

National Exposure Profile for Evidence Based Climate Change Adaptation

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SUMMARY

Climate change has become a real challenge for all nations throughout the world. The Fifth IPCC Assessment Report (2007) indicates that climate change is inevitable and those nations that quickly adapt will mitigate risk from the threats of increased strength of tropical cyclones, storm surge inundation, floods and the spread of disease vectors. Decision making for adaptation will be more effective when it is based on evidence. Evidence-based disaster management means that decision makers are better informed, and the decision making process delivers more rational, representative and objective climate change outcomes. To achieve this, fundamental data needs to be translated into information and knowledge before it can be put to use by the decision makers as policy, planning and implementation. The exposure to these increased natural hazards includes the communities, businesses, services, lifeline utilities and infrastructure. The thorough understanding of exposed infrastructure and population under current and future climate projections is fundamental to the process of future capacity building. Exposure information is defined as a suite of elements at risk from climate change which includes human populations, buildings, businesses and infrastructure. The development of the National Exposure Information System (NEXIS) is a significant national project being undertaken by Geoscience Australia (GA). NEXIS collects, collates, manages and provides the information required to assess multi-hazard impacts. NEXIS provides comprehensive information to derive the exposure profile for any given area at various geographic resolutions including Statistical Divisions (SD), Local Government Area (LGA) and Statistical Local Area (SLA). The information includes aggregated demographics of building type, construction type, year built, population, income, usage, business type, turnover, business associated employees, customer capacity and infrastructure assets. The details of these assets are required for impact analysis. NEXIS maintains the current exposure information for the nation. This exposure can then be projected based on Australian Bureau of Statistics (ABS) population projections to provide underpinning information required for the estimation of the future impacts due to climate change. This process has been demonstrated for several national projects including the National Coastal Vulnerability Assessment (NCVA), Garnaut review on climate change, National Wind Risk Assessment (NWRA), and integrated approaches for local government planning projects. Furthermore, the NEXIS information framework is being extended to develop exposure information systems for South East Asian nations as a part of an AusAID-funded capacity building program.

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