extreme weather are categorically predictable.

The plan should include provision for refuge spaces that are always available in every community. Smart thinking could combine these with other public sector purposes such as social services offices, public legal centres, Medicare urgent care clinics and so forth. This would also streamline response in the event a disaster requires additional post-event services. By considering how to address the known and the likely NCAP risks in a more interconnected fashion, there are opportunities for layering in mitigation for other climate-related or climate-exacerbated risks currently missing from the key hazards snapshot in the First Pass Assessment. The assessment should be expanded to include the increased risk of pandemics, greater spread of tropical diseases, worsening poverty, and social unrest.

In approaching the interconnectivity and reality of how the NCAP supports decision-makers, utilising the Public-Private Partnership model is a demonstrated success for developing, delivering and maintaining facilities such as hospitals, schools, social housing, civic-purpose buildings and resilient public transport and energy infrastructure. Further to adopting a PPP model to respond to community needs, as evidenced by projects funded by the Clean Energy Finance Corporation, the model is useful for creating opportunities for smart and relative adaptive retrofits for existing buildings such as large retail centres or precincts with significant multi-level carparking to equip them for rapid transition to service as emergency relief centres. Incorporating a scheme of incentives and guidelines for appropriate safety systems and supplies would facilitate this and contribute to the goals of the national disaster preparedness policies and programs.

Government levers

The best practice principles of low-energy buildings across all building types have been available for over a decade, and the knowledge of the risks posed by climate change has also been widely known. Despite this, code-minimum approaches have continued to dominate, and minimal effort and financial resource has been applied to improving and retrofitting existing buildings aside from the competitive tier of the capital city commercial property market. Even in this sphere, the role of the Commercial Buildings Disclosure legislation has been instrumental in incentivising positive change and generating institutional investor competition driven by NABERS ratings.

This highlights how effective regulation is in shifting the private sector towards improved outcomes. There are developers and portfolio owners we have worked with that aim for best practice on principle, however, the majority do not.

The issues paper identifies a wide range of policy synergies across energy, urban planning, financial regulations, the National Construction Code, disaster planning and response and the net zero transition for both the Australian Government's own operations and for climate-exposed industries and sectors including agriculture and water resources. This is commendable, as is the initiative to release a new State of the Cities report that will provide key stakeholders and the wider community with valuable insight, data and direction.

The inaugural State of the Cities report produced by the Major Cities Unit under the leadership of then Infrastructure Minister, Anthony Albanese, was a landmark for the Australian urban development and urban planning sector and provided a significant impetus to discourse around implementing environmentally sustainable design and inclusive social value led design in our human settlements.

The role of government as setting the tone for industry is fundamental, and government decisions and practices have a catalytic effect. This is already visible as the real estate sector responds to APS Net Zero 2030, and we are seeing a sudden growth in appetite for energy performance improvements, ratings and disclosure in sectors previously lagging such as hotels and data centres. This is, we believe, is a direct result of the APS policy, and illustrates the power of procurement and the power of leading by example.

There are multiple agencies and instruments the government can utilise effectively in addition to those already cited in the issues paper. They could include:

- **Australian Energy Market Operator** – incorporating resilience and adaptation analysis into planning and forecasting reports; incentivising investment in adaptation and resolving barriers to investment in resilient infrastructure for under-served communities in regional/remote Australia.
- **Federal Health Policy** – poorly-built homes, high-risk education buildings, poorly-performing hospital buildings and the quality of buildings in aged care all have implications for increasing the burden on health services due to preventable disease and heat health impacts. Ideally, synergies and intersections between health policy and other areas of policy are articulated and foregrounded. Furthermore, there is a case could be made that buildings which continue operating with legacy gas, or new developments installing gas equipment are subject to an excise that mitigates the additional health costs resulting from asthma and respiratory illness associated with use of gas in indoor environments for cooking, heating and hot water.
- **Prudential Regulation Authority** – the issues paper noted the role of the PRA in directing policy around financial institutions and lending/investment in assets in high-risk areas in terms of flooding, sea level rise and bushfire exposure. We would suggest this be extended to incorporate directions around financed emissions, and potentially policy to enforce an additional loan penalty or interest penalty for maladapted assets that do not meet the current and future National Construction Code standards for energy efficiency, electrification and thermal comfort. This penalty would act as an incentive for private sector investment in asset retrofits.
- **Housing policy** – the issues paper notes that improved disclosure of climate risks will shape decisions by prospective purchasers. However, for rental properties the element of 'choice' is not a factor for less prosperous tenants and households. Housing policy could mandate energy ratings for all homes and impose rent caps for properties with NatHERS ratings that do not meet adequate standards for passive thermal comfort and energy efficiency. This would have co-benefits for the wider economy, as tenants would then be less exposed to the risk of energy poverty, resulting in improvements to the ability of these households to afford adequate nutrition and social engagement opportunities and reducing health cost burdens associated with heat/cold, inadequate nutrition and mental health conditions relating to stress, anxiety and depression.

- **Australian Carbon Credit Units and the Clean Energy Regulator** – there could be development of an Australian Carbon Credit Unit (ACCU) methodology to cover retrofits and upgrades across all NCC building classes, similar to the methodology developed for the ACCU Commercial Buildings Methodology endorsed by the Clean Energy Regulator⁴. This could reward and incentivise building electrification, passive performance upgrades, energy-efficiency, and installation of solar to incentivise private sector investors to undertake such works. This would have a multiplier effect in economic benefit, given the latest estimates of the global social price of carbon as US\$225/tonne⁵, while the ACCU spot price as of August 2023 averaged AU\$32 – so each tonne abated for AU\$32 = US\$225 of avoided social costs.
- **International obligations** - whilst carbon costs can relate to a variety of social characteristics shown in ESG services, the real loss is a national one and Australia should be upholding the global policy of the Warsaw International Mechanism for Loss and Damage associate with climate change impacts, this current draft NCAP falls short of outlining how to reduce the cost impact of social vulnerabilities in hazard events.
- **Office of the Federal Safety Commissioner** - the greatest cost of climate hazards, of course, is the loss of human life and the long-term ripple effect this has on the community. Our work brings us into daily contact with the imperative to avoid the risk of harm by designing for safety and the preservation of life, this must be a core consideration for the NCAP architecture and its implementation. Further, enforceable safety codes should be developed for the quality, resilience and performance of indoor environments, particularly those where occupants (staff and users) have limited ability to choose between facilities or change the conditions of the environment to improve them, for example public schools, hospitals, aged care, childcare and student housing/public housing.
- **Developing enforceable Codes of Practice for the real estate industry.** Currently the real estate industry is not acting on the information and knowledge developed for the sector in relation to the risks of poorly performing buildings. Just as car manufacturers and car retailers must abide by standards of safety and performance, so should the profession that provides the places and spaces in which most Australians spend the majority of their time. It must be a professional obligation to ensure those buildings are safe for occupants, and information on the performance of the buildings in relation to energy consumption, passive thermal performance, and resilience in event of hazard must be proactively provided. This would be similar to Federal regulations for standards relating to motor vehicles, refrigerants, agricultural products and energy infrastructure - and it should not be left to the states to develop independent codes of practice and enforce them.
- **University system** – the focus on skill development in the Issues Paper demonstrates the integrated thinking which is essential for successful policy implementation. The university system offers an excellent lever for the Federal Government to foster skill enhancement and leverage existing synergies between research, teaching and industry stakeholders. Introducing HECS-free micro-credentials for key skills including resilience assessments, energy assessments, retrofit planning and passive design principles would be valuable.
- **Taxation system** – incentives delivered through the tax system are highly successful, these could include tax concessions for investment in energy-efficiency, electrification, solar PV installation and passive thermal improvements for tenanted residential investment properties. Requiring proof in the form of a NatHERS rating and energy audit would be important, and conversely, settings for negative gearing and asset depreciation should be revised to de-incentivise poor quality, high-risk property.

⁴ Clean Energy Regulator (2024). [Commercial buildings method | Clean Energy Regulator \(cer.gov.au\)](#)

⁵ Greenstone, M (2024). Cited in [The social cost of carbon is now US\\$225 per tonne – what this means for Asia | News | Eco-Business | Asia Pacific](#)

How should success be measured?

The SDGs framework offers a clear set of metrics and targets for measuring adaptation success, where we use a resilience-based definition of the *ability of a complex socio-ecological system to maintain essential features, systems and processes when encountering disruption*. We note here that some of the structural features of the current society and economy including systemic disadvantage do in fact need to change, and adaptation approaches need to ensure they do not further entrench the drivers, systems and structures that have generated and perpetuated widespread disadvantage.

Another suite of guidance that can assist with determining metrics, KPIs and reporting is the ISO 37123: 2019 Standard for Sustainable Cities and Communities – Indicators for Resilient Cities. This internationally-accepted standard provides definitions and methodologies for supporting decision makers with measurable indicators to enable establishing baselines for factors including energy capacity, climate change adaptation, education, health, safety and infrastructure investment – all areas within Australian Federal Government influence and foundational to the key systems identified in the NCAP Issues paper. Also, as we noted earlier, national populations are shifting towards cities, and this is where all sustainable development policy and practice that touches on communities and populations becomes effectively mobilised.

Planning for the future starts now

In relation to the question around what time horizon the plan should cover, we agree that the suggestion of regular reviews is important.

However, the risk of these reviews being politicised is real, and of revisions to the plan being subject to the ‘quick wins’ for popular opinion ahead of elections. Forestalling this risk means starting boldly, so there are tangible and obvious benefits seen well ahead of review. This aligns with other recent policy initiatives including the increase in Australia’s NDC to 43% by 2030, the establishment of the Net Zero Economy Agency, increased funding for research & development and proactive transition planning for coal-dependent regions that is already opening doors on new enterprises and industries.

We also welcome the approach articulated in the new National Energy Performance Strategy. This Strategy will complement adaptation if the emphasis on demand-side measures including electrification, improved energy-efficiency and retrofits for existing buildings is implemented through retrofit design and specification that also addresses passive thermal performance and robustness to natural hazards.

One concern we have with the Issues Paper is it mentions increasing the standards for building regulations ‘over time’. This has been the approach to date, and it has not worked, as industry lobby groups have argued against ambition in favour of maintaining current practices based on the spectre of cost increases and worsening of housing affordability. In our experience, however, sustainability is entirely compatible with sound project financials, and proves to be more cost-effective when the operational stage costs of the building lifecycle are factored in.

The architecture, construction, engineering and materials industries experience disruption with any change, whether that has been a significant change in practices such as the introduction of Section J or incremental, such as the revisions to NCC energy efficiency requirements for Class 1 buildings in 2016. The industry quickly adapts to change, and we know from our own experience on net zero buildings and net zero precinct masterplans that the techniques, tools, supply chain and delivery expertise exists – it just needs regulatory incentivisation to become mainstream.

Taking a ‘net zero now’ approach also protects the investment of time, materials and finance in new and retrofitted assets, as the lifespan of a building or infrastructure project is ideally 60 years or more – well past 2050, the date beyond which on our current trajectory climate risks may be rendering many places uninhabitable unless adaptation has occurred.

This also delivers wider economic dividends. The social cost of carbon – the combined cost impacts of each additional tonne of emissions - are exponential, and include healthcare costs, mental health costs, lost productivity, asset devaluation, disaster recovery and insurance premium increases. This can be measured against the cost of expenditure on resilience and adaptation initiatives to quantify the benefits, recognising the benefits of adaptation/resilience also have a multiplier effect where passive performance, comfort and energy efficiency are the foundation, including improved productivity, reduced health costs, less financial pressure that enables diversion of funds from energy to other spending. Why would we want to delay achieving these gains?

Examples will be necessary

Policy and regulation are most effective when it can show stakeholders what 'good' looks like. As a nation, we need to generate broad understanding of what effective community-scale adaptation and resilience involves, so the government needs to instigate pilot projects that stakeholders can learn from and be inspired by.

This approach has been effective in previous step-changes in practices, such as the Federal funding of ground-breaking projects including the Sustainable Buildings Research Centre at University of Wollongong, New Royal Adelaide Hospital and retrofits to the Sydney Opera House. The work by Defence Housing Australia has also been highly influential in demonstrating the viability and value of sustainable building approaches in residential contexts.

Further afield, Cundall's work on the Greater Muscat Structure Plan in Oman has demonstrated the principles of climate risk analysis and climate adaptation planning at the whole-city scale.

Leveraging the expertise of consultancies with the required combination of theoretical, practical and technical knowledge of design, delivery and operational optimisation to deliver demonstration and pilot projects for adaptation and resilience retrofits would be extremely valuable.

How we prioritise and sequence actions

The broad principles for prioritising actions appear sound and aligned with the SDGs. However, without further detail there is a genuine risk of an adaptation gap between those sectors and individuals that have the resources and power to rapidly implement adaptation initiatives and those that do not.

This is a familiar scenario at the local government level, for example, where some local councils are able to initiative positive resilience and climate mitigation initiatives in the public domain, while others lack both resourcing and stakeholder support to do so. Another example is the disparity between owner-occupied households that have been able to leverage Federal schemes and State schemes to procure solar PV and reduce household energy spend, while the majority of renters remain dependent on increasingly expensive mains supply while also navigating homes that perform extremely poorly. Across schools, healthcare, aged care, childcare and public buildings similar disparities exist.

Prioritisation and sequencing also need to take into consideration that the dynamics between national level policy and practice and place-based outcomes and opportunities will have local, regional and socioenvironmental nuances. When risks are calculated, there are specifics that will need to be taken into account, which should include the degree to which a community has the economic resources, social capital and the agency to enact necessary resilience and adaptation measures.

Next steps

The foundation for embedding equity as a guiding principle and operationalising principle exists in the issues paper statement, *"Adaptation works best if the solutions are designed and implemented as close as possible to where the impacts are being felt. Adaptive capacity amongst communities, businesses and individuals varies greatly, and governments have a particular responsibility to help people and communities in disproportionately vulnerable situations."*

The definition of 'vulnerable' needs to consider not only financial resources but also the level of empowerment and capability of a specific group of persons or a specific community. This means, for example adaptation for residential renters, public buildings (schools, hospitals), aged care and childcare must be a priority in both cities and regional/remote communities. These are buildings where occupants have least means to adapt, have generally been built to standards that are not climate-adaptive or energy efficient, where occupants/users have minimal ability to opt to migrate to better buildings, and where the social and health dimensions of climate impacts/risk are felt most acutely.

To prioritise these parts of the community aligns fully with 'no regret actions' and furthermore provides broader benefits for society, the economy and overall adaptation.

Integrated thinking will also be crucial. The Issues Paper and the First Pass Risk Assessment did not coherently link the connection between built environment and health. It could be argued that the built environment is the primary influence on health beyond genetics. The risks being siloed in terms of the value of the asset, rather than the purpose of the asset, means the risks are not being accurately captured.

Building exist to keep people safe, healthy and comfortable; communities exist to enable people to thrive – the National Climate Adaptation Plan must enshrine these two truths as primary goals for the adaptation effort.

In summary, our recommendations are:

- Action must be driven by systems thinking that aligns with progressing the SDGs and addresses systemic disadvantage that compounds physical risks to lives and safety.
- Both new buildings and retrofits must target net zero and passive comfort as standard.
- Policy must be operationalised using all available regulatory levers to reflect the level of urgency and risk.
- Government should partner with industry experts to demonstrate feasibility and viability of adaptation approaches.

