PGAV Fact Sheet

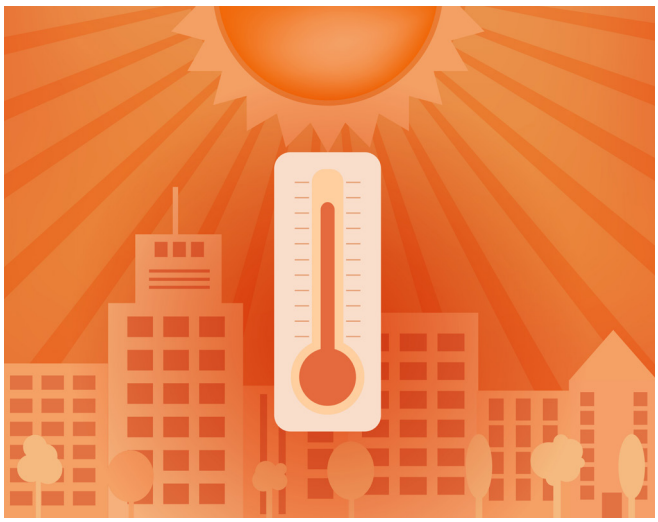
Integrating climate change into disaster preparedness planning

THE UNIVERSITY OF MELBOURNE

PGAV Public Galleries Association Victoria

ACKNOWLEDGEMENT OF COUNTRY

The Public Galleries Association of Victoria (PGAV) acknowledges the Wurundjeri Woi-Wurrung people of the Kulin Nation as the Traditional Owners of the lands where our office is located, and all Traditional Owners of country throughout Victoria and Australia. We recognise Aboriginal and Torres Strait Islander peoples' enduring traditions and continuing creative cultures. We pay our respect to Elders past, present and emerging.



Integrating climate change into disaster preparedness planning

This Fact Sheet has been developed by the Grimwade Centre for Cultural Materials Conservation, The University of Melbourne.

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DISASTER PREPAREDNESS AND CLIMATE CHANGE

Australia's climate has always presented challenges to anyone looking after artworks. Climate change is steadily increasing the intensity, frequency and severity of natural disasters and extreme weather events, including bushfires, floods, heatwaves, storms and pest infestations. We now need to prepare for the increased likelihood of disasters that have not previously posed a significant threat. Understanding how climate change is affecting your local environment is essential for robust planning and preparedness.

Disaster management centres on prevention, preparation, response and recovery. Integrating climate change impacts into your disaster preparedness planning involves **understanding** your local environment, **connecting** with community, **planning** for possible eventualities, and reviewing your procedures to ensure they are up to date. Given the urgency, impact and scale of climate change you may also want to think about how your gallery is **responding** to this challenge.

1. UNDERSTAND (THE RISKS)

Understanding how climate change is affecting your local environment is essential for robust planning and preparedness. It will help you prioritise planning for the specific risks that may affect your gallery. For example, an inner city gallery may not be at risk from bushfires but may be affected by smoke from bushfires. Droughts will increase dust in the atmosphere, affecting both urban and rural locations. Extreme weather events may cause flooding, and high winds can damage buildings. There is no doubt that climate change poses new risks to the operations of galleries and the care of collections.

Start with a review of the environment. Assessing what disasters have previously happened, and what disasters are predicted for your locality will help you target the biggest risks to your collection. Connect with local authorities such as fire services and council to gain an understanding of past events and align with their current disaster preparedness plans for the area. Contact other galleries and learn about their experiences.

Mapping/comparing environmental risks with the vulnerabilities in your collection will help you narrow down priorities for planning. Some materials are more resilient than others, and outdoor sculptures or installations will require different preparation strategies to objects in the gallery or in a storeroom.

Indirect impacts on your gallery as a result of extreme weather events, also need to be considered, including:

- Gallery closure
- The unavailability of staff and volunteers
- Increase in insurance costs
- Loss of visitors and business
- Emotional and physical stress to staff and volunteers
- Reputational risk

2. CONNECT (TO YOUR COMMUNITY)

Emergency management involves connecting people, organisations, and agencies, and using local knowledge to create tailored emergency response plans. Engaging with local authorities (police, fires services), council and other community organisations widens the pool of resources and advice available to you. This helps to better understand the risks, the responses that might already be in place, and ensures that the needs of your gallery can be factored into broader disaster planning.

For example, your local fire service can help you develop a fire plan, and provide technical services. You need to check that fire and smoke alarms, and extinguishers and sprinkler systems are operational, and seek advice on new methods/procedures/devices to protect staff, visitors, and artwork from the effects of smoke and fire. Your local council may have a climate change response plan with information that can help to inform your decision-making. Your professional community, including the PGAV, can share information on actions they are taking or new products or procedures they are investigating.

3. PLAN (FOR THE FUTURE)

Planning for the future involves building a robust disaster plan that is the result of assessing resources, risks, and your capacity to meet requirements in a disaster. There are a number of publications that can help you prepare a Disaster Plan (see Additional Resources on page 8).

Formalise methods for ensuring staff and volunteers are familiar with the Disaster Plan and understand how it will be implemented. Consider doing this as part of staff and volunteer inductions and as an annual event, with a staff register to confirm everyone has completed this, as is done with evacuation procedures.

Effective communication during and after the disaster is critical. Create a communication tree so that all staff and volunteers can be kept aware of what is happening, and make sure that there is a clear chain of command including who will be making on the ground immediate decisions (making decisions about access and recovery with the local SES for example, assessing the site, overseeing recovery) and who will be managing administration (liaising with staff and volunteers, talking with insurers, fielding press requests).

As well as your onsite copies, keep a physical copy of your Disaster Plan offsite and have virtual copies that are accessible to staff and volunteers.

4. REVIEW (THE PROCESS)

Climate change means that decision-making needs to be continually checked against the most current information. Undertake a risk assessment but make sure you are using up to date information—rate the risks according to their probability and impact on your collection.

Your disaster plan should similarly be reviewed on a regular basis to avoid a breakdown of operations in the event disaster happens. For example, given changes in staffing, volunteers and contact methods, updating contact details as they change is critical to maintain effective communication during and after a disaster. Tie in your disaster plan review and update with an annual activity such as the annual budget meeting. This is a good opportunity to update your Disaster Plan.

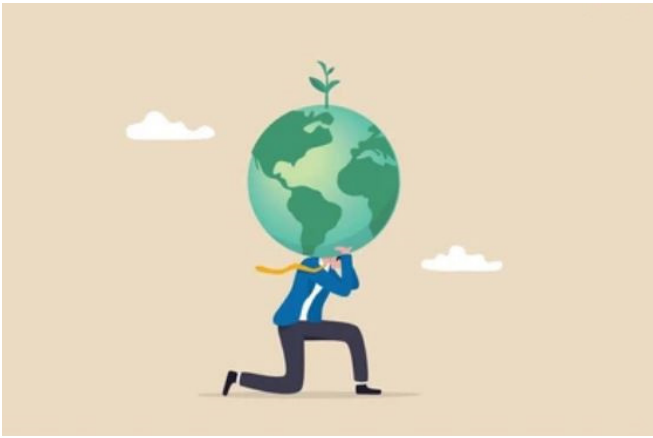
5. RESPONDING (TO CLIMATE CHANGE)

Climate change is now a climate crisis. You might like to consider:

- Does your gallery have a Climate Change Statement?
- Is having a public-facing position on Climate Change important to you and your audiences or community?
- Is there a leadership, education or community role your gallery can play?

Galleries and museums are actively working with clean energy technologies, drawing down carbon to stop greenhouse gas emissions, regenerating local environments after climate change induced disasters, working with artists to develop creative approaches to climate change messaging and education, and a range of other activities.

Apart from preparing for the impacts of climate change – consider how your gallery can be a leader in reversing the impacts of climate change.



WHAT TYPES OF DAMAGE CAN HAPPEN TO COLLECTIONS AND HOW IT CLIMATE CHANGE AFFECTING THESE?

While some of these events may not be directly applicable to your gallery, it is important to be aware of the types of changes occurring throughout the larger region. Not only does this build a knowledgeable and resilient heritage community but brings awareness to flow on effects that can impact your collection items even when your gallery space is not directly threatened. For example, city locations might be less vulnerable to drought in the way that rural locations are but are more susceptible to heatwaves and urban warming.

CAUSE	EVENT	EXPECTED CHANGE DUE TO CLIMATE CHANGE	EFFECT	MITIGATION STRATEGY
COMMON INDIRECT EFFECTS OF FAST ONSET EVENTS			Loss of electricity. Unavailability of staff or volunteers. No access to the site due to declared emergency area. Disassociation due to object relocation/movement.	Invest in a generator; develop a targeted mitigation plan for objects most at risk from loss of air-conditioning or refrigeration. Engage with local services and council so that the unique needs of your gallery are understood in the event of expert/staff absence. Robust data management strategy: accessible online back ups, detailed documentation of collection including visual documentation to re-unite objects and their information.
PHYSICAL FORCE	Wind,storms, hail	Increased intensity of storm surges. Increase in extreme wind events.	Damage to collection if infrastructure is compromised, eg. water through a broken window; abrasion or destruction of outdoor artworks/objects; hail damage.	Infrastructure maintenance; monitoring weather report and moving significant objects away from points of weakness; assess trees for stability; secure outdoor fittings and fixtures.
FIRE	Bushfire	Increased severity and frequency of bushfires; extension of bushfire season.	Loss of collection; damage from smoke and soot; water or chemical damage from fire suppressant methods; loss or damage to infrastructure; smoke presenting health risk to staff and volunteers.	Monitor HVAC system against the ingress of smoke – check filters, assess fire prevention/mitigation methods - sprinklers, types of extinguishers, and assess their damage potential; invest in an early warning air sampling smoke detection apparatus to monitor indoor air quality; plan for collection relocation if you identify high risk occasions.

CAUSE	EVENT	EXPECTED CHANGE DUE TO CLIMATE CHANGE	EFFECT	MITIGATION STRATEGY
WATER	Flood, rain	Increasing flood severity and frequency; extreme rainfall events will become more intense.	Loss of collection; staining and dimensional changes to supports; loss and damage to media; loss and/or damage to infrastructure; mould outbreaks.	Evaluate and fix building seals – particularly around windows and doors; relocating objects to a safer location if severe rainfall is predicted.
	Sea level rise	Sea levels set to rise; increase intensity of storm surges.	Erosion of coastal sites or increase in water table causing destabilisation of infrastructure or outdoor heritage; flooding and inundation of low-lying coastal areas; damage to collections from water ingress.	Engage with local government/council mitigation plans; assess vulnerability of outdoor heritage/artwork foundations; look at predictions for your area to begin long-term planning for increased flood risk; relocation of outdoor heritage; sea walls and protective barriers.
TEMPERATURE	Increases in temperatures – Heatwaves. Gradual temperature increase.	Hot days will become hotter and more frequent. Average temperatures are rising.	High temperatures speed up chemical reactions that cause degradations; temperature fluctuations cause physical damage from thermal expansion/contraction; health hazard for staff and volunteers; breakdown of HVAC or air-conditioning; substantial increases in costs of running air-conditioning.	Regular HVAC maintenance, particularly prior to summer; consider closing on extreme heat days; minimise opening of external doors to trap cool air inside; monitor temperatures in storage areas. Review environmental guidelines for collections.
	Drought, desertification	Drought periods set to increase in length; increased drought contributes to bushfires, increases flash flooding likelihood, creation of dust storms, reduction of groundwater.	Abrasion from dust and particulate matter; de-stabilisation of monument foundations or infrastructure damage due to soil desiccation; complications due to dimensional building changes; sinking of infrastructure or monuments due to subsidence.	Maintaining good seals around doors and infrastructure to prevent dust ingress; monitoring outdoor heritage foundations; monitor infrastructure for changes (cracking, dimensional, instability); understand the foundations of your building(s) and consider a regular building inspection.
POLLUTANTS	Air pollution	Chemicals and particulates increase with rising temperature.	Particulates in the air (dust, soot etc) cause abrasion; chemical degradation from hazardous chemicals in the air leading to yellowing, embrittlement, corrosion.	Check window and door seals are whole; keep windows closed; regularly check filters on HVAC; regular cleaning regime.
	Maritime environments	Changes in environment.	Changes in salt exposure of outdoor heritage, contributing to corrosion.	Consider the material make up of marine/coastal artworks/objects; regular assessment of outdoor collection items for corrosion or salt deposits.
HUMIDITY	Increase in humidity	Tropical areas get hotter and wetter, others likely to get drier.	High humidity increases likelihood of mould outbreaks and corrosion particularly if objects get damp; fluctuations in humidity strain objects and can contribute to cracking, splits.	Consult resources to understand expected changes to humidity in your local environment; monitor humidity in storerooms and on the gallery floor; inspect storerooms regularly for mould outbreaks; use fans to circulate air to prevent mould development; aim to keep humidity stable.

CAUSE	EVENT	EXPECTED CHANGE DUE TO CLIMATE CHANGE	EFFECT	MITIGATION STRATEGY
LIGHT	Increase in UV, intensity and heat	Ozone layer still needs decades to recover – meaning UV radiation remains high in Southern Hemisphere.	Ultraviolet radiation and increased light intensity increase chemical degradation, which appears as fading, yellowing, chalking of pigment, weakening of material. Increased sunlight increases heat.	Use UV protective glass – make sure to check the rating of the glass; move sensitive items out of direct sunlight.
PESTS	Insects, rodents	Migration of new species to your area; increase of numbers due to favourable conditions.	Damage to organic materials: holes in feathers, paper, textiles. Staining and accretions from frass, larvae.	Implement a strong Integrated Pest Management system; regular cleaning of all storage areas; regular inspection of vulnerable materials; monitor types of pests and seek advice for new or unusual insects.
THEFT, VANDALISM		Opportunistic theft or vandalism after disaster.	Access to the building may be compromised as a result of power loss or infrastructure damage; there are many different people moving about the space post disaster, potentially without staff supervision.	Ensure electric locks/doors/alarms continue working during power outage; maintain offsite copies of inventory; ensure insurance is up to date and is accessible offsite; ensure operational/collection documents are secure (password protected); don't keep collection inventories in easily accessible places; look into temporary fencing if there will be significant disruption to your building; consult local police to develop a security plan. Keep a site register during clean up/recovery to account for external visitors/ contractors on site.

ADDITIONAL RESOURCES

PGAV and NGV Conservation Webinar: Advancements in Collections Care: Environmental guidelines
Considers issues of risk management, managing loans, climate change and sustainability, as well practicalities of understanding the capacity of gallery buildings, HVAC systems and setting environmental parameters: https://pgav.org.au/PGAV-NGV-Conservation-Webinar-Session-Two~6540

AICCM Find a Conservator
A quick guide to finding a conservator when you need one: https://aiccm.org.au/find-a-conservator/

All is Not Lost: The Collection Recovery Book (Museum of Applied Arts and Sciences)
Developed by MAAS as a hard copy that can be available when power outages make web-based information inaccessible this publication provides quick, basic instructions on salvaging materials damaged by water, fire or impact: https://www.maas.museum/product/all-is-not-lost-the-collection-recovery-book/

A Practical Guide for Sustainable Climate Control and Lighting in Galleries and Museums
Developed by Museums and Galleries Queensland to assist museums and galleries in making informed decisions to improve their facilities to provide a more sustainable building environment: http://www.magsq.com.au/wp-content/uploads/2021/02/A-Practical-Guide-for-Sustainable-Climate-Control-and-Lighting-in-Museums-and-Galleries-2015.pdf

Australian Institute for Disaster Resilience
The Australian Institute for Disaster Resilience (AIDR) develops, maintains and shares knowledge and learning to support a disaster resilient Australia: https://www.aidr.org.au/

Australian Red Cross Preparing for Emergencies
Provides a clear and simple outline of how to prepare for emergencies with a focus on communities: https://www.redcross.org.au/campaigns/prepare-1

Be Prepared: Guidelines for Small Museums for Writing a Disaster Preparedness Plan
Aimed at smaller organisations, *Be Prepared* was developed by the Heritage Collections Council to help organisations assess and plan for disasters. It discusses training needs, assessment considerations, and provides safety and damage checklists and templates based on established disaster management plans: https://aiccm.org.au/disaster/disaster-planning

Climate Change: Victoria's path to a net-zero and climate resilient future
Victoria's Climate Change Strategy sets out the State Government's plan for emission reduction and building resilience to the impacts of climate change, and provides an overview of current Victorian Government approaches and resourcing: https://www.climatechange.vic.gov.au/

CSIRO Climate Change in Australia
Similar to the Victorian Government site, this provides climate prediction tools and data. Helps in mapping climate change scenarios, to provide a clear visual impression of anticipated changes to your local area: https://www.csiro.au/en/research/environmental-impacts/climate-change/climate-change-information

Heritage and Climate Change
A project developed by the Heritage Council of Victoria and Heritage Victoria to understand the impacts of climate change on Victoria's heritage places and objects: https://heritagecouncil.vic.gov.au/research-projects/heritage-and-climate-change/

How well do you know fire?
This is a campaign to help educate Victorians about how to plan and prepare for the fire season. Useful for galleries in bushfire prone locations: https://www.vic.gov.au/how-well-do-you-know-fire

Salvaging Damaged Collections State Library of Queensland
Provides advice on disaster recovery focussing on water damage, insect infestations, mould and disaster planning for large collections: https://www.slq.qld.gov.au/how-do-i/preserve-your-collections/salvaging-damaged-collections

Vic Emergency: Community Based Emergency Management approach
Describes a community-based approach to emergency management with practical advice on how to better plan, respond and recover from emergencies, with the support of the emergency management sector in Victoria: https://files.emv.vic.gov.au/2021-08/Community-Based-Emergency-Management-Overview.pdf

Victorian Government, Regional Climate Projections
A useful guide to help you understand how climate change might affect your locality: https://www.climatechangeinaustralia.gov.au/en/projects/victorian-climate-projections-2019/

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