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CLIMATE CHANGE CHALLENGE FOR SETTLEMENTS, INFRASTRUCTURE, HEALTH AND TOURISM

Many planning decisions in Australia involving settlements, infrastructure, health and tourism need to account for more-extreme climatic conditions and higher sea-levels.

That's a key findings of the Fourth Assessment by the Intergovernmental Panel on Climate Change (IPCC) released today in Brussels.

However, Australia has few integrated regional and sectoral assessments of impacts, adaptation and socio-economic risk of climate change, according to Kevin Hennessy, a Coordinating Lead Author of the IPCC chapter on Australia and New Zealand.

"Methods to incorporate adaptation into environmental impact assessments and other regional planning and development schemes need to be developed. More research is needed on how local communities can shape adaptation," Mr Hennessy said.

The Report found -

- Infrastructure design criteria for extreme events are very likely to be exceeded more frequently;
- Increased damage is likely for buildings (e.g. concrete joints, steel, asphalt, protective cladding, sealants), transport structures (e.g. roads, railways, ports, airports, bridges, tunnels), energy and water services, and telecommunications (e.g. cables, towers, manholes);
- Increased demand for emergency services is likely;
- Insurance costs are very likely to rise in areas with increased risk.

Increases in peak energy demand due to increased air conditioner use are likely to exceed those for base load, so more peak generating capacity is likely to be needed beyond that for underlying economic growth, and the risk of black-outs is likely to increase.

Mr Hennessy said increased peak and average temperatures are also likely to reduce electricity generation efficiency, transmission line capacity, transformer capacity, and the life of switchgear and other components. However, if climate changes gradually, generation utilities and equipment manufacturers are likely to have enough time to adjust their standards and specifications.

Significant health impacts are expected. The number of heat-related deaths is likely to rise from 1115 per year at present in Adelaide, Melbourne, Perth, Sydney and Brisbane to 2300-2500 per year by 2020, and 4300-6300 per year by 2050, including demographic change.

"Fewer but heavier rainfall events are likely to affect mosquito breeding and increase the variability in annual rates of Ross River disease, said the Australian National University's Prof Rosalie Woodruff, an IPCC Contributing Author.

"The average annual number of people exposed to the dengue vector is likely to rise 0.1-0.3 million by 2020, and 0.6-1.4 million in 2050.

"Malaria is unlikely to establish unless there is a dramatic deterioration in the public health response. Warmer temperatures and increased rainfall variability are likely to increase the risk of food-borne and water-borne diseases," Prof Woodruff said.

Dr Donna Green, from the University of New South Wales, said indigenous communities in remote areas of Australia often have inadequate infrastructure, health services and employment. This reduces their coping ability and may restrict their capacity for adaptation.

"Climate change impacts identified for remote Indigenous communities include increases in the number of days of extreme heat which may affect disease vectors, the reproduction and survival of infectious pathogens, and heat stress.

"Other impacts will be sea-level rise and coastal erosion, especially for up to 2,000 Indigenous Australians living on the Torres Strait islands; extreme rainfall events and flooding causing infrastructure damage; salt inundation of freshwater aquifers and changes in mangrove ecology; and changing fire regimes, Dr Green said.

Some tourism destinations may benefit from drier and warmer conditions, e.g. for beach activities, viewing wildlife, camping, wine tasting and fishing.

However, greater risks to tourism are likely from increases in hazards like flooding, storm surges, heatwaves, cyclones, fires and droughts. These adversely affect transport, personal safety, communication, water availability and natural attractions like coral reefs, beaches, freshwater wetlands, snow and forests.

Mr Hennessy said projected reductions in snow cover and duration are likely to require adaptation through increased snow-making at ski-resorts.

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