Australian Government
Geoscience Australia

NEXIS – The National Exposure Information System

BETTER INFORMATION UNDERPINS BETTER DECISIONS

THE NATIONAL EXPOSURE INFORMATION SYSTEM (NEXIS) IS A MAJOR CAPABILITY BEING DEVELOPED BY GEOSCIENCE AUSTRALIA.

NEXIS provides nationally consistent exposure information to support risk assessments of buildings, people and infrastructure to various hazards. Three key components are central to an understanding of risk; the hazard, what is exposed and how vulnerable the exposed elements are. NEXIS provides the exposure component.

HAZARD

Natural hazards include earthquakes, tsunami, bushfires, floods, cyclones, and severe weather. Other threats include terrorism and infrastructure failures. These events have a significant impact on communities now, and their effects may be exacerbated by climate change in the future.

Severe weather *is the most costly hazard in Australia.*

VULNERABILITY

Vulnerability refers to the likely impact on buildings, people, infrastructure and the economy when exposed to a hazard. NEXIS contains information that can be used for physical, social and economic vulnerability assessments.

Some building *types are more susceptible to damage than others.*

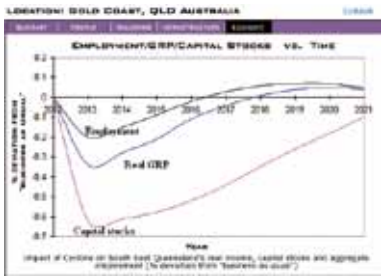
EXPOSURE

Exposure refers to the 'elements at risk' that may be affected by a hazard. These elements include buildings, people, economic activity, essential services and infrastructure. Australia's greatest exposure is concentrated in the urban areas of the continent's coastal fringe. NEXIS derives exposure information through existing and available datasets. These data are highly detailed, including information on building types, floor area, construction material, income, demographics, business activity and population estimates.

Exposure is *greatest in high density city centres.*

IMPACT

While the severity of natural hazards cannot be reduced, detailed exposure information can help to mitigate the impact of a hazard through better planning, preparation, response and recovery.



Natural hazards *are estimated to cost the Australian economy on average $1.25 Billion each year.*

PLANNING AND POLICY

NEXIS is an evidence-based capability for policy makers. It provides exposure profiles of Australia's building, people, economic activity and infrastructure. This information allows governments to better prepare for hazards by developing and implementing policies, strategies and improved building regulations.

RISK ASSESSMENTS

NEXIS is being used to enable risk assessments for Australian hazards including earthquake, tsunami, and cyclones. This demonstrated capability is a powerful resource in providing information to help decision makers best protect communities.

Government planners *can use the information NEXIS provides to minimise the impact of a natural hazard.*

NEXIS information can be used for risk assessment and research. It supports decision making in urban planning, policy development and emergency response.

CLIMATE CHANGE ADAPTATION

NEXIS has been used in the National Coastal Vulnerability Assessment, National Wind Risk Assessment and other local studies for decision making. This demonstrated capability is being considered as a research infrastructure for climate change adaptation and sustainable urban environments.

NEXIS played *a vital role in completing a risk assessment on the potential impact of climate change and associated coastal erosion.*

EMERGENCY RESPONSE

NEXIS is being used by emergency managers to improve their response and recovery operations. Access to detailed exposure information enables emergency managers to make better informed decisions and to prioritise tasks. NEXIS assists in post disaster operations by providing population, building and infrastructure estimates within an impact area.

Photo: DES Queensland

Photo: CFA Victoria

Emergency service *managers use NEXIS to increase the effectiveness of their operations.*

GETTING INVOLVED

Geoscience Australia is seeking input from data custodians to improve NEXIS. Expanded and detailed exposure information will improve policy development and planning, risk assessments and emergency management. The project already has a number of external clients and stakeholders, including:

- Federal Government Departments responsible for emergency management, environment, infrastructure, innovation and climate change
- State and Local Government Agencies responsible for providing infrastructure and development guidelines
- Insurance Industry Bodies, and
- Research Agencies including CSIRO and Australian Universities.

FOR FURTHER INFORMATION:

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