Review of

The International Climate Change Adaptation Initiative Pacific Programs in Climate Science and Adaptation Planning

2008-2013

PACIFIC CLIMATE CHANGE SCIENCE PROGRAM PACIFIC ADAPTATION STRATEGY ASSISTANCE PROGRAM PACIFIC-AUSTRALIA CLIMATE CHANGE SCIENCE AND ADAPTATION PROGRAM

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## Acronyms and Abbreviations

\$	Australian dollars
ACCSP	Australian Climate Change Science Program
ADB	Asian Development Bank
AOSIS	Association of Small Island States
AP-CAP	Australia-Pacific Climate Adaptation Platform
AusAID	Australian Agency for International Development
BoM	Bureau of Meteorology
CAPF	Comprehensive Aid Policy Framework
CAWCR	Centre for Australian Weather and Climate Research
c-b	community-based
CCA	Climate Change Adaptation
CCAM	Conformal-Cubic Atmospheric Model
CCiP	Climate Change in the Pacific (PCCSP Final Technical Report, 2011)
CDMS	Climate Data Management System
CED	Climate Change, Environment and Disaster Risk Management
CESCS	Centre of Excellence for Climate System Science
Clide	Climate Database for the Environment
CMIP	Coupled Model Intercomparison Project
СОР	Conference of Parties (to United Nations Framework Convention on Climate Change)
COSPPac	Climate and Oceans Support Program in the Pacific
CRCSI	Cooperative Research Centre for Spatial Information
CROP	Council of Regional Organisations of the Pacific
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCCEE	Department of Climate Change and Energy Efficiency
DEM	Digital Elevation Model
DHW	Degree Heating Week
DICCSRTEE	Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education
DRM	Disaster Risk Management
ENSO	El Niño - Southern Oscillation
FRA	European Centre for Medium Range Weather Forecasts Re-analysis
ESM	Eederated States of Micronesia
GA	Geoscience Australia
GCM	Global Climate Model
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNA	Gans & Needs Analysis
	International Climate Change Adaptation Initiative
	International Conference on Southern Hemisphere Meteorology and Oceanography
IFCI	International Forest Carbon Initiative
ITC7	Inter-Tropical Convergence Zone
IMA	Janan Meteorological Agency
km	kilometre
	Light Detection and Ranging
M&F	Monitoring & Evaluation
mm	millimetre
MTR	Mid-Term Review
ΝΔΡΔ	National Adaptation Program of Action

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	NCEP	National Centre for Environmental Prediction
	NGO	Non-Government Organisation
	NIWA	National Institute for Water and Atmospheric Research (New Zealand)
	NMS	National Meteorological Services
	NOAA	National Oceanographic and Atmospheric Administration (USA)
	ODA	Overseas Development Assistance
	OECD	Organisation for Economic Development
	PACCSAP	Pacific-Australia Climate Change Science & Adaptation Program
	PacMAS	Pacific Media Assistance Scheme
	PADClim	Pacific Advanced Climate Course
	PASAP	Pacific Adaptation Strategy Assistance Program
	PCCR	Pacific Climate Change Round Table
	PCCSP	Pacific Climate Change Science Program
	PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
	PDD	Project Design Document
	PIAC	Pacific Infrastructure Advisory Centre
	PIC	Pacific Island Country
	PI-CPP	Pacific Islands Climate Prediction Project
	PIFACC	Pacific Islands Framework for Action on Climate Change
	PIFS	Pacific Islands Forum Secretariat
	POAMA	Predictive Ocean Atmosphere Model for Australia
	qae/ I	Quality at Entry/ Implementation
	RCM	Regional Climate Model
	REEEP	Renewable Energy and Energy Efficiency Partnership
	RNA	Review and Needs Assessment
	SCOPIC	Seasonal Climate Outlooks in Pacific Island Countries
	SEWPAC	Department of Sustainability, Environment, Water, Population and Communities
	SIT	Science Implementation Team (PACCSAP)
	SLA	Sea-Level Anomaly
	SLR	Sea-Level Rise
	SOPAC	Pacific Islands Applied Geoscience Commission
	SPC	Secretariat of the Pacific Community
	SPCZ	South Pacific Convergence Zone
	SPREP	Secretariat of the Pacific Regional Environment Programme
	SPSLCMP	South Pacific Sea Level and Climate Monitoring Project
	SST(A)	Sea surface temperature (anomaly)
	TC	Tropical cyclone
	TCLV	Tropical cyclone-like vortex
	TCRM	Tropical Cyclone Risk Model
	TCRWM	Tropical Cyclone Wind Risk model
	UNDP	United Nations Development Programme
	UNFCCC	United Nations Framework Convention on Climate Change
	UNSW	University of New South Wales
	UQ	University of Queensland
	USA	United states of America
	USP	University of the South Pacific
	V&A	vuinerability & Adaptation
	WR 0	World Material Organisation
	VIVIU	wonu wieleorological Organisation

WPM West Pacific Monsoon

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# **Executive Summary**

Australia's International Climate Change Adaptation Initiative (ICCAI) included two Pacific Programs supporting climate science research (PCCSP, the Pacific Climate Change Science Program) and climate adaptation planning (PASAP, the Pacific Adaptation Strategy Assistance Program), implemented separately from 2009 to 2011 and then combined and extended as the Pacific-Australian Climate Change and Adaptation Program (PACCSAP) for a further two years from 2011.

A Review of the three Programs was conducted by an independent consultant in the first part of 2013, around 18 months after the scheduled end of the PCCSP and PASAP, and six months before the scheduled end of the PACCSAP. The Review examined each of the three Programs and the approximately 70 subsidiary projects – their design; governance and management arrangements; activities and results achieved. Program details were obtained from documents provided by the responsible Australian agencies, through interviews, and visits to Pacific regional and national organisations in Fiji, Samoa and Solomon Islands. The Review provides an assessment of the relevance, effectiveness and efficiency of the three Programs; and in a Supplementary report, a summary account of each of the individual projects planned and implemented under the three Programs. The Review report concludes with a summary of lessons drawn, and recommendations for future programming.

The Review was conducted in conjunction with a broader review and needs assessment (RNA) covering all aspects of the ICCAI in the Pacific Island Countries and providing guidance for future Australian Government support for climate change, environment management, and disaster risk reduction in the Pacific. Refer to overall RNA Report, June 2011.

The ICCAI was a commitment of \$150 million over three years (2008-09 to 2010-11), extended in 2010 with a further \$178.2 million for 2011-12 and 2012-13. Of the \$328 million ICCAI funding, approximately \$160 million was committed to the Pacific islands region and East Timor<sup>1</sup>; of which \$64 million was allocated to the three Programs under Review – the PCCSP, PASAP and PACCSAP. Joint oversight of the ICCAI Programs was provided by the Australian Agency for International Development (AusAID) and Department of Climate Change and Energy Efficiency (DCCEE). DCCEE was responsible for implementation of the PASAP and the PACCSAP; while the Commonwealth Scientific and Industry Research Organisation (CSIRO) and Bureau of Meteorology (BoM) were responsible for implementation of the PCCSP and PACCSAP Science Program.

## Pacific Climate Change Science Program

The PCCSP was a \$20 million program delivered by CSIRO and BoM, based on the long relationship between BoM and the Pacific National Meteorological Services (NMS). The Program was developed through consultations with Australian, PIC national, regional and international organisations. The Program was structured around four themes of climate change research, concerned with a) recent and current climate and trends, to underpin improved projections of future climate change; b) major regional climate phenomena which drive seasonal and longer-term variations in rainfall, winds and tropical cyclones; c) more detailed climate projections and fine-resolution modelling to understand regional and country-level climate impacts; and d) ocean processes including sea level rise and ocean acidification. A fifth PCCSP component organised synthesis and communication of the science information produced by the research activities.

The PCCSP's Management Framework comprised a Senior Officials Group of AusAID and DCCEE joined by Directors from CSIRO and BoM; the PCCSP Management Committee (DCCEE, AusAID, CSIRO, BoM); and a PCCSP Project Implementation Team (PIT) of the four CSIRO-BoM Science Theme Leaders and chaired by the PCCSP Program Manager, who was also Leader of component 5.

<sup>&</sup>lt;sup>1</sup> The three Programs covered the 14 Pacific island countries and Timor-Leste, but the Review did not extend to the work done in Timor-Leste.

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The PCCSP was developed following commitments made to the UNFCCC Copenhagen conference as part of Australia's support to the Pacific island countries to prepare for and cope with climate change. It was planned and developed rapidly and, in a number of ways, not as a typical aid program: there was no overall program framework specifying the logical linkages across the research activities, nor monitoring plans for the individual components. The overall Program goal and overall end point specified for all the projects was essentially *to improve scientific information*, which the Review considers was a simple low level objective that did not provide sufficient guidance on higher objectives or on strategy to be followed. The recommendation [1]<sup>2</sup> is for the research program design to have specified an overall purpose of *enhanced resilience* or *effective climate adaptation* actions in the PICs.

The PCCSP formed a coherent program of 16 research activities undertaken skilfully and completed to a large extent within the tight time-frame, over 33 months, from March 2009 to December 2011; and with close compliance to the prescribed budget. It was a major achievement for the CSIRO-BoM partnership to mobilise the large and complex Program efficiently. Implementation was efficient, driven by PIT monthly meetings and a collegiate management approach to coordinate each of the Science Themes; and produce bi-monthly, six-monthly and annual reports. Monitoring and evaluation procedures were adequate but could have been improved by [2] using a more rigorous logical framework approach to set higher objectives for the Program; to require baseline measurements to be made; and to specify useful indicators for subsequent monitoring and evaluation of progress.

The Program was highly successful in meeting its primary objective, generating an impressive volume and broad range of new scientific information about climate and climate change in the Pacific; updating and improving quality of climate data records; and producing substantial increases in scientific knowledge and understanding. The PCCSP secondary objective of capacity building – to enable especially the PIC NMS to participate in climate research and contribute to the production of climate science information – was achieved to a reasonable extent considering the generally low capacity of the PICs, the small number of qualified personnel, and the short-term Program focus. A lesson from the PCCSP was the value of developing strong relationships between Australian science and Pacific island agencies through mentoring visits and short-term placements; a major series of five Pacific climate science workshops reached over 500 people; and all 15 participating island countries benefited from PCCSP training exercises.

NMS capacity was significantly enhanced with a new customised climate database management system called CliDE<sup>3</sup>, developed in consultation with the NMS, and established in each of the 15 countries. The PCCSP also developed four significant tools for Pacific NMS scientists to collate data and prepare their own analyses and reports: the Pacific Climate Change Data Portal; Pacific Tropical Cyclone Data Portal; Tropical Cyclone Wind Risk Model; and the *Pacific Climate Futures* web-tool. The third related broad objective for PCCSP was to disseminate the scientific information, and this was achieved in impressive style. The Program delivered a significant volume of complex and broad-ranging scientific research in a short space of time, publishing the major two volume report *Climate Change in the Pacific* and ancillary scientific articles and information materials.

## Pacific Adaptation Strategy Assistance Program

The PASAP was the second core component of the ICCAI, intended "to enhance partner country capacity to assess key climate vulnerabilities and formulate adaptation strategies to address them." The Program was governed and managed under similar but separate three-tiered arrangements to the PCCSP, under the joint AusAID-DCCEE Senior Officials Group; and an expanded Management Committee (MC) including DCCEE, AusAID, CSIRO, BoM, GA and SPREP. The Review finds that the PCCSP MC did not provide an effective mechanism for the agencies to collaborate, determine strategy and direction; but served primarily for DCCEE to inform the other members of progress with plans and implementation.

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<sup>&</sup>lt;sup>2</sup> Recommendations from the Review are numbered as indicated [x]

<sup>&</sup>lt;sup>3</sup> CliDE, Climate Database for the Environment.

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DCCEE implemented PASAP directly. A significant development which became a major feature of the organisation of DCCEE's adaptation planning activities in the PIC, was to establish a PASAP Program Implementation Unit (PIU) in Apia, Samoa, at SPREP headquarters. From that base two DCCEE Program Managers organised much of the development and implementation of PASAP projects (and subsequently PACCSAP). From observations and interviews with Program and project participants and consideration of the results achieved, the Review concludes that overall DCCEE's Apia outpost did not provide the most appropriate or effective mechanism for PASAP or PACCSAP management; it contributed to the Program being developed as a collection of relatively discrete activities, each essentially from scratch, with limited connections to other initiatives or institutional arrangements, either the ICCAI Science, bilateral or multi-lateral programs; Australian ODA; or the several relevant Pacific regional initiatives. It would have been more relevant, efficient and effective for PASAP (and the rest of the ICCAI) to have been implemented as a joint initiative by DCCEE and AusAID with AusAID using its programming and project management experience to lead delivery, and DCCEE providing policy guidance [3]. At country level, the ICCAI and PASAP Programs should have been developed with close connections to national development plans and to the Australian-PIC Partnerships for Development. This could have been managed more effectively, appropriately and cost-efficiently through the established AusAID Posts and programs augmented by the additional PASAP resources. It is likely these alternative arrangements would have brought greater coherence and purpose to the ICCAI, PASAP and Australian assistance to the Pacific.

The PASAP Program was not well-designed, with little structure or clear logic, changeable components and vague outputs. The Program Design Document (PDD, September 2009) did not include specifications for individual projects; concepts and proposals were developed subsequently between the PASAP Program Managers and potential project executants and collaborators. The particular issue was that, in contrast to the PCCSP under which virtually all activities were executed by the CSIRO-BoM team of scientists, PASAP activities were not executed by DCCEE but by a wide variety of other agents, each of which had to be individually negotiated and supervised. DCCEE did not have the capacity or time to organise rigorous Program or project planning and management.

PASAP developed into a collection of relatively *ad hoc* projects with little coherence as a program. Nine PASAP projects or sets of activities (as listed in Review Table 7) were actually implemented in the PIC in the period from mid-2009 onwards. Delivery was not efficient under the multiple subcontracts; only two or three of the projects were completed by the original deadline of June 2011; and at the time of the Review, six PASAP projects were still active or being completed.

Overall the achievements of the PASAP were limited. Planned Outcome 1, to provide strategic guidance to climate adaptation programs in the Pacific, was an ambitious proposition and was not able to be completed. Planned Outcome 2, to strengthen Pacific regional organisations' support for climate adaptation, was achieved to only a minor extent: there was no clear strategy and limited activity: PASAP gave a small amount of funding to SPREP, to support PIC national adaptation planning; and three separate projects were assigned to SPC, which gained skills in organising and executing relevant technical and scientific work. Planned Outcome 3, to build country capacities, was the core of the Program and was partially effective. The most significant achievement was the training by BoM of all 15 NMS to use dynamical forecasting tools for generation and to communicate seasonal climate forecasts. The small grant to SPREP to support formulation of PIC climate change adaptation policies and plans was also useful. PASAP also funded a relevant and effective model program of local community-based assessment of adaptation issues and options (in Roviana, Solomon Islands), leading to preparation of a useful resilience plan.

The Review questions the relevance and value of the most expensive project implemented under PASAP, the use of LiDAR-DEM<sup>4</sup> to produce high resolution elevation maps of three coastal sites vulnerable to inundation. The Review's main concern is that the project became a complicated challenge for the DCCEE to organise, yet did not amount in the end to a useful demonstration of an appropriate, replicable model project; it does not provide PIC with a satisfactory set of tools or

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LiDAR-DEM – Light Detection and Ranging surveys and Digital Elevation Models. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

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capacity for future work; there are more locally-appropriate and less expensive alternative technologies that are sufficiently precise.

The overall lesson drawn is that PASAP would have been more effective if individual activities and projects had been linked programmatically to one another, to other components of the ICCAI, and to other national and regional agendas or frameworks. This would have required a clear strategy to have been planned at the outset; investment in strengthened Program and project management capacities; and for AusAID-DCCEE to have developed a useful and effective executing mechanism.

## Pacific-Australia Climate Change Science and Adaptation Program

For the ICCAI 2<sup>nd</sup> phase, it was decided that the climate science and adaptation planning programs would be combined into a single program, PACCSAP, with DCCEE as the lead implementation agency, and an allocation of \$32 million for the additional two years from July 2011 to June 2013. The rationale was to strengthen the communication of the science information to planners and other end users; and to improve the governance and management arrangements for the ICCAI, which had been considered weakly coordinated in the 1<sup>st</sup> phase.

The three-tiered PACCSAP governance structure was similar to the 1<sup>st</sup> phase, with joint AusAID-DCCEE oversight; an expanded Executive Management Committee (EMC), chaired by DCCEE, with AusAID, CSIRO, BoM, SPC and SPREP as members; and a Project Implementation Team (subsequently named Implementation Working Group, IWG) responsible for day-to-day management of the Program; also chaired by DCCEE, with the leaders of each of the Program components. Despite the importance attached to improved "coherence, effectiveness and coordination", notably between three major Australian-funded climate change initiatives running in parallel in the region – PACCSAP, the other ICCAI Pacific activities, and the AusAID-BoM Climate and Oceans Support Program in the Pacific (COSPPac); and despite the wide membership of PACCSAP EMC, the committee's mandate and DCCEE's mandate did not extend beyond PACCSAP to the other programs. The Review considers that effectiveness and efficiency of the PACCSAP and of the 2<sup>nd</sup> phase of the ICCAI overall would have been improved considerably under a unified management structure [Recommendation 3].

Planning the new unified Program – to bring together the ideas of AusAID, DCCEE, CSIRO and BoM – was a challenging exercise and not realised effectively. The CSIRO-BoM Science team prepared a comprehensive proposal for the 2<sup>nd</sup> phase combined program, but this was re-worked into a different program structure by DCCEE. A PACCSAP PDD was prepared and endorsed, but was not fully-developed and was not subsequently completed; DCCEE presented the final Program design in early 2012 in the form of a PACCSAP Implementation Plan.

The DCCEE design specified three component Outcomes: 1. Science Program extension; 2. Awareness about climate change science and adaptation options; and 3. next phase of Adaptation planning support; and a total of 10 major sub-outcomes. DCCEE undertook direct implementation of Outcomes 2 and 3, through its PASAP PIU in Apia; and contracted CSIRO and BoM to implement Outcome 1, plus sub-outcome 3.1, NMS Capacity Building. Under this structure, the PCCSP Science Program was continued as PACCSAP Outcomes 1 and 3.1; the BoM-CSIRO position of PCCSP Program Manager was re-labelled PACCSAP Science Program Manager; and similarly the PCCSP Program Implementation Team became the Science Implementation Team (SIT).

The PACCSAP Program design, logical framework and objectives statements were not wellformulated and did not provide a clear and coherent plan for management, communications and monitoring purposes. Major weaknesses were continued segregation of science, planning and actual implementation of adaptation; and failure to formulate and implement an effective strategy for capacity development. Monitoring and evaluation (M&E) were also poorly developed; none of the measures specified in the PACCSAP PDD appears to have been implemented; the M&E Framework (July 2012) did not provide a hierarchy of planned objectives with clear definitions, measurable targets and indicators; and baseline and routine performance data were not collected and reported.<sup>5</sup>

<sup>&</sup>lt;sup>5</sup> The Review considers it particularly disappointing that the 2<sup>nd</sup> phase Program design was not a marked improvement built on lessons derived from the 1<sup>st</sup> phase.

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Monitoring and reporting to date have been limited largely to SIT meeting records<sup>6</sup> and Traffic Light Reports (TLR) on activity progress provided to the EMC. [Recommendation 5]

Implementation of the PACCSAP Program started in July 2011 as a collection of 40 sets of activities under the 10 sub-outcomes; refer to the Supplementary report for details. Over the first six months, PACCSAP was implemented by DCCEE and CSIRO-BoM in parallel with the PASAP and PCCSP Programs operating under no-cost extensions. PCCSP was completed and closed by December 2011, and led relatively seamlessly on to the PACCSAP Science Program. It was more difficult for DCCEE, which in mid-2011 was still mobilising most of the PASAP projects, at the same time being required to start implementation of PACCSAP components 2 Awareness and 3 Adaptation planning. The drawn-out process that has characterised the adaptation planning work meant that the PACCSAP component 3 was not able to build on a successful 1<sup>st</sup> phase. Several PASAP projects had not been completed and were extended to eventually form follow-up activities under PACCSAP. It is notable that most of the work started under the PASAP was not developed further under PACCSAP.

The <u>PACCSAP Science Program</u> comprised 17 climate research studies extending the work done under the PCCSP, plus four projects focused on further improvements to PIC climate data management and a suite of tools for Pacific island climate scientists. The research addressed an impressive range of topics, including modelling seasonal predictions of tropical cyclones, extreme sea-levels, rainfall, air temperature, sea-surface temperature, coral bleaching; understanding large-scale climate features and patterns of variability; improving and down-scaling climate projections; and understanding and projecting regional ocean processes. At the time of the Review, the second year of studies were reported to be largely on target to be drawn to a conclusion reasonably close to the June 2013 deadline. PACCSAP work on climate data management and tools has included digitisation of climate records; continued development of CliDE; and technical support and training. The Pacific Climate Change Data Portal has been updated; training has been delivered and presentations made on data analysis, homogenisation, historic trends and extremes. The *Climate Futures* web-tool was evaluated; new features developed and tested; and extensive training delivered to all the NMS.

The Science team SIT has coordinated collation and presentation of the results from the science projects, and delivery of training, including mentoring visits to PICs, attachments of NMS scientists to CSIRO-BoM units; and a small number of major courses. Scientific publications have been/ are being prepared on most aspects of the Science Program. Over the second year of the Program, team members have been contributing to compilation of a major *Climate Change in the Pacific* Supplementary Report plus individual country supplements, which will be completed before the end of 2013 as the major output of the 4-5 years of Climate Science Program under the ICCAI.

The Science work done to date illustrates that major progress can be achieved in short amounts of time. However, the Program illustrates also the continuing nature of the research needed to extend scientific understanding of climate variability and change; and the need for continuing support and further development of the CDMS and tools, so that they may be of most utility for PIC climate scientists and those who require their services. [Recommendation 2].

<u>PACCSAP Outcome 2 Awareness raising</u> was developed by DCCEE into a small number of projects or grant activities. At the time of the Review, three activities had produced interim results: climate change briefings had been provided to PIC journalists through a grant to SPREP's media outreach program; preliminary draft material had been prepared for an illustrated book for PIC school students, through a grant to an SPC-GIZ regional project; and preliminary materials for two animated films were developed by the CSIRO-BoM SIT. Other activities were just being started in the first part of 2013, for Scenario planning and Case studies; while other proposals had not progressed (Regional forums; Traditional knowledge). The lesson drawn from such piecemeal activities is to develop "awareness raising", and other capacity building, within an integrated, strategic approach towards strengthened adaptation and resilience.

<sup>6</sup> The Review has not sighted IWG meeting records. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

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<u>PACCSAP Outcome 3 Adaptation Planning</u>: Compared to PASAP, the Science Program and other parts of the ICCAI, DCCEE developed a narrow range of adaptation planning activities under PACCSAP, primarily on climate adaptation of Infrastructure and the Coastal zone. Five projects were intended to contribute to climate resilient infrastructure in the PIC, through preparation of engineering guidelines, primarily for climate resilient roads (in Solomon Islands and Vanuatu); development of a Tropical Cyclone wind risk model for the region; and modelling coastal flooding risk from wave storm surge (for Nadi floodplain in Fiji and Apia foreshore in Samoa).

The storm surge modelling is linked to the PACCSAP coastal activity LiDAR survey work extended from the PASAP Program. A similar activity is to advise on re-location of low-lying Taro township in Choiseul Province, Solomon Islands. None of these projects has reached the stage of producing results; and it is apparent that executants will require extensions of at least 12 months. Two other activities planned for the coastal sector were commissioned only in early 2013 and will not produce results for some time. One is a proposed assessment of the vulnerable Bonriki freshwater lens on Tarawa atoll in Kiribati; the other proposal is for an extensive analysis of the main geomorphological types of coastline in the PIC and their vulnerabilities to climate change impacts. The Review considers that this analysis would be more relevant and useful if it was organised as a participatory and collaborative exercise to enhance local capacity; link several related initiatives; and produce simple sets of guidelines for managing resilience of the main types of coastal ecosystem. Recommendation [1].

The third component of PACCSAP Adaptation planning work was planned as four activities, of which only one remains active: a proposed desk review of the vulnerability of groundwater resources of the 14 PICs, which DCCEE sub-contracted to GA in early 2013.

The narrow scope of PACCSAP AP work and overlaps between different projects suggest an inefficient, *ad hoc* approach and poor collaboration in Program and project planning. The Review recognises that much of the adaptation planning and awareness work has not progressed sufficiently to yield results; nevertheless, based on assessment of the proposals, project designs and activities started there is a risk that several of the activities will not be effective in achieving their intended results, particularly in the short time available; and will remain isolated activities, not linked together to achieve the envisaged broader outcomes or impacts. Recommendations [1], [2].

## **Review Findings – on Relevance, Efficiency and Effectiveness**

<u>Relevance</u>: Much of the work done under the three Programs was relevant to addressing a priority issue or need of principal stakeholders. Program activities were less relevant when priorities had been determined without adequate reference to local participants or beneficiaries. The Review found all 37 of the Science projects/ activities (under both PCCSP and PACCSAP) to have been high relevance, and of the 31 Adaptation Planning projects, 10 to have been of high relevance and 19 of medium relevance (2 were cancelled/ inactive).

The Science Program has investigated topics and produced a substantial body of information highly relevant to the needs of all countries in the region, including Australia, for improved knowledge and understanding of climate variability and change. Relevance was assured through continuing consultation among climate scientists. Highly relevant achievements included development of the climate data management system CliDE and securing archival climate records with each of the 15 partner country NMS.

Under PASAP and PACCSAP, the assessment and adaptation planning projects also were focused on topics that were relevant to the PICs, as determined through national and regional assessments; and were developed in consultation with the PIC national governments to address their priority concerns, including food security, water resources, coastal management, and infrastructure. The 2<sup>nd</sup> phase PACCSAP was focused on a narrower set of adaptation priorities, which has reduced the relevance of the Program for PIC stakeholders.

A fundamental issue for PASAP and PACCSAP was that vulnerability assessment and adaptation planning activities by themselves were not considered by the PIC as a particular priority for ODA support; PIC communities and governments experience large numbers of assessments and planning exercises by outside agencies, but are more concerned to gain support for meaningful, substantive

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actions. An important lesson for ensuring relevance is to support development and demonstration of comprehensive solutions, rather than targeting only assessment and planning activities. Recommendation [2].

The focus of the three Programs on capacity building in the PIC was a crucial factor in enhancing their relevance. While much of the research was reliant on facilities and support housed in the Australian agencies and not available in the PIC, and the work was done wholly or primarily by Australian scientists – who gained the most from the experience; the major mode of capacity building under the Science Program was through making the research findings available and accessible. The PASAP and PACCSAP Adaptation Planning projects, "owned" by DCCEE and implemented through a variety of agents, were generally less effective at building local/ national institutional capacity, and thus were of reduced relevance to the PICs. A basic lesson for the Program designers and managers was that sufficient time needed to be available for projects to be organised with a primary purpose of building local capacity to do the work. Recommendation [5], [6].

<u>Effectiveness</u>: The projects and activities implemented under the three Programs varied in their effectiveness in meeting expectations and achieving their objectives. The Science Program was designed with naive objectives – to build research capacity, generate information and disseminate the information. Both phases have been highly effective in orchestrating the impressive amount of complex and broad-ranging scientific research and generating new scientific information in a short space of time. The Science Program has not been as effective in achieving the two further objectives: the strategy adopted was to work with the staff of the NMS in each of the 15 countries, but not with next- and end-users. With a broader strategy and systemic approach the Science Program could have been aimed higher and could have built greater capacity and achieved greater dissemination of information with a wider range of stakeholders. Recommendation [6].

Under PASAP and PACCSAP, Adaptation planning activities were a series of relatively dis-connected projects rather than a cohesive program of work. This has reduced effectiveness overall and provided a clear lesson of the value of rigorous program planning to establish a coherent set of articulated components and subsidiary projects; of using a tool such as the logical framework to guide management; and of monitoring, reporting and communicating the work and results of the whole Program. Recommendations [4], [5]. This was not achieved successfully by DCCEE Program management, and it is apparent from discussions with stakeholders in the region and Australia through the RNA that there has been relatively little recognition or understanding gained of the PASAP and PACCSAP adaptation planning work; its purpose, strategies, tools and achievements have not been clear or convincing, and the Review considers that this recognition and impact are unlikely to improve significantly in the time available for the current Program activities to be completed.

An important lesson from both the 1<sup>st</sup> and 2<sup>nd</sup> phases is that separate climate adaptation programs are generally likely to be less efficient, relevant and effective, compared to mainstream programs which work towards sustainable and resilient development in a comprehensive manner. Many of the PASAP and PACCSAP projects were not clearly designed and directed towards the essential goal of resilient development, but were concerned with supporting climate adaptation as a discrete activity. This was not a requirement of Fast-Start financing<sup>7</sup>. Review recommendation [1] is for future Australian aid for the PIC to be directed towards economic and social development that is resilient, and directed towards comprehensive, integrated solutions [2] rather than creating programs and projects that attempt to address climate adaptation as a separate issue.

## Efficiency

PCCSP, PASAP and PACCSAP were large, high cost programs, especially for the PIC SIDS and for testing solutions in the relatively new field of climate change adaptation. These factors were not taken sufficiently into account in the conception and initiation of the Programs. PCCSP and PASAP (three years) and PACCSAP (two years) were given too little time to be designed, developed and

<sup>&</sup>lt;sup>7</sup> The requirement was for assistance with climate adaptation to be <u>additional</u> to existing aid funding, but this was misconstrued as needing to be discrete or separate.

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delivered; under-estimation of time required for planning and implementation was an issue for all the "process-intensive" projects and activities of PASAP and PACCSAP; there was never sufficient time "at the end" to analyse, reflect and learn from the work that had been done. The essential problem was that there was insufficient time to plan and use the large amounts of money efficiently. The Review considers that the purpose of the Fast-Start financing for the Programs was misconstrued as having to be implemented in a short amount of time, and the requirement for the funding to be "new and additional" to existing aid was misconstrued as having to be separate, and thus ruling out the comprehensive integrated approach advocated by the Review. These problems were compounded by the practice of allocating budgets and stipulating time-lines in advance of any planning. Recommendation [4].

The complicated management arrangements for the three Programs reduced their efficiency, with three tiers of committees responsible separately for each Program; not producing synergies between the agencies; and not ultimately achieving better Program outcomes. The ICCAI would have been more efficient if a single management structure had been applied across all Programs, based on the core structure of Australian Government's Pacific ODA delivered via the AusAID Posts and regional desks, which would have served the need to organise unified and integrated programs. Recommendation [3].

Based on experience with many other programs in the region, the Review concludes that the PASAP and PACCSAP adaptation planning work does not represent value for money: not withstanding the late implementation of many activities, around \$25 million of expenditure over five years has produced a sparse set of results and little lasting impact in the form of replicable solutions, lessons or capacity. The Science Program produced better value for money, with around \$40 million of expenditure over five years being spent more efficiently and yielding a large quantity of significant results that will have cumulative impacts.

## **Summary of Recommendations for Future Programming**

The Review concludes with a summary of lessons drawn from the three Pacific climate science and adaptation planning programs, which lead to the following five recommendations intended to guide relevant, effective and efficient future programming of Australian aid to the Pacific island countries.

Recommendation [1]	uture assistance should be directed towards environmentally ustainable, social and economic development that is resilient o climate change, rather than attempting to implement climate daptation separately as a discrete additional measure.	
	····	
Recommendation [2]	Future DEC-resilient development programs should support	

- comprehensive solutions through integrated management strategies, rather than implementing multiple separate programs and projects that are aimed narrowly at climate science, vulnerability assessment, adaptation planning or implementation of adaptation measures. Program planning should be demand-driven, centred on resilience building and supported by appropriate and specific research, assessment and planning activities.
- Recommendation [3] Program governance and management arrangements should ensure accountability and enhance coherence, synergy, clarity and rigour.
- Recommendation [4] Apply rigorous program and project planning and design procedures as essential preparatory tasks to guide management, implementation and monitoring.
- Recommendation [5] Strengthen monitoring, evaluation, learning and adaptive management procedures, as essential components of good management practice.
- Recommendation [6] Capacity building should be built into each ODA program and

project as the underlying purpose of each component and activity, following a clear strategy based on systems thinking and ensuring local ownership through participatory action and learning.

### **Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning**

## Introduction

- This report presents the findings of an independent review of three Australian Government programs on climate change science and support for adaptation planning in the Pacific islands region, which were implemented under the Australian International Climate Change Adaptation Initiative (ICCAI) in the period 2008 to 2013. The three programs are the Pacific Climate Change Science Program (PCCSP) and the Pacific Adaptation Strategy Assistance Program (PASAP), which were implemented separately from 2008-09 until 2010-11, then combined as the Pacific Australia Climate Change Science and Adaptation Program (PACCSAP) from 2011-12 to 2012-13).
- 2. The review of the three Programs was commissioned by AusAID as part of a broader review of all ICCAI activities in the Pacific, and in conjunction with a regional and national needs assessment, with the overall purpose of informing the preparation of a strategic programming framework, the Pacific Climate Change, Environment and Disaster Risk Management (CED) Development Agenda, for Australian Government development assistance in the Pacific for a further three-year period (2013-14 to 2015-16). A separate report presents the overall findings and recommendations arising from the complete ICCAI Pacific review and needs assessment (RNA).

## Background (extract from ToR)

Australia is providing approximately \$160 million to the Pacific under the ICCAI from 2008 to 30 June 2013 to help countries adapt to climate change. To date, more than \$130 million has been programmed, with over 25 climate change adaptation activities being delivered bilaterally in 13 Pacific Island Countries, and over 10 activities through Pacific regional organisations, Non-Government Organisations (NGOs) and multilaterals.

The four objectives of the ICCAI are to:

- Establish a sound policy, scientific and analytical basis for long-term Australian action to help partner countries adapt to the impacts of climate change
- Increase partner country understanding of the impacts of climate change on their natural and socio-economic systems
- Enhance partner country capacity to assess key climate vulnerabilities and risks, formulate appropriate adaptation strategies and plans, and mainstream adaptation into decision making
- Identify and finance priority adaptation measures that can immediately increase the resilience of partner countries to the impacts of climate change.

The ICCAI is jointly administered by AusAID and the Department of Climate Change and Energy Efficiency (DCCEE). AusAID-managed activities include working with partner governments and regional/multilateral organisations to implement on-the-ground activities in a range of sectors including infrastructure, coastal management (sea walls and mangrove plantations), water resource management, sanitation, education, fisheries and agriculture. Posts, with support from Canberra, have undertaken a range of climate change activities. These activities vary between country and sector due to factors such as development partner and post priorities and capacities. Selected activities are expected to be aligned to partner country national development or adaptation plans, Australia's strategy for Engaging our Pacific Neighbours on Climate Change: Australia's Approach, and ICCAI objectives. Where possible, they should complement or build on existing programs under the Pacific Partnerships for Development. Activities are implemented through a range of modalities appropriate for the in-country situation.

DCCEE manages programs in partnership with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology (BoM) covering the development of climate change science, including national-level projections, communication and capacity building, and integrating climate change adaptation into Pacific country policies and plans, addressing vulnerability in food and water security, the coastal zone and infrastructure.

Activities are being implemented through a range of modalities including through partner government systems, multilateral development partners, regional organisations, NGOs and Whole of Government partners. Consistent with the principles endorsed by Leaders at the 2010 Pacific Islands Forum, funding has been provided at all levels: regional, national, and community.

Due to the relatively small value and diverse nature of specific activities, much of the monitoring to date has been outputs rather than outcomes based. Implementation of many programs and activities is ongoing, so many of the anticipated development gains have not yet been fully realised. Nonetheless, a strong evidence base is needed to inform future programming decisions in line with "Effective Aid" and the CAPF.

This review and needs assessment of Australian-funded climate change, disaster risk reduction, and environment activities in Pacific island countries will provide a more solid foundation for evidence-based programming decisions and design of future investments.

## The Review

- 3. The Review of the three Climate Science and Adaptation Planning Programs was undertaken primarily by one member (PH) of the four-person RNA team, in the period January to June 2013. This timing was after the scheduled completion of PCCSP and PASAP (2008-2012) and in the final period of implementation of the PACCSAP program (2011-2013)<sup>8</sup>. The Review of the three Programs was undertaken as a stand-alone requirement of AusAID towards the completion of a substantial program of ODA (the total budget allocation to PSSCP, PASAP and PACCSAP was \$64 million); and as a learning exercise to inform future programming, an integral part of the broad review and needs assessment (RNA) for Australian Climate Change, Environment and Disaster Risk Management Activities in the Pacific.
- 4. This report forms the principal output from the Review; it is supplemented by milestone reports prepared at inception and following the Pacific island country visits (Aide memoire) in conjunction with the overall RNA. The report presents a review of the three target Programs, covering three major aspects of each management arrangements, design and achievements; with a focus on the program development process and the outcomes and outputs that were planned and intended; and on the results and impacts that have been achieved to date. Two of the three Programs were designed and implemented largely as portfolios of individual projects and activities, and these form a main focus of the Review, with an analysis of the development and performance of each subsidiary project presented as a separate Supplement to the Review report as well as discussion of its contribution to overall Program outcomes.

<sup>&</sup>lt;sup>8</sup> It is noted that subsequent to the Review, the EMC has agreed to an extension of the PACCSAP timetable by 50% (from 2 years to 3 years) to June 2014.

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5. The Review applied the three main standard criteria for evaluation of development assistance – Relevance, Effectiveness and Efficiency - with an emphasis on drawing lessons from the performance and achievements of the three target Programs in the context in which they have been delivered, on what works best and could be included most usefully in future programming. The Review reports on whether the Program activities that have been undertaken and the ways in which the activities have been organised and implemented have been of the highest relevance with regard to the prevailing needs and priorities of key stakeholders - participants and intended beneficiaries; as well as the Australian Government and partner organisations. The Review assesses aspects of the target Programs which have proved to be most effective and which less so, in achieving or progressing towards the outcomes that were intended or required from the Programs. The Review draws lessons from the Program and project designs and logic; the linkages achieved between the programs and components of the ICCAI, and with the Pacific regional frameworks guiding climate change action; and with regard to the most effective strategies for Australian ODA support to the maintenance and strengthening of resilient human and natural systems in the Pacific island countries. The Review considers also the efficiencies achieved in delivering the target Programs and projects. Subject to availability of information, the Review assesses the relative efficiencies of mechanisms available for whole-of-government collaboration in ODA; the resources applied to Program activities and their management; and the roles and contributions made by the Australian agencies engaged in the Programs, and of the Programs' main Pacific island national and regional partner agencies.

## Sources of Information for Review

6. The primary source of information for the Review was document files provided by the Programs' managing agencies – AusAID, DCCEE<sup>9</sup>, CSIRO, BoM – and other organisations that had been involved. In this way, the Review is drawing on the same materials that the agencies themselves are using and learning from as they manage, monitor and evaluate the Programs. **Box 1** summarises the documents available to the Review.

## Box 1: Summary of Documents available for the Review

At inception the Review was provided with a total of 230 documents, which formed an inadequate source of information. Following requests to different offices, Web searches, the country missions and visits to the agencies, by the end of the Review this had grown to 720 documents containing 1.5 giga-bytes of information. The files on each Program were as follows:

- a) PCCSP: 192 documents (365 MB)
- b) PASAP: 275 documents (549 MB)
- c) PACCSAP: 253 documents (580 MB)

The collection included a wide variety of types of records in draft or final form. The great majority were concerned with the development, management and administration of the Programs and of the activities and projects within them; a few documented the results achieved by the projects.

There were gaps and limited organisation of some parts of the Program and project records, which was a source of inefficiency for the Review, resulting in excessive time being spent on identifying, sorting and re-organising files before their contents could be understood and assimilated. This comparatively poor monitoring record must have affected also the efficiency of management of the Programs and projects themselves and of communications between the partner organisations, over the past five years of implementation.

<u>Lesson</u>: it is good practice to maintain a systematic set of records for Program and subsidiary project management. There should be a readily available summary of the key

<sup>&</sup>lt;sup>9</sup> Prior to the end of the Review, DCCEE was merged with the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIICCSRTE)

stages of the management cycle for each project – documenting the plan/ design, management, monitoring plan, inputs, outputs and impacts; this summary should be kept as part of the management agency's archive once the Program is completed and closed.

7. For the Review, the documented records were supplemented by meetings and e-mail correspondence with staff in the agencies involved with management and delivery of the Programs. The main series of meetings with agencies were as listed in **table 1**.

	Schedule of Review	w meetings with riogram management agencies
January 2013	Canberra	AusAID, DCCEE, CSIRO, BoM, GA, SEWPAC
January 2013	Melbourne	CSIRO, BoM
February 2013	Canberra	DCCEE, AusAID
March 2013	Fiji	AusAID, SPC
March 2013	Honiara <sup>10</sup>	CSIRO, BoM, GA, SPREP, SPC
April 2013	Apia	AusAID, SPREP
May 2013	Canberra	AusAID, DCCEE, CSIRO, BoM

 Table 1:
 Schedule of Review meetings with Program management agencies

### **Constraints and Weaknesses**

8. The Review was conducted in accordance with the terms of reference provided<sup>11</sup>; and based on the information gained from documents, interviews and direct observation, and the time available to assimilate, analyse and draw conclusions from it. The volume of work reviewed, with approximately 70 separate projects across the three Programs and a total budget of \$64 million over the five year period, and the general lack of a rigorous M&E and reporting system, make it likely that there are many details that have been overlooked or misconstrued. There are gaps in the information made available, for example summary data on the administration and finances of individual projects across all the Programs, which means that only limited conclusions are drawn on the Programs' efficiency. The Review was conducted over the first part of 2013, six

<sup>&</sup>lt;sup>10</sup> Two members of the RNA team (GW and PH) attended the PACCSAP Science Program Symposium in Honiara (March 2013) and had side meetings with participants.

<sup>&</sup>lt;sup>11</sup> The ToR specified for example that Timor-Leste was excluded from the Review even though it had been one of the 15 participating island countries; and that the focus was to be on three main evaluation criteria of Relevance, Effectiveness and Efficiency.

months prior to the scheduled completion of the PACCSAP. Compared to the PCCSP and PASAP, there was less documentation of the activities under way, or of results or other evidence of impacts.

- 9. There were limited opportunities for the Review to visit PCCSP-PASAP-PACCSAP project sites and assess activities and achievements 'on the ground': short visits were made to the NMS in Fiji, Samoa and Solomon Islands; weather prevented a site visit to the PASAP adaptation project in Roviana, Solomon Islands.
- 10. While it is apparent that the nature of the governance and management arrangements put in place by all agencies for the three Programs, and for the individual projects, have had significant influence on Program activities and performance, the Review does not have complete information or understanding of each office's role over the past five years to draw specific detailed conclusions. The Review was not a participatory exercise; it presents the findings, views and conclusions drawn by the single evaluator, who had no prior involvement with any of the programs or executants. The terms of reference were for an independent review of the three major Programs; there was a finite amount of time for research and analysis of large volumes of material; and there was limited participation or input to the Review from the management and delivery; even though they constitute the most comprehensive resource of information on all aspects of the Programs, their knowledge and views were accessed to only a minor degree.

# The ICCAI Pacific Programs – PCCSP, PASAP, PACCSAP

## A. PCCSP, PASAP and PACCSAP in context of the ICCAI

- 11. The Pacific climate change science and adaptation planning programs under review were developed as components of the Australian Government's International Climate Change Adaptation Initiative (ICCAI), the purpose of which was to meet high priority climate change adaptation needs in Australia's developing country partners, with a commitment of \$150 million over three years (2008-09 to 2010-11), which was extended in 2010 with a further \$178.2 million for 2011-12 and 2012-13. Of the \$328 million ICCAI funding, approximately \$160 million was committed to climate change work in the Pacific islands region and East Timor; of which \$64 million was allocated to the three Programs in this Review PCCSP, PASAP and PACCSAP.
- 12. The ICCAI was announced in May 2008 and the designs of the proposed ICCAI component programs were developed over the following 18 months. The initiative was to serve a set of four inter-linked objectives:
  - a) Scientific information and understanding
  - b) Strategic planning and vulnerability assessments
  - c) Implementing, Financing and Coordinating adaptation measures
  - d) Multilateral support for climate change adaptation.
- 13. These were developed into four discrete ICCAI components, which were delivered concurrently but via different funding channels and institutional arrangements. The ICCAI 1<sup>st</sup> phase budget of \$150 million was allocated to approximately 25 programs, as summarised in **table 2**. The first two components were developed into PCCSP, the Pacific Climate Change Science Program, and PASAP, the Pacific Adaptation Strategy Assistance Program, with budgets of \$20 million and \$12 million respectively. The third component was developed into a portfolio of projects implemented by AusAID directly; and the fourth component channelled funding to a number of multilateral climate change initiatives.

	Region / Country	Activity	Allocatio	n (\$ millions)
Α.	Pacific Climate Change Scie	ence		20.0
	PIC and East Timor	Pacific Climate Change Science Program (PCCSP)	20.0	
В.	Pacific Adaptation Planning	g and Assessment		12.0
	PIC and East Timor	Pacific Adaptation Strategy Assistance Program (PASAP)	12.0	
C.	Implementation, Financing	, Coordination (PIC-incl)		54.2
	Pacific Island Countries	Meteorological Services Review*	0.1	
	Pacific Island Countries	SPREP adaptation work program*	1.5	
	Pacific Island Countries	Australia-Pacific Climate Adaptation Platform*	3.0	
	Pacific Island Countries	Future Climate Leaders Program	3.0	
	Pacific Island Countries	SPSLCMP network upgrade*	4.3	
	Pacific Island Countries	Support for SPC adaptation activities*	4.5	
	Pacific Island Countries	Pacific Bilateral Adaptation Program	25.0	
	PIC and East Timor	Strategic NGO Programs	2.7	
	PIC, ET, Mekong, SriL	Mekong & Asia-Pacific c-b Adaptation Program	6.0	
	East Timor	CC into bilateral program; NAPA support	0.9	
	Asia-Pacific	Australian Development Research Awards (CC)	1.2	
	Asia-Pacific	AusAID - CSIRO Alliance	2.0	

 Table 2:
 ICCAI Component Programs and Budget Allocations – 1<sup>st</sup> Phase

D. Multilateral Support for CC Adaptation

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	Global	UNFCCC report on CC insurance	0.3		
	Global	UNFCCC Trust Fund for Participation	0.3		
	Global	AOSIS Institutional Capacity Building	0.5		
	Global	UNFCCC Least Developed Countries Fund	4.0		
	Global	Pilot Program on Climate Resilience	40.0		
Ε.	Non-PIC. Other Regions			11.6	
	SE Asia, S Asia, Caribbean	various national and regional programs	11.6		
De	Departmental and Administrative 7.1				
TO	TOTAL 150.0				

from 2011 03 ICCAI MTR Annex 4

\* Activities of direct relevance to activities planned under component 1 or 2, PCCSP or PASAP

- 14. The PCCSP and PASAP were implemented concurrently but separately from 2009 until 2011. Under the ICCAI extension in 2010, the two were then combined to form PACCSAP, which was implemented from 2011 to 2013. These are the three target Programs of this Review.
- 15. In 2009, as the ICCAI programs in the Pacific were being developed and mobilised, the Australian Government's strategy paper, *Engaging our Pacific Neighbours on Climate Change*, was released. The paper highlighted the significant range of Australia's support for climate adaptation and mitigation efforts in the Pacific island countries. Specific reference was made to the ICCAI and the PCCSP (but not the PASAP), together with an array of other Australian-supported but non-ICCAI climate programs that were current: South Pacific Sea Level & Climate Monitoring (SPSLCM), Pacific Islands Climate Prediction Program (PI-CPP), International Forest Carbon Initiative (IFCI), PNG-Australia Forest Carbon Partnership, Pacific Region Infrastructure Facility (PRIF); and the Renewable Energy and Energy Efficiency Partnership (REEEP).
- 16. The design and development of the PCCSP and the PASAP Programs took place in 2008 and 2009, as summarised in **table 3.** These processes were intertwined, and it is notable that for much of this period, PASAP was not named as such, and was presented primarily as an integral part of the broader strategy of ICCAI rather than as a discrete program. The design of the Science Program, PCCSP, was based more solidly on the long relationship between Australia's Bureau of Meteorology (BoM) and the National Meteorological Services (NMS) of the Pacific island countries. During its previous PI-CPP project, BoM had prepared a gaps and needs analysis, which highlighted the outstanding need for climate science research and was used to inform the design of the PCCSP.

Date	Program Planning Activity
2008 05	ICCAI – announced, for implementation 2008 07 to 2011 06
2008 06-07	ICCAI – consultations with regional agencies, donors, multilateral agencies
2008 08	ICCAI – joint Ministerial agreement (AusAID and DCCEE)
2008 08	Science Program Scoping Paper ?
2008 ?	ICCAI Science Program – call for research project proposals issued ?
2008 ?	Science Program – discussions with NIWA, NOAA
2008 09	PCCSP – Research project proposals evaluation (CSIRO, BoM, DCC, AusAID) ?
2008 10	PCCSP – consultations BoM, SPREP, SPC at PCCR in Samoa
2008 11	ICCAI – BoM consultations at AusAID-CSIRO rural livelihoods workshop (Nadi)
2008 11	ICCAI – BoM discussions with SOPAC and USP
2008 11	ICCAI Design Concept – approved by AusAID Peer Review
2008 12	PCCSP Design – reviewed by NGO reference group
2009 02	PCCSP – DCC, BoM, CSIRO meeting with NOAA, UH, NIWA, NZ MS
2009 02	PCCSP – DCC, BoM, CSIRO meeting with nine PIC NMS
2008 11 2008 11 2008 12 2009 02 2009 02	ICCAI – BoM discussions with SOPAC and USP ICCAI Design Concept – approved by AusAID Peer Review PCCSP Design – reviewed by NGO reference group PCCSP – DCC, BoM, CSIRO meeting with NOAA, UH, NIWA, NZ MS PCCSP – DCC, BoM, CSIRO meeting with nine PIC NMS

Table 3: ICCAI-PCCSP-PASAP Program Development – Summary Timeline

Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

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2009 03	ICCAI Workshop (design and inception), Brisbane
2009 04	PCCSP Management Committee Meeting #1
2009 04	PCCSP – Consultation with SPC Technical Meeting, CC and Fisheries
2009 05	PCCSP Program Design Document endorsed by AusAID Peer Review
2009 06	ICCAI A-P CA Platform Concept Note
2009 07	ICCAI – Consultation at PACC Inception Workshop
2009 07	PASAP Design Appraisal Peer Review
2009 08	PASAP Inception
2009 09	PASAP Program Design Document endorsed by AusAID Peer Review
2009 10	PASAP – QAE Report
2009 10	PCCSP Workshop, Vanuatu
2009 11	PASAP Management Committee Meeting #1
2009 12	ICCAI – Asia-Pacific Climate Adaptation Platform Design endorsed

17. In 2009, major program design workshops were held with PIC stakeholders, for the ICCAI (including PCCSP and PASAP) in March 2009 (Brisbane); and for PCCSP in October 2009 (Vanuatu). The Australian managing agencies (AusAID, DCCEE, CSIRO, BoM) also used existing meetings to introduce the proposed programs to the Pacific island countries and their regional organisations. These included the Pacific Climate Change Round Table (PCCR) in October 2008; a Pacific Climate Change Vulnerability Workshop in November 2008 (Nadi); an SPC Technical Meeting in April 2009; and the Pacific Adaptation to Climate Change (PACC) project Implementation Workshop in July 2009.

## Review notes:

- 18. There was a strong emphasis in the ICCAI concept on the need for an integrated approach to management of climate change research, adaptation planning, and actions: "the various components of the ICCAI program are inextricably linked and mutually reinforcing... In particular, outputs of the science program (ICCAI component 1. PCCSP) will provide essential inputs into the vulnerability assessment process (component 2. PASAP)...; (and) the outputs of vulnerability assessments will be essential inputs to the broader adaptation planning and mainstreaming activities undertaken with partner governments (component 3. Actual adaptation measures)."
- 19. The intended approach placed particular onus on the PASAP as the process in the middle, with the task of linking the climate science program with adaptation activities on the ground in the PIC, towards the overall goal of climate resilience. It is clear from the activities undertaken and results achieved that these links and interactions were generally not realised to an adequate extent. The underlying idea of the ICCAI as an integrated program was not followed during development of the initiative. Instead, the emphasis was placed on developing and delivering separate programs in parallel, under different agencies and modalities, with virtually no linkages or collaborative, combined actions.
- 20. As a consequence, the ICCAI has not been delivered as a coherent program of integrated climate science, vulnerability assessment, adaptation planning and action, and this has limited its overall relevance and effectiveness for the Pacific Islands region and countries. Work remains to be done: there is an outstanding need for the enriched scientific knowledge (from PCCSP and PACCSAP) to be accessed and applied; and for capacities to apply that knowledge through "adaptation planning" (PASAP and PACCSAP) to be built, in order to strengthen adaptation and resilience building actions.

## B. PCCSP – the Pacific Climate Change Science Program

21. This section reviews the PCCSP - Pacific Climate Change Science Program: the Review describes and assesses the relevance, efficiency and effectiveness of the PCCSP design process followed and the Program design prepared; the arrangements for Program management and delivery; and the results achieved by the Program.

## Program Management – PCCSP

- 22. The ICCAI was a joint initiative of the Minister for Foreign Affairs and the Minister for Climate Change, with strategic oversight by an AusAID DCCEE Senior Officials Group and administered jointly by the two agencies. DCCEE was assigned particular responsibility for overseeing the ICCAI "science information/ activities", which comprised the first major component, PCCSP. DCCEE's concept was to contract the climate science research to CSIRO and BoM; and in collaboration with the science organisations, to develop and manage an Information Synthesis and Communication Component which would convey the science outputs to end users in the region and in Australia. (DCCEE Science Program Concept Note, October 2008). The subsequent decision was that the CSIRO-BoM partnership would implement all components of PCCSP with joint DCCEE-AusAID oversight.
- 23. The PCCSP was established with a three-tiered Management Framework, comprising the Senior Officials Group (SOG) of AusAID and DCCEE joined by Directors from CSIRO and BoM; the PCCSP Management Committee (DCCEE, AusAID, CSIRO, BoM); and a PCCSP Project Implementation Team (comprising the four CSIRO-BoM Science Theme Leaders and chaired by the PCCSP Program Manager and Theme 5 Leader). In addition, two committees established under an AusAID-DCCEE Strategic Partnership Agreement sat above the PCCSP Management Committee (PCCSP QAI Report 2011), but do not appear to have exerted any influence on the Program. The Terms of Reference for PCCSP governance stipulated SOG meetings at least every four months, and MC meetings at least every two months. SOG and MC responsibilities included approvals of financial and contractual variations proposed by CSIRO and BoM. In practice over the three years of the PCCSP, two meetings of the SOG were held; the MC met quarterly or semi-annually; and the PIT convened and recorded monthly meetings.
- 24. Overall the management arrangements appear to have enabled the main agencies to meet their obligations reasonably efficiently. Such arrangements for the exercise of joint and overlapping responsibilities can lead to inefficiencies; and during establishment and mobilisation of the ICCAI, there seems to have been an awkwardness over leadership and governance roles between AusAID and DCCEE and between DCCEE and CSIRO-BoM. From the records, the PCCSP MC did not seem to function as a close collaborative partnership, nor to have been effective in improving the strategic or technical quality of the work, or the efficiency with which it was carried out. The meetings served primarily as a point of information exchange between the agencies.
- 25. There seems to have been no valid reason nor any clear advantage gained from establishing governance arrangements for the PCCSP and PASAP separate from one another and from the other components of the ICCAI. Both Programs and the ICCAI overall would have been considerably more effective, efficient and relevant to the Pacific islands region if there had been a unified program served by a unified management framework, within which the roles of different agencies were differentiated clearly. The separation served to block the flow of information and knowledge through the management sequence from the Program. The scientists conducting and learning from the research were given only a limited role in conveying the information and knowledge, and worked through the narrow outlet of the PIC NMS rather than with the wide range of stakeholders that had been envisaged.
- 26. The PCCSP was implemented efficiently. An important factor was that the PDD, plus the detailed work plan and budget prepared in the Program's inception period, served as an effective management guide. These tools enabled the PIT to get on with mobilising and guiding the operations. Reporting requirements for program governance were met with the PIT collating inputs from each of the Science Theme teams and preparing progress reports to the MC. A total

of 10 bi-monthly Traffic Light Reports containing comprehensive but succinct details were delivered between October 2009 and June 2011 (with just one gap, for September-October 2010). The Program Manager also diligently prepared and circulated records of the monthly PIT meetings and decisions. It is evident that the PIT enabled an effective collegiate management approach, serving as a useful forum for regular discussions between the Science Program leaders and for decisions concerning the organisation, progress and linkages between the 16 science projects being implemented. The Program had started out with only a part-time Program Manager, but this was quickly made into a full-time position as the work load became apparent. The Program Manager was also Theme 5 Leader, with a small team for managing coordination within BoM and CSIRO; liaison with the large number of Pacific regional and national collaborators; and the important tasks of Information Synthesis and Communications. It is remarkable that the CSIRO-BoM team led by the PIT were able to pull together the large volume of high quality work in the short amount of time.

- 27. **Monitoring and Evaluation** of the PCCSP Program were adequate. The CSIRO-BoM managers developed an effective routine of science team discussions, PIT meetings and a series of four internal workshops (at Romsey in 2009, Woodend in 2010 and 2011, and Hobart in 2011) to review progress, identify lessons to be learned and re-applied, and manage the operations in an adaptive manner. Each external workshop and training exercise was documented and participants asked to provide a simple evaluation of the event.
- 28. DCCEE and AusAID relied on the TLR, six-month and annual reports to the MC, which were focused on Program activity details and administrative issues rather than substantive results. AusAID organised a QAE Appraisal in mid-2009, and QAI Reviews in 2009, 2010 and 2011, which were a condensed version of the annual reports and provided generalised comments rather than incisive decisions on critical issues. No independent evaluation was made of the PCCSP Program, other than as part of the Mid-Term Review of the ICCAI overall conducted in early 2011; and for which the CSIRO-BoM PCCSP team prepared a submission.
- 29. The PCCSP Program management would have been more effective and efficient if a logical framework approach had been used to plan the Program and subsequently to guide monitoring, reporting on results, periodic evaluation and adaptive management. It was a serious omission that none of the 1st phase ICCAI Programs was equipped with a performance assessment framework. As noted in the Review of Program Design, there was an emphasis in management on delivery of activities and rates of progress; a logical framework would have facilitated a greater focus on substantive results. This would have been valuable especially in prescribing the higher purpose and objectives for the Program, beyond the provision of scientific information, and aided strategic management towards capacity development leading ultimately to effective climate adaptation and resilience. In addition, a log frame would have required an adequate M&E plan to be developed and followed, including obtaining baseline measurements prior to the Program intervention for example a solid self assessment of capacity and needs by each of the NMS and preparing useful indicators to facilitate subsequent evaluation of progress.

## Program Design – PCCSP

30. The PCCSP was conceived and designed early in the process of developing the ICCAI, through discussions between AusAID, the DCCEE, and the Australian science agencies, CSIRO and BoM. BoM especially had a long-established relationship with the NMS in the Pacific Island Countries (PIC), and was already implementing with them the AusAID-funded Pacific Islands Climate Prediction Project (PI-CPP). A gaps & needs analysis (GNA) conducted by BoM under the PI-CPP had emphasised the need to improve the scientific understanding of climate and climate change in the Pacific islands region. The concept was essentially to organise a parallel program to the Australian Climate Change Science Program (ACCSP), which was generating the scientific understanding required for management of climate change impacts in Australia. The PCCSP was designed as a program of climate change science research led by Australian scientists, aiming to

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benefit primarily the 14 PIC<sup>12</sup> and East Timor<sup>13</sup>, with a funding allocation of \$20 million for three financial years, FY 2008-09 to 2010-11.

- 31. The design of the Program was developed rapidly: following announcement of the ICCAI in May 2008, discussions were held between AusAID, DCCEE and principal Australian science agencies CSIRO, BoM and GA; and an ICCAI scoping meeting was held in July 2008 with the main CROP<sup>14</sup> agencies. These gave rise to an ICCAI Science Program Scoping Paper in August 2008 (not sighted by the Review); and a call for research project proposals. Rapid development of proposals was coordinated by BoM-CSIRO's joint Centre for Australian Weather and Climate Research, CAWCR. Notes from the selection panel record over-subscription, with 31 proposals received with total indicative costs of \$50 million. After just one month, in September 2008, there was a second meeting between the science agencies, DCCEE and AusAID, to appraise and select the set of proposals that would comprise the PCCSP. The selection process involved assessing the proposals received against criteria prescribed as high priority by the BoM-CSIRO scientists: these included fitness with one of four research topics current climate; climate drivers; climate change projections; ocean processes and sea-level projections; plus relevance; benefits to Pacific Islands, including the value to vulnerability assessments and adaptation activities; and capacity to deliver.
- 32. A PCCSP Program Design Document (PDD) was drafted by BoM and CSIRO for DCCEE in the first months of 2009, and a final version approved in May 2009, following AusAID's Design Appraisal Peer Review process. The PDD was the principal document containing specifications for the work that would be undertaken and how the Program and activities would be managed. The 2009 PCCSP PDD referred to the background and scope of the ICCAI and described PCCSP as the first component of the ICCAI, intended to support and inform the second, third and fourth components. The PDD provided an outline description of the proposed areas of scientific research within four broad components, and the proposed budget allocations and timelines for delivery of activities over the three financial years.
- 33. The PCCSP was intended to contribute to the priority needs for scientific knowledge that had been identified in the 2007 IPCC report on the Small Island States, and in the 2005 Pacific Islands Framework for Action on Climate Change (PIFACC) for the period 2006-2015. It was also to build on the achievements of the PI-CPP, which was managed and implemented by BoM from 2003 to 2010. The PCCSP PDD (May 2009) identified the sets of results that were required from the Science Program, in order to support effective adaptation in the PIC:
  - a) "Improved <u>data and knowledge of recent climate variability and change</u> as well as climate processes affecting the region, climate trends, and improved climate data sets;
  - b) Reliable <u>climate change projections</u> for the Pacific, providing information on the impact of the El Niño – Southern Oscillation (ENSO), temperature, precipitation, winds, sea level, tropical cyclones, and ocean conditions, including ocean acidity;
  - c) Climate products tailored for use in the vulnerability assessment program, to support adaptation activities in the region; and
  - d) Significant <u>capacity building</u>, including improved climate change services in the Pacific Island National Meteorological Services."

<sup>&</sup>lt;sup>12</sup> The 14 independent Pacific Island Countries are Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Palau, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

<sup>&</sup>lt;sup>13</sup> East Timor is specifically excluded from the Review.

<sup>&</sup>lt;sup>14</sup> Council of Regional Organisations of the Pacific (CROP) members include: the Pacific Islands Forum Secretariat, the Secretariat of the Pacific Community (SPC), the Pacific Islands Forum Fisheries Agency, the Secretariat of the Pacific Regional Environment Programme (SPREP), the South Pacific Tourism Organisation, the University of the South Pacific (USP), the Pacific Islands Development Programme, the Fiji School of Medicine and the Pacific Power Association.

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- 34. The PCCSP was not designed explicitly in line with these four sets of required results. Instead the PCCSP Program design was structured around four strands of climate change research, described as follows:
  - 1. <u>Current Climate</u>: Recent and current climate and trends to underpin improved projections of future climate change.
  - 2. <u>Climate Drivers</u>: Major regional climate phenomena (South Pacific Convergence Zone (SPCZ), Inter-Tropical Convergence Zone (ITCZ), ENSO and the Western Pacific Monsoon) which drive seasonal, year-to-year and longer-term variations in rainfall, winds and tropical cyclones.
  - 3. <u>Climate Projections</u>: More detailed climate projections and fine-resolution modelling to understand regional and country-level climate impacts.
  - 4. <u>Ocean Processes</u> including sea level rise and ocean acidification.

Table 4:	PCCSP Program	Plan - Components,	Projects, A	gencies and	Funding
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PCCSP Program Components and Projects	Impl. Agencies	Budget (\$)	Totals
Component 1 - Current climate			1,852,600
1.1 Rehabilitation of Meteorological data	BoM	686,400	
1.2 Data rescue and management	BoM	919,500	
1.3 Tropical Cyclone climatology	BoM, GA	246,600	
Component 2 - Climate drivers			2,302,100
2.1 Climate change and ENSO's impact	CSIRO-BoM	836,900	
2.2 South Pacific Convergence Zone	CSIRO-BoM	727,200	
2.3 Western Pacific Monsoon and ITCZ	CSIRO-BoM	738,000	
Component 3 - Climate Projections			4,884,200
3.1 Global Climate Model Projections	CSIRO	1,108,800	
3.2 Tropical cyclones	CSIRO-BoM	1,537,100	
3.3 Dynamical downscaling	CSIRO-BoM	622,100	
3.4 Additional downscaling	CSIRO-BoM, UNSW, UMelb, NIWA, IowaSU	500,000	
3.5 Statistical downscaling	CSIRO		
3.6 Tailored Projections – Pac.Climate Futures	CSIRO-BoM	1,116,200	
Component 4 - Oceans and Sea level			4,250,100
4.1 ENSO variability and climate change	CSIRO-BoM	1,082,800	
4.4 CV & CC effects on extreme sea-level events	CSIRO-BoM	806,000	
4.3 Ocean Acidification	CSIRO-BoM	1,288,700	
4.2 Sea-level projections for PI region	CSIRO-BoM	1,072,600	
Sub total Research Components			13,289,000
Component 5: Information Synthesis & Communication			4,092,000
Program management, admin., project coordination, int	ternational liaison		
Final report production			2,619,000
Total			20,000,000

35. A fifth component <u>Information Synthesis</u> was added with the key purpose of managing the synthesis and communication to end-users of the science information outputs produced by the research activities. The intention was to link this function with that of an Australia-Pacific Climate Adaptation Platform, which was proposed as the coordination and information management mechanism for the ICCAI as a whole. The PDD outlined the overall Program structure developed for the PCCSP, as summarised in **table 4**. A series of 16 research projects

was listed under the four component research topics, with an outline description and budget allocation for each, ranging from under \$0.25 million to over \$1.5 million.

### Review notes:

- 36. Although the PCCSP had been intended to be an integral part of the ICCAI, this was not achieved adequately at the Program design stage: the various ICCAI component programs were planned, managed and subsequently implemented separately, and followed different modalities, even though their overall objectives were similar. The PCCSP Design Document presented the sound rationale for a comprehensive science program needed to support effective adaptation and resilience in the Pacific island countries as an integral component of the ICCAI. However, the Program was not structured to serve the purpose of adaptation; it was focused on the scientific research that was needed and was not designed to extend into translating the climate science into guidance for adaptation and resilience programs. Significant in this regard is that each component part of the ICCAI placed an emphasis on capacity building, *inter alia* by means of improving the available information, its accessibility and understanding. Design and delivery of the ICCAI as such separate programs meant that inadequate attention would be given to connecting and integrating the science, planning and action; and implementing a unified strategy for capacity building activities.
- 37. The PDD emphasised a number of pertinent "lessons learned from... earlier projects that have been incorporated in the design of the PCCSP...:
  - a) the need for strong regional and **partner country buy-in and ownership** of planned outputs;
  - b) the clear need for **capacity building** in combination with a recognition of the limited absorptive capacity in some partner developing countries and institutions;
  - c) the importance of follow-up to initial capacity building efforts; and
  - d) that the **translation of complex scientific information** to products that can be better understood by decisions makers and the broader population is a critical factor underpinning effective adaptation responses." (PCCSP PDD 2009 p.4)
- 38. The Review considers that each of these relevant ideas could have been incorporated more strongly into the PCCSP Program Design. Weaknesses in these same areas were highlighted in the PCCSP QAE design appraisal process, yet were not adequately addressed in the final PDD. The PDD states that the design was endorsed at the February 2009 Peer Review Meeting, whereas in fact the endorsement, signed in June 2009, was provisional on the Design Document being revised in line with reviewers' comments; subsequently this was not done adequately. For instance, development of the crucial PCCSP component 5 and of an M&E framework were both deferred: "The (fifth) component's precise deliverables will be determined in consultation with partner countries as the PCCSP progresses to ensure the PCCSP meets partner country needs, and to manage expectations about program outcomes..... (and) This component will be developed by June 2009 in close collaboration with design of the Australia-Pacific Climate Adaptation Platform (AP-CAP)." The Review notes that the important AP-CAP was not developed, nor an M&E plan for the PCCSP: the intention had been for M&E to be incorporated into an "overarching Performance Framework for the ICCAI", which was to be developed by AusAID but apparently was never completed.
- 39. An underlying weakness of the Science Program design was the lack of definition of a clear strategic program of research contributing to substantive objectives. The Program design listed and described the tasks that would be carried out under each of the four components, but the tasks, individual projects and components were not linked to serve a logical hierarchy of explicit strategic objectives. The end point proposed for all the research projects and the overall Science Program goal was essentially improved scientific information. The Review concludes that it would have been valuable for the research activities to have been planned to contribute to explicit objectives of enhanced resilience or effective climate adaptation initiatives in the PICs.
- 40. The planning and development process followed for the PCCSP meant that the selection of research topics and individual project proposals was based largely on the experiences and ideas

of scientists already engaged or associated with the Australian science agencies involved; there was little time or opportunity for Pacific islanders to have detailed inputs to the Program or project design. The Program Design was able to refer to the earlier analysis by BoM under the PI-CPP, and to the PIFACC 2006-2015, but these were useful primarily for broad corroboration of the need for improved scientific information on climate change, variability and extreme weather events affecting the Pacific islands region. Following the approval of the PCCSP PDD, there were consultations with Pacific regional organisations (SPC, SPREP, USP?), but the PCCSP Program was being mobilised by then, and the consultations did not result in changes to the Program design. As a consequence, the PCCSP Program was not a "participatory action research" agenda to the extent that had perhaps been intended. Inevitably the expedited process and the relative capacities of the Australian and PIC participants resulted in the Science program being "supply driven" by what was able to be generated by the Australian scientists involved; and meant that the Program was "owned" primarily by those Australian science agencies and scientists.

- 41. Similarly expeditious aspects of the design process followed were that the research program's budget (\$20 million) and overall time-frame (three years, FY 2008-09 to 2010-11) were pre-set, not determined through a strategic and logical planning process. The package of proposals selected were required to fit within these limits, which meant that some types of research and some proposals were not included in the selected Program.
- 42. The 2009 PCCSP PDD was not developed to serve as a typical aid program design document. A structured planning process such as the logical framework approach was not adopted, and the substantive, strategic objectives intended to be achieved by each set of projects and each field of research were not articulated in the PDD. There was no overall program framework specifying the logical linkages across the planned research activities; there were no design details or monitoring plans for the Program components or the individual projects and activities; and there were no specifications in the PDD of how components, projects or activities would be subsequently developed, managed and monitored. In each area of research, the PDD did not specify the full set of projects nor provide detailed plans for their implementation; some specific projects were listed, but even the final version presented mainly short descriptions or titles of a mixed array of proposed research activities and expected outputs to be produced under each of the four components. (The Review has not sighted the Scoping Paper, research proposals, record of appraisals, or final project plans.)
- 43. Capacity Building: The Program and project designs should have been developed to specify at the outset the starting point/ baseline; and the state or standard of information development and capacity development that would be achieved at the conclusion of each project, (each component) and the Program overall. A simple example is the climate data management system in the PICs: what was the state of each country's CDMS before the PCCSP project? what were the intended 'milestones' or interim states? and what was the intended state at the end what specific capacity standards would be able to be measured and achieved? The Review recognises that it may not be usual practice to include in a research project plan the specifications of the end-state that will be achieved if all goes according to plan; it is more normal to consider the enhanced knowledge as a satisfactory end-point, which enables a relatively simple project plan to be developed, to carry out the research activities for the purpose of improving knowledge. However, in development assistance work it is essential to plan for and specify more substantive objectives: the underlying purpose of the project is to build systemic capacities to manage the target issues, and these should be made explicit.

## Program Achievements – PCCSP

# 1. Overall Progress and Achievements

44. The PCCSP was implemented over 33 months (from March 2009, with a three-month inception phase, until June 2011, then with a six month extension to December 2011). Implementation was guided by the May 2009 PDD, and a detailed work plan and budget prepared by February 2010. The Program was organised as a collection of 16 areas of research under four thematic components, as summarised in **table 4**. A fifth component was established to provide for

coordination and management of the Program as a whole; and to organise the synthesis and communication of the science information generated by the research studies. Overall the plan and management arrangements worked well. The PCCSP appears to have been exceptionally well-run as a coherent program of research activities, undertaken skilfully and completed to a large extent within the tight time-frame and to the prescribed budget. The Program of research studies was organised and delivered with professional skill and dedication to form an impressive body of work. Teams of scientists, mainly in BoM and CSIRO and a small number of contracts to other agencies, were recruited and assigned to specific studies, supported and coordinated by component Theme Lead scientists and a Program Manager, who together formed the Project Implementation Team. It was a major achievement for the CSIRO-BoM partnership to mobilise the large and complex Program efficiently; altthough recruitment of the full complement of scientists took longer than anticipated and required additional resources to be deployed. The human resources required for Program management and coordination were also underestimated and were boosted in the second year.

45. The PCCSP was a program of scientific research by Australian science organisations and scientists aimed at assisting "decision makers and planners in 14 Pacific island countries and East Timor to understand better how their climate and oceans have changed and how they may change in the future." It was essential for the Program to engage with its 15 "partner countries" and to foster "Pacific" national and regional ownership of the work and results generated. To this end the PCCSP liaised extensively with CROP agencies SPC and SOPAC, SPREP and USP, plus the United Nations Development Program (UNDP offices in Suva and Apia), the National Institute for Water and Atmospheric Research (NIWA, New Zealand), National Oceanographic and Atmospheric Administration (NOAA, USA), and Environment Canada; and contributed to an important regional coordination mechanism, the Pacific Climate Change Round Table, at meetings in 2009 (Marshall Islands) and 2011 (Niue). The PCCSP End-of-Program Report notes that "more than 70 presentations on the PCCSP science were made by PCCSP scientists at regional and international conferences and workshops between July 2009 and June 2011." Through these efforts, PCCSP achieved a degree of collaboration – reciprocal and joint regional and partner-program workshops and presentations.

## 2. Achievement of Objectives

- 46. The PCCSP was designed with three broad objectives:
  - a) To provide meteorological, climatological and oceanographic information, particularly in areas where there are identified gaps in partner country knowledge;
  - b) To build the capacity of partner country scientific organisations to undertake scientific research to support the provision of this information; and
  - c) To disseminate the information to partner countries and other stakeholders.
- 47. **Production of scientific information**: the Program was highly successful in meeting its primary objective. The PCCSP generated an impressive volume and broad range of new scientific information about climate and climate change in the Pacific, making a significant contribution in each of the four component themes; updating and improving the quality of climate data records; and producing substantial increases in scientific knowledge and understanding. There were two main broad areas of research: understanding of current and recent climate, extreme climate including tropical cyclones and sea-level events, and the major drivers of climate variability in the Pacific; and projections of future atmospheric and ocean conditions. **Table 5** is a summary compiled by the Review of the scientific achievements of the PCCSP.

Table 5:	Summary of PCCSP	Scientific Achievements by Component
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I	PCCSP Component		Summary of Achievements
1.	Current and	•	Pacific climate data rescued and secured in the PIC NMS.
	Recent Climate	•	Improved climate data management system (CliDE) developed and established, with training, in 14 PIC NMS.
		•	Recent climate and climate change in the region analysed and documented

r		
		<ul> <li>(air temperatures and rainfall).</li> <li>Development of the <i>Pacific Climate Change Data Portal</i> – freely-available, user-friendly web-tool providing access to basic climate information and trends data from observation sites across the Pacific islands region.</li> <li>Better understanding of tropical cyclones (TC) including behaviour, variability, long-term risk and prediction. Archived and analysed TC best track data for the Southern Hemisphere from 1969-70 to 2009-10.</li> </ul>
		<ul> <li>Development of web-based Pacific Tropical Cyclone Data Portal - detailed historical information on TC for the Southern Hemisphere; allows users to plot tracks and characteristics of TC between 1969 and 2010.</li> </ul>
		• GA's Tropical Cyclone Risk Model used to generate synthetic TC behaviour data – genesis location, tracks, size, speeds and intensity. Tropical Cyclone Wind Risk Model developed to estimate wind hazard associated with TC in
		<ul> <li>Pacific region.</li> <li>Understanding extreme sea-levels and their relationships with high tides, storm surges, ENSO; review of literature, analysis of tide gauge data; modelling studies of tropical cyclones and storm surges.</li> </ul>
2.	Regional Drivers of Climate Variability	<ul> <li>Understanding of the El Niño-Southern Oscillation (ENSO) as a major driver of climate change in the Pacific and globally – rainfall, flood, drought, winds, and variability of tropical cyclones.</li> </ul>
		<ul> <li>Documentation and understanding of the South Pacific Convergence Zone (SPCZ) as a major driver of seasonal climate - rainfall, flood, drought, winds, TC formation/ severity - in the Pacific island countries; the impacts of global warming; through climate modelling and analysis of observations.</li> </ul>
		<ul> <li>Documentation and understanding of the influences of the West Pacific Monsoon (WPM) especially over New Guinea-Solomon Islands; and the Inter-Tropical Convergence Zone on PIC climate – rainfall, wind, TC.</li> </ul>
3.	Climate Projections	<ul> <li>Development of detailed atmospheric and ocean projections for each PIC – air temperatures, rainfall, drought frequency, humidity, surface wind speed, solar radiation – for three 20-year periods (around 2030, 2055 and 2090); under three emissions scenarios (low-B1, medium-A1B, high-A2); using selection of 18 out of 24 global climate models (GCM).</li> </ul>
		<ul> <li>Generation of 60km down-scaled projections for the PIR; and evaluation of 8km down-scaled projects for seven PIC; in combination with development and testing of a new methodology for statistical down-scaling; application to generation of daily climate projections (2021-2040/2046-2065) for seven PIC.</li> </ul>
		<ul> <li>Development and testing of the <i>Climate Futures</i> web-based tool to present climate projection information for the PIC using combined projections; at basic, intermediate and advanced levels; introduction with training in all 15 PCCSP countries to enable generation of local tailored projections.</li> </ul>
4.	Oceans and Sea- Level Rise	<ul> <li>Understanding of the impacts of global warming on ocean currents, water temperatures, salinity and nutrients; analysis of Pacific salinity and temperature data over the previous 60 years. Understanding of ENSO variability Pacific ocean climate change and impacts on fisheries.</li> </ul>
		<ul> <li>Explanation of observed sea-level rise (SLR) since 1972; and rises from 1993-2009 of 2-10 mm/year (up to three times the global average of 3.2 mm/year) caused by ocean warming, glacier and ice sheet melt. Preparation of SLR projections for the PICs; comparison of model projections with observations.</li> </ul>
		<ul> <li>Study of ocean acidification from absorption of atmospheric carbon dioxide; estimation of reduction in aragonite carbonate concentration in Pacific surface waters from pre-industrial times to present day; projection of aragonite saturation levels for 2010-2090 in the Pacific, showing marginal conditions for healthy reef growth in the central Pacific within a few decades.</li> </ul>

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- 48. Scientific research capacity building: the PCCSP had a secondary objective of capacity building, which was aimed at enabling "partner country scientific organisations" to participate in the scientific research and contribute to the production of climate science information. This objective was achieved to a reasonable extent considering the generally low capacity of the PICs, the small number of qualified personnel to engage in climate scientific research, and the short-term Program focus. The strategy adopted by the PCCSP was to work closely with the staff of the NMS in each of the 15 countries involved, building on the long-established relationships between the NMS and BoM. The NMS were consulted about the scope and contents of the science program, their needs as the primary beneficiaries of the Program, and the design of the several science tools that were proposed. Contacts were maintained at regional workshops, through in-country visits, and via e-mail and telephone.
- 49. The PCCSP End-of-Program Report (July 2012) records that "over 500 people were reached through five (regional) climate change science workshops and (in-country) training activities." Scientific research capacity in the NMS was increased by individual scientists participating in PCCSP research and training workshops and other activities, which collated, upgraded and analysed the countries' own climate records to produce national climate summaries, descriptions of the influences of region-wide climate features and drivers, the variability of each country's climate and long term trends. The main NMS research and training activities were in June 2010 (Darwin Workshop), in conjunction with the major effort to collectively review and upgrade the climate data records held in each PIC; in presentations at the Greenhouse 2011 Climate Science Conference (Cairns); and in compiling and presenting the PCCSP Final Technical Report *Climate Change in the Pacific* and the companion individual Country Reports (November 2011). As part of further development of individual research skills, three scientists from Samoa, Papua New Guinea and Fiji were attached to work with PCCSP scientists in BoM and CSIRO, for two to six weeks in 2011, and produced a range of outputs, from co-authored papers to presentations at international conferences.
- 50. The effectiveness of PCCSP's support for research capacity building was limited by being relatively *ad hoc* and applied to only one or two individuals in each PIC; and not connected to longer-term strategies for science education and training in PICs; for building national or regional systemic capacities for scientific research; or for systematic enhancement of the functional capacities of the NMS. It would have been valuable if the PCCSP, PASAP or the ICCAI overall had undertaken an initial capacity needs assessment with each NMS and the main "client" agencies it services. In this regard, the Review notes also that the Pacific Meteorological Strategy (2012) prepared during the course of the PCCSP, includes little or no provision for scientific research capacity building.
- 51. Significant capacity strengthening achieved under the PCCSP was in the development of a new customised climate database management system called CliDE<sup>15</sup>, in consultation with the NMS, and establishment of the system in each of the 15 countries. Staff in each NMS were trained to use CliDE and at the time of the Review the system was operating successfully in all the countries (with support and development of the system continued under PACCSAP). The development and installation of CliDE has enabled the NMS staff to maintain and manage their secure historical and current meteorological records; and to collate and analyse the records to deliver climate services and information.
- 52. The PCCSP also developed four tools which to varying extents are able to be used by Pacific NMS scientists to collate data and prepare their own analyses and reports:
  - a) Pacific Climate Change Data Portal
  - b) Pacific Tropical Cyclone Data Portal
  - c) Tropical Cyclone Wind Risk Model
  - d) Pacific Climate Futures web-tool.

<sup>&</sup>lt;sup>15</sup> CliDE, Climate Database for the Environment. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

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- 53. The *Climate Futures* tool in particular has proved useful in enabling scientists and managers in the PI region to prepare national and some sub-national projections for their own end-use. By the end of the PCCSP Program, over 350 people in the 15 countries were trained in Basic Climate Futures and over 100 to the Intermediate and Advanced levels<sup>16</sup>. As noted in the PCCSP End-of-Program Report: "This is a very significant outcome as, for many participants, this was their first exposure to climate projections work. The PCCSP has succeeded in developing a tool that simplifies the communication of climate projections and provides the functionality needed by the impacts and adaptation communities in the PCCSP partner countries." Development of Climate Futures was continued under the PACCSAP Science Program.
- 54. **Information dissemination**: The third related broad objective for PCCSP was to disseminate the scientific information, to people and agencies who would apply and use it for their own purposes, especially towards climate adaptation and resilience building. In the design and structure of the Program, Information Synthesis and Communication was assigned, artificially, to a fifth "component". In practice, the approach worked well: a substantial additional effort was made to take the accumulated results from the multiple research studies and compile them into information products synthesised across the whole Science Program.
- 55. The PCCSP plan in 2009 was to organise and undertake all the research activities and compile a major final technical report at the culmination of the Program. It was soon realised however that this strategy would not serve the needs of those outside PCCSP wanting to understand the new climate science and apply it to their own purposes as soon as possible, especially the other components of the ICCAI, which were proceeding in a parallel time frame. The PCCSP team accommodated this demand to share its early results by publishing specific research findings in the scientific literature, from 2010 onwards; making series of PCCSP science presentations at external meetings throughout 2009 and 2010; producing PCCSP Interim Reports in January and December 2010; and especially by releasing, in March 2011, interim projections data for monthly air temperature and rainfall, for 20 locations (countries and parts of countries) across the Pacific islands region (and including East Timor).
- 56. The main findings of the PCCSP research were published in hard copy and online in November 2011, in a 530 page peer-reviewed report *Climate Change in the Pacific: Scientific Assessment and New Research, Volume 1: Regional Overview; and Volume 2 Country Reports.*<sup>17</sup> The report was launched in Australia in November 2011, and in December 2011 at a joint Australian Government SPREP event at the 17th Conference of the Parties (COP17) to the UNFCCC.
- 57. Individual country reports (CCiP Volume 2) describe the current and future climate of each of the 15 countries, based on the climate summaries prepared by PCCSP and NMS scientists at the PCCSP Research and Training Workshop in Darwin (May June 2010). Separate summary country climate brochures were also produced in English and local language and distributed. By the end of the PCCSP Program (December 2011), a total of 26 peer-reviewed papers and three book chapters had been published or were in press in academic journals; five papers had been submitted and 23 were in preparation. A PCCSP brochure for the general public was also distributed at the Pacific Islands Forum (August 2010); and a brochure on climate variability and change was prepared and distributed at side events at COP16 (Cancun, December 2010). The End-of-Program Report records also over 200 media items produced.

## Review notes:

58. The outstanding achievements of the PCCSP Program were the organisation of an impressive volume of complex and broad-ranging scientific research in a short space of time, and publication of the peer-reviewed results. The two volume report *Climate Change in the Pacific* and the ancillary scientific publications and information materials were "the most extensive

<sup>&</sup>lt;sup>16</sup> *Climate Futures* Basic interface is freely available at <u>www.pacificclimatefutures.net</u>; Intermediate and Advanced interfaces are made freely available for trained individuals.

<sup>&</sup>lt;sup>17</sup> Refer to <u>www.pacificclimatechangescience.org</u>

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compilation of climate change science research ever undertaken for the Pacific". Other noteworthy achievements included development and operational establishment of the new CDMS CliDE; and organisation and rescue of secure climate records with each of the 15 partner country NMS.

- 59. The research program made significant progress in addressing the priority gaps in climate change science that had been identified in management of climate data records; understanding of recent and current climate trends, extreme events including tropical cyclones, and large-scale climate features in the Pacific region, including the main driver of climate variability the ENSO; in climate projections for the region and individual countries; and in understanding ocean processes and changes under global warming, especially sea-level rise and ocean acidification. The scientific results achieved by PCCSP were highly relevant to the needs of the broad Pacific islands region and to Australia, as a near neighbour with a major vested interest in assisting the PICs to progress soundly towards resilient and sustainable development.
- 60. PCCSP was an expensive exercise, costing \$20 million over less than three years: the Program's rapid start-up and compression of the work into the prescribed time-frame incurred a cost premium, resulted in resources having to be organised and used relatively inefficiently, with no particular advantage gained. It would have been preferable to have allowed the Program to be planned and delivered with the same funds over a longer, more realistic period. Similarly, more time should have been allowed at the outset, for formulation, preparation, inception and mobilisation of the work.
- 61. Little information is available to the Review on the management process for the individual research projects, either at the planning stage or on how the project 'performed' and was completed. For the PCCSP, the 2012 End-of-Program Report is a succinct, highly informative and useful document. However, it does not contain all the information that might be expected in a program or project management report, i.e. to enable a planner-manager to organise another similar program better, or a reviewer to evaluate the Program (could parts of it have been organised more efficiently? been made more relevant to certain stakeholders? more effective in achieving its planned objectives?)
- 62. The main criticism of the PCCSP was that it was delivered to too great an extent in isolation of other climate change work in the region, including the other components of the ICCAI. This was largely the result of the design and structure of the Program and the ICCAI overall, which was conceived as a comprehensive and integrated program of science assessment planning action, but was organised as separate programs. The PCCSP made considerable efforts to make the scientific findings comprehensible and accessible, but there was a lack of complementary resources available to enable end users to draw on, interpret and apply the science. A significant issue for the Program was that it confined itself to working with the NMS, even though the NMS operate within weak national systems for applying climate change information to planning and management of adaptation programs. The PCCSP Program Design suggested that "Effective and efficient dissemination of the information to different stakeholders in the partner countries is an important part of the PCCSP..." However, this was achieved to only a limited extent.

## C. PASAP – the Pacific Adaptation Strategy Assistance Program

63. This section reviews the PASAP - Pacific Adaptation Strategy Assistance Program: the Review describes and assesses the relevance, efficiency and effectiveness of the PASAP design process followed and the Program design prepared; the arrangements for Program management and delivery; and the results achieved by the Program.

### Program Management – PASAP

- 64. PASAP was overseen as a component of the ICCAI by the joint AusAID DCCEE Senior Officials Group. DCCEE was assigned responsibility for the science and vulnerability assessment components of the ICCAI, and subsequently led and administered both the PCCSP and PASAP Programs, and chaired the two separate Management Committees. While the PCCSP was implemented by BoM and CSIRO through a joint Project Implementation Team, the PASAP was implemented by DCCEE itself, through a DCCEE PASAP Program Implementation Unit (PIU).
- 65. Membership of the Senior Officials Group was extended to Directors from CAWCR, CSIRO and BoM for matters concerning the PCCSP; but this was not required for the PASAP, which meant that CSIRO and BoM did not contribute to governance of PASAP through the SOG. It is also notable that the authority for approving all PASAP activity and project plans as well as major programming and financing changes was retained by the DCCEE delegate to the SOG. On the other hand, the PASAP Management Committee had an expanded membership to include, besides DCCEE, AusAID, CSIRO and BoM, representatives from GA and SPREP, plus an additional DCCEE-appointed expert advisor.
- 66. PASAP MC meetings were to be held every two months, to review plans and progress and provide recommendations to the SOG/ DCCEE Delegate. The first MC meeting was held in November 2009, and four meetings were held in the first six months of 2010; after which there were just three meetings. The MC was intended to "review and approve(s) all country projects prior to submission to the FAS ASCD"; six monthly work-plans and budgets were to be reviewed and approved by the AusAID-DCCEE (SOG). Based on the meeting records, the MC does not seem to have been an effective mechanism for managing the PASAP Program as a partnership between the lead agencies involved. The Committee served primarily for DCCEE to inform the other members of progress in implementation and changes in the Program plan. The meeting records do not indicate any instance of rigorous discussion between the parties leading to significant change in any proposal. The efficiency of the updating process was also reduced by the lack of a logical framework for reference, and continuing changes to the projects being developed.
- 67. In a significant development for the Australian Government agency, DCCEE established its PIU for PASAP in Apia, Samoa, with three Departmental staff based at the headquarters of the Pacific regional organisation SPREP, supported by two positions at DCCEE in Canberra. The two PIU Apia managers performed the major dedicated task of representing the Department and developing relationships in the 14 PIC, organising PASAP project proposals, negotiating executant contracts and supervising implementation. While the DCCEE PIU at SPREP in Apia was an expensive operation, it provided the Department with an outpost in the Pacific with more direct access to other agencies and programs. However, it did not provide an effective or appropriate mechanism for building local Pacific ownership of the PASAP Program. DCCEE was the Australian lead agency for climate change policy, but not an implementing agency with the capacity to organise and deliver a complex new program of assistance for climate adaptation, especially overseas as a component of Australia's ODA. Under the Apia office arrangement, the PASAP remained too narrowly an Australian Government initiative, rather than being implemented by local partners or as part of the Pacific regional architecture. This significantly reduced the central purpose of the PASAP Program, which was to build local capacity; with the exception of PASAP project 2 with SPREP, and two projects (6 and 8) contracted to SPC, the main capacity development that occurred under PASAP was in DCCEE staff and consultants hired to implement specific activities and projects. The Apia office was a source of confusion for local stakeholders, who welcomed access to additional Australian aid but did not understand the point of an

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additional and separate channel of support. It was also a disappointment for the CROP agencies – especially SPC, SPREP and the USP – which were providing the lead in the Pacific islands region in the new fields of climate adaptation and resilience building, as well as in the coordination of international assistance and the strengthening of Pacific island national systems for work in climate services and adaptation planning. Understandably, the CROP agencies welcomed support for their programs, but did not see any value in another separate program being established. SPREP in particular was unimpressed by DCCEE setting up its office within SPREP headquarters and proceeding to deliver its own program rather than one in partnership with SPREP.

- 68. The Review considers that DCCEE was misguided in setting up its Apia Office. It would have been more relevant and effective, and more cost-efficient, for DCCEE and AusAID to have implemented the PASAP (and the rest of the ICCAI) as a joint initiative, with DCCEE providing policy guidance and AusAID providing delivery and management capacity. This would not have constrained the Program in the choice of delivery mechanisms that could be employed; but it would have brought much greater coherence to the substantial portfolio of Australian Government's assistance to the Pacific. One clear instance of the benefits of DCCEE and AusAID delivering a genuine partnership in this way would be for SPREP's core program funding from AusAID to be augmented by PASAP, rather than additional minor grants being administered separately to SPREP by DCCEE; refer to PASAP Project 3 and PACCSAP Activity 2.1.2.
- 69. During the first year of PASAP implementation, a Standing Panel of Experts was established by DCCEE, to enable short contract work to be expedited. The panel was used to commission the series of national and regional assessments under Component 1; refer to the Review section on PASAP Program Achievements.
- 70. **Monitoring and Evaluation:** At the end of 2009, specifications were drawn up for PASAP Performance Management, including reporting, monitoring and evaluation. A Performance Management Framework specified a number of measures to facilitate effective management:
  - a) Introduction of a PASAP Program Framework, specifying four Outcomes, seven Outputs and 26 Indicators as targets for 2010 and 2012.
  - b) Quarterly and Annual reports by DCCEE to the MC.
  - c) Creation of PASAP country teams and designated agencies as responsible entities. Regular reporting on each country-led project by the country team and designated agency, against agreed indicators.
  - d) Monitoring of progress carried out regularly, with results reported in project reports, forming the primary data source.
  - e) An end-of-Program workshop to evaluate achievement of outcomes, and inform a final synthesis report and strategic plan (to be developed under output 1).
  - f) Regular evaluations of monitoring results, including mid-term (end of year 1) and on completion (end of year 2); used to inform reporting of PASAP achievements, lessons to be learned, and "DCCEE and AusAID's broader assessments of progress towards the objectives of the aid program, specifically in relation to ICCAI but also in reference to the aid program's new environment and climate change strategy" (PASAP Performance Management Formats, 2009).
- 71. Few of these measures were implemented. The Review finds that the monitoring, reporting and evaluation procedures adopted under the PASAP Program were not adequate to maintain management direction across the range of projects and activities being contracted. There is no evidence that PASAP country teams or lead agencies were designated; few if any of the PASAP projects were planned using a logical framework, which meant that reports provided activity progress updates but were not focused on substantive results; reporting by project executants was generally light and varied with the capacity of each project's management; (respondents to the Review welcomed the fact that reporting requirements had been minimal). High standard project final reports were provided by the BoM as the managers of the NMS capacity building project (PASAP 2); the UQ project manager for the Roviana project (PASAP 9); and GA as the

contracted executants for the groundwater assessment project in Timor-Leste. At PASAP Program level, the main reporting was in Status Reports, prepared by DCCEE monthly from August 2010 to September 2011. These were simple spreadsheets with a single line for each project noting progress and budget expenditure; used within the Department only(?) in conjunction with annual work plans. There do not appear to have been quarterly or annual reports prepared on the PASAP Program, nor mid-term and final evaluations, or a final Program evaluation workshop. As noted in the Review of Program Achievements (section below), the main synthesis of results and lessons from the PASAP Program was to be linked to the planned Outcome 1, a Regional Overview, which has not yet been produced.

## Program Design – PASAP

- 72. The PASAP was developed as the second core component of the ICCAI, with the stated aim "to enhance partner country capacity to assess key climate vulnerabilities and formulate adaptation strategies to address them." ICCAI Concept Note 2008. The underlying premise was that there was limited understanding of how to plan for and manage adaptation to climate change in the region and countries. DCCEE advised a meeting with Australian agencies in October 2008 that ICCAI component 2 would "increase the level of understanding of key climate vulnerabilities at the regional, national and sector levels, and ensure that decision-makers have access to the right information and tools to support adaptation planning and action."
- 73. Compared to the PCCSP, which was conceived, designed and mobilised by Australian science agencies early in the ICCAI, the PASAP was developed over a more extended period, which involved, in particular, engagement of the DCCEE Program managers with Pacific partner countries and agencies in identifying and selecting individual projects and activities. The ICCAI concept and proposed components were introduced by DCCEE to the Pacific Climate Change Round Table (PCCR) participants in October 2008, and discussed as part of the main ICCAI design workshop in Brisbane in March 2009. For the latter, partner countries had been requested to prepare in advance and were able to present the priority issues they had identified for possible PASAP support. Following these consultations and a review<sup>18</sup> of existing climate adaptation planning activities undertaken by SPREP, SPC, UNDP, USP and other agencies, a draft Program Design\* was prepared by DCCEE. A Design Appraisal Peer Review for PASAP, organised by AusAID in June-July 2009, raised a range of concerns with the draft design relating to its lack of development and detail, and requested a number of supplementary documents\* to be prepared and attached to a final Program Design Document. PASAP was launched formally by the Minister of Climate Change and Water in August 2009.
- 74. Through this process, PASAP was developed into a relatively-loose program of activities, to be delivered in just two years (2009-10 to 2010-11) with a budget of \$12 million. The PASAP PDD (September 2009) contains a considerable amount of introductory and background material, relevant to all aspects of the ICCAI, including components three and four, as much as component two, PASAP. The need for building capacity in partner countries was emphasised, through country-led activities to meet countries' needs and priorities, and to integrate ICCAI/ PASAP activities with each country's own processes and existing programs of climate vulnerability assessment and adaptation planning. The PDD emphasised also the importance of PCCSP and PASAP working closely together, suggesting that this would depend on the Science program's early sharing of its findings, for example climate projections, for application in PASAP activities.
- 75. The broad aims set for PASAP were described in the 2009 PDD, in a number of general statements:
  - a) "To help partner countries build the skills and knowledge they need for long-term decision making to prepare for climate change.
  - b) "To inform a regional and strategic understanding of climate change risk, and provide a

<sup>&</sup>lt;sup>18</sup> Documents denoted with an asterisk \* were not sighted by the Review. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

pathway to respond and invest in adapting to those risks.

- "To build capacity in regional organisations and partner country agencies to address c) critical knowledge gaps, including in data availability and seasonal climate prediction.
- "(To) inform a framework for future Australian support for adaptation action by d) contributing significantly to regional understanding of adaptation challenges and risk, identifying best practice approaches and gaps for future research, and linking assessment outcomes with sources of support for adaptation implementation.
- "Despite the extensive work that has been done to assess the vulnerability of Pacific e) Island countries to the impacts of climate change, enormous knowledge gaps remain... This Program will help fill this gap in ways that support partner country capacity to sustain local research into the future." PASAP Program Design Document, 2009.
- 76. The PASAP Program was structured to serve a set of objectives, with four substantial program Outputs contributing to four main Outcomes under two Program Components (regional and national), aimed at achieving an overall objective for PASAP; and leading to the stated goal of Australian ODA. The PASAP Program Framework proposed in 2009 is shown in table 6, with four broad Program Outcomes and nine (reduced to eight) Outputs.

Table 6:	PASAP Program Framework (2009 with some 2010 revisions)
Aid Program Goal:	Enable environmentally sustainable development that supports resilient and sustainable livelihoods in Australia's partner countries.
Aid Program Objective:	Build resilience by helping people adapt to their changing environment and respond to new opportunities
PASAP overall objective	Enhance partner country capacity to assess key climate vulnerabilities and formulate adaptation strategies
Component 1	Build regional capacities to support adaptive planning and action
Outcome 1	A strategic basis developed for long term action to help partner countries adapt
Outputs:	1. A synthesis report and strategic plan supporting adaptation in the region
Outcome 2	Regional organisations have enhanced skills and knowledge to support adaptation in the Pacific and East Timor
Outputs:	<ol> <li>Networks to share knowledge and lessons learned from other regions, Australia and country-led adaptive planning</li> </ol>
	3. Coastal mapping capacity developed within SOPAC (Output 2)
	4. Baseline data sets for improved adaptation responses developed in countries and regional organisations
Component 2	Build country capacities to conduct vulnerability assessments and implement adaptive strategies
Outcome 3	Capacity of partner countries in the Pacific and East Timor is enhanced to conduct sound vulnerability assessments and develop adaptive strategies
Outputs:	5. National policies and plans for adaptation in participating partner countries
	6. Country-led adaptation strategies based on national priorities and systems
	7. In-country teams skilled in vulnerability assessment and adaptive planning (national workshops and follow-on actions)
	8. Climate prediction capacities strengthened in NMS (including SLR scoping)
Outcome 4	Partner countries have increased capacity to integrate adaptive planning in decision making
Outputs:	9. Adaptation strategies are implemented through government policies and plans.
Program Manage	ement

77. The PASAP PDD did not include either in narrative form or a logical framework the specifications of individual actions and projects proposed under the Program. These had not been confirmed or planned in detail at that time, and were developed eventually with a number of changes over the life of the Program. In 2009 Output 6, Country-led strategies, formed the intended core of the Program, with an allocation of 50% of the total PASAP budget to support "a limited number (up to 8) of high impact activities in adaptation planning led by partner countries." Planned Output 8, Climate prediction capacities, was described, with the second largest budget allocation of \$1.7 million. Another individual Output was described in Annex 4 of the PDD, in the form of a proposal from the Pacific regional organisation SOPAC, entitled Understanding Coastal Vulnerability from Climate Change through Aerial Observations; but was not included in the 2010 PASAP plan.

## Review notes:

- 78. The PASAP PDD was poorly-developed and lacking in detail, based on a relatively weak program framework with vague logical connections. It does not convey a clear sense of a purposeful Program, what it would entail and how it would be operationalised; and did not present a rigorous logical structure to guide management. In practice, the PDD appears to have served little purpose, either in planning, managing and communicating or in monitoring the program logic, activities and results. During implementation, various changes were made in the names, contents, number and order of the Outputs; only seven planned Outputs were specified in a November 2009 PASAP framework; only six in the 2010 PASAP Annual Report; and this Review has identified and described a rather different set of nine achieved projects.
- 79. The detailed designs of individual projects under PASAP needed to be developed during program implementation, and were therefore subject to negotiations and agreement with potential project executing agents and partners as well as PIC governments. The risks of proceeding in this way, which were a challenge to the feasibility and effectiveness of PASAP as a two-year program of work, were acknowledged in the PDD, but perhaps under-estimated. The lack of specific detail in the 2009 PASAP Program Design and the lack of clear strategies for developing the Program actions meant that the purpose, objectives and implementation arrangements remained unclear to potential partners, participants and beneficiaries. The drawn-out development process contributed to PASAP becoming a series of relatively ad hoc projects with little coherence as a program. The particular issue was that, in contrast to the PCCSP under which virtually all activities were executed by the CSIRO-BoM team of scientists, the PASAP Program of activities was not executed by DCCEE but by a wide variety of other agencies. Each of the PASAP Outputs was delivered by one or several groups of consultants, NGOs, CROP agencies, or other Australian or Pacific island Government organisations, each of which had to be individually negotiated, contracted, monitored and supervised. There was no time allowed for this to occur in the short time frame for Program development and delivery.
- 80. The PASAP would have been more relevant and effective if it had been developed and implemented as an integral part of a climate adaptation or resilience-building program, rather than as a stand-alone program attempting to support or build capacity for adaptation planning efforts. As discussed under Program Achievements, Review discussions with stakeholders indicate that most of the PASAP projects failed to gain sufficient traction and have an influence on the prevailing adaptation issues and mechanisms in the partner agencies and island countries.

# Program Achievements – PASAP

## 1. Overall Progress and Achievements

The PASAP was planned as a three-year program with a total budget of \$12 million. Implementation was started in August 2009 and scheduled to be completed in June 2011 (22 months). The original PASAP plan proposed two Components, each with two main Outcomes, and a series of nine Outputs. There were no detailed plans for PASAP implementation or specifications of individual projects included in the 2009 PDD or later Program planning documents. Rather than being developed on a logical framework, PASAP was a varied collection of discrete activities or projects, which were not linked to a clear program framework, strategy or hierarchy of objectives, and tended to evolve away from one another under different time frames and implementation arrangements. The management process involved individual concept papers and proposals being developed during the course of Program implementation,

presented by DCCEE to the PASAP MC for comment and endorsement, before being passed to the DCCEE delegate on SOG for approval. DCCEE then agreed terms of reference and issued contracts for implementation with the proposed executants.

- 81. **Table 7** is a summary list of the nine sets of PIC activities or projects<sup>19</sup> that were actually implemented under the PASAP in the period from mid-2009 onwards, with a note on their reported completion or status at the time of Review (May 2013). Under-estimation of time required for planning and implementation was an issue throughout the Program. Some projects were extended several times, and final completion dates have been reset to June 2013, double the intended time period. It is notable that only two or three of the projects or activities were completed by the original deadline of June 2011; and that at the time of the Review six of the PASAP projects were still active or being completed.
- 82. The Review made a summary evaluation of each of the individual Projects or sets of activities implemented under PASAP, including assessment of each Project plan, its implementation, and the results achieved. The results of the Review of Projects are in the attached Supplementary Report.

PAS	SAP Projects/ Activities		Completion Status (May 2013)
Reg	gional projects		
1.	Regional Overview of vulnerability and risk to CC impacts	•	Not completed; extended to December 2013
	Lessons for Future Action Conference, Samoa May 2011.	•	Summary Report, May 2011
In-o	country projects		
2.	BoM NMS Seasonal Prediction Capability	•	Completed June 2012 (Final Report, September 2012)
3.	Support for National Climate Change Adaptation Planning (CI, FSM, Marshall Islands, Nauru, Niue, Tonga)	•	Extended to June 2013
4.	National consultation on Framework for CCA (Kiribati)	٠	Completion report, February 2012
5.	LiDAR surveys, high resolution elevation data (PNG, Tonga, Vanuatu)	•	"Completed under PASAP" April 2012; continued under PACCSAP
6.	Analysis of Climate Change and Food Security (FSM)	٠	Extended to June 2013
7.	a. Climate Change Functional Review (Cook Islands)	•	Review delivered, March 2011; reforms implemented, 2012
	b. Coastal Adaptation Needs, Avarua (Cook Islands)	٠	Extended to August 2013
	<ul><li>c. Community vulnerability mapping for DRM &amp; CC Policy (Cook Islands)</li></ul>	•	Not implemented
8.	Sea-Level Rise Assessment Project, Lifuka (Tonga)	•	Extended to June 2013
9.	Community resilience, Roviana lagoon (Solomon Islands)	٠	Outputs completed, March 2013
10.	Analysis of CC and groundwater resources; identification of adaptation measures (East Timor)	(no	ot included in the Review)

## Table 7: Summary of PASAP Projects and Completion Status

## 2. Achievement of Program Objectives

83. As noted under Program Design, the Program structure for PASAP was not well-developed; a full logical framework was not prepared and the planned objectives statements were generalised

<sup>&</sup>lt;sup>19</sup> The planned Program outputs and individual PASAP "projects" tended to evolve over time so that final total numbers are rather arbitrary.

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rather than specific and measurable. Besides hindering Program planning, management and monitoring, this makes it difficult to evaluate the effectiveness of PASAP in achieving its objectives. Drawing on the Review of each PASAP project, **table 8** is a summary of Review findings on achievement in relation to the higher-level PASAP objectives. It indicates that only moderate progress was made towards each of the three planned Outcomes. On the data available, it is not possible to measure the effectiveness of the PASAP in achieving its Program Objective (to build resilience) or its Overall Objective (which was virtually identical to planned Outcome 3).

Table 8:	<b>PASAP Achievement of Main</b>	<b>Objectives</b>
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PASAP Main Objectives	Summary of Achievements
Program Objective: Build resilience respond to new opportunities	by helping people adapt to their changing environment and
Overall objective: Enhance partner of adaptation strategies.	country capacity to assess key climate vulnerabilities and formulate
Component 1 Objective: Build regio	nal capacities to support adaptive planning and action
<b>Planned Outcome 1</b> : <u>Strategic</u> <u>basis</u> developed for long term action to help partner countries adapt	<ul> <li>PASAP commissioned a number of useful assessments of specific PIC vulnerabilities to climate change and adaptation options (Project 1); intended to be synthesised into a guiding framework.</li> <li>PASAP funds were used to support a <i>Lessons for Future Action</i></li> </ul>
	conference by SPREP in May 2011.
Planned Outcome 2: <u>Regional</u> <u>organisations</u> have enhanced skills and knowledge to support adaptation in the Pacific and East Timor.	<ul> <li>PASAP funded SPC modelling of climate change impacts on Pacific tuna populations (part of Project 1).</li> <li>PASAP funded SPREP to support national climate adaptation planning in 5 (9?) PIC (Project 3).</li> <li>PASAP contracted SPC SOPAC to lead an assessment of climate change and food security in FSM (Project 6).</li> <li>PASAP contracted SPC SOPAC to implement an assessment of coastal vulnerability to sea-level rise on Lifuka island, Tonga (Project 8).</li> </ul>
Component 2 Objective: Build count adaptive strategies	try capacities to conduct vulnerability assessments and implement
Planned Outcome 3: <u>Capacity of</u> <u>partner countries</u> in the Pacific and East Timor is enhanced to conduct sound vulnerability assessments and develop adaptive strategies	<ul> <li>NMS in 10-15 PIC were trained in generating and communicating improved seasonal climate outlooks and tailored forecasts, using predictions from the dynamical model POAMA incorporated into SCOPIC forecasting software (Project 2).</li> <li>LiDAR surveys provided high resolution elevation maps for sites in 3 PIC (Project 5).</li> <li>7 PIC received assistance to develop climate change and adaptation policies and plans (Project 3).</li> <li>An institutional review in Cook Islands was commissioned (Project 7.a) and introduced reforms to climate change governance.</li> <li>A vulnerability assessment and resilience plan was developed with the local community of Roviana Lagoon, Solomon Islands (Project 9)</li> </ul>

84. Planned Outcome 1 was an ambitious proposition, and the results have not been effective or of demonstrated relevance to the overall Program or the ICCAI. A series of 12 expert reviews (of different sectors and aspects of vulnerability and adaptation) and 14 Country Stocktakes were compiled in 2011, and a conference was convened by SPREP in May 2011, but to date (May 2013) PASAP Program management has not completed the task of synthesising the results into some form of guiding framework or strategic plan, for use in other parts of the Program or the ICCAI, or by other agencies and programs. Failure to produce the envisaged Regional Overview is

a particular disappointment for the PASAP management, as throughout Program development and implementation it had been intended "to fill an important knowledge gap for both donors and partner countries by providing an overview of regional vulnerability which will inform future investments in adaptation programming." The Review understands that DCCEE still intend to complete a Regional Overview, but notes that the product will have reduced relevance and utility, being based on work done in 2010-2011; and will not have been available in time to inform the significant amount of climate adaptation programming work that has been undertaken during the period of the ICCAI 1<sup>st</sup> or 2<sup>nd</sup> phases, 2008-09 to 2013-14.

- 85. Planned Outcome 2 was achieved to only a limited extent. There was no clear strategy planned or executed for PASAP to contribute to strengthening the CROP agencies' system of support for their member countries' adaptation efforts. PASAP provided a small amount of funding to SPREP, to contribute to its program of support for national adaptation planning (JNAP development). Three separate projects were assigned to different divisions within SPC; one (cited in **table 9**) was intended as a contribution to the Regional Overview. The other two were assessment studies in FSM and Tonga, under which the SPC gained skills in planning, organising and executing relevant technical and scientific work.
- 86. Planned Outcome 3, to build country capacities, was the core of the Program and was effective in part. The most effective activities were a) BoM's development and training of all 15<sup>20</sup> NMS in the generation and communication of seasonal climate forecasts (Project 2), although the Review considers that it would have been more relevant and efficient for this work to have been done under the PCCSP, in closer conjunction with the broad range of other systemic capacity building work with the NMS; b) SPREP's support for PIC to formulate climate change adaptation policies and plans (JNAP, Project 3); and c) Project 9 (Roviana Lagoon) supported an effective and relevant model program of local community-based assessment of issues and options, leading to preparation of a useful resilience plan. However, this project was not set up to be a readily-replicable contribution to national adaptation capacity.
- 87. Under Project 5 LiDAR Surveys, high resolution elevation maps were produced for three coastal sites in Tonga, PNG and Vanuatu. The high-tech high-cost tool was intended as a significant contribution to coastal vulnerability assessments, although at the time of Review such outputs are not yet apparent for the three sites. The Review does not consider the LiDAR surveys to be highly relevant to the PASAP objective of building the countries' capacity to conduct vulnerability assessments and develop (adaptation) strategies, on a number of grounds:
  - a) Such high resolution is not necessary given the comparatively imprecise projections of sea level rise and coastal inundation; planning will be based on worst-case projections, not on high precision elevation data.
  - b) The cost is not justifiable; there are low cost alternatives.
  - c) There is no local involvement in the complex data acquisition and processing work; and little local capacity gain.
- 88. It would have been more relevant and efficient, and in line with its core purpose, for PASAP to have conducted comparative evaluations and demonstrations of a cross-section of locally-appropriate and less expensive alternative methods for surveying and mapping coastal elevations (Project 9 provided a good example of this approach), rather than commissioning four surveys employing one technology, at a cost of \$2.6 million(?), for which no evaluation has been completed.
- 89. The overall effectiveness and relevance of PASAP were reduced by the lack of coherent strategy and programming. Apart from the project (2) to develop seasonal prediction capacities in the Pacific NMS, the country activities developed and implemented over the 2-3 years of PASAP tended to be piecemeal or *ad hoc* ideas, developed opportunistically rather than systematically in line with a sound framework of planned outcomes and outputs.

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Priority attention was given to the 10 PIC whose NMS were engaged in the PI-CPP. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

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90. The ICCAI Pacific programs were targeted at the 14 independent Pacific island countries and East Timor. The final portfolio of PASAP projects implemented forms a relatively sparse and uneven series of individual country actions. There does not seem to be a rationale for the varied support received by each country from PASAP; refer to **table 9**. All 15 countries were engaged in just one project, NMS Seasonal Forecasting; as well as through the Regional Overview series of country studies. In addition to this, Cook Islands received assistance with 4-5 PASAP activities; Tonga 3 activities; FSM and Solomon Islands 2 activities; while Kiribati, PNG, Marshall Islands, Nauru, Niue, Tuvalu and Vanuatu were engaged in just one other PASAP activity; and Fiji, Palau and Samoa did not receive any assistance other than the NMS support.

PASAP Projects and Activities					F	Pacifi	c islar	nd cou	Intrie	s				
NMS Seasonal Forecasting Capability	CI	Fi	FSM	Ki	MI	Na	Ni	Ра	PG	Sa	SI	То	Tu	Va
Adaptation Planning Support (JNAP)	CI		FSM		MI	Na	Ni						Tu	
National Consultation CC and Devt.				Ki										
LiDAR surveys and DEM									PG			То		Va
CC and Food Security Assessment			FSM											
CC Institutional Strengthening	CI													
Urban Foreshore Infrastructure V&A	CI													
Community V&A in DRM plan	CI													
National CC Policy	CI													
SLR Coastal study, Lifuka												То		
CC Mainstreaming workshop												То		
Assessment and Resilience Plan											SI			

#### Table 9: PASAP PI Country Activities

## D. PACCSAP – Pacific Australian Climate Change Science and Adaptation Program

91. This section reviews the 2<sup>nd</sup> phase PACCSAP – Pacific-Australia Climate Change Science and Adaptation Program: the Review describes and assesses the relevance, efficiency and effectiveness of the Program design process followed and the design prepared; the arrangements for Program management and delivery; and the results achieved by the Program by early 2013.

## Program Management – PACCSAP

- 92. Assessment of the arrangements for governance and management of the 1st phase ICCAI concluded that there was overall weak coordination between the Australian government agencies responsible. This had occurred largely because the ICCAI had been split into four components which were developed into separate programs under different governance arrangements. "Australian-funded climate change programs in the region are currently programmed by both AusAID and DCCEE under ICCAI and, separately, through AusAID bilateral and regional programming. Diffuse management and coordination committees established for these different programs have led to overall weak coordination of Australian whole-of-government support." (PACCSAP PDD, 2011). In response, the decision was made to combine the first two ICCAI programs, PCCSP and PASAP; for the 2<sup>nd</sup> phase, PACCSAP was planned with a single Program framework and management structure. In the plan, an emphasis was placed on collaboration and integration at three levels of Program management:
  - a) "Coordination" between the three major Australian-funded climate change initiatives running in parallel in the region – PACCSAP; the other ICCAI Pacific activities; and COSPPac. The aim was "internal Australian Government policy and program coherence and effectiveness and coordination of program staff resources."
  - b) "Harmonisation (primarily through SPREP mechanisms)" between the increasing number of large ODA climate change programs in the region.
  - c) "Shared decision-making and alignment" with Pacific island national and regional priorities and systems. (PACCSAP draft PDD 2011).
- 93. Governance and management arrangements for the combined Program were as follows: the Ministers for Foreign Affairs and Climate Change and Energy Efficiency continued to share joint responsibility for the 2<sup>nd</sup> phase of the ICCAI and thus for PACCSAP. Strategic oversight was provided by the jointly-chaired AusAID-DCCEE Committees (Branch Heads and Division Heads). DCCEE was designated the lead management agency for the whole of PACCSAP, but not for the other parts of ICCAI. A PACCSAP Program Management Committee (PMC) - subsequently renamed the Executive Management Committee (EMC) - was to be chaired by DCCEE, with members from AusAID (two representatives "including from ICCAI and COSPPac"), CSIRO, BoM, SPC and SPREP (the latter two "to maximise ownership of Program activities by Pacific countries"). The role of the PMC/EMC was to provide oversight, strategic guidance and coordination of the Program, and direction of the Project Implementation Team (PIT), renamed as the Implementation Working Group (IWG). Quarterly PMC/EMC meetings were scheduled, and achieved more-or-less (October 2011; February, May, November 2011). The terms of reference for both the PMC/EMC and the PIT/IWG emphasised the additional key role of ensuring collaboration between PACCSAP, the "broader ICCAI work in the region", and COSPPac; especially with regards to capacity development and communications activities.
- 94. The PIT/IWG was responsible for all aspects of day-to-day management of the Program; to be chaired by the DCCEE PACCSAP Program Manager, and comprise the leaders of each of the four PACCSAP Areas of Work (two from CSIRO-BoM for components 1 and 3; and two from DCCEE for components 2 and 4). Following re-structuring after inception, the PIT/IWG membership was as follows: DCCEE PACCSAP Program Manager (Chair); 1 representative each from CSIRO and BoM; 2 representatives from DCCEE Canberra; 2 representatives from DCCEE Apia; CSIRO-BoM PACCSAP Science Program Manager; AusAID representative (to ensure coordination with AusAID-led elements of the ICCAI); COSPPac Program Manager to ensure coordination with the

COSPPac. Monthly IWG meetings and quarterly reports to the PMC were stipulated, and the Review was advised that meetings have been convened and reported regularly (but has not sighted copies of reports).

- 95. Following the inception period, DCCEE revised the PACCSAP Program structure into three components. CSIRO and BoM were contracted separately by DCCEE to implement planned Outcomes 1 (Science Program) plus 3.1 (Building capacity of the PIC NMS). Outcomes 2, 3.2 and 3.3 were to be managed and implemented directly by DCCEE (PACCSAP Organisational Framework; Implementation Plan 2013 01). Under this structure, the "Science Program" was continued as PACCSAP Outcomes 1 (and 3.1) and unfortunately the management arrangements did not enable PACCSAP to be developed as a coherent and unified program: the BoM-CSIRO position of PCCSP Manager was re-labelled the Science Program Manager (PACCSAP); and similarly the PCCSP Program Implementation Team became the PACCSAP Science Implementation Team (SIT). BoM and CSIRO re-numbered the five PACCSAP sub-programs for which they were responsible, "so as to continue the structure successfully utilised in the PCCSP." (2013 01 PACCSAP Organisational Framework.) The SIT comprised the five BoM-CSIRO Theme Leaders; meetings were held on 11 occasions between late 2011 and early 2013; and efficient records kept of discussions and actionable points.
- 96. In addition a PACCSAP Communication Working Group was formed in early 2012 to coordinate work across projects. It was chaired by DCCEE and included representatives from AusAID, BoM, CSIRO, SPREP and SPC. Meetings were infrequent; records have not been sighted by the Review.
- 97. **Planning, M&E and Reporting**: Proposed tools for the management of the Program included plans, budgets and reports for each Area of Work; Annual Plans; and plans for <u>Implementation</u>, Capacity development, <u>Communications</u>, <u>Risk management</u> and <u>M&E</u>; (the Review has sighted only those underlined). The PACCSAP Design Document (July 2011) outlined the Monitoring and Evaluation plan for the Program. It included an M&E Framework and specified a range of actions:
  - a) "DCCEE will coordinate management of M&E activities in partnership with AusAID. Program partners responsible for implementation of activities will be expected to provide technical information on progress of delivery against expected outcomes.
  - b) The Regional Overview (PASAP) and Technical Report (PCCSP) to be published in late 2011... are expected to contribute to the specification of baselines within the M&E Framework.
  - c) An information system will be established by DCCEE to accrue performance data across the Program and support analysis and reporting to the full range of stakeholders and partners."
  - d) The results of monitoring will be evaluated on a regular basis, including through Six-Monthly and Annual Reports, and an independent review at 18 months of Program implementation (February 2013).
  - e) Reporting will include updates of the Risk Management Plan (RMP) for review by the PIT, PMG and ICCAI Management Committee. Exception Reporting will highlight any issues that require immediate remedial action."
  - f) In addition, the PACCSAP PDD/ Implementation Plan refers to a number of performance information/ monitoring frameworks that were being developed – for the PIFACC 2006-2015; the Hyogo Framework for DRR Action 2005-2015; as well as for the whole of the ICCAI, by AusAID and DCCEE, and for COSPPac: "the M&E framework of the PACCSAP will be updated to ensure it is consistent with these programs".
- 98. The planned Program M&E and reporting actions described above have not been brought into effective operation. Apart from the Science Program, there is no adequate system in place for PACCSAP Program Managers to monitor how programs and projects are performing. The PACCSAP M&E Framework (July 2012) outlined the projects and activities that were planned, but did not provide a hierarchy of planned objectives with measurable targets and indicators. No formal linkages were made between PACCSAP M&E and the several proposed information/

monitoring frameworks associated with other regional initiatives. Monitoring and reporting during the course of the Program to date have been limited to Traffic Light Reports (TLR) on activity progress provided to the EMC. These have been produced at quarterly intervals for Outcome 1 by the CSIRO-BoM SIT; and approximately annually (February and November 2012) for Outcomes 2 and 3 (3.2-3.4 only) by DCCEE.<sup>21</sup> Reporting on sub-Outcome 3.1 (NMS Capacity building) has been sporadic; it was reported on as part of the Science Program TLR (with Outcome 1) until June 2012, but not in the two subsequent Science Program TLR. Progress with some elements of 3.1 (3.1.4, 3.1.6) has been reported under Outcome 1.

99. None of the individual PACCSAP projects or activities appear to have been planned, contracted or monitored on the basis of a logical framework or similar tool. To date, few of the PACCSAP individually-contracted projects, i.e. the 20-25 projects under Outcome 2 and 3, have provided the Program Managers with reports on progress (or at least the Review has not been provided with copies); an exception is GA's work on Tropical Cyclone Wind Hazard. Refer to the attached Supplementary Review of Individual Projects.

## Program Design – PACCSAP

100.Planning of the ICCAI 2<sup>nd</sup> phase and the design of PACCSAP<sup>22</sup> took place largely in 2011 through a process of consultations among the Australian and Pacific regional and national agencies engaged in the ICCAI, PCCSP and PASAP; these included AusAID, DCCEE, CSIRO, BoM, a number of Australian Universities, SPREP, SPC, USP and Pacific NMS. The main consultative and planning events are summarised in **table 10**.

## Table 10: ICCAI 2<sup>nd</sup> phase and PACCSAP Program Planning

2010 11 – PCCSP Gaps & Needs Analysis report
2011 03 – ICCAI MTR report
2011 04 – PACCSAP/ COSPPac Design Workshop – AusAID & DCCEE, Vanuatu
2011 04 – ICCAI Pacific 2 <sup>nd</sup> phase Draft Concept Note – AusAID
2011 06 – PACCSAP PDD AusAID Peer Review
2011 07 – PACCSAP Program Design Document
2011 08 – Regional Meeting of NMS Directors, Majuro
2011 09 – PACCSAP Science Program Plan (CSIRO-BoM)
2011 09 – Consultative meeting, Apia (coincident with SPREP Annual Meeting)
2011 10 – PACCSAP Program Inception Workshop, Brisbane
2011 10 – PACCSAP 1 <sup>st</sup> Executive Management Committee meeting, Brisbane
2011 10 – PACCSAP Implementation Plan

- 101. The PACCSAP design was informed by a gaps & needs analysis (GNA) prepared by the CSIRO-BoM PCCSP team (October 2009 to November 2010). CSIRO-BoM team prepared a proposal for the two-year PACCSAP Program, based on their progress with implementing the PCCSP and on six priority needs identified in the GNA:
  - a) Effective communication of climate change science to partner country stakeholders.
  - b) Capacity building and education.
  - c) Improved monitoring of atmospheric and oceanic parameters.
  - d) Understanding the past and present climate to inform the future, including robust attribution of climate change.
  - e) Improved atmospheric and ocean projections for 2020 to 2100 and beyond, for new IPCC emission scenarios.

<sup>&</sup>lt;sup>21</sup> This account is based on analysis of all reports sighted by the Review.

<sup>&</sup>lt;sup>22</sup> It is not clear to the Review whether comparable planning took place for the other component programs of the ICCAI 2<sup>nd</sup> phase.

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- f) Improved projections for extreme events, including tropical cyclones.
- 102. In early 2011, a Mid-Term Review of the ICCAI<sup>23</sup> was undertaken, following which AusAID prepared a draft Concept Note (April 2011) for an ICCAI 2<sup>nd</sup> phase. A number of similar points for future program design were made in the MTR and/ or the Concept Note:
  - a) In the ICCAI 1<sup>st</sup> phase there was lack of interaction, cohesion and coordination between the four components; climate research, adaptation planning and adaptation actions were not connected; activities evolved and were implemented separately and in parallel rather than linked sequentially. In order to be relevant and effective, 2<sup>nd</sup> phase programs would need to be strongly integrated. Nevertheless, the MTR recommended continuing the ICCAI as four separate components; and the Concept Note did not specify how they would be integrated.
  - b) All ICCAI activities should be integrated into the broader aid program and contribute to PIC national development goals focused on building resilience to climate change impacts. This should be done through the existing Australia-PIC Partnerships for Development (PfD).
  - c) Monitoring 1<sup>st</sup> phase progress and effectiveness had been constrained by the lack of a performance assessment framework, either for the ICCAI overall or for individual programs; in response, "a comprehensive framework will be developed (for the 2<sup>nd</sup> phase)."
  - d) In the 2<sup>nd</sup> phase it will be important to effectively communicate the climate science information provided by the Science program to development planners and decision-makers in the PIC.
- 103. The PACCSAP Program design process was a drawn-out exercise that did not capture these ideas effectively. As the designated lead agency, DCCEE prepared a draft proposal (May 2011) for the new combined Program. Following AusAID QAE Design Appraisal and Peer Review, the Program Design Document for PACCSAP was approved in July 2011, and Program implementation was started. The PDD presented an outline of the proposed two-year program, the rationale behind the design, and how it would be organised, funded and delivered. The Program was structured on the following four major component Outcomes served by a total of 26 Outputs:
  - Outcome 1: Capacity development of PIC National Meteorological Services
  - Outcome 2: Information synthesis and communication
  - Outcome 3: Advancing knowledge on climate variability and extremes
  - Outcome 4: Improved adaptation planning.
- 104. The PACCSAP PDD was incompletely-developed, with few specific details. It was presented as a confused array of Areas of Work, Outcomes, specific activities and Outputs; including Outputs listed under one Outcome that were "to be delivered under (a different) Outcome". The diverse set of 26 planned Outputs ranged from small discrete products to large open-ended packages of activities. The same structure and catalogue of project Outputs were used to develop the M & E Framework for the overall Program. The PDD emphasised that "The type, number and value of activities is not known until further consultations during PACCSAP's three-month Inception Phase refines national preferences for implementation." The QAE review ratings and endorsement of the PDD were subject to a number of revisions being made and additional details being provided; however, no final PDD was developed subsequently.
- 105. In September 2011, CSIRO-BoM prepared a detailed plan for the Science Program components

<sup>&</sup>lt;sup>23</sup> The Review notes that the ICCAI MTR (March, 2011) was the only independent evaluation undertaken of the ICCAI or any of its four components; there was no separate evaluation of the PCCSP or PASAP Programs. The ICCAI MTR was informed by a submission from the PCCSP Program management unit (February 2011), which drew on the Science Program GNA organised by CSIRO-BoM; but no comparable input was provided from PASAP or DCCEE.

of the PACCSAP. In October 2011, at the end of the Inception period, a final PACCSAP Design Workshop (Brisbane) was held; and used to discuss and confirm the PACCSAP Program design with Australian and Pacific regional and national organisations. Instead of developing and finalising the PDD, DCCEE prepared a PACCSAP Implementation Plan, intended to be a more dynamic "living document" able to be updated during Program implementation. The initial version of the PACCSAP Implementation Plan (October 2011) specified a varied set of 23 Outputs to be produced under the four main planned Outcomes over the two-year time-frame (mid-2011 to mid-2013). In February 2012, DCCEE prepared a revised Program Implementation Plan, with just three Outcomes and 10 major Outputs, as summarised in **table 11**.

Table 11:	PACCSAP Program Framewor	k. modified Februar	v 2012
			,

Program Goal:	People of Pacific Island countries have developed their capacity to monitor and adapt to their changing natural environment and enhance their resilience to the impacts of climate change.		
Objective:	To develop the capacity of Pacific Island country scientists, decision- makers and planners to access and apply information and tools to identify and develop in-country adaptation responses.	Budget	t (\$, m)
Outcome 1	Improved scientific understanding of climate change in the Pacific		15.2
	1.1 Seasonal Predictions and Climate Data	4.60	
	1.2 Large scale climate features and patterns of variability	2.65	
	1.3 Climate Projections and Extreme Events	4.20	
	1.4 Regional Ocean Processes	3.75	
Outcome 2	Increased awareness key climate science, impacts, adaptation options		2.73
	2.1 Improve national and sub-national understanding of how climate information integrates with sectoral decision making	1.50	
	2.2 Improve understanding in the region about CC and adaptation	1.23	
Outcome 3	Better adaptation planning to build resilience to CC impacts		9.81
	3.1 Build capacity of NMS to aid decision making	1.60	
	3.2 Adaptation planning in infrastructure sector at reg. and nat. levels	2.65	
	3.3 Adaptation planning in coastal zone at reg. and nat. levels	4.68	
	3.4 Improve cross sectoral and long-term planning processes	0.88	
Management			4.24
	DCCEE Management and implementation	2.64	
	CSIRO-BoM Management and implementation	1.60	
			32.0

from Implementation Plan, January 2013

#### **Review notes:**

106. Considering the resources and time that went into the planning process, it is disappointing that the PACCSAP Program Design was poorly and incompletely developed and did not provide a clear, rigorous and coherent plan for the purposes of management, communications and monitoring. The Design did not adequately address the issues identified in the ICCAI MTR, or the experiences of implementing PCCSP, PASAP and more generically, the other ICCAI components (3 and 4). The new Program design made premature assertions of what had been achieved and learned under the 1<sup>st</sup> phase, particularly from the PASAP Program given that most projects had only just been started by the time PACCSAP was being designed. The strategic planning and rigorous design work that was intended during the inception phase (July-September 2011) was not effective. The PACCSAP design did not give adequate regard to the broader aid program, the 1<sup>st</sup> phase bilateral adaptation program, PIC national development goals, and the existing Australia-PIC Partnerships for Development. The logical framework developed for the Implementation Plan did not help to establish the integrated approach that was intended. The outcome, output and overall objective statements were not well-formulated, but tended to refer

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to processes and activities to be carried out. Many were simply "to develop capacity" or "access information", and did not make the substantive objective clear – i.e. what was to be achieved with the capacity or information. These design and governance failings are of especial concern as they provided a poor foundation on which to develop effective Program delivery, monitoring and adaptive management. They provide a lesson to ensure that a multi-agency committee such as the EMC has adequate procedures in place to ensure that the designated responsible government agency(ies) performs accountably for decisions at each stage of the management process.

- 107. The key issue for PCCSP and PASAP from the 1st phase of the ICCAI was correctly identified as the lack of "coordination" and coherence across the four separate components. However, the response to combine the first two components into PACCSAP failed to resolve the issue, in several ways. PACCSAP and "the other parts of the ICCAI" continued to operate separately under different planning and management arrangements. The vision that the 2<sup>nd</sup> phase should "usefully include all Australian climate change programs within an enhanced and more systemic governance, coordination and reporting framework to improve coherence, reduce fragmentation, and enhance the ability to learn lessons" was far from being realised; neither the various Programs nor the governance and management arrangements were unified. A significant area of 2<sup>nd</sup> phase dis-connection was that the Pacific Climate Science Program was continued quite separately from the "Adaptation planning", as PACCSAP Outcomes 1 (and 3.1). The BoM-CSIRO position of Program Manager under the PCCSP was re-labelled the Science Program Manager (PACCSAP); and similarly the PCCSP Program Implementation Team became the PACCSAP Science Implementation Team. BoM and CSIRO re-numbered the five PACCSAP subprograms for which they were responsible, "so as to continue the structure successfully utilised in the PCCSP." (2013 01 PACCSAP Organisational Framework.) These arrangements and designations tended to separate the components of PACCSAP into the same divisions as the previous PCCSP and PASAP, with inadequate connection between the research science and the support to adaptation planning. In practice this hampered both the organisation of the science program for the purpose of informing decision-making or planning; and the organisation of the adaptation planning to utilise the information from the research. The Review considers that this was an issue especially for the adaptation planning work – the essential purpose of which was to support applications of the science to making decisions for adaptation and resilience building; and contributed to the development of a weak design for PACCSAP component 3 (and 2).
- 108. At the same time that PACCSAP was being developed as a combination of the two 1<sup>st</sup> phase programs, a third dis-connection and source of confusion was being created in the form of the Climate and Ocean Science Program for the Pacific, COSPPac (the combined extension of two previous projects, the Pacific Islands Climate Prediction Project, PI-CPP, and South Pacific Sea Level and Climate Monitoring Project, SPSLCMP). Although the Review does not extend to COSPPac, it is clear that there is a considerable degree of overlap between the two Programs, which have very similar objectives, delivery arrangements and timetables.<sup>24</sup> **Box 2** is an extract from a May 2011 note from DCCEE, attempting to differentiate between and justify the two programs; however, from the descriptions given, the Review fails to understand the supposed distinctions. For COSPPac to have been established as a distinctly separate program, outside the ICCAI, under different management arrangements, squarely contradicted and jeopardised the vision for the 2<sup>nd</sup> phase of ICCAI "to improve coherence, reduce fragmentation, and enhance the ability to learn lessons".

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<sup>&</sup>lt;sup>24</sup> In July 2013, the Review was provided with the following additional notes – BoM: "COSPPac focuses its services and products in the area of climate variability rather than climate change and does not generally undertake research. We note that some of the research being undertaken in PACCASP on climate variability will be taken up as part of the implementation of developments in seasonal prediction." AusAID: "COSPPac (and previously PICPP2) supports Pacific NMS in the use of existing science and their own digitised historical weather and climate records to produce seasonal forecasts of climate variability for use by local climate-sensitive industries and sectors."

#### Box 2

COSPPac and PCCSAP: Complementarities and Dependencies. DCCEE, May 2011

"The key distinctions between the two programs can be described as follows:

PACCSAP focuses on research to better understand the science underlying climate variability and change as they affect the PICs, and on building indigenous capacity in climate science and its application to adaptation in key national economic and environmental sectors. PACCSAP works in collaboration with PIC NMSs and its partners, which include many other Government and community stakeholders

COSPPac focuses therefore on enabling the PICs to capitalize on the increased understanding of climate deriving to a significant degree from research being conducted by PCCSAP and its predecessors (PCCSP & PASAP). COSPPac will develop a wide range of routine climate services to be generated and delivered in-country by NMSs, such as accurate and targeted seasonal climate prediction services and information on sea level fluctuations and trends in response to climate variability and change."

- 109. Integration of Climate Research, Adaptation Planning and Actions: Both the 2011 PDD and the 2012-onwards Implementation Plan gave inadequate attention to the identified need for strong integration of the science, adaptation planning <u>and adaptation action</u>; and made only brief reference to the other ICCAI components, indicating that they would continue to be implemented in parallel with PACCSAP. Despite the stated intentions of integration, the PACCSAP was developed as a simple extension of the climate science research and the adaptation planning from the separate first phase programs, PCCSP and PASAP. Although under overall DCCEE control, the two areas of work were to be delivered as separate components by separate teams within different institutions; and with limited linkages between them built into the Program. There were few if any activities planned as joint projects involving collaboration between the Science team of CSIRO and BoM managers and Adaptation or planning experts from DCCEE.
- 110. The 2<sup>nd</sup> phase of the ICCAI also failed to bring about the integration of the science and the planning with the actual implementation of adaptation. Both PACCSAP and the previous PCCSP and PASAP were divorced from the implementation of adaptation and resilience-building measures; these were the purpose of ICCAI components 3 and 4, which were continued as separate areas of work under AusAID direct control through both the 1<sup>st</sup> and 2<sup>nd</sup> phases of the ICCAI; there appear to have been disappointingly few connections made between the science, assessment and planning work and the bilateral and multilateral adaptation action components. The disjointed structure produced the major weakness in the PACCSAP design of the Program not being responsible for achieving or contributing to the substantive objective of more resilient communities, sectors or economies. Under the ICCAI, PACCSAP work on science information gathering and adaptation planning support should have been attached to the adaptation and resilience-building projects developed under components 3 and 4; urging "coordination" was inadequate. A comprehensive integrated approach to addressing a community's or sector's vulnerabilities and need for resilience would be considerably more relevant and effective.
- 111. **Capacity Development**: the emphasis on local/ national capacity development as the underlying purpose was continued under the PACCSAP Program. Capacity development was identified correctly as "the key element of PACCSAP... integral and addressed through all Areas of Work." (PDD, July 2011). The PDD stressed also the importance of preparing during the inception phase an adequate "PACCSAP capacity development plan, in consultation with key national and regional stakeholders, to link to that of the broader ICCAI and COSPPac." However such a plan does not seem to have been formulated. Instead, the major changes in Program design structure through the inception phase included dropping Capacity Development as the first of four main Outcome objectives. This gave less explicit focus on systemic capacity development, other than via the NMS; and made no explicit reference to capacity development for adaptation planning or to other national or sectoral agencies. Capacity development planning seems to have fallen into the disconnect between DCCEE and CSIRO-BoM separately developing detailed plans for the PACCSAP components. For whatever reasons, the consequence was that the PACCSAP design did

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not provide for an adequately rigorous and strategic approach to the key element of capacity development.

- 112. Examination of the PACCSAP Program Framework or the Theory of Change Chart (September 2012 version3) indicates that capacity development was considered to be the objective at each level and for each component of the Program: the overall **vision** was for Pacific islanders "to have developed their capacity"; the three **Goals** and **Outcomes** of PACCSAP were 1. "Capacity of Pacific island scientists, decision-makers and planners... is enhanced"; and "Improved scientific understanding"; 2. Pacific islanders "are more aware"; and "Increased awareness..."; and 3. "Decision-makers undertake better adaptation planning". Awareness, understanding, accessing information, planning and decision-making are all aspects of capacity, of the individuals, institutions or systems involved. This was not a useful Framework or Theory of Change; it does not adequately inform the designers and executants about the purpose or focus of their work. It is better practice to specify the substantive objectives and outcomes that are expected or sought, and to plan capacity development as the means to an end, rather than as the end purpose of the initiative.
- 113. **Table 12** is the Review's suggestions for more relevant and effective PACCSAP Goal and overall Objective statements and the set of three planned Outcomes serving this overall objective. Such objective statements, with accompanying text and indicators for monitoring, would make it clear (for planners, managers, communicating and monitoring) what is required from each component and how the components need to work together in order to make an effective contribution to the overall objective and goal. Below each planned Outcome, the crucial middle and lower level objectives (MiLO) should be developed to specify the sets of specific capacities required: a) capacity to conduct research and make scientific information accessible; b) capacity to acquire, assimilate and apply the information to planning; to organise effective decision-making in each sector, section and community; and c) capacity to organise, manage, monitor and learn from specific adaptation and resilience building actions.

	EBESTED REVISIONS TO LACESAL OBJECTIVES
Goal	Social and economic development of PICs that is sustainable and resilient to climate change impacts.
Program objective	Effective planning and management systems in PICs for sustainable and resilient development.
Outcome 1:	Improved scientific knowledge of climate change in the Pacific; made available and accessible to the Pacific island countries.
Outcome 2:	Improved understanding and application of scientific knowledge to preparing for, adapting and building resilience to climate change.
Outcome 3:	Resilience built or maintained, by implementation of adaptation measures.

Table 12:	Suggested	<b>Revisions to</b>	PACCSAP	Objectives
				• • • • • • • • • • • • • • • • • • • •

- 114. Awareness Communication: Based on the experience of the 1<sup>st</sup> phase and the significant amount of feedback gained, a key objective of the 2<sup>nd</sup> phase PACCSAP was to enable next-users and end-users to use the new scientific information in order to plan and decide how to respond to climate change and its impacts on particular sectors, systems or communities. Under the revised/ final PACCSAP Program design (Implementation Plan 2012 and on), communication and awareness-raising activities were planned as Outcome 2, alongside the Science Program as component Outcome 1. and Adaptation Planning as Outcome 3. This was not a useful arrangement; it ignored best practice of treating communications and awareness-raising as integral aspects of capacity-building to achieve substantive objectives. (The previous PACCSAP plan (PDD 2011) had also been poorly-structured, with Capacity-building, Communications and awareness, and Understanding planned as three separate Outcomes. In the revision from version 1 to 2, Capacity-building and Understanding had been dropped as discrete components, but Awareness was kept, but missing the concept of capacity-building as a comprehensive integrated approach.)
- 115. **Planned Duration**: A confusing explanation was given that the Program goal and objective "will endure over the proposed five year duration of the extended ICCAI phase", while the lower-

order planned outputs and outcomes were in line with the two-year budget (FY 2011-12 to 2012-13) but "will remain responsive to changing priorities and available funding". The Review considers that this was not a useful approach for Program management. The real issue was that too much money was allocated to far too-short a period of work: apart from the Science Program, the planned outputs and outcomes were completely unrealistic in two years, especially for a program aiming to build systemic capacity for long-term climate resilience in 14 Small Island Developing States, and especially when the 1<sup>st</sup> phase of three years was far from completion when the 2<sup>nd</sup> phase was started, with the same amount of funding as the 1<sup>st</sup> phase but only two more years for completion. It is not clear why DCCEE was given or took on the unrealistic task of disbursing \$32 million in just two years of PACCSAP, given its slow progress with PASAP, and considering that, for a similar program of work also under the ICCAI, AusAID had granted the CROP agency SPC \$9 million over 5 years, 2010-2014.

116. The funding for the Program was designated Fast Start, but the concept seems to have been misconstrued as "fast track" or rapid implementation, which the Review considers to have reduced the relevance, efficiency and effectiveness of the Program. Nothing has been gained by trying to spend large sums of money in a short period, on a poorly-developed program plan. In planning future programs, the Review would recommend the reverse approach: first a solid framework of Program and project objectives should be set; then a realistic timetable should be planned; and thirdly an appropriate budget and funding plan should be drawn up. PACCSAP should have been started only with a planned duration of five to seven years, and with the same level of funding.

## Program Achievements - PACCSAP

117. The PACCSAP Program was started in July 2011 with a planned duration of just two years, to June 2013, and total budget of \$32 million. The PACCSAP Implementation Plan described 40 projects or sets of Activities as Detailed Activity Outlines (pages 12-74, January 2013). **Table 13** is a summary of the Program Framework and lists of Projects/ Activities under each sub-Outcome.

Table 13:	Summary of PACCSAP Activities (2013 01 Implementation Plan)
Outcome 1: Imp	proved scientific understanding of climate change in the Pacific
1.1 Seasona	l Predictions and Climate Data; Software Tools for NMS
1.1.1 S	easonal prediction of sea-level anomalies
1.1.2 \$	easonal prediction of tropical cyclones
1.1.3 \$	easonal prediction extreme ocean temperatures
1.1.4 S	ecuring climate records including CliDE
1.1.5 E	nhancing PCCSP tools for analysis
1.2 Large sc	ale climate features and patterns of variability
1.2.1	mprove understanding ENSO
1.2.2 li	mproved ITCZ and WPM
1.2.3	mproved South Pacific Convergence Zone (SPCZ)
1.2.4 0	Detection and attribution of observed changes
1.3 Climate	Projections and Extreme Events
1.3.1 0	limate model evaluation and projections
1.3.2 E	valuation of downscaling techniques
1.3.3 C	Decadal climate variability and near-term change projections
1.3.4 li	mpact of climate change on tropical cyclones
1.3.5 V	Version 2 of the web tool Pacific Climate Futures
1360	Provision of training tools Tropical Cyclone Risk model

- 1.4 Regional Ocean Processes
  - 1.4.1 Improving understanding ... sea level climate variability

1.4.2 Projecting key ocean acidification thresholds in the Pacific			
1.4.3 High resolution wind-wave climate and projections of change			
1.4.4 Effect extreme sea levels and coastal impacts			
1.4.5 Projected increases coral bleaching			
1.4.6 Projected effects on tuna populations and fisheries			
Outcome 2: Increased awareness of key climate science, impacts and adaptation options			
2.1 Improve national and sub-national understanding of how climate information			
2.1.1 Scenario planning			
2.1.2 Media training			
2.1.3 Education materials			
2.2 Improve understanding in the region about climate change and adaptation			
2.2.1 Customised communication materials			
2.2.2 Hold regional forums and utilise networks			
Outcome 3: Better adaptation planning to build resilience to climate change impacts			
3.1: Build the capacity of NMS to aid decision making			
3.1.1 Develop a training package to assist NMS			
3.1.2 Reciprocal internships and mentoring arrangements			
3.1.3 Scanned and digitised data			
3.1.4 Research collaboration universities			
3.2 Improve adaptation planning in the infrastructure sector			
3.2.1 Integrate TCWRM with PCRAFI			
3.2.2 Review of infrastructure policies and plans			
3.2.3 Conduct an integrated assessment relating to infrastructure			
3.3 Improve adaptation planning in the coastal zone at the regional and national levels			
3.3.1 Simple coastal inundation models PNG, Tonga and Vanuatu			
3.3.2 Develop a Pacific Islands Coastal Vulnerability Framework			
3.3.3 Conduct an integrated assessment coastal zone management			
3.4 Improve cross sectoral and long-term planning processes			
3.4.2 Develop a Pacific Islands Hydrogeological Framework			
3.4.3 Promote South-South cooperation			
3.4.4 Improve data management at the regional level			

- 118. The Review made a summary evaluation of each of the individual projects or activities implemented under PACCSAP, including assessment of each project plan, its implementation, and the results achieved in the first 18 months of the Program. Refer to the attached Supplementary report.
- 119. **Building on the PCCSP and the PASAP**: In the period July-December 2011, PACCSAP was implemented by DCCEE and CSIRO-BoM in parallel with the PASAP and PCCSP Programs, which were operating under no-cost extensions (beyond their original deadline of July 2011). This was a minor issue for the PCCSP, which was completed and closed by December 2011 with an End-of-Program Report compiled and distributed by July 2012. The PACCSAP Science Program was able to be built relatively seamlessly upon the PCCSP Program; it was clearly a logical continuation and progressive development of many elements of the Science Program. However, the new Program was a serious issue for DCCEE, whose implementation of the PASAP Program was much further behind. In mid-2011, while most PASAP individual projects were just starting under direct DCCEE implementation, the Department took on additional responsibility for the PACCSAP management overall, and for direct implementation of components 2. Awareness and 3. Adaptation planning. At the time of the Review in the first part of 2013, major parts of the PASAP Program remained incomplete, and PACCSAP activities managed directly by DCCEE were

also much delayed. The drawn-out process that has characterised the Adaptation planning work meant that the PACCSAP component 3 was not able to draw lessons from and build on a successful 1<sup>st</sup> phase. The consequence was that PACCSAP AP work tended towards a new set of activities rather than being a continuation of work started under the PASAP.

## Science Program – Outcome 1; and Capacity building – Outcome 3.1

- 120. Implementation of the Science Program has been managed by teams of research scientists in CSIRO and BoM, starting in July 2011. The Program comprised 17 research studies and four projects focused on further improvements to the PIC climate data, its security and management; and the continuation of work to provide tools and training in their use, for Pacific island climate scientists to analyse their data and to develop and present climate predictions and projections to service the needs of their "next users".
- 121. The focus of the research studies is summarised in **table 13**; and the fields of work undertaken and results being achieved are summarised in the Review Supplementary report on individual projects. The impressive range of studies includes modelling seasonal predictions of tropical cyclones, extreme sea-levels, rainfall, air temperature, sea-surface temperature, coral bleaching; understanding large scale climate features and patterns of variability, under ENSO, WPM, ITCZ, SPCZ; improving and down-scaling climate projections (temperature, rainfall, cyclones); and understanding and projecting regional ocean processes, including sea-level , wind-wave climate, acidification, coral bleaching, and tuna populations. The second year of work was being continued at the time of the Review, and studies were reported to be largely on target to be drawn to a conclusion by the June 2013 deadline.
- 122. Work on climate data management and tools under PACCSAP has included the digitisation of domestic climate records for 9(?) of the PIC NMS; continued development of the CDMS CliDE, with software fixes, new features added and installations upgraded in most of the 15 countries; and technical support and extensive training provided in climate records management, digitisation and use of CliDE. The Pacific Climate Change Data Portal has been updated and fixes introduced; training has been delivered and presentations made on data analysis, homogenisation, historic trends and extremes. A broad formative evaluation of the *Climate Futures* web-tool was conducted (May 2011 to April 2012); and under PACCSAP, new features have been developed and tested; new model data added; and extensive training delivered to all the PIC NMS.
- 123.**NMS Capacity building**: The CSIRO-BoM team proceeded to develop and organise implementation of the planned capacity building (outcome 3.1), in conjunction with the main PACCSAP Component 1 Science Program, Themes 1 to 4, in five main ways:
  - a) Specific teaching and training exercises on the climate science and the tools developed under PCCSP and PACCSAP, for PIC climate scientists and practitioners.
  - b) Publication and dissemination of the Pacific climate scientific research results, prepared under PCCSP and PACCSAP Component 1 Science Program.
  - c) Mentoring visits by BoM or CSIRO scientists to individual PIC NMS; and short-term Attachments of individual NMS staff to BoM or CSIRO units in Australia.
  - d) Collaborations on joint research projects or writing activities.
  - e) Continued support for securing and digitisation of the weather records kept by each of the PIC NMS.
- 124. The Science Theme 5/ SIT have organised collation and presentation of the results from the science projects; delivery of training exercises; mentoring visits to PICs and attachments of NMS scientists to CSIRO-BoM units. USP post-graduate students have received advanced training in *Climate Futures*. Major training activities have included the Pacific Advanced Climate Course (PAdClim) in October 2012; and presentations at workshops in Australia and internationally; including University of Melbourne CESCS Winter School 2012; a USP-PACCSAP Climate Science Event in January 2013; and the regional PACCSAP Climate Science Symposium in Honiara in March 2013. Scientific publications are being prepared on most aspects of the Science Program.

Over the second year of the Program, all team members have been contributing to the compilation of a major *Climate Change in the Pacific* Supplementary Report plus individual country Supplements, which will be completed before the end of 2013, to draw together the peer-reviewed updated findings of the 4-5 years of Climate Science Program under the ICCAI.

125. Activities and results that were reported in 2011 and 2012 (up to the time of the Review) are summarised in the Supplementary Report on Individual Projects (Activities 3.1.1 to 3.1.5). The major activity of software tools development was continued; this was noted in the Program plan as capacity-building Activity area 3.1.6, but implementation of the development work was managed and reported under the main Science Activity areas 1.1.2 (Pacific Tropical Cyclone Data Portal); 1.1.4 (CliDE); 1.1.5 (Pacific Climate Change Data Portal); and 1.3.5 (*Pacific Climate Futures* web-tool).

## Awareness – Outcome 2.

126. Outcome 2. included a number of awareness-raising activities divided between two suboutcomes to improve understanding at national and sub-national level (PACCSAP 2.1) and at regional level (3.1). These were developed by DCCEE into a number of projects or grant activities. Activities and achievements under this part of the Program are summarised in the Review Supplementary report on individual projects; refer to activities 2.1.1-2.1.3 and 2.2.1-2.2.3. Three of the activities have progressed to producing results – delivery of training to PIC journalists (2.1.2a) through a grant to SPREP's media outreach program; preliminary draft material for an illustrated book ("outreach toolkit") for PIC school students (2.1.3) through a supplementary grant to the SPC-GIZ *Coping with Climate Change in the Pacific Islands Region* (CCCPIR) project; and preliminary materials for two animated films developed by the CSIRO-BoM SIT. At the time of the Review, other activities were just being started (2.1.1 Scenario planning; 2.2.1a Case studies). Others had been cancelled or not progressed (2.2.2 Regional forums; 2.2.3 Traditional knowledge).

## Adaptation Planning – Outcome 3.

- 127. Compared to the PASAP 1<sup>st</sup> phase, the Science Program and other parts of the ICCAI, a narrow focus was adopted for the Adaptation planning work under PACCSAP: planned Outcome 3.2 concerned the Infrastructure sector; and 3.3 the Coastal zone; while 3.4 was more generally on planning processes; refer to **table 13**. The Review Supplementary report on individual projects describes the 13 projects that were developed.
- 128. The major activity has been to support planning and development of climate resilient Infrastructure. Under component 3.2, a) Geoscience Australia was commissioned (3.2.1), with risk modelling company AIR Worldwide to generate a Tropical Cyclone Wind Risk Analysis for the Pacific islands region; b) two projects are funding short-term attachments of Australian experts to public works departments (3.2.2a in Solomon Islands and 3.2.2b in Vanuatu) to develop guidelines, primarily for climate resilient roads. Two other projects under development (April 2013) will generate wave storm surge modelling of flooding risk at two coastal sites (3.2.2d Apia foreshore in Samoa; 3.2.2c Nadi floodplain in Fiji).
- 129. The latter projects are linked closely to the main activity under PACCSAP Coastal component 3.3, under which the LiDAR coastal survey work (3.3.1) is being continued and extended from the PASAP Program. A similar topic is to be addressed under PACCSAP activity 3.2.3, to advise on the re-location of the Taro township, the low-lying insular capital of the Choiseul Province in Solomon Islands. None of these projects has reached the stage of producing results; and the slow start and progress suggest that executants will require extensions of at least 12 months. Most of the Infrastructure (3.2) work under PACCSAP is also Coastal (3.3) in nature. Activity 3.3.2 is a proposed extensive analysis of the main geomorphological types of coastline in the Pacific island countries and their respective vulnerabilities to climate change impacts. The third PACCSAP Coastal activity, 3.3.3, is a proposed comprehensive assessment of the vulnerability of the Bonriki freshwater lens on Tarawa atoll in Kiribati. These latter two activities have been commissioned only in early 2013, and will not produce results for some time. The Review is concerned that 3.3.2 will be too academic to be of relevance or immediate application to the very large amount of coastal zone and shoreline management that is already carried out, locally

across all of the PIC. The recommendation is to re-organise this project into a participatory assessment or planning exercise to create local capacity to generate and apply simple guidelines for managing resilience of the main types of coastal zone.

130. The third component of PACCSAP Adaptation planning work, 3.4 – Improve cross sectoral and long-term planning processes in priority areas – was planned as four activities, of which one was moved to become project 2.1.1 Scenario planning (mentioned above); and two have not progressed. The remaining proposal 3.4.2, Pacific Islands Hydro-geological Framework, is to conduct a desk review of the vulnerability of the groundwater resources of the 14 PICs, stemming from the PASAP project to investigate ground water resources in Timor-Leste. GA signed a project agreement with DCCEE in early 2013 for an initial term of 12 months.

### **Review notes:**

- 131. PACCSAP was not developed or implemented as the coherent program centred on enhancing local understanding and local capacity building that was envisaged. The structural separation into three components, with inadequate connections to one another, to the other parts of ICCAI and to the broader range of climate adaptation work in the region, extended the issues and ignored the lessons from the 1<sup>st</sup> phase.
- 132. The CSIRO-BoM management team were able to ensure that the Science Program progressed reasonably seamlessly from PCCSP to PACCSAP, which was valuable in terms of maintaining the human resource capacity and the relationships with the PIC NMS and regional organisations, as well as the continuation of many elements of the research. The 2<sup>nd</sup> phase of the Science Program emphasised the continuing nature of the research studies that are needed to extend the scientific understanding of climate variability and change; and also the need for continuing support and further development of the climate data management systems and analytical and presentation tools that are useful for PIC climate scientists and those who require their services. While the Science work done to date illustrates that major progress can be achieved in short amounts of time, it is clear that it would be more efficient, sustainable and appropriate to the PICs to organise a slower, steadier and long-term program of climate science and integrated resilient development, geared to building local/ country capacity.
- 133. **Capacity development**: The PACCSAP Science Program has provided a considerable amount of targeted training to PIC climate scientists and practitioners, primarily to NMS staff and to a lesser extent to climate program staff in PIC national and regional organisations and universities. The complicated logistics of the program were well-organised and supported; training exercises were delivered in individual PIC or at regional or Australian centres; the training materials prepared and used were of a consistently high standard. The capacity development work under PACCSAP Science Program was directly relevant to explaining the Program's main climate science research and results (the PAdClim and Climate Extremes Workshops and Regional Symposium), and to training in the use of the major science tools developed: the Climate Data for the Environment (CliDE) system, *Climate Futures* web-tool, and Tropical Cyclones Risk Model.
- 134. Capacity building work under PACCSAP should have been planned and managed more rigorously: substantive capacity development objectives (i.e. to a certain capacity standard) should have been set and monitored; systematic monitoring and evaluation of the capacity building work should have been organised around a well-developed set of indicators derived from these objectives. The Review was not able to assess the quality of the training or teaching delivered; the SIT should analyse the details of the participant trainees and the effectiveness of the capacity building as part of end-of-Program reporting.
- 135. Although capacity building was a critical part of the interface between the Climate Science and the Adaptation Planning, the work was not smoothly or coherently managed under PACCSAP; the dilemma of facilitating capacity development as an integral part of both the climate science and the adaptation planning work was not completely resolved, because under PACCSAP these remained as largely separate programs, and capacity development also was managed as a discrete area of work, attached on paper to component Outcome 3 Adaptation planning, but in practice to Outcome 1 Climate science. This awkward arrangement contributed to capacity development work under PACCSAP not being as strong as it should have been. The capacity

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building project 3.1 was not used to provide training on the PASAP/ PACCSAP adaptation planning work, which tended to follow the approach of learning-by-doing during the course of individual adaptation planning projects. There was a proposal for DCCEE to include training on impacts and adaptation planning in the 2012 PAdClim course, but the Review understands that this was not done.

- 136. A key lesson from the CD work done under PACCSAP and its predecessors and other parts of the ICCAI Pacific is to apply systems thinking to the planning and delivery of CD activities. Under PACCSAP, capacity building continued to be focused on the NMS with inadequate attention to national and regional systemic capacity development. There is no evidence that capacity development support under PACCSAP was guided by assessment of PIC capacity needs to plan and implement their national climate change policies and strategies for adaptation/ resilience building. It is perhaps indicative of the relatively minor engagement or short-term contributions of the Australian ICCAI Pacific programs to the region's climate and weather service institutions that the Pacific Meteorological Strategy for 2012-2021 (April 2012) makes no reference to PCCSP, PASAP or PACCSAP, nor to CliDE, CSIRO or DCCEE, despite the various contributions each program and agency had made to both the region's strategic review and subsequent development of the Pacific NMS. The Pacific Met.Desk was being established at SPREP during the inception phase for PACCSAP, and although the first meeting of the PMC was reminded about this "important point of contact for coordination and engagement", little collaboration between PACCSAP activities and the Met.Desk has been developed.
- 137. The Review is concerned that PACCSAP and COSPPac were developed as two separate programs under different management arrangements, which has led to inefficiencies, duplication and a degree of confusion and conflict between the two managements. In particular, having two such separate programs has undermined the core purpose of PACCSAP to build the capacity of NMS as the principal conduit of the climate science into national adaptation efforts. The PACCSAP PDD stated that "To avoid duplication and reduce burden on national agencies, capacity development, for NMS, will be delivered through a training package in coordination with the COSPPac." This collaboration does not seem to have occurred to an adequate extent. The lesson is that coordination, multi-agency management committees and shared design workshops are not effective. It would have been preferable for a single program to have been established, bringing together all components under a single executive team. This single program should also have been developed as the core initiative of the Pacific Met.Desk, and incorporated other programs and activities aimed at systemic capacity development of NMS and other stakeholders in PIC climate resilient development.
- 138. Adaptation planning (AP): Outside the Science Program, the PACCSAP is less convincing as a coherent and relevant program of work. The adaptation planning work was developed into a relatively narrow set of activities intended to assist the safeguarding of coastal infrastructure – roads or urban areas - through technical improvements to the assessment of vulnerabilities (using high resolution and fine scale modelling - elevation, wind risk, storm surge and inundation) or by improved engineering standards. The Review recognises that much of this work has not progressed sufficiently to yield results; nevertheless, this itself is an indication of poor strategy or lack of delivery capacity. Based on the late and slow start and lack pf program planning, there is a risk that several of the individual PACCSAP AP activities will not be effective in achieving their immediate planned results; and will not be linked together sufficiently to achieve the envisaged broader impacts or Outcome. The PACCSAP AP work did not gain from the lessons drawn from the 1<sup>st</sup> phase of the ICCAI. There are a number of overlaps in the work done by DCCEE and CSIRO-BoM and under different parts of the program, which suggests an inefficient, ad hoc approach or poor collaboration in program and project planning. This includes much of the capacity building work with NMS; the LiDAR surveys extending through the whole of PASAP and PACCSAP; Tropical Cyclone Wind Risk Analysis and Storm surge modelling under both PACCSAP Science and Adaptation planning for Infrastructure; and Science communications activities by both CSIRO-BoM and DCCEE.

# Summary Review Findings – on Relevance, Efficiency and Effectiveness

139. This section summarises the general findings of the Review of the PCCSP, PASAP and PACCSAP Programs, with respect to three broad evaluation criteria – Relevance, Effectiveness and Efficiency.

## Relevance

- 140. Much of the work done under the three Programs was of Relevance in the sense of addressing a significant or urgent issue or priority need of one or more of the principal stakeholders. Program activities that were less relevant tended to be those for which significance or priority had been determined by the Program designers or managers without adequate reference to the local participants or beneficiaries. To varying degrees, the designers and managers of the three Programs and individual projects determined the relevance of what they were proposing primarily by reference to the several broad assessments made in the Pacific Island Countries (PIC) in recent years of climate vulnerabilities and adaptation needs, priorities and options; and also through consultation with PIC government agencies, often through the national climate change focal points. The Science Program was designed in these ways, and in addition was able to draw strongly on prior experience, especially of BoM in the Pacific Islands region, which had included a gaps & needs analysis conducted through its prior projects<sup>25</sup>. The Review considers that an important factor in the design, development and management of the PASAP Program was that DCCEE did not have comparable programming and project development experience on which to draw.
- 141. The Relevance of the work done under the three Programs was affected by a) *what* its scope, the type of work done; and b) *how* the ways in which the Programs and the activities were organised and delivered.

Relevance of Scope and Types of Work

- 142. The Science Program selected topics for investigation that were highly relevant to the needs of all countries in the broad region of Oceania, including Australia, to improve our knowledge and understanding of the atmospheric and ocean climate, variability and change. The relevance of the scope and areas of work targeted was assured through continuing consultation among the community of experienced climate scientists active in the broad region. Importantly, this included drawing on the long-standing relationships a) between the BoM and the Pacific NMS; and b) within the international and regional climate science community and the science agencies in Australia, New Zealand, Japan, USA and Canada.
- 143. Noteworthy and highly relevant achievements were the development and operational establishment of the climate data management system CliDE; and organisation and rescue of secure climate records with each of the 15 partner country NMS. The relevance of this and other aspects of the Science Program was enhanced by the work being planned and developed in consultation with and direct participation of the corps of PIC NMS scientists.
- 144. Under PASAP and PACCSAP, the assessment and adaptation planning projects were focused on topics that were relevant to the PICs, as determined through assessments carried out in recent years, at country-level including the National Adaptation Programs of Action (NAPA) prepared by the five PIC LDC<sup>26</sup>; National Communications to the UNFCC; and broader-focussed National Capacity Self-Assessments (NCSA), prepared by all the PICs; and at regional level through the Pacific Climate Change Round Table (PCCR) and Pacific Island Framework for Action on Climate Change (PIFACC). In addition, individual PASAP projects were identified within these frameworks and developed in consultation with the PIC national governments; and addressed topics of

<sup>&</sup>lt;sup>25</sup> Notably PI-CPP, Pacific Islands Climate Prediction Project.

<sup>&</sup>lt;sup>26</sup> LDC – Least-Developed Country(ies)

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climate change in relation to PIC priority sectors, including food security (PASAP project 6), water resources (10), coastal management and protection (5, 8, 9), and infrastructure resilience (5). Several PASAP projects (3, 4, 6, 7c, 8, 9)<sup>27</sup> were relevant to local or national community engagement in vulnerability assessments and adaptation planning. In the 2<sup>nd</sup> phase, PACCSAP was focused on a narrower set of adaptation priorities – coastal, infrastructure, freshwater resources – which reduced the Program's relevance to the broad range of potential stakeholders.

- 145. A fundamental issue for PASAP and PACCSAP was that vulnerability assessment and adaptation planning by themselves are not considered by the PIC (government, community and agency leaders) as a particular priority for ODA support. By targeting only assessment and planning functions, the two Programs were less relevant, "harder to sell", more difficult to get "buy in" and traction; they were not able to respond to the PICs' perennial demand for <u>action</u>; i.e. for development partners to support actual adaptation and resilience-building measures, which were considered urgent. An exception in this regard is the PACCSAP work (3.3.3) being started in Kiribati (May 2013?), to conduct a comprehensive assessment of the multiple risks to and the management options for the capital Tarawa's principal freshwater resource at Bonriki. This is a highly relevant and urgent assessment, which should instigate a strengthened, multi-faceted management program.
- 146. In the 2<sup>nd</sup> phase, several of the PACCSAP AP "projects" were add-ons to existing major infrastructure development programs (funded by AusAID or other aid donors). The Review considers that this approach provides an inappropriate model for ensuring resilient development, i.e. for integration of climate adaptation measures with mainstream development. The recommended solution to this issue is for aid programs and projects to address needs in a comprehensive manner; aiming for resilient development rather than for development and resilience as though they could be separate initiatives refer to discussion on integrated programming.

## Relevance of Approach and Methodology

- 147. The focus throughout each of the three Programs on <u>capacity building</u> in the participating countries was a crucial factor in enhancing their relevance. The core principle of this approach was to enable the individuals and organisations participating in Program activities to do the work themselves and to learn by the doing; the approach is a determined move away from the (common) practice of organising the work as an intervention done by outside experts for the local beneficiaries, which reduces the relevance of the work considerably. Across the range of projects and activities in PCCSP, PASAP and PACCSAP, some were organised in this way more than others; and as noted elsewhere the effectiveness of this work also varied across the Programs and activities.
- 148. Under the Science Program much of the research was reliant on facilities and support teams housed in the Australian agencies and not available in the PIC, and the work was done wholly or primarily by Australian scientists who gained considerably from the experience. A small number of scientists from the PIC NMS were engaged directly in research, through short-term attachments to units in CSIRO and BoM and through mentoring and collaborative team work. The major mode of capacity building under the Science Program was through making the research findings available and accessible to the partner agencies and the public in the PIC and generally, which enhanced the Program's relevance. This was done under PCCSP Theme team 5 and is continuing under the PACCSAP Science extension, through information dissemination, in the series of climate science workshops, the main Program reports, science publications, and country summary brochures; and through the development of a series of climate information tools, notably the *Climate Futures* web-tool and the Climate and Tropical Cyclone data portals.

149. The PASAP and PACCSAP Adaptation Planning projects were generally less effective at building

<sup>&</sup>lt;sup>27</sup> Refer to PACCSAP Review Supplementary Report on Individual Projects for full description. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

local capacity, and thus were of reduced relevance to the PICs. The outstanding issue for the Program designers and managers was insufficient time being available for AP projects to be organised with a primary purpose of building local capacity to do the work; there were not individuals or agencies in PICs standing by and available to take on new assessment and planning work; and it was easier to expedite external consultants.

150. In a summary appraisal of the Relevance of each project, the Review found all 37 of the Science projects/ activities (under both PCCSP and PACCSAP) to have been of high relevance, and of the 31 Adaptation Planning projects, 10 to have been of high relevance and 19 of medium relevance (and 2 cancelled/ inactive). The Review considers some of the individual projects to have been of reduced relevance to the PICs on the grounds of their not proving or promoting a solution that is appropriate or affordable for replication; for example, the main PASAP and PACCSAP projects to commission LiDAR Surveys for coastal sites in Tonga, PNG, Vanuatu and Samoa. The high-tech high-cost tool was intended as a significant contribution to coastal vulnerability assessments. However, the work has not contributed to the PASAP objective of building the countries' capacity to conduct vulnerability assessments and develop (adaptation) strategies. The high resolution offered by LiDAR-DEM is not essential especially as the projected level of coastal inundation is comparatively imprecise; the cost is not justifiable; there are more locallyappropriate and less expensive alternative technologies; and there is no local involvement in the complex data acquisition and processing work; and little local capacity gain. It would be more relevant and efficient, and in line with its core purpose, for PASAP to have conducted comparative evaluations and demonstrations of a cross-section of methods for surveying and mapping coastal elevations.

## Effectiveness

- 151. The projects and activities implemented under the three Programs varied in their effectiveness in meeting expectations and achieving their objectives. One basic difficulty for the project managers (and also for the Review) was that many of the projects had not been planned (nor retro-fitted during implementation) with substantive measurable objectives.
- 152. The Science Program had been designed in this relatively simple way, primarily to provide information; i.e. to generate new meteorological, climatological and oceanographic knowledge; and all its research activities had been more-or-less highly effective in doing so under PCCSP and appear to be on track to be similarly highly effective under PACCSAP. However, it is easy to be "highly-effective" when given such a low-level and open-ended objective. The Science Program also had objectives "to build the capacity of partner country scientific organisations to undertake scientific research to support the provision of this information"; and "to disseminate the information to partner countries and other stakeholders". These also were too open-ended to be useful to the manager or the Reviewer; for each objective it is essential to set and monitor measurable targets and indicators of the qualities and quantities of capacity building or information dissemination that are expected or required. The PCCSP and PACCSAP Science projects were highly effective in generating a useful volume and scope of new scientific information; the Program's outstanding achievement was the delivery of the impressive amount of complex and broad-ranging scientific research in a short space of time, and publication of the peer-reviewed results. However, the Review finds that they were less effective in achieving the other two further objectives. The strategy adopted by the Science Program was to work closely with the staff of the NMS in each of the 15 countries, but not with the systems of next- and endusers, such as the extension services in natural resource sectors, to address their needs for capacity building in accessing and applying the climate science. While the Review recognises that many countries require assistance to build capacity of the often-neglected system of next- and end-users, with a broader strategy and systemic approach but the same level of resources, the Science Program could have been aimed higher and could have built greater capacity and achieved greater dissemination of information with a wider range of stakeholders.
- 153. The Adaptation Planning (AP) work under PASAP and PACCSAP did not form a cohesive program in the same way as the Science Program, but was developed and implemented as a series of relatively dis-connected projects and activities. This was partly due to lack of experience in

planning and managing "climate adaptation" as separate, special activities. The management strategy adopted reduced the effectiveness of the work overall; greater attention (resources, time, methods) should have been paid to the design and management of the AP Programs, at both phases, to have ensured that they were greater than the sum of the parts. There is a clear lesson of the value of thorough and rigorous program planning and design, to establish a coherent set of articulated components and subsidiary projects, using a tool such as the logical framework to ensure a degree of rigour in both planning and M&E; and of monitoring, reporting, communicating and championing the work and results of the Program overall. This was attempted but over-ambitiously, and not achieved by the Program management. The Review concludes from stakeholders in the region and Australia that as a consequence there has been relatively little recognition or understanding gained of the PASAP and PACCSAP AP work; its purpose, strategies, tools and achievements have not been made clear or convincing; it has had little influence on the understanding, development or practice of climate adaptation or resilience building activities in the region.

- 154. A critical issue for the PASAP was the management decision at the outset for the PASAP Program to be established as a relatively independent or stand-alone mechanism for providing seminal guidance, tools and systems to the Pacific islands region on how countries, sectors and communities should be organised, to understand the risks and adapt to the impacts of climate change. This was an unrealistic and unnecessary ambition, which should have been recognized at the outset and a different approach adopted. The PASAP was designed as a sequential process, starting with Outcome 1 intended as "an assessment of current activity, key gaps and best practice methods for vulnerability assessment in the Pacific and East Timor". Ideally, this type of preparatory analysis should be done as part of planning the program, i.e. prior to its start, to inform its design. This was not done, and the assessment was intended to be done over the first few months of the Program. Unfortunately the original modest assessment by regional experts for a budget of \$200,000 evolved over two years into a comprehensive analysis costing 20% (\$2.4 million) of the total budget. There was insufficient Program management capacity to complete this ambitious exercise, of collating and synthesising the findings of the individual expert reports into a "Synthesis Report and Strategic Plan" intended to define the framework for future adaptation planning and action in the region. The Review concludes that the Program would have been more effective if the original modest plan of a preparatory analysis had been followed; and then used to guide PASAP as a set of linked modest pilot exercises, to identify, test, demonstrate and subsequently promote for adoption and replication, best practices in vulnerability assessment, adaptation planning and action leading to climate resilience.
- 155. In its summary evaluation of the effectiveness of the 11 PASAP projects and activities, the Review considers 1 to have been high; 6 medium; and 4 low. For the 20 AP projects under PACCSAP, the late start and slow progress of the work mean that few results have been achieved and it is too early to discern effectiveness, even though 80% of the scheduled program has passed. The exception is project 3.1, Capacity building of the NMS, which has proceeded at the pace of the Science projects and is proving effective, (although with the same limitation noted above of working only with the NMS rather than adopting a more systemic capacity-building strategy).
- 156. Three of the more effective PASAP projects were as follows: a) BoM's Project 2 developed the technology and provided training for all 15<sup>28</sup> NMS in the generation and communication of seasonal climate forecasts; although it would have been more relevant and efficient for this work to have been done in a more integrated manner under the Science Program, in closer conjunction with the broad range of other systemic capacity building work with the NMS. b) SPREP's support for PIC national governments to formulate climate change adaptation policies and plans (JNAP, Project 3) effectively fulfilled its albeit too modest objective. However, this initiative would have had greater impact if it had been organised as a core integral component of

<sup>&</sup>lt;sup>28</sup> Priority attention was given to the 10 PIC whose NMS were engaged in the PI-CPP. Review of the ICCAI Pacific Programs in Climate Change Science and Adaptation Planning

the whole PASAP program; and more effective if it had better funded and led as a core longterm mechanism for the PIC, by SPREP as a partner in PASAP not a grant recipient. c) Under PASAP Outcome 3, Project 9 (Roviana Lagoon) supported an effective and relevant model program of local community-based assessment of issues and options, leading to preparation of a useful resilience plan. As with other projects, despite its effectiveness, this work has remained isolated and not well-used programmatically: it has not become a PASAP demonstration site; and there has been no follow-up and little "programmatic learning" passed on to PACCSAP or other programs. The Solomon Islands government would like to sustain the work but did not gain the capacity to do so.

- 157. A key indicator of success for the PASAP and PACCSAP AP work would be for lessons to have been drawn from the processes followed, weaknesses and strengths learned and results obtained, and passed on and picked up by subsequent workers in the field. Far more of this programmatic work should have been done under the AP Programs, through improved project design and through increased Program management capacity. In the absence of critical M&E, analysis and reporting it will be difficult for management to draw any clear lesson on effective and relevant approaches and techniques for the next round of vulnerability assessment and adaptation planning and management projects.
- 158. An important lesson from the ICCAI Programs is that separate climate adaptation programs are generally likely to be less efficient, relevant and effective, compared to mainstream programs which work towards sustainable and resilient development in a comprehensive manner. Many of the PASAP and PACCSAP projects were not clearly designed and directed towards the essential goal of resilient development, but were concerned rather vaguely with promoting climate adaptation. Their logic and higher objectives were not clarified. A Review recommendation is for future Australian aid for the Pacific island countries to be directed towards economic and social development that is resilient, rather than creating programs and projects that attempt to address climate adaptation narrowly as a separate issue.

### Efficiency

- 159. PCCSP, PASAP and PACCSAP were large, high cost programs in the context of the Pacific island countries, and especially for exploring solutions in the relatively new and untested field of climate change adaptation. The Review considers that these critical factors were not taken sufficiently into account in the conception and initiation of the Programs. PCCSP and PASAP (three years) and PACCSAP (two years) were also given far too little time for this type of program to be designed, developed and delivered, again especially in the context of the PI region. The purpose of Fast-Start was misconstrued as having to be implemented in a short amount of time, and the requirement for the funding to be new and additional to existing aid was misconstrued as having to be separate, and thus ruling out the comprehensive integrated approach advocated by the Review. These problems were compounded by the practice of allocating budgets and stipulating time-lines in advance of any planning. The essential problem was that there was insufficient time to use the large amounts of money efficiently. Efficiency was not a priority consideration for management; success was more likely to be judged by the easy indicator of expenditure rate. None of the projects or individual activities have been monitored or evaluated for their efficiency in organising the inputs.
- 160. The Review concludes that the PASAP and PACCSAP adaptation planning work did not represent value for money: around \$25 million of expenditure over five years produced a sparse set of results with little likelihood of producing lasting impacts in the form of replicable solutions, lessons or capacity. The Science Program provided better value for money, with around \$40 million of expenditure over five years being spent more efficiently and yielding a large quantity of significant results that will have cumulative impacts.
- 161. Throughout the PASAP, PACCSAP and PCCSP Programs, time has been too short. Underestimation of time required for planning and implementation was an issue for all the processintensive projects and activities of PASAP and PACCSAP; one consequence was that there was never sufficient time "at the end" to analyse, reflect and learn from the work that was done. The projects that worked best were those that ignored the time; such as SPREP's support for PICs'

national adaptation planning (PASAP 3), which despite being given only \$200,000 of PASAP funds has so far been extended over four years. Several PASAP projects were extended several times, and final completion dates have been reset to June 2013 and beyond, double the intended time period. However this is not good program management practice; the preferred solutions are to reduce the ambition or to extend the time-frame.

162. The complicated management arrangements for the three Programs reduced their efficiency, with three tiers of committees responsible separately for each Program and not producing synergies between the agencies. The ICCAI would have been more efficient if a single management structure had been applied across all Programs, and based on the core structure of Australian Government's Pacific ODA delivered via the AusAID Posts and regional desks. This would have served the need to organise unified and integrated programs.

# Summary Lessons and Recommendations for Future Programming

163. An underlying purpose of the Review was to draw lessons from the three Pacific climate science and adaptation planning programs, as the basis for making recommendations for future programming of Australian aid to support climate adaptation in the Pacific island countries. This section provides a summary of five linked lessons and derived recommendations for future programming.

## Focus on Sustainable and Resilient Development

- 164. The ICCAI Pacific Programs were designed to address climate adaptation directly as a special, separate issue, and the politics surrounding climate change have encouraged this separatist approach, requiring development partners to contribute "new and additional" aid to fund climate adaptation. However, the Review maintains that provision of new and additional aid to support resilient development can be monitored and reported discretely and relatively simply, without having to be a separate dedicated initiative.
- 165. A key lesson from the Adaptation Planning projects is that the <u>object</u> of adaptation efforts is not management of the climate or climate change, but rather is management of the natural and social systems on which life, livelihoods and resilient development depend. By focusing narrowly on adaptation and building capacity to plan and implement adaptation measures, the Programs under Review have not been directed towards the primary, substantive objectives of resilient natural and social systems, needed to underpin sustainable and resilient development; the Review considers that this lack of substantive focus has reduced the relevance and effectiveness of the Programs to date.
- 166. The emerging outcomes and preparatory analyses conducted under the PASAP and PACCSAP Programs – including for example the series of Regional Overview reports under PASAP Project 1 – suggest that relevance, effectiveness and replicability of assistance can be enhanced by focusing directly on achieving social and economic development that is resilient to environmental and climatic perturbations and shocks, in addition to being environmentally sustainable. This direct approach emphasises that **resilience** is the common objective of both development and adaptation efforts. The recommendation is for Australian aid to adopt resilient and sustainable development as its primary strategy towards poverty reduction, and for Disaster, Environmental and Climate (DEC) issues to be given full consideration in the planning of all aid programs and in the design and management of each development assistance project.

**Recommendation [1]** Future assistance should be directed towards environmentally sustainable, social and economic development that is resilient to climate change, rather than attempting to implement climate adaptation separately as a discrete additional measure.

## Develop comprehensive Programs which integrate Science, Planning and Action

- 167. While the initial concept of the ICCAI was for an integrated program, this was not followed adequately during development of the initiative. Instead the emphasis was placed on developing and delivering separate programs of climate science, vulnerability assessment, adaptation planning and action, each under separate management arrangements, and with few interconnections or collaborative joint actions. Similarly, although the PCCSP, PASAP and subsequent PACCSAP had been intended to be integral parts of the ICCAI, this was not achieved adequately at the Program design stage: they were planned, managed and implemented separately, and followed different modalities, even though there was considerable overlap in their fundamental objectives. The intended linkages and synergies between the component programs were constrained by the separate management arrangements for each.
- 168. The Australian Government's Fast Start financing was shared among a significant number of different initiatives, within each of which the support was further divided among numerous actions, several of which appear to be closely related and liable to overlap. This dispersed

approach across such a range of delivery mechanisms, partners and activities reduced the Programs' relevance and effectiveness.

169. The important lesson is that relevance and effectiveness and the efficiency of delivery are enhanced by following a comprehensive integrated approach. The 2<sup>nd</sup> phase response to combine PCCSP and PASAP into PACCSAP failed to address the issue: PACCSAP continued to operate separately and without adequate links to "the other parts of the ICCAI"; and under PACCSAP the Science Program and Adaptation Planning work also continued to be developed, implemented and monitored too separately from one another. The Review concludes that it would have been more effective for the whole initiative to have been planned and implemented consistently as a staged management process of **climate research**, **planning and action**, carried out iteratively as required, within an integrating framework, with a single overall objective and common purpose; rather than as discrete components.

**Recommendation [2]** Future DEC-resilient development programs should support comprehensive solutions through integrated management strategies, rather than implementing multiple separate programs and projects that are aimed narrowly at climate science, vulnerability assessment, adaptation planning or implementation of adaptation measures. Program planning should be demand-driven, centred on resilience building and supported by appropriate and specific research, assessment and planning activities.

## Ensure unified Program Governance and Management

- 170. Overall the management arrangements for the three Programs appear to have enabled the main agencies to meet their individual obligations reasonably efficiently. However, there has been awkwardness over leadership and governance roles between AusAID and DCCEE and between DCCEE and CSIRO-BoM; and management has not been as strategically effective as it should have been, given the level of resources applied and expertise available. The 1<sup>st</sup> phase ICCAI suffered from overall weak coordination between the Australian government agencies responsible. This occurred largely because the ICCAI had been split into four components which were developed into separate programs under different governance arrangements. The decision to combine the first two ICCAI programs, PCCSP and PASAP, into the single 2<sup>nd</sup> phase PACCSAP Program framework was not sufficient nor effective.
- 171. It would have been beneficial for the agencies to have established a single committee to oversee and guide the implementation of all the ICCAI programs. It was disadvantageous to have separate committees with different compositions for the several programs. There seems to have been no valid reason nor any clear advantage gained from establishing governance arrangements for the PCCSP and PASAP separate from one another and from the other components of the ICCAI. Both Programs and the ICCAI overall would have been considerably more effective, efficient and relevant to the Pacific islands region if there had been a single program and a single management framework, within which the roles of different agencies were differentiated clearly.
- 172. The lesson from the Review findings of what occured in both the 1<sup>st</sup> and 2<sup>nd</sup> phases is that the ICCAI Climate Science and Adaptation Programs would have been more relevant and effective, and more cost-efficient, if they had been implemented as a Whole-of-Government ODA initiative, with AusAID providing the lead and providing delivery and management capacity, and DCCEE (and other central policy agencies as required, such as SEWPAC) providing policy guidance. Given its mandate to deliver development assistance effectively and efficiently, AusAID should retain the lead and coordinating role, and where necessary strengthen its capacity to deliver integrated programs cohesively through both country and regional channels.
- 173. It has not proved efficient, effective or relevant for DCCEE to establish a new program and project implementation agency. DCCEE was the lead agency guiding Australia's climate change policy, but not an implementing agency with the capacity to organise and deliver a complex new program of assistance for climate adaptation, especially overseas as a component of Australia's international development assistance. The Review considers that the Apia office was a source of confusion for partners and stakeholders, who welcomed extra access to Australian aid but did

not understand the point of an additional separate channel of support. Similarly, it has not proved effective, efficient or relevant for DCCEE to try to manage the Science Program implemented by CSIRO-BoM. A better model would be for direct AusAID engagement of CAWCR (following the example of the current AusAID-CSIRO Alliance), with the DCCEE and other relevant policy agencies contributing policy and technical advice as required.

174. The "day-to-day" technical management teams proved themselves to be essential and effective. They ensured that the programs, notably the PCCSP and PACCSAP Science Program, were exceptionally well-run as a coherent program of activities, undertaken skilfully and completed to a large extent within the tight time-frame and to the prescribed budget. They required a realistically good level of resources to perform the demanding task well; and worked best as a unified college of professionals with management and administrative support.

**Recommendation [3]** Program governance and management arrangements should ensure accountability and enhance coherence, synergy, clarity and rigour.

## Apply rigorous Program Planning and Design

- 175. None of the three Programs was equipped with an adequate Program Design Document and framework for planning and M&E; and this detracted from their development, implementation, monitoring, communications and reporting. The lesson is to ensure that the Program design includes clear definition of the strategic program of activities required to achieve the planned substantive objectives. The three Program designs listed and described tasks that would be carried out, but the tasks, individual projects and components were not linked to serve a logical hierarchy of explicit strategic objectives. It is essential to apply a structured planning process such as the logical framework approach, and to articulate in the PDD the substantive, strategic objectives that are intended to be achieved by each set of activities and projects. The Program planning process was not a robust preparatory mechanism, and did not take into account the considerable experience that was available in all aspects of this type of work. Weaknesses that were highlighted in initial concepts, consultations and the QAE design appraisal process should have been adequately addressed in the final Program design documentation.
- 176. Similar problems occurred in the design of each of the three Programs. Effectiveness and efficiency of the PCCSP would have been enhanced by an overall program framework specifying the logical connections between the planned activities; by specifying the design details and monitoring plans for the individual Program components, projects and activities; and by clearly specifying in the PDD how components, projects or activities would be subsequently developed, managed and monitored. The PASAP PDD should have conveyed a clear sense of a purposeful Program, what it would entail and how it would be operationalised; in particular by presenting a rigorous logical structure to guide management. The drawn-out development process contributed to PASAP becoming a series of rather ad hoc projects with little coherence; the final portfolio of projects implemented formed a relatively sparse and uneven series of individual country actions, which are not bound together to serve higher programmatic objectives. The PASAP Program overall and individual actions would have been strengthened with a stronger, fully-developed and detailed program framework with clear logical connections; and with specifications of the proposed individual projects detailed in narrative form and nested logical frameworks. Inclusion of specific details and clear strategies for developing the Program actions would have ensured that the purpose, objectives and implementation arrangements were clear to potential partners, participants and beneficiaries, and encouraged engagement.
- 177. Surprisingly even the PACCSAP, which should have drawn on lessons available from the 1<sup>st</sup> phase, was also incompletely-developed; the Program Design contained few specific details, a confused and changing structure, and inadequate logical framework. The effectiveness of the Program would have been enhanced by formulation of clear purpose, outcome and output statements, addressing substantive objectives rather than processes and activities to be carried out. For example, rather than aiming simply "to develop capacity" or "improve access to information", it should be clear from the logical framework and objective statements what is to be achieved with the capacity or information. The underlying purpose of development

assistance projects is to build systemic capacities to manage the target issues, and these should be made explicit. The PDD and Implementation Plan should be developed upon a clear, rigorous and coherent framework that will serve the purposes of management, communications and monitoring.

**Recommendation [4]** Apply rigorous program and project planning and design procedures as essential preparatory tasks to guide management, implementation and monitoring.

## Strengthen Monitoring, Evaluation, Learning and Adaptive Management

- 178. Monitoring and evaluation procedures have not been strong under PCCSP, PASAP and PACCSAP. None of the 1<sup>st</sup> phase ICCAI Programs was equipped with an adequate performance assessment framework; there was over emphasis on delivery and reporting on activities and rates of progress; and there have been little systematic learning and adaptive management practised during the course of each project and Program.
- 179. M&E procedures for the PCCSP Program were adequate. The CSIRO-BoM managers maintained an effective routine of science team discussions, PIT meetings and internal workshops; and organised a simple evaluation following each external workshop and training exercise. TLR, sixmonth and annual reports were provided to the MC, but focused on Program activity details and administrative issues rather than substantive results. AusAID QAE Appraisal and annual QAI Reviews of the PCCSP Program were conducted usefully, but no independent evaluation was made, other than as part of the broadly focussed Mid-Term Review of the ICCAI overall.
- 180. M&E and reporting under the PASAP Program were not adequate to maintain management direction across the range of projects and activities being contracted. It would have been valuable for each of the measures specified in the Performance Management Framework to have been implemented. Individual project reports were intended to form the primary data source but most projects did not produce them. At Program level, the main reporting was in internal Status Reports prepared by DCCEE monthly as simple spreadsheets. On the data available, it is not possible to measure the effectiveness of the PASAP in achieving its Program Objective (to build resilience).
- 181. Reference to a gaps & needs analysis (the Climate Science GNA) was good practice during the PACCSAP design process. However, virtually none of the planned M&E actions was brought into operation, for the Program or individual projects. As a consequence, apart from under the Science Program, PACCSAP Program Managers have not had an adequate system in place for monitoring program and project performance. Monitoring and reporting during the course of the Program to date have been limited to Traffic Light Reports on activity progress provided to the EMC, inconsistently for components 2 and 3. An important lesson is for planned objectives to be clearly specified with measurable targets and indicators; for expected results, targets and indicators to be clearly defined and measurable; and for baseline and performance data to be collected and reported as part of routine good management practice.
- 182. The Review recommends a more rigorous approach to planning and implementing monitoring, reporting and evaluation as essential components of good Program and project management. M&E actions were considered but not given sufficient attention, and were not developed into rigorous integrated M&E plans. A logical framework is a valuable tool for planning and M&E; it facilitates prescription of the initiative's higher purpose and objectives; a greater focus on substantive results; the need to obtain baseline measurements prior to the Program intervention; and the preparation of useful indicators for evaluation of progress.

**Recommendation [5]** Strengthen monitoring, evaluation, learning and adaptive management procedures, as essential components of good management practice.

## Build Systemic Capacities through Local Ownership

183. Following the 1<sup>st</sup> and 2<sup>nd</sup> phase Programs, there remains an outstanding need for the PICs to develop systems and capacities to access and use climate science for planning and implementing strategies and programs for climate adaptation and resilient development. Although each

component part of the ICCAI placed an emphasis on capacity building, primarily by means of improving the available information and its utility, the Programs did not establish an effective capacity building strategy. Each of the component programs– Science, Assessment and Planning, and Adaptation actions (bilateral and multilateral) – could have directed capacity building more strongly towards the local, national and regional institutions and management systems that are required to achieve the required results. The effectiveness of the Programs' capacity building could be enhanced by supporting systematic development of the functional capacities of the NMS; and by being linked to longer-term strategies for science education and training in PICs; aimed at building national and regional systemic capacities for scientific research; and especially at developing effective local<sup>29</sup> systems for acquiring and applying scientific information to inform planning and implementation of effective adaptation strategies.

- 184. The PCCSP, PASAP and PACCSAP have shown that capacity development is best achieved through action and in context, during the course of an actual adaptation or resilience building initiative, rather than as a separate component. A key lesson is to plan capacity development as the means to an end, rather than as the end purpose of the initiative. It is good practice effective, relevant and efficient for capacity building work to specify at the outset the starting point/ baseline; and the end point, such as the state or standard of information development and capacity development that should be achieved at the conclusion of the project, each component and the Program overall. It would have been valuable if the PCCSP, PASAP or the ICCAI overall had undertaken an initial capacity needs assessment with each NMS and the main client agencies it services.
- 185. A related lesson from the ICCAI is that development assistance is more relevant and effective, and the initiative is more likely to be sustained, when the program, projects and results achieved are locally-owned and implemented. This is particularly important for projects aimed at local capacity building, as exemplified by the relevant and effective work done under PCCSP and the PACCSAP to develop and introduce a new climate data management system with the Pacific NMS: this was successful because the local NMS retained ownership of the data inputs and outputs of the system; their ownership was enhanced by participation in the design and development of the CDMS tool; and because of the training provided to local staff to operate and maintain the system, and most importantly, to use the results to strengthen the services they deliver. The PCCSP also developed four tools which to varying extents are able to be used by Pacific NMS scientists to collate data and prepare their own analyses and reports.
- 186. Other parts of the Science and Adaptation Planning Programs could have been strengthened in this way, with a primary purpose of building the capacity of the local system, and handing over ownership of the tool, resource or the initiative. A significant issue for the PCCSP and PACCSAP Science Programs was that they worked mainly with the NMS without supporting development of the broader systems within which the NMS operate local, sectoral, national and regional systems for acquiring and applying climate change information to building resilience in the mainstream development sectors. It is recommended that further climate science research and application of findings to end-users, adaptation planners and climate resilient sector managers should be undertaken primarily through Participatory Action & Learning, so as to enhance local ownership in planning and management, including M&E and adaptive management.

**Recommendation [6]** Capacity building should be built into each ODA program and project as the underlying purpose of each component and activity, following a clear strategy based on systems thinking and ensuring local ownership through participatory action and learning.

<sup>&</sup>lt;sup>29</sup> The term "local" is used through the Review report to mean the target participants and beneficiaries addressing their on-the-ground issues, sites, sectors and communities.