

Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation, Science, Research and Tertiary Education Portfolio
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AGENCY/DEPARTMENT: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Climate Adaptation Flagship

REFERENCE: Written Question –Senator Bushby

QUESTION No.: AI-94

What does CSIRO consider have been the most tangible, practical achievements of the Climate Adaptation Flagship over the course of its existence?

ANSWER

Since its commencement in July 2008, the Climate Adaptation Flagship can point to a number of significant impacts on the Australian understanding and take up of climate adaptation policies and projects. These include:

- Provider of **Australia's national climate change projections** which are used widely by government, industries and communities. For example the projections have been used to inform local government planning decisions and the wine company Brown Brothers has used this information to purchase land in northern Tasmania for new vineyards. A website, <www.climatechangeinaustralia.gov.au>, has been developed to make these projections available to all who have an interest - last years the site had 62,000 visits. CSIRO plan to release our next national projections in 2014.
- Improved understanding of the short and long-term drivers of climate in Western Australia, developed through the Indian Ocean Climate Initiative, was important in informing the policy decision to build a second desalination plant in Perth.
- Research into **adapting infrastructure** to climate impacts, particularly in relation to wind extremes and inundation on buildings, and emerging risks such as accelerated deterioration of construction materials has led to adaptation options that will reduce damage loss for infrastructure in the future.
- Understanding how climate change could impact on the deterioration of concrete. As the basic building block of Australian buildings and infrastructure, this knowledge is crucial to ensuring major assets such as roads, ports and buildings continue to perform up to expectations. A Flagship report outlines major findings for the benefit of policy-makers, engineering designers, asset managers and other professionals and decision-makers in both public and private sectors. The report makes a number of recommendations on the design of new, and maintenance of existing concrete structures. It is hoped that the impact of corrosion in new structures can be countered at the design stage through new technologies and materials.
- Reports and factsheets for the Sydney Coastal Council Group explored the vulnerability to climate change and adaptive capacity of the region. A similar study was conducted earlier for

the South East Councils Climate Change Alliance (Melbourne). Both studies have raised community awareness and have laid the foundation for future decisions that are responsive to climate risks. The results have the potential to influence investment in coastal management. The first project won the prestigious 2009 NSW Department of Environment and Climate Change Eureka Prize for Innovative Solutions to Climate Change.

- Provided the evidence base to underpin better housing design – including bushfire shelters – through experimental burns using ‘design fire’ conditions: this has contributed to the reform of building codes (Building Code of Australia) and bushfire shelter policy (Bushfire Bunker performance regulations).
- Understanding the interactions of fire with infrastructure, community perceptions of risk and community behaviour during bushfires through forensic investigation which has influenced: prescription of bushfire prone zones, wind loading aspects of bushfire codes, and revised methodology for post bushfire surveys conducted by state agencies.
- Modelling and tools to predict the likelihood of asset loss (and contributing factors such as house design and urban planning) for both simple and complex building types to help reform Australia’s National Fire Danger rating system.
- From 2008–11, the Flagship has authored a series of studies commissioned by the Australian Government to address the effects of climate change on Australia’s biodiversity and how best to respond. Building on a previous report on the National Reserve System, the Flagship coordinated a national report on four major regional biomes across the continent. The report outlined how to plan conservation in an integrated way for these different exemplar regions and highlighted the need for a major revision of objectives for conservation and the role of protected areas. These results are being integrated into policy at the national and state level. Researchers have identified forty-three species, representing about 30 per cent of the inshore fish families occurring in south-east Australia, exhibiting shifts in their territories thought to be climate-related. In another study, Australian scientists have published the first known detrimental impact of southern hemisphere ocean warming on a fish species – the *banded morwong*. In response to requests by Tasmania’s four major salmon companies, Flagship scientists will provide ocean temperature forecasts to assist marine farmers to plan for warmer water, which can have adverse effects on farmed fish.
- Identification of **crop management strategies** to better adapt to existing climate variability and change to reduce risk on farms. Crop adaptation options such as changes in production mix, rotations, sowing methods and use of climate forecasting have been investigated and evaluated in the context of real farming systems with farmer participants.
- Identification of **crop varieties** which are better able to exploit an environment with higher carbon dioxide concentrations and temperatures as an input into future breeding programmes. The Flagship is investigating climate ready sugar, wheat and sorghum.
- Working with farmer and catchment management groups across southern Australia which has improved their adaptive capacity to better manage climate risks.

In addition, as part of a review of CSIRO’s impact in 2010 ACIL Tasman undertook an analysis of the Flagship program. The Climate Adaptation Flagship was one of the case studies in the analysis and was found to be delivering a high value of return, conservatively estimated at \$2 billion+, by reducing the costs of dealing with climate pressures and increased insurance against a limited international mitigation response. A copy of the full ACIL Tasman report is available on the CSIRO website at: <http://www.csiro.au/en/Portals/About-CSIRO/How-we-work/Budget--Performance/Performance-reviews/Impact-and-Value-2010.aspx>.