

What are key characteristics of the health benefits of climate adaptation measures?

Health benefits from implementing adaptation measures:

- can be achieved through numerous modifiable pathways
- can be direct and/or indirect, physical and/or mental in nature
- can occur immediately, intermediately and/or longer-term depending on the intervention pathway
- need to be pursued alongside mitigation measures, as there are limits to adaptation
- are estimated through a variety of study designs and methods, including cross-sectional, experimental and longitudinal observational studies
- are an increasingly important consideration in all countries given different at-risk populations
- have been shown in some circumstances to offset some or all of the costs associated with their implementation.

What additional benefits can arise from implementing climate adaptation measures?

- cultural, spiritual and social benefits through improved placed-based connections
- ecosystem benefits through improved biodiversity
- economic benefits through avoided health and social system, and broader, costs
- resource efficiency benefits through changes in the selection of resources/materials
- conflict and disaster resilience benefits through enhanced community literacy and preparedness
- equity benefits through well-designed policies that prioritise those at greatest risk of experiencing impacts
- enhanced community literacy, preparedness and connection.

What additional research or resourcing is needed on the health benefits of climate adaptation measures?

There is currently limited research on health benefits in:

- agriculture
- marine ecosystems
- non-urban settings
- understanding and characterising casual pathways between interventions and health outcomes given challenges with using certain methodologies (e.g. follow-up intervention studies, case-control studies, cohort studies)
- relation to sexual and reproductive health outcomes
- certain populations, including Aboriginal and Torres Strait Islanders
- developing countries, given many studies have been undertaken in North America or Europe
- broader engagement with the concept through interdisciplinary research teams
- understanding how health benefits currently inform policy and decision-making in different settings.

Additional investments are needed to support:

- characterising the cost-effectiveness and economic sustainability of different adaptation measures
- quantification of health co-benefits
- collaborations between key stakeholders and decision-makers
- capacity building across levels of government within and across countries
- the development of case studies and exemplars that enable replication in other settings
- access to additional data sources.

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The multiple health benefits of climate adaptation measures by sector

About climate adaptation measures

Climate adaptation measures:

- involve introducing policies, programs or actions that seek to minimise or avoid harm to people caused by climate change
- can be effectively co-designed and delivered by community members and community groups (known as community-led adaptation)
- require inter-sectoral collaboration when led by government and are implemented across levels and scales (i.e. local, state, national)
- can address health and other inequalities across different groups of people if carefully designed
- can also achieve emissions reduction (mitigation) and other benefits when implemented
- often need to be tailored to local contexts and based on community needs to optimise health benefits
- rely on the collection of environmental, health and other data over time to monitor and respond to changes
- may require additional resourcing (e.g. personnel, funding) during and after extreme events, particularly to support health and social services systems
- can enhance a community's resilience through increasing local adaptive and coordination capacity, self-organisation, innovation and recovery.

Why are adaptation measures important for health?

Climate change is already causing harms to health by exposing people directly and indirectly to increased frequency and severity of heatwaves, wildfires, floods and drought. Populations considered at greatest risk of experiencing impacts include children, people over the age of 65, people with existing health conditions, Aboriginal and Torres Strait Islander people, and marginalised groups. These populations may already be susceptible to poor health outcomes or experience inequalities, which can be exacerbated in a changing climate.

Well-designed adaptation measures can help to address these health inequalities, reducing the likelihood that people, including those most at-risk of poor health outcomes, are impacted. Further, well designed adaptation measures can help to build the resilience (capacity to tolerate climate change, maintaining function and identity) of people to future extreme weather events. When measures are not carefully planned, they can inadvertently increase the risk of negative health outcomes (known as maladaptation). Measures, particularly nature-based solutions, must be designed carefully to avoid creating health risks from diseases associated with animals and plants, such as mosquitoes, rats, ticks and algae.





BUILT ENVIRONMENT

(solutions involving physical human-made structures that provide essential services for people)

Health benefits that arise from safer, more comfortable living spaces, learning spaces and workplaces



Reduction in heat-related injuries and deaths during heatwave

Adaptation measures that:

- incentivise the use of passive design and energy efficient standards
- increase the use of 'cool' or less heat-absorbing materials (e.g. 'cool' roofs)



Improvement in mental health and wellbeing from thermal comfort and reduced energy costs



Reduction in water-related injuries or death during a flooding event



PLANNING & DESIGN

(solutions that shape the arrangement of cities and towns)

Health benefits that arise from from safer and healthier cities and towns



Reduction in obesity, lung and heart conditions from increased physical activity

Adaptation measures that:

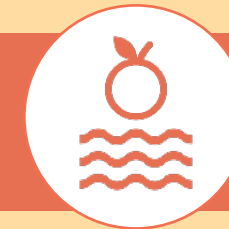
- increase safe options for walking and cycling
- increase equitable, accessible, affordable and safe public transport
- provide refuge from extreme heat
- introduce risk zoning policies and relocate or repurpose at-risk structures



Reduction in heat-related injuries (e.g. heat stress/heat stroke) and deaths



Improvement in mental health and wellbeing from better opportunities for social connection



FOOD SYSTEMS

(solutions that shape dietary choices)

Health benefits that arise from healthier, more sustainable and more equitable food systems



Reduction in obesity, cardiovascular disease, diabetes and some cancers

Adaptation measures that:

- enable local food production and climate-resilient agricultural practices
- increase availability of healthy, fresh, affordable and plant-rich foods
- encourage diets rich in fruits, vegetables, legumes, nuts, seeds and whole grains
- limit availabilty of energy dense, nutrient poor discretionary and ultra-processed foods



Reduction in diet-related deaths



Improvement in nutrition from more affordable and accessible healthy, fresh food



EMERGENCY MANAGEMENT

(solutions that help communities to prepare for, safely respond to and recover from climate events)

Health benefits that arise from the capacity to prepare for, respond to and recover from climate events



Reduction in injuries and deaths from weather-related disasters and health system pressures

Adaptation measures that:

- collect and disseminate information to communicate climate risks and threats (e.g. risk forecasting and early warning systems)
- increase awareness of climate risks and promote protective behaviours against climate impacts (e.g. heat action plans)
- provide public access to essential services (e.g. shelter, water, medication) during extreme events
- identify and communicate roles and responsibilities of different entities to protect health during and after climate events



Increased knowledge of safe and healthy choices during and after a climate event



Reduced risk of mental health conditions during and after a climate event



WATER

(solutions that moderate the impacts of water in a changing climate)

Health benefits that arise from safer exposure to water sources and their use



Reduction in water-borne disease outbreaks following flooding events

Adaptation measures that:

- improve/maintain sanitation (e.g. sewage) and stormwater structures
- reduce water stress and insecurity (e.g. wastewater recycling and treatment)
- protect against flood risks and impacts through e.g. strategic infrastructure for harvesting (green roofs, rain gardens)
- support the conservation and reuse of water resources
- use land strategically to protect coasts, riverbanks and wetlands (e.g. integrated coastal zone management)



Increase in physical safety and mental health from reduced exposure to floods



Increase in physical safety from water security



NATURE-BASED SOLUTIONS

(solutions that are supported by nature)

Health benefits that arise from increased green space and its use

Reduction in heat-related illness and lower localised temperatures from increased vegetation

Adaptation measures that:

- restore and increase land and soil health
- improve freshwater and marine ecosystems
- increase forestation, conservation, protected areas and green space
- appropriately increase biodiversity (different species of flora and fauna)



Reduction in lung and heart conditions from reduced exposure to pollution



Reduction in obesity and type 2 diabetes from increased physical activity



Improvement in mental health and functioning of the immune system from increased exposure to green space