National Emergency Management Agency

Science Strategy

December 2021

New Zealand Government

Purpose and Goals:

Steward | Operator | Assurer

The purpose of this strategy is to provide a framework about science engagement, promotion and influence in the context of the National Emergency Management Agency (NEMA), and to ensure that it contributes to NEMA's Strategic Framework/ Tā Mātou Anga Rautaki and Strategic Outcomes/Ā Mātou Whāinga Rautaki. It supports NEMA's Function/Ā Mātou Mahi...

As Steward... The NEMA Science Strategy helps to ensure that strategic leadership decisions for risk reduction, readiness, response and recovery activities as well as emergency management capability and capacity are based on the latest research, science, and best practices.

As Operator... The NEMA Science Strategy will help to support the response to and recovery from emergencies, while ensuring the operation of the emergency management system is using key research and science.

As Assurer... The NEMA Science Strategy will help to provide assurance through science information that the emergency management system is fit for purpose.

Goal 1: Assess and Update Data and Knowledge

State of data, scientific, and local knowledge, mātauranga Māori and technical expertise are assessed, updated and available.

Goal 2: Dissemination

Scientific evidence is synthesized, produced and disseminated in a timely and accessible manner that responds to the knowledge needs of policy makers and practitioners

Goal 3: Monitoring and Review

Scientific data and information support are used in monitoring and reviewing progress towards resilience building

Goal 4: Capacity Building

Better capacity in all sectors and countries to access, understand and use scientific information for better informed decision-making

NOTE:

It is recognized that some of the outcomes apply to multiple objectives. Numbers in (#.#) represent the Business Objectives that they specifically align with. The first one listed is the primary alignment.

Strategic Outcome 1:

All communities are better prepared to respond to and recover from emergencies.

Goal 1: Assess and Update Data and Knowledge

- Work with other Departmental Chief Science Advisor (CSA) to share good practice across government and maximise the collective expertise of the CSA network to connect across Ministry/ Department/Agencies to identify and resolve cross-departmental issues. **(1.1)**
- Provide advice to National Security System (NSS), Officials Committee for Domestic and External Security Coordination (ODESC), Watch Groups, relevant Ministers and Associate Ministers. **(1.1)**
- Advocate and promote the importance of understanding data gaps, and how to fill them or cope without them, and what vulnerabilities the data gaps expose. **(1.1, 4.2)**

Goal 2: Dissemination

- Raise scientific awareness and improve understanding. **(1.1)**
- Establish the understandable, practical, evidence based scientific knowledge needed for all actors. **(1.3, 2.1)**
- Promote various means of science communication for decision-making & policy makers. **(1.2)**
- Disseminate information and practices on contingency planning and protection of critical infrastructure including the promotion of "build back better" approach in recovery, rehabilitation and reconstruction. **(1.1, 4.4)**
- Preparing and providing oversight on briefings, reports and presentations on scientific findings of importance for the Senior Leadership, NSS, ODESC, Watch Groups, Ministers, and other key actors. **(1.1, 4.3)**
- Communicate the importance of uncertainty and risk, and degree of consensus amongst experts. **(1.2, 1.3)**

Goal 3: Monitoring and Review

- Build KPIs into NEMA's system-facing assurance processes which measure uptake and application of science data/ information. **(1.3, 4.2)**
- Review partner's statutory planning documents for demonstration of intentional connection between science data/information and resilience building. **(1.3, 3.1, 3.2, 3.3, 4.6)**

Goal 4: Capacity Building

- Promote dialogue and networking on EM between scientists and policymakers, tangata whenua, civil society and business in all 4 Rs. **(1.3)**
- Raise scientific awareness and improve understanding within NEMA and with key actors, considering future risk and resilience. **(1.1, 3.3)**
- Supporting NEMA to lift the quality of public discussion on issues of relevance to the activities of NEMA, and to provide accessible, valid, meaningful, public information. **(1.3, 2.1, 2.3)**

Strategic Outcome 2:

Māori participation in the emergency management system is recognised, enabled and valued.

Goal 1: Assess and Update Data and Knowledge

- Engage with tangata whenua, and where appropriate, draw on cultural advice and ancestral knowledge to inform decision-making. **(2.1, 2.2, 3.3)**
- Include, with the agreement of Māori knowledge holders, mātauranga Māori in the evidence base. **(2.2, 1.1)**
- Identify and grow data and resources related to Māori engagement in disasters. **(2.1, 2.3)**
- Work with partners to help grow Māori capacity to engage in disaster science. **(2.1, 2.3)**

Goal 2: Dissemination

- Include mātauranga Māori as well as ancestral, and local knowledges and practices. **(2.1, 2.3)**
- Inform national disaster plans and strategies that focus on community preparedness and awareness, including the roles, and emergency management aspirations and needs of Māori. **(2.1, 2.3, 3.2, 3.4, 4.3, 4.4)**

Goal 3: Monitoring and Review

- Explore and document Māori engagement in disaster science. **(2.2)**
- NEMA and the sector to gain an understanding of Māori disaster management capabilities and assets. **(2.1, 2.2)**

Goal 4: Capacity Building

- Promote inclusiveness, interdisciplinary, and intergenerational participatory approaches across the 4Rs. **(2.1, 2.2, 2.3, 1.2, 2.4, 4.2)**
- Build NEMA capacity to understand and respectfully examine mātauranga Māori. **(2.1, 2.2, 1.1, 1.3)**

Strategic Outcome 3:

Impacts of emergencies on people, the economy and environment are reduced.

Goal 1: Assess and Update Data and Knowledge

- Improve data collection and usage for disaggregated data pertaining to women, children the elderly, those with disabilities and migrants.
- Encourage and link to existing and update/ maintain global databases. **(3.2)**
- Advocate and support the development of updated methods, models, scenarios and tools. **(3.2)**
- Promote integration of risk assessments across sectors. **(3.2, 3.4)**
- Promote scientific focus on disaster risk root causes, emerging risks, public health threats, insurance. **(3.2, 3.3)**
- Adopt a multi-hazard approach that integrates lessons learned, including trans-boundary, trans-disciplinary, biological and technological hazards. **(3.2, 3.3)**
- Promote disaster risk assessment in spatial planning and development both in public and private sectors and increase participation of tangata whenua and civil society. **(3.3)**
- Promote multi hazards early warning systems with improved climate information, aerial and spatial data, emergency response services and communication to end users. **(3.2, 3.3)**
- Share best practices in new threats and risks (including infectious diseases) to inform preparedness planning. **(3.1, 3.2, 3.3, 3.4, 4.6)**
- Identify, collect and analyse case studies and assess options to strengthen recovery and rebuilding efforts. **(3.1)**

Goal 2: Dissemination

- Improve access to data on EM generated by international organisations, science and technology communities, governments and different levels and partners. **(3.2, 3.3)**
- Review and share build back better indicators with tangata whenua and relevant actors. **(3.1)**
- Ensure understanding of risk uncertainty. **(3.3)**

Goal 3: Monitoring and Review

- Monitor science and technology investment in EM as an integral part of national plan & policies. **(3.1, 3.2, 3.3.)**
- Link Science and Technology progress to Sendai Monitoring indicators and report. **(3.3, 3.4)**
- Promote coherence in data collection and monitoring and evaluation indicators with Sustainable Development Goals and Paris Agreement. **(3.4)**
- Liaise between the EM community and the major global assessments, such as IPCC 6th Assessment Report and other related assessment. **(3.4, 2.1)**
- Promote disaster risk assessment and resilience in planning and development. **(3.2, 3.2)**
- Promote participatory monitoring mechanism involving civil society organisations, tangata whenua, and local communities. **(3.2, 3.3, 2.1)**
- Collect information on voluntary evaluation of science and technology investment achievements periodically in collaboration with science and technology partners. **(3.3, 3.4)**
- Support innovations in earth observation and geospatial data for risk profiling and decision making. **(3.3)**
- Incorporate “build back better” in insurance policies. **(3.4)**

Goal 4: Capacity Building

- Institutionalise effective recovery and reconstruction as strategies to reduce risk and promote resilient developments. **(3.2, 3.3, 3.4)**
- Promote science-based decision making for resettlement processes. **(3.4)**
- Utilise scientific information to gain prior public consensus on post-disaster actions and to enable their smooth implementation after a disaster. **(3.1, 2.1)**

Strategic Outcome 4:

The emergency management system is well-coordinated, high-performing and enjoys widespread trust and confidence.

Goal 1: Assess and Update Data and Knowledge

- Encourage and promote solution-driven research at all levels that involves the users in the earliest stages. **(4.1, 2.1, 3.2)**
- Integrate risk reduction, climate change adaptation, emergency management and other relevant sectors in governance mechanism. **(4.1, 4.3, 4.4, 4.5, 2.1)**
- Develop flexible governance system to adapt to emerging risks. **(4.3, 4.6)**
- Promote the assessment of ecosystem-based development options. **(4.4)**
- Include scientists of all disciplines in analysing investment in EM including loss and damages. **(4.2, 4.4)**
- Collaborate with the humanitarian community in exploring best practice for survivor-led response and reconstruction. **(3.1, 4.5)**

Goal 2: Dissemination

- Advocate for evidence-based research on effective dissemination strategies for informed decision and policymaking. **(4.1, 4.3, 4.4, 1.1, 1.3, 2.1)**
- Develop partnerships between all science, technology, and emergency management partners, and integrate gender equality, disability, and vulnerable communities. **(4.1, 4.2, 4.3, 4.4, 4.5, 2.1. 2.3)**
- Promote dialogue and networking on EM between scientists, academia, policymakers, civil society, media, business and private sectors at regional, national and local level. **(4.5, 2.1, 3.2)**
- Promote changing roles of science and reflective practices of implementation that will contribute to the improvement of readiness, reduction, response, recovery, and resilience. **(4.1, 2.3, 3.2, 3.3)**
- Inform national disaster plans and strategies that focus on community preparedness and awareness, including the needs of women, children, people living with a disability, migrant/refugee communities, the elderly, and animals in vulnerable situations. **(4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 2.1, 2.2, 2.3, 3.3, 3.4)**

Goal 3: Monitoring and Review

- Strengthen the engagement of science and technology in regional and national coordination and promote local implementation. **(4.3, 4.6)**
- Establish meaningful assurance mechanisms for Māori to provide comprehensive feedback on the uptake and application of mātauranga Māori and how science data and information is meeting Māori aspirations. **(4.2)**

Goal 4: Capacity Building

- Advocate for the development of expertise and personnel to use data, information and technology. **(4.5, 3.1)**
- Promote the development and use of standards and protocols, including certifications. **(4.5, 3.1)**
- Utilise knowledge and resources of science and technology community for effective education programmes on the 4 Rs for scientists, practitioners and communities. **(4.5, 2.1, 3.1)**
- Promote systems approaches in understanding disaster for better informed decision. **(4.1, 4.2, 4.3, 4.4, 4.5, 4.6)**
- Encourage & enhance capacity of partners in EM to increase investment in science & technology. **(4.6)**

Strategic Outcome 5:

Actively promote the use and coordination of science and research.

Goal 1: Assess and Update Data and Knowledge

- Promote integrated and multidisciplinary systemic research.
- Assess & update the status of mainstreaming science & technology in emergency management.
- Encourage and advise on funding for science & technology in emergency management to enhance knowledge, research, technology transfer.
- Assess the impact of investment of science and technology in emergency management.

Goal 2: Dissemination

- Promote access to data, information and technology.
- Provide evidence-based advice to support agencies and CDEM Groups carrying out emergency management at the national, regional, and local levels across the readiness, reduction, response and recovery.

Goal 3: Monitoring and Review

- Supporting recruitment to, operation of, and where appropriate, chairing key internal scientific advisory committees to ensure maximum value and independence from external advice.
- Represent NEMA on key strategic scientific advisory boards.
- Promote transparency, collaboration, and multi-agency inputs from across science sectors to NEMA.

Goal 4: Capacity Building

- Develop a mechanism to gather and coordinate all science collected during a response to inform recovery and resilience.

Contact Us:

For more information, or if you have any questions regarding the National Emergency Management Agency (NEMA) Science Strategy please email us at:

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