

SCHEDULE E

ARC Centre of Excellence for Coral Reef Studies (CE0561435)

Administering Institution: James Cook University

Key Result Areas and Performance Measures

Key Result Area	Performance Measure	Target	Target			
			2010	2011	2012	2013
<i>Research findings</i>						
	Quality of publications	Peer reviewed journals, invited reviews, monographs and publications with broad readership. While it is recognised that marine science journals do not have the same general impact factor as compared to biomedical or biochemical journals, the goal is to achieve 5 publications per annum in journals with impact factor 4 (or above) for the first two years, increasing to 8 per annum for years 3 and 4, and 10 publications in year 5.	40	40	40	42
	Number of publications	Initial target of 50 per annum rising to 100 by year 5.	175	180	185	190
	Number of citations	Target, as measured by ISI Essential Science Indicators: 250 citations of publications by Centre personnel in year 1, increasing to 500 by year 5.	10000	11000	11500	12000
	Invitations to address and participate in international conferences	It is anticipated that Centre participants will be invited to present keynote addresses and participate in plenary sessions at major international events	30	30	30	30

		conferences and symposia such as Ecological Society of America or Indo-Pacific Fish conference. Target: 5 p.a.				
	Invitations to provide review articles	Members of the Centre will be invited to provide major review and commentaries in prestigious journals such as Annual Reviews and Trends. Target: 3 per annum.	36	36	36	36
	Number and nature of commentaries about the Centre's achievements	The activities of the Centre will be widely recognised in specialty and general publications including the World Wide Web, television, radio and newspaper articles, interviews and invited commentary. Target: 50 in year one, increasing 20% per annum.	1200	1250	1300	1350
	Level of recognition	Members of the Centre will receive recognition for their research quality through awards, prizes and "league table" type criteria such as "most cited recent papers" in ISI Essential Science Indicators. Target: 2 per annum increasing to 5 per annum by year 5.	20	21	22	23
Research training and professional education						
	Number of postgraduates enrolled	Target: 50 over 5 years	130 over 5 years	135 over 5 years	140 over 5 years	150 over 5 years
	Number of postgraduate completions	Target: 50 over 5 years	80 over 5 years	90 over 5 years	100 over 5 years	110 over 5 years
	Number of Honours students	Target: 50 over 5 years	60 over 5 years	60 over 5 years	60 over 5 years	60 over 5 years
	Number of professional workshops	Target: 2 per annum	16	18	20	20
	Participation in	Target: 2 per annum	20	22	24	26

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	professional workshops					
	Number and level of student courses and workshops in the priority area(s)	Target: 6 per annum	10	12	14	16
<i>International, national and regional links and networks</i>						
	Number of international visitors	Target: 10 per annum	70	75	80	80
	Number of national and international Working Groups	Target: 3 per annum increasing to 5 per annum by Year 5.	16	16	16	16
	Number of visits to overseas laboratories and research facilities	Target: 12 per annum	55	55	55	55
	Nature and extent of international engagements	Centre staff will be invited to the membership of many national and international groups such as boards of organisations, advisory committees and editorial boards. Target: 7 requests p.a	45	45	45	45
	Number of co-authored publications	The Centre aims to foster collaboration and networking for delivery of research outcomes that are innovative and offer new research directions. This will be measured through increasing levels of cross-institutional and international authorship of publications. Target: Of the total annual number of publications reported 10 in year one through to 30 in year 5 will be co-authored.	95	100	105	110

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	Number of co-operative supervisory arrangements	Success in fostering collaborations will be measured through the level of multi-institutional supervision of students and post-doctoral researchers. Target: Initially 5 increasing to 10 by year 5.	50	52	54	56
<i>End-user links</i>	Number & nature of contractual arrangements (commercialisation and consultancies)	These activities will focus on and establish linkages through: 1) Educational export business opportunities (especially the provision of training for overseas students from tropical developing nations). Target: Of graduate enrolments 10 over the 5 years will be funded from overseas sources 2) Developing consultancies and contract research with relevant national and international industry organisations and commercial entities, e.g. in Australia, SE Asia, Japan and Pacific Island nations. Target: 2 contracts per annum.	50 over 5 years 10	50 over 5 years 15	60 over 5 years 15	65 over 5 years 20
	Number of government, industry and business briefings	The Centre will promote research and develop technological tools that are highly relevant for conservation, management and development of coral reef resources world-wide. This will be achieved in part through briefings to, for example, GBRMPA, MTSRF, The Resilience Alliance, The World Bank, The Census of Marine Life, governments and NGOs. Target: 5 briefings per annum, increasing to 10 by year 5.	50	55	60	65
	Number of Centre trained/ing personnel in	The Centre will facilitate placement of Centre trained personnel in key locations	6	7	8	9

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	knowledge and technology transfer and commercialisation	in management agencies, commercial organisations or industry groups. Target: 1 in year 1 through to 3 in year 5.				
	Number and nature of Public Awareness programs	Public interest in the Centre will be very high. In addition to recognition in publications, the following will be undertaken: 1) Development of a web-site designed to enhance public education 2) Presentations to community and educational groups 3) Open Days 4) Science fairs Significant funds will be expended each year on community awareness programs including a front office service for interactions with end-users, workshops, international visitors and other networking activities Target: 2 events per annum initially, increasing to 4 by year 5. Web hits to the Centre home page of 2000 per month initially, increasing to 5000 per month by year 5.	20 2.5m hits p.a.	22 3.0m hits p.a.	24 3.5m hits p.a.	26 4.0m hits p.a.
		It is targeted to expend \$120,000 in year 1 increasing to \$250,000 by year 5 on identified public awareness activities.	It is targeted to expend \$200,000 p.a on identified public awareness activities.			
Organisational support						
	Annual cash contributions from Collaborating Organisations	Collaborating Organisations including JCU will contribute \$1,115,000 in cash in year 1 and the Centre will seek to increase this contribution. Additionally, new	\$1.5m	\$1.6m	\$1.7m	\$1.8m

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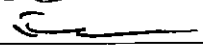
		collaborative partnerships will be sought. Target: Increase cash contributions by 10% per annum.				
	Annual in-kind contributions from Collaborating Organisations	Collaborating institutions including JCU have pledged \$1,873,122 in in-kind contributions in year 1. Target: increase in-kind contributions by 5% per annum.	\$3.4m	\$4.0m	\$4.5m	\$5.0m
	Number of new Organisations recruited to or involved in the Centre	The Centre will initiate new linkages as demanded by research advances both within the Centre and overseas. This is part of international competitiveness that needs to be maintained. Potential new organisations with which collaborative research could be initiated include: overseas research universities, tourist industry groups, conservation groups and fishing organisations. Target: 4 in year one, increasing by 2 per annum.	6	6	6	6
	Level and quality of infrastructure provided to the Centre	The Centre administration will be housed at JCU in a building refurbished specifically for the Centre as a JCU contribution. Research infrastructure across the nodes includes access to experimental aquarium facilities, geochemical and analytical facilities, genetic analysis facilities, University owned research stations such as Heron Island and Orpheus Island, research vessels, GIS and specialised library facilities. A recent LIEF grant enhances capacity of complex system modelling through access to the Queensland Parallel	\$1.12m	\$1.15m	\$1.18m	\$1.20m

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		Supercomputer Facility. Support from the Queensland Government will provide an additional \$3.5m for enabling infrastructure. For year 1, the value of infrastructure provided to the Centre from collaborating institutions including JCU totals \$878,843. Target: increase by 5% per annum.				
	Annual cash contributions from other organisations	We anticipate that support from other organisations including state and industry funding will grow significantly. Target: Additional funding of \$100,000 in year 1 increasing by 20% per annum.	\$0.50m	\$0.62m	\$0.75m	\$0.90m
Governance						
	Breadth and experience of the members of the Advisory Board	The Centre will be governed by an Advisory Board and Scientific Management Committee. Targets: Senior representation from all nodes. Representation of eminent international researchers. Members with commercial and business links. Representation of a broad spectrum of interests with strong participation from end users.	The Centre will be governed by an Advisory Board and Scientific Management Committee. Targets: Representation of eminent international researchers including members with expertise in social science, policy and international relations will be recruited to the Advisory Board. Members with commercial and business links. Representation of a broad spectrum of interests with strong participation from end users.			
	Frequency and effectiveness of Advisory Board meetings	Target: Annual face-to face meeting attended by entire Centre Advisory Board (CAB). Face-to-face meeting of entire Scientific Management Committee (SMC) twice p.a.	2 meetings of the Centre Advisory Board per year. 4 meetings of the Scientific Management Committee per year.			

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	Quality of the Centre strategic plan	The Centre's strategic plan will be developed by representatives from all Research Programs and include consultation with all chief investigators and other participants. The plan will be reviewed by business, science and university leaders. The Plan will be an underpinning document for the Centre's activities and will form part of reports to the management committee meetings and be discussed. The Centre's progress against the plan will be formally reported to the Advisory Committee and be renewed in light of outcomes.	The Centre's strategic plan will be developed by representatives from all Research Programs and include consultation with all chief investigators and other participants. The plan will be reviewed by business, science and university leaders. The Plan will be an underpinning document for the Centre's activities and will form part of reports to the management committee meetings and be discussed. The Centre's progress against the plan will be formally reported to the Advisory Committee and be renewed in light of outcomes.
	Effectiveness of arrangements to manage Centre nodes	Centre partners will use state of the art information and communications technologies to facilitate collaboration. The nodes will communicate through: 1) Meetings of the Scientific Management Committee where each node and program is represented 2) monthly nodal leader phone or video conferences 3) Annual rotational visits to the nodes 4) Annual research retreats for all Centre participants 5) Annual research planning meetings of Programs with cross-nodal attendance	1) to 5) unchanged. 6).increasing level of co-supervisory arrangements for students 7) multi-nodal seminar and discussion groups

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	The adequacy of the Centre's Key Performance Measures	1) International benchmarking to research in top international marine research Centres such as the Smithsonian Tropical Research Institute and the Scripps Institute of Oceanography 2) Major peer review at year 3 which will be sponsored by the Scientific Advisory Committee for both quality and improvement purposes.	1) International benchmarking to research in top international marine research Centres such as the Smithsonian Tropical Research Institute and the Scripps Institute of Oceanography			
<i>National benefit</i>						
	Measures of expansion of Australia's capability in the priority area(s)	1) Growth in the number of publications and citations in world-class journals as measured by ISI Essential Science Indicators using the keywords biodiversity, climate change, coral reef and Australia to represent the National Research Priority area of an environmentally sustainable Australia. Target: a growth trajectory of 10% from 2000-2004 as the benchmark.	A 150% increase on benchmark by 2013.			
		2) Improved dialogue and uptake of knowledge generated by the Centre into management and policy decisions by government, business and industry groups as evidenced by increased interactions. Target: 5 briefings to government, business and industry groups per annum in year 1 increasing to 10 by year 5. Continued industry involvement in the Centre's governance structures will ensure expansion of capability.	50	55	60	65

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		3) The functioning of the Centre as an international focal point for coral reef research and sustainable management related research worldwide as measured by research interactions. Target: 10 cross institutional co-authored publications in year 1 increasing to 30 by year 5.	95	100	105	110
	Case studies of economic, social, cultural or environmental benefits	Target: 2 per annum to be highlighted in the annual report and distributed to media agencies	2	2	2	2

The ARC recommends that a sum of money of the order of 5% of the annual Funding for the Centre named in this Schedule E should be spent each year on Centre community awareness programs, possibly including:

- (a) professional and technical training;
- (b) primary and secondary school awareness;
- (c) 'front-office' service for, and interaction with, Australian end-users; and
- (d) workshops, international visitor programs and other networking activities that engage cognate Australian researchers who might not be formally associated with the Centre.

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