

31 January 2023

Treasury
Langton Cres
Parkes ACT 2600
MeasuringWhatMatters@Treasury.gov.au
Lodged electronically

To whom it may concern,

Climateworks Centre submission on Measuring What Matters

Climateworks Centre welcomes the opportunity to respond to Treasury's Measuring What Matters consultation. Climateworks develops expert, independent solutions to assist the transition to net zero emissions for Australia, Southeast Asia and the Pacific. A non-profit organisation, it was co-founded in 2009 by the Myer Foundation and Monash University and works within the Monash Sustainable Development Institute.

Climateworks supports the development by Treasury of a Measuring What Matters Statement, and the development of an Australian framework for wellbeing to complement traditional fiscal macro-economic indicators. There is increasing acceptance that fiscal indicators such as gross domestic product (GDP) are not sufficient measures of society's progress, the health and happiness of the population, and the quality of the environment in which we live (Smith 2022). It is encouraging to hear the Treasurer reference the need to 'measure what matters' in addition to traditional economic measures (Chalmers 2022).

There is broad agreement that a sustainable climate and a healthy natural environment are fundamental to wellbeing (European Environment Agency 2022, IPCC 2022). An environment with rich biodiversity, clean air and water, and sustainable natural capital stocks supports healthy, enriched lives.

Treasury has had a long association with the consideration of wellbeing indicators, including natural capital, and how they impact public policy decisions (Treasury 2012). It now has the opportunity to embed climate and nature-based indicators into decision-making across government.

SUBMISSION SUMMARY

Climateworks recommends:

- Treasury incorporates climate and nature indicators into a national framework for wellbeing using the indicators we suggest in **Proposed Indicators, below**, across the domains of climate, the natural environment and the built environment.
- These three climate and nature domains sit alongside broader domains of wellbeing incorporating the UN Sustainable Development Goals.
- Climate and nature indicators are embedded into policy and decision-making across

- all levels of government and the public service.
- Greenhouse gas emissions, atmospheric concentration of greenhouse gases, and natural capital stock are considered priority indicators alongside GDP.
- Indicators for greenhouse gas emissions and atmospheric concentration of greenhouse gases are measured in real time, or as close to real time as possible.
- Wellbeing indicators are measured against a baseline and accompanied by accountability measures.

CONTEXT

Measuring wellbeing through a national framework will bring Australia in line with countries such as New Zealand, Canada and Germany, which have adopted frameworks for wellbeing based on their local contexts and guided by the OECD Better Life Initiative's *Compendium of OECD Well-being Indicators*. Australia has the opportunity to learn from the development of these frameworks. Critically, experience internationally demonstrates the importance of embedding wellbeing into decision-making across government and the public service. Indicators should be accompanied by progress goals and accountability measures. Doing so will help avoid a 'business as usual' situation where fiscal measurements ultimately guide policy (Smith 2022).

PROPOSED INDICATORS

Climate

Climate change has been recognised as a threat to human health, with the impacts of climate change threatening the foundations for wellbeing (Climate and Health Alliance 2021).

Measuring emissions in a national framework can also assist government with its accountabilities under the *Climate Change Act 2022* and support Commonwealth entities that have had emissions reductions considerations included in their objectives and functions by the *Climate Change (Consequential Amendments) Bill 2022*.

Table 1 shows the suggested indicators to measure in the climate domain.

TABLE 1: PROPOSED INDICATORS IN THE CLIMATE DOMAIN

Indicator	Description	Source
Atmospheric concentrations of greenhouse gases	Real time concentration of greenhouse gas emissions in the atmosphere as measured in Australia. This could be listed against Australia's '1.5°C carbon budget'	CSIRO State of the Climate Report Real time data could be collected from air sampling stations.
Real time greenhouse gas emissions	Real time national greenhouse gas emissions, with a comparison made to a yearly national emissions budget against Australia's emissions reduction targets	Australian National Greenhouse Accounts Real time data could be collected in a similar manner to the Carbon Monitor tool, a daily dataset of global CO ₂ emissions (Liu et al 2020b).
Energy efficiency	Total energy consumption against an economy-wide energy efficiency target	This could be measured against targets, similarly to the EU Energy Efficiency Targets .
Exposure to extreme weather events	Percentage of population exposed to extreme weather events (using Bureau of Meteorology (n.d.) thresholds to account for regional differences in climate), above a baseline, and natural disasters	Shi & Jin (2022)'s life satisfaction approach to measuring the effect of natural disasters using subjective wellbeing could be adapted to a national framework.

Greenhouse gas emissions and atmospheric concentration of greenhouse gases could be reported on in close to real time. While this would be less comprehensive than existing annual reports, it would allow government to understand the effect of policies and adjust them more quickly. The ability to accurately measure emissions in near real time has become more achievable. Research into the COVID-19 pandemic's effect on worldwide emissions demonstrated this, providing valuable data on the current carbon intensity of different economies (Liu et al 2020a). Treasury could adopt as close to real-time monitoring as possible for emissions and greenhouse gas concentration indicators.

It has been estimated that real-time data would reduce the time to modify policies by a year compared to using annual emissions estimates (Liu et al 2020a). Beyond wellbeing, this has benefits to government by assisting with decision-making regarding the transition to net zero and in meeting Australia's climate targets under the Paris Agreement. Additionally, this helps avoid the pitfall of some international frameworks where emissions data is out of date by the time it is included in the wellbeing conversation.

In addition to the beneficial effect of energy efficiency on individual wellbeing, measuring Australia's economy-wide energy efficiency will be increasingly important in reaching Australia's climate targets (IEA 2019).

Extreme weather events are a visible indicator of climate change and directly impact individual wellbeing in the short- and long-term, whether it be from physical health impacts due to increased exposure to pollutants and heatwaves or from the social and mental health effects from floods or bushfires (Hughes and McMichael 2011). A recent survey found that 80 per cent of Australians reported experiencing some form of natural disaster since 2019, with 51 per cent of people reporting their mental health had been impacted as a result (Climate Council and Beyond Blue 2023). Treasury's analysis has indicated 68 per cent of Australia's population lived in a local government area affected by natural disasters in 2022, with the cost to the economy estimated at around \$5 billion (Hitch 2023). Australia has also committed to reducing disaster risk through the United Nations Sendai Framework (DFAT n.d.). Taking a life satisfaction approach to measuring the cost of natural disasters is one way of understanding the true impact of extreme weather on Australians (Shi and Jin 2022).

Natural environment

The State of the Environment Report recognises that air quality is 'intrinsically' linked to wellbeing and that Australia's biodiversity is essential for human survival, wellbeing and economic prosperity (Emmerson and Keywood 2021). International frameworks, such as Wales' wellbeing indicators, also recognise the relationship between biodiversity, water and air quality, and wellbeing (Jones 2022).

Table 2 shows the suggested indicators to measure in the natural environment domain.

Climateworks' analysis has shown that while Australia's ecosystems are incredibly diverse, extinction rates are high, and ecosystems have been pushed towards their limits (Lambert 2020). To support biodiversity, it is imperative that Australia work to reduce the number of species threatened with extinction. Public opinion reflects this viewpoint (WWF-Australia 2017).

Environmental indicators include air and marine quality, 'material footprint' (the amount of raw material extracted to meet economic demand) and the number of threatened species.

TABLE 2: PROPOSED INDICATORS IN THE NATURAL ENVIRONMENT DOMAIN

Indicator	Description	Source
Natural capital stock	Inventory of renewable and non-renewable resources (e.g. plants, animals, air, water) that provide ecosystem services	Data could be collected using the SEEA Ecosystem Accounting framework . Climateworks, through the Natural Capital Investment Initiative, has developed a proof-of-concept Natural Capital Measurement Catalogue that could be used as guidance for future measurements.
Exposure to outdoor air pollution	Share of population exposed to unhealthy levels of air pollution	OECD Framework / Ambient Air Quality NEPM
Marine environment	State of marine environment and habitats	State of the Environment Report
Material footprint	Amount of raw material extracted per capita to meet economic demand	OECD Framework
Number of threatened species	Total number of species listed as at risk of extinction	Common Assessment Method

In addition to these environmental measures, the term ‘natural capital’ represents a way of thinking about the value of nature and biodiversity, and their role in our modern economic system. Natural capital includes natural assets (e.g. water, soil, plants and animals) and the services they provide (e.g. pollination of crops, filtration of water). There is increased interest in natural capital as governments and businesses realise the importance of nature in delivering on net zero commitments (Hammer 2021a).

There are many benefits to measuring natural capital. As traditional measures of human prosperity such as GDP have increased over the last few decades, global levels of natural capital stocks have been estimated to be depleted by 40 per cent. Drawdowns of natural capital represent a risk to wellbeing at local and national levels, and incorporating measurements of natural capital stock into a national framework would allow decision-makers to consider natural capital impacts. Measuring Australia’s natural capital would also support land managers to identify measures to improve their natural capital stock.

Through the Natural Capital Investment Initiative, led by Climateworks Centre and supported by NAB, an open-source Natural Capital Measurement Catalogue has been developed. The catalogue outlines a comprehensive set of natural capital measures and metrics for use at the smaller-scale individual property (e.g. farm) level. Phase 1 of the initiative delivered several key outcomes, including an overarching framework for measuring at scale, and demonstrated an appetite for natural capital measurement by government, industry and civil society groups (Hammer 2021b).

Built environment

Residential housing quality is an important component of wellbeing. Residential buildings are responsible for around 12 per cent of total carbon emissions in Australia, and the efficiency of residential buildings has a significant impact on the economy, the energy grid and the occupants’ health and comfort levels (DCCEEW n.d.). In addition to reducing emissions from home energy use, more energy-efficient homes support physical and mental health by better

regulating temperature extremes in summer and winter, and minimising the impacts on mental health from energy costs (IEA 2019).

Table 3 shows the suggested indicators to measure in the built environment domain.

TABLE 3: PROPOSED INDICATORS IN THE BUILT ENVIRONMENT DOMAIN

Indicator	Description	Source
Net zero dwellings	Percentage of population living in dwellings that are considered net zero	This data could be collected by assessing the percentage of dwellings meeting the definition of net zero, similarly to the Wellbeing of Wales indicator 'percentage of dwellings with adequate energy performance'. It could be broken down further to understand the percentage of renters living in net zero dwellings.
Energy efficiency of dwellings	Proportion of population living in dwellings per NatHERS star rating bands	Data could be collected by assessing percentage of dwellings meeting each NatHERS star rating band. It could be broken down further to understand the percentage of renters living in dwellings that are assessed within each band.
Well-connected neighbourhoods	Proportion of population who find it easy or very easy to access community amenities (e.g. parks, green spaces, health services, community services) by walking, cycling or using public transport	ABS could collect this data, in a similar fashion to how Stats NZ collects data through the New Zealand General Social Survey for the 'access to the natural environment' indicator.
Access to natural areas or areas with tree coverage	Proportion of population who find it easy or very to access natural areas or areas with high tree coverage	ABS could collect this data, in a similar fashion to how Stats NZ collects data through the New Zealand General Social Survey for the 'access to the natural environment' indicator.
Healthy and equitable dwellings	Proportion of population with access to housing suitable to support their health needs and affordable essential energy (e.g. heating and cooling) services	ABS could collect this data, in a similar fashion to how Stats NZ collects data through the New Zealand General Social Survey for the 'access to the natural environment' indicator.

To better understand the breakdown of the population residing in dwellings that meet certain levels of energy efficiency, an indicator could measure the percentage of people living in dwellings that meet each NatHERS star rating band. Doing so would allow Treasury to track the quality of residential buildings in Australia over time. Understanding the population percentage living in dwellings considered to be net zero (YourHome 2020) would also be an important forward-thinking indicator. Progress against it would provide health, social and environmental co-benefits for Australia by promoting better comfort and quality of dwellings at the same time as reducing carbon emissions (Sustainability Victoria 2022). Both indicators could be broken down further to show energy efficiency levels for dwellings occupied by tenants compared to owner-occupiers.

As well as resulting in carbon emissions, the use of gas for heating and cooking indoors poses health risks, with children living with gas cooking in their homes facing risks of asthma comparable to those living with household cigarette smoke (Climate Council 2022). Gas cooking has been associated with respiratory illnesses and lung conditions (Levy 2022). There is evidence that low socioeconomic households are most at risk, as they may be less able to afford appliance maintenance or may rely on older gas appliances in rentals or public housing. Gas extraction has also been linked to a host of negative health consequences in adults and children (Bambrick et al 2021). People relying on gas appliances risk being disadvantaged compared to those with electric appliances. Additionally, with gas prices rising, health risks are often also accompanied by a vulnerability to increasing energy prices

(Brotherhood of St. Laurence n.d.) Understanding the level of access to safe, affordable energy that Australians have would be an important indicator in the built environment domain.

Urban liveability is an important wellbeing indicator too. Well-connected neighbourhoods with access to essential services, public transport and green spaces encourage active transport, resulting in public health benefits and a reduction in emissions and environmental pollution (Chau et al 2022). Mode shifting, from private to public and active transport, presents an opportunity to reduce transport emissions (Fumei and Cleary 2022). The connectivity, reliability, and average travel time of public transport along with the walkability of neighbourhoods can all contribute to wellbeing and the connectedness of people to their local neighbourhoods. Access to natural environments and areas with tree coverage has been linked with a host of health benefits, in addition to the environmental benefits and climate change mitigation opportunities associated with nature coverage (Ulmer et al 2016). Given these environmental, health and social benefits, measuring the ease of access to amenities and nature would be a worthwhile indicator.

EMBEDDING WELLBEING INTO DECISION-MAKING ACROSS GOVERNMENT

For a wellbeing framework to make a difference to the lives of Australians – and those of future generations – government should be prepared to include measurements against the framework in policymaking and decisions taken throughout the public sector. Lessons internationally demonstrate the importance of leadership from politicians and public sector leaders committed to seeing long-term change, along with governance arrangements that embed wellbeing considerations into policy design and implementation (Sindall et al 2021).

Treasury has the opportunity to create a meaningful framework leading to real outcomes that benefit wellbeing. Policies (from design through to implementation and evaluation) and decision-making across all levels of government and the public service should take into consideration the potential impact on each indicator and their relative tradeoffs. Ideally, actions and processes in the public service would be linked to outcomes that measurably improve the indicators.

By adopting climate and nature indicators and embedding them into policy and decision-making, Treasury can help ensure broader policies are supportive of Australia's climate change mitigation efforts and international biodiversity commitments. Climateworks suggests that Treasury include our proposed climate and nature indicators alongside indicators from broader domains of wellbeing that incorporate the UN Sustainable Development Goals.

Thank you for taking the time to consider our submission. We would welcome an opportunity to brief your team if you would like to explore our responses in further detail.

Yours sincerely,

Rupert Posner
System Lead (Sustainable Economies)
Climateworks Centre
rupert.posner@climateworkscentre.org

References

- Bambrick H, Charlesworth K, Bradshaw S and Baxter T (2021) *Kicking the gas habit: how gas is harming our health*, Climate Council, accessed 17 January 2023. <https://www.climatecouncil.org.au/resources/gas-habit-how-gas-harming-health/>
- Brotherhood of St. Laurence (n.d.) *Affordable, clean energy*, accessed 27 January 2023. <https://www.bsl.org.au/about/advocacy/equity-and-climate-change/affordable-clean-energy/>
- Bureau of Meteorology (n.d.) *About the climate extremes analyses*, accessed 9 January 2023. <http://www.bom.gov.au/climate/change/about/extremes.shtml>
- Chalmers J (2022, 1 June) *Press conference, Parliament House, Canberra*, Treasury, accessed 4 January 2022. <https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/transcripts/press-conference-parliament-house-canberra>
- Chau H, Gilzean I, Jamei E, Palmer L, Preece T and Quirke M (2022) 'Comparative analysis of 20-minute neighbourhood policies and practices in Melbourne and Scotland', *Urban Planning*, 7(4): 13-24. <https://doi.org/10.17645/up.v7i4.5668>
- Climate and Health Alliance (2021) *Achieving good policy for climate & health*, accessed 5 January 2023. <https://www.caha.org.au/advocacy>
- Climate Council (2022) *Getting your home off gas: a quick guide*, accessed 16 January 2023. <https://www.climatecouncil.org.au/resources/getting-your-home-off-gas-quick-guide/>
- Climate Council and Beyond Blue (2023) *Survey results: National study of the impact of climate-fuelled disasters on the mental health of Australians*, Climate Council, accessed 20 January 2023. <https://www.climatecouncil.org.au/resources/survey-results-climate-disasters-mental-health/>
- DCCEEW (Department of Climate Change, Energy, the Environment and Water) (n.d.) *Residential buildings*, DCCEEW, accessed 12 January 2023. <https://www.energy.gov.au/government-priorities/buildings/residential-buildings>
- DFAT (Department of Foreign Affairs and Trade) (n.d.) *Disaster risk reduction and resilience*, DFAT, accessed 20 January 2023. <https://www.dfat.gov.au/development/topics/development-issues/building-resilience/drr/disaster-risk-reduction-and-resilience>
- Emmerson K and Keywood M (2021) *State of the Environment Report 2021: Air Quality*, report to DCCEEW, accessed 4 January 2023. <https://soe.dcceew.gov.au/air-quality/introduction>
- European Environment Agency (2022) *Environment and health*, accessed 5 January 2023. <https://www.eea.europa.eu/themes/human/intro>
- Fumei S and Cleary A (2022) *Government climate action: leading policies and programs in Australia*, Climateworks Centre, accessed 18 January 2023. <https://www.climateworkscentre.org/resource/government-climate-action-leading-policies-and-programs-in-australia-2022/>
- Hammer K (2021a) *Building Australia's natural capital*, Climateworks Centre, accessed 5 January 2023. <https://www.climateworkscentre.org/news/building-australias-natural-capital/>

Hammer K (2021b) *Natural capital investment initiative - Phase 1 report*, Climateworks Centre, accessed 5 January 2023. <https://www.climateworkscentre.org/resource/natural-capital-investment-initiative-progress-report/>

Hitch (2023) *East coast flooding saw majority of Australians covered by natural disaster declaration in 2022*, ABC News, accessed 20 January 2023. <https://www.abc.net.au/news/2023-01-13/majority-australians-live-disaster-zones-2022-floods/101851620>

Hughes L and McMichael T (2011) *The Critical Decade: Climate change and health*, Climate Commission, Department of Climate Change and Energy Efficiency, accessed 19 January 2023. <https://www.climatecouncil.org.au/resources/commission-climate-change-and-health/>

IEA (2019) *Multiple Benefits of Energy Efficiency*, IEA, Paris <https://www.iea.org/reports/multiple-benefits-of-energy-efficiency>

IPCC (Intergovernmental Panel on Climate Change) (2022) *Climate change: a threat to human wellbeing and health of the planet. Taking action now can secure our future*, IPCC, accessed 4 January 2022. <https://www.ipcc.ch/2022/02/28/pr-wgii-ar6/>

Jones A (2022) *Wellbeing of Wales, 2022*, Welsh Government, accessed 6 January 2023. <https://www.gov.wales/wellbeing-wales-2022-resilient-wales-html>

Lambert H (2020) *Food and land use transitions: Protecting and restoring nature*, Climateworks Centre, accessed 5 January 2023. <https://www.climateworkscentre.org/resource/protecting-and-restoring-nature/>

Levy J (2022) *Are gas stoves bad for your health? Here's why the federal government is considering new safety regulations*, The Conversation, accessed 16 January 2023. <https://theconversation.com/are-gas-stoves-bad-for-your-health-heres-why-the-federal-government-is-considering-new-safety-regulations-186454>

Liu Z, Ciais P, Deng Z, Lei R, Davis S, Feng S, Zheng B, Cui D, Dou X, Zhu B, Guo R, Ke P, Sun T, Lu C, He P, Wang Y, Yue X, Wang Y, Lei Y, Zhou H, Cai Z, Wu Y, Guo R, Han T, Xue J, Boucher O, Boucher E, Chevallier F, Tanaka K, Wei Y, Zhong H, Kang C, Zhang N, Chen B, Zi F, Liu M, Bréon F, Lu Y, Zhang Q, Guan D, Gong P, Kammen D, He K and Schellnhuber H (2020a) 'Near-real-time monitoring of global CO₂ emissions reveals the effects of the COVID-19 pandemic', *Nature Communications*, 11, 5172. <https://doi.org/10.1038/s41467-020-18922-7>

Liu Z, Ciais P, Deng Z, Davis S, Zheng B, Wang Y, Cui D, Zhu B, Dou X, Ke P, Sun T, Guo R, Zhong H, Boucher O, Bréon F, Lu C, Guo R, Xue J, Boucher E, Tanaka K and Chevallier F (2020b) 'Carbon monitor, a near-real-time daily dataset of global CO₂ emission from fossil fuel and cement production', *Scientific Data*, 7, 392. <https://doi.org/10.1038/s41597-020-00708-7>

Shi H and Jin E (2022) 'Valuing the costs of natural disasters using the life satisfaction approach', *Victoria's Economic Bulletin*, 6(4), DTF. <https://www.dtf.vic.gov.au/victorias-economic-bulletin/valuing-costs-natural-disasters-using-life-satisfaction-approach>

Sindall C, Lo S and Capon T (2021) 'Governance for the wellbeing of future generations', *Journal of Pediatrics and Child Health*, 57(11):1749-1753. <https://doi.org/10.1111/jpc.15813>

Smith W (2022) *Beyond GDP: Chalmers' historic moment to build wellbeing*, The Conversation, accessed 4 January 2023. <https://theconversation.com/beyond-gdp-chalmers-historic-moment-to-build-wellbeing-184318>

Sustainability Victoria (2022) *Zero Net Carbon Homes*, accessed 16 January 2023. <https://www.sustainability.vic.gov.au/energy-efficiency-and-reducing-emissions/in-a-business/by-sector/zero-net-carbon-homes>

Treasury (2012) *Working Paper 2011:02: Measuring wellbeing in theory and practice*, Treasury, accessed 19 January 2023. <https://treasury.gov.au/publication/measuring-wellbeing-in-theory-and-practice/working-paper-2011-02-measuring-wellbeing-in-theory-and-practice>

Ulmer J, Wolf K, Backman D, Tretheway R, Blain C, O'Neil-Dunne J and Frank L (2016) 'Multiple health benefits of urban tree canopy: the mounting evidence for a green prescription', *Health & Place*, 42, 54-62. <https://doi.org/10.1016/j.healthplace.2016.08.011>

WWF-Australia (2017) *Aussie attitudes to nature*, accessed 5 January 2023. <https://www.wwf.org.au/knowledge-centre/resource-library/resources/backyard-barometer#gs.nkp31k>

YourHome (2020) *Zero energy and zero carbon homes*, accessed 16 January 2023. <https://www.yourhome.gov.au/live-adapt/zero-carbon>