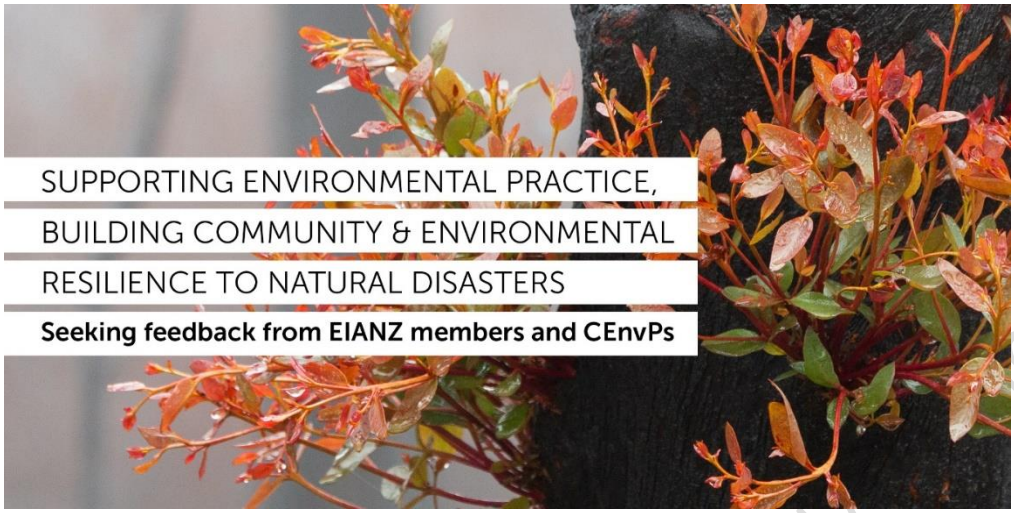

This detail intended to be displayed on EIANZ website

Supporting environmental practice, building community & environmental resilience to natural disasters

Natural disasters occur because we live where nature can harm us. Natural disasters can also catastrophically impact on the natural environment itself. Natural disasters are caused by land and sea movement (land slip, earthquake, and tsunami), rainfall and flood inundation, tidal inundation, storm surge, cyclones, intense weather events including severe storms and drought.

Environment Institute of Australia and New Zealand (EIANZ) members are well placed to take advantage of opportunities as they arise to make significant improvements in the resilience of our community and environmental assets.

Members provide critical expertise, especially the relationships between human settlements, infrastructure, and natural systems, for improving disaster resilience in Australia and New Zealand.

The EIANZ provides the following suite of documents to support and guide environmental practitioners to take a lead role in improving community and environmental resilience to natural disasters. The documents also inform others of the significant value added and opportunities for incorporating management of our natural assets in making our communities and environments disaster resilient.

- EIANZ Position Statement "Natural Disaster Resilience" – (The Role of Environmental Practitioners in Building Community and Environmental Resilience to Natural Disasters)
- Context and Background – Natural Disaster Resilience (A Background to natural disaster resilience and the relationship with environmental management)
- "Suggested Actions for environmental practitioners, Divisions & Chapters and Special Interest Sections"
- Key references and resources

EIANZ Position Statement "Natural Disaster Resilience"

Building Community and Environmental Resilience to Natural Disasters

Natural assets (terrestrial and aquatic ecosystems including landscapes, seas, oceans, lakes, rivers, wetlands, marshes, lagoons, streams and swamps) are impacted by natural disasters. More significantly, the way that natural assets are used and managed, along with their interface with settlement patterns and infrastructure have a significant impact on the ability of communities to be resilient to natural disasters.

Environmental management is one element in an integrated approach to supporting our communities, economies and environments to be natural disaster resilient. There are important cross-dependencies with land use planning, building codes, incorporation of climate change into decision making, design of infrastructure, and planning for and managing emergency responses.

There is clear evidence that conditions are getting worse with rising temperatures, more and longer heatwaves, reduced rainfall, but more intense rainfall events, rising sea levels and greater intensity of natural disasters.

Coordinated action is urgently required. This requires flexibility for any "fit for purpose" action in any jurisdiction, and at different levels of planning, operations and research. The EIANZ and environmental professionals are well placed to be proactive and strategic key players that add value in delivering disaster resilience.

Environmental practitioners, EIANZ Divisions & Chapters and Special Interest Groups can take opportunities to facilitate targeted action across the full range of policy and implementation arrangements relevant to all jurisdictions to improve natural disaster resilience.

The EIANZ sees three key themes for action that are adapted from the internationally adopted Sendai Framework for action by the environmental profession.

1. **Ensuring that the right data and information are** available in a useable format by providing transparent data and information to determine natural disaster hazard (from bushfires, storms, earthquakes, tsunamis, cyclones and floods), and to understand the exposure, vulnerabilities and post impact assessment of communities, infrastructure, habitats and natural assets.
2. **Collaborating with other disciplines** and shaping new ways for using environmental management to deliver natural disaster resilience using a "convergence of solutions" philosophy and applying multidisciplinary approaches to delivering multi objective outcomes.
3. **Improving the understanding, application and management** of natural *resources and the way environmental and landscape management are considered in preparing for, preventing, responding to and recovering from natural disasters*

See "*Suggested Actions for environmental practitioners, Divisions and Special Interest Sections*" for more detail on the role of environmental practitioners on a day-to-day basis and for EIANZ Divisions and Special Interest Groups in building community and environmental resilience to natural disasters.

The EIANZ is the peak self-governing professional association for environmental practitioners in Australia and New Zealand. The Institute has a certification scheme that recognises ethical and professional practice which assures government, industry and the community of practitioners' professional standing. It is represented by jurisdictional Divisions, a New Zealand Chapter and supported by Special Interest Sections covering climate change, heritage, contaminated land, ecology, and impact assessment. Its membership is drawn from all areas of environmental practice, and includes practitioners with industry, government, community and academic careers.

Context and Background – Natural Disaster Resilience

Building Community and Environmental Resilience to Natural Disasters

The EIANZ *Position Statement "Natural Disaster Resilience"* and the related "*Suggested Actions for environmental practitioners, Divisions & Chapters and Special Interest Sections"* capture material from the EIANZ Virtual Annual Conference 2020 "Recovering from Disasters" series of seven webinars. The documents also relate to observations and recommendations of the Australian Royal Commission into National Natural Disaster Arrangements (2020) (Royal Commission).

Internationally, there is demand for ecosystem-based disaster risk reduction and the consideration of indigenous knowledge.

The statement and suggested actions are applicable to the Australian and New Zealand situations.

Natural disasters are caused by land and sea movement (land slip, earthquake, and tsunami), rainfall and flood inundation, tidal inundation, storm surge, cyclones, intense weather events including severe storms and drought.

Natural assets (terrestrial and aquatic ecosystems including landscapes, seas, oceans, lakes, rivers, wetlands, marshes, lagoons, streams and swamps) are impacted by natural disasters. More significantly, the way that natural assets are used and managed, along with their interface with settlement patterns and infrastructure have a significant impact on the ability of communities to be resilient to natural disasters. This is well documented by the Royal Commission and other recent enquiries.

The use and management of our natural assets is one element in an integrated approach to supporting our communities, economies and environments to be natural disaster resilient. There are important cross-dependencies with land use planning, building codes, incorporation of climate change into decision making, design of infrastructure, and planning for and managing emergency responses.

There is clear evidence that conditions are getting worse with rising temperatures, more and longer heatwaves, reduced rainfall, but more intense rainfall events, rising sea levels and greater intensity of natural disasters. Our communities are faced with increasing effects from bushfires, storms, earthquakes, tsunamis, cyclones and floods. The history of settlement patterns means that more people and infrastructure are being exposed where they are, along with, in response to development pressures, new development in areas that are now becoming disaster hot spots. Many organisations are involved in this complex system of activity to address natural disaster resilience and recovery across all levels of government, industry, non-government bodies and communities.

Coordinated action is urgently required. This requires flexibility for any action in any jurisdiction, and at different levels of planning, operations and research. Environmental practitioners appreciate that natural systems and habitats vary widely in their capacity to recover from gross disturbance. In addition, our profession understands complex systems thinking and approaches, and is well placed to lead key actions.

This framework updates the Position Statement "*EIANZ's Response to Bushfires, Drought and Floods*" issued by the President of EIANZ in March 2020. That statement focussed on how environmental practitioners could facilitate recovery from bushfires, drought and flood, with reference to the 5 Rs program of the International Union for Conservation of Nature (IUCN).

The statement also identified a longer term need for better processes in relation to developing recovery programs in advance of devastating events.

The updated strategic approach incorporates the previous considerations and aligns with international best practice in disaster resilience - the Sendai Framework for Disaster Risk Reduction 2015-2030.

In Australia, the National Disaster Risk Reduction Framework (based on the Sendai Framework) sets the policy within which jurisdictions implement their own arrangements consistent also with the national Disaster Recovery Funding Arrangements. The Royal Commission has made recommendations for improving national disaster management arrangements in Australia.

In New Zealand, the National Emergency Management Agency (NEMA) provides national leadership to create an emergency management system that reduces the impact of emergencies. NEMA works with central and local government, communities, iwi, and business to make sure responses to and recoveries from emergencies are effective and integrated. The National Disaster Resilience Strategy is intended to provide a common agenda for resilience that individual organisations, agencies, and groups can align with for collective impact.

The EIANZ mission *is to connect and support environmental practitioners to promote a sustainable future*. This mission is supported by the *Code of Ethics and Professional Conduct* which has a specific reference to "…. *Advocate and undertake environmental practice in accordance with principles of environmental stewardship, resilience and sustainability, …*"

The EIANZ and environmental professionals are well placed to be proactive and strategic key players that add value in delivering disaster resilience.

Environmental practitioners and EIANZ Divisions and Special Interest Groups are guided under three themes and related actions targeted at activities across the full range of policy and implementation arrangements relevant to all jurisdictions. These are adapted the Sendai Framework.

The EIANZ sees the value in

1. Ensuring that the right data and information is available in a useable format
2. Collaboration with others for the development of convergent solutions, and
3. Improved understanding and management of natural assets for enhanced disaster resilience

See "*Suggested Actions for environmental practitioners, Divisions and Special Interest Sections*" for more detail on the role of Environmental Practitioners in building community and environmental resilience to natural disasters.

See *Key references and resources* for a selection of related reference material

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Suggested Actions for environmental practitioners, Divisions & Chapters and Special Interest Sections

Building Community and Environmental Resilience to Natural Disasters

These suggested actions support the *EIANZ Position Statement "Natural Disaster Resilience": Building Community and Environmental Resilience to Natural Disasters*.

The EIANZ provides the following actions to support and guide environmental practitioners, EIANZ Divisions & Chapters, and Special Interest Groups take a lead role in improving community and environmental resilience to natural disasters. The documents also inform others of the significant value added and opportunities for incorporating management of our natural assets in making our communities and environments disaster resilient.

As opportunities arise, the EIANZ and environmental professionals are well placed to be proactive and strategic key players that add value in delivering disaster resilience.

Environmental practitioners and EIANZ Divisions & Chapters and Special Interest Groups are guided under three themes and related actions targeted at activities across the full range of policy and implementation arrangements relevant to all jurisdictions.

1. Ensuring that the right data and information is available in a useable format

To provide transparent data and information to determine natural disaster hazard (from bushfires, storms, earthquakes, tsunamis, cyclones and floods), and understand the exposure, vulnerabilities and post impact assessment of communities, infrastructure, habitats and natural assets: -

- Present climate change data and information in a readily usable format for determining / reassessing natural hazards especially in relating to downscaled climate projections and agreed climate trajectories.
- Promote and engage with the systematic collection of impact data from natural disasters recognising the need for comprehensive pre-disaster baseline data in order to conduct post-disaster impact assessments, along with subsequent monitoring.
- Use understanding of ecological processes to support natural hazard and exposure mapping including environmental hazards and exposure for air and water quality, biodiversity values, the identification of vulnerable natural assets and habitat recovery barriers to support subsequent enhancement strategies.
- Lead the coordination of actions relating to air and water quality impacts of natural disasters, recognising the potential for cascading and cumulative impacts, particularly water quality in water supply catchments e.g., significant rain runoff following bushfires.
- Ensure environmental and ecosystem definitions are appropriate for input to planning process and the assessment of appropriate building materials.
- Share data and lead the development of improved consistency in environmental data collection, including the innovative use of mapping and technology to identify ecologically significant areas

2. Collaboration with others

To collaborate with other disciplines and shape new ways to deliver natural disaster resilience using a "convergence of solutions" philosophy, and applying multidisciplinary approaches to delivering multi objective outcomes

- Develop strategic alliances and working relationships (potentially joint "Communities of Practice") with other professional bodies as appropriate at national, state, regional and local levels
- Lead and support collaborative multi-disciplinary and holistic approaches to
    - develop and implement integrated strategies that incorporate climate change and address cumulative effects of natural hazards, social issues and economic viability, and
    - to develop transition strategies and pathways to deliver sustainable and disaster resilient communities.
- Adopt a multi-objective planning and convergence of ideas philosophy to include environmental and landscape management objectives that support disaster resilience in planning processes for land use, management and rehabilitation, infrastructure, emergency management and hazard reduction
- Engage in the development of locally based fire management strategies recognising that ecosystems and land management units do not respect land ownership (either public or private) or administrative boundaries.
- Support and engage in the development of natural disaster resilience strategies (e.g., Bushfire Management Strategies) that incorporate indigenous knowledge and techniques and consider indigenous cultural heritage to restore and maintain cultural and ecological integrity in addition to providing community safety.
- Work closely with land use planners to ensure environmental considerations, such as any potential natural hazards and the design of conservation reserve systems including wildlife corridors for mobile species to withdraw from bushfires and other disasters are considered in the development of planning documents and the consideration of development applications.
- Engage with emergency planning and response agencies to establish national standards and training for wildlife response and recovery and to ensure appropriate development and integration of effective wildlife response and recovery capabilities are considered and in place.
- Engage with architects and building control regulators to ensure ecosystem and vegetation mapping suits the needs of residents deciding on building materials.
- Engage with waste and recycling industry groups to develop guidelines for post impact "unwanted material" collection to maximise recycling and minimise demand for land fill.
- Engage with the Australian Institute for Disaster Resilience to support its work to enhance disaster resilience through innovative thought leadership, professional development and knowledge sharing. This will support its work with government, community, research, education and the private sector to share extensive knowledge and experience in Australia and abroad.

3. Improved understanding and management of natural assets for enhanced disaster resilience

To improve management of natural resources and the way environment and landscape management are considered in preparing for, preventing, responding to and recovering from natural disasters: -

- Support the research, development and deployment of new and improved nature-based resilience strategies and technologies for environmental assessment and management of natural assets to reduce natural hazards and impact on communities and infrastructure.
- Work collaboratively and support investment in long-term ecosystem and land management, modelling, forecasting, research and evaluation to promote natural disaster resilience and adaptation, particularly as a result of climate change
- Develop strategic alliances to support and provide environmental science expertise with jurisdictional risk reduction and resilience agencies to ensure climate change, environment and natural asset management are appropriately considered in resilience and recovery activities.
- Develop marketing and communication strategies including targeted storytelling to increase the understanding of the benefits of managing natural assets (green infrastructure) to improve community and economic resilience.
- Develop industry best practice guidelines for social – ecological impact assessments to ensure consistent coverage of appropriate considerations for new developments.
- Develop strategic alliances for improving wildlife management and species conservation particularly when recovering from bushfires.
- Engage with jurisdictions to support environmental resilience and recovery and in particular assist with the development of fit for purpose business cases identifying resilience opportunities and the related economic benefits.
- Engage with government agencies to ensure greater consistency and collaboration in the collation, storage, access and provision of data on the distribution and conservation status of Australian and New Zealand flora and fauna.

References and Resources

Building Community and Environmental Resilience to Natural Disasters

A selection of reference sites to get started, focussing on governance and organisational matters.

International

https://www.undrr.org/ United Nations Office for Disaster Risk Reduction

https://www.undrr.org/implementing-sendai-framework/sf-and-sdgs The Sendai Framework and Sustainable Development Goals

https://www.preventionweb.net/english/ The UNDRR Knowledge Hub for disaster risk reduction

https://www.unisdr.org/conference/2020/apmcdrr/home

https://www.preventionweb.net/files/56219_ulaanbaatardeclarationfinal.pdf Asian Ministerial Conference on Disaster Risk Reduction - Preventing Disaster Risk: Protecting Sustainable Development

https://www.linkedin.com/posts/undrr_nations-are-learning-lessons-from-each-other-activity-6741893666983477248-K8qE/ Follow UNDRR on LinkedIn

https://www.unenvironment.org/news-and-stories/press-release/green-infrastructure-natures-best-defence-against-disasters - promoting green infrastructure

https://www.fema.gov/sites/default/files/2020-09/fema_ecosystem-service-benefits_policy_september-2020.pdf - using natural assets for reducing disaster risk

Australia

https://www.aidr.org.au/about-aidr/ Australian Institute for Disaster resilience – knowledge and learning to support a disaster resilient Australia

https://www.homeaffairs.gov.au/about-us/our-portfolios/emergency-management/emergency-response-plans Includes a suite of plans to respond to, and recover from, natural and human-caused emergencies (includes NATCATDISPALN)

https://naturaldisaster.royalcommission.gov.au/ Royal Commission into National Natural Disaster Arrangements

https://www.pm.gov.au/media/reforms-national-natural-disaster-arrangements Australian Government response to the Royal Commission into National Natural Disaster Arrangements including a standing national resilience and recovery agency

https://www.homeaffairs.gov.au/emergency/files/national-disaster-risk-reduction-framework.pdf National Disaster Risk Reduction Framework

Natural assets for flood and cyclone resilience - Synthesis of scientific evidence on the role of natural assets to reduce the human impacts of floods and cyclones (DEHP, 2012) & *Natural assets for flood and cyclone resilience Review of planning mechanisms used worldwide for mitigation of natural disasters using a natural assets approach* (DEHP, 2012) Using natural assets for risk reduction.

New Zealand

https://www.govt.nz/organisations/national-emergency-management-agency/ to create an emergency management system that reduces the impact of emergencies

https://www.civildefence.govt.nz/cdem-sector/plans-and-strategies/national-disaster-resilience-strategy/ includes a common agenda for resilience that individual organisations, agencies, and groups can align for collective impact