

Appendix A-1 List of Palauan Counterpart Personnel

	Job title	Name	Responsible PDM Activities	Assignment period	Calendar Year					Remarks
					02	2003	2004	2005	2006	
Administration Department										
1	Project Manager (CEO)	Mr. Francis Matsutaro	Overall & Outut1	10/2002-12/2004	_____	_____	_____	_____	_____	Left PICRC
		Mr. Fabian B. Iyar	-ditto-	8/2004-present	_____	_____	_____	_____	_____	Empolyed in Aug. 04
2	Administrative Manager	Ms. Tiffany Rengulbal	1-1 & 1-2	10/2002-11/2004	_____	_____	_____	_____	_____	Left PICRC
		Ms. Laurinda W. F. Mariur	1-1, 1-2	3/2005-present	_____	_____	_____	_____	_____	Employed in Jun. 05
3	Accounting Officer	Ms. Angeles Yangilmau	1-2	10/2002.-present	_____	_____	_____	_____	_____	
4	Development Officer	Mr. Sirino Hideo	1-4, 1-5, 2-5	10/2002-present	_____	_____	_____	_____	_____	
Research Department										
5	Research Dept. Head	Mr. Steven Victor	Output 3 3-4	10/2002-present	_____	_____	_____	_____	_____	
6	Chief Researcher	Mr. Yimnang Golbuu	3-1, 3-5, 3-7	10/2002-present	_____	_____	_____	_____	_____	
7	NODE Coordinator	Ms. Carl Emaurois	3-6	10/2002-1/2004	_____	_____	_____	_____	_____	Transferred to Adm. Div
		Mr. Jason Kuartei	ditto	1/2004-1/2005	_____	_____	_____	_____	_____	Left PICRC
		Mr. Sebastian R. Marino	ditto	8/2005-present	_____	_____	_____	_____	_____	Employed in Aug. 05
8	Researcher	Mr. David Koro IDIP Jr.	3-2, 3-3	10/2002-present	_____	_____	_____	_____	_____	
9	Researcher	Ms. Lorita Penland	3-2	10/2002-8/2004	_____	_____	_____	_____	_____	Left PICRC
		Ms. Charlene Mersai	3-2, 3-7	12/2004-present	_____	_____	_____	_____	_____	
Aquarium Department										
10	Aquarium Dept. Head	Mr. Kambes Kesolei	Output 2 2-1, 2-4	10/2002-present	_____	_____	_____	_____	_____	
*	Senior Aquarist	Mr. Asap Bekurrou	2-3	10/2002-7/2004	_____	_____	_____	_____	_____	Left PICRC
11	Aquarist	Mr. Singeo Franz	2-2	10/2002-present	_____	_____	_____	_____	_____	
12	Aquarist	Mr. Jay Oruetamor	2-3	10/2004-present	_____	_____	_____	_____	_____	Empolyed in Oct. 04
Engineering Department										
13	Chief Engineer	Mr. John Wong	1-3, 2-3	10/2002-present	_____	_____	_____	_____	_____	
14	Maintenance Technician	Mr. Antonio Raquinio	1-3, 2-3	10/2002-present	_____	_____	_____	_____	_____	
Education Department (officially established in Nov. 2004)										
15	Education Dept. Head	Ms. Carol Emaurois	Output 4 4-1~4-5	11/2004-present	_____	_____	_____	_____	_____	The post created in Nov. 2004. Carol ransferred from Adm.
16	Education Officer	Ms. Sherie Ngirmeriil	4-3	11/2002-8/2004	_____	_____	_____	_____	_____	Left PICRC
	Education Officer	Ms. Tublai B. Ililau	4-3	1/2005-present	_____	_____	_____	_____	_____	Employed in Jan. 05

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Appendix A-2 List of Japanese Experts

(1) Long-term expert

	Fields	Name of experts	Period of assignment	Responsible Outputs of PDM
1	Chief Advisor/Organizational Development	(Dr. Akira Kasai)	(10/01/2002~ 06/19/2003)	Overall & Output 1
		Mr. Toshikazu Nakajima	06/08/2003~ 09/30/2005	
		Mr. Hiromasa Kawazoe	11/21/2005~ 11/21/2006	
2	Research Coordinator	Dr. Ken Okaji	10/01/2002~ 11/29/2003	Output 3
		Dr. Hideki Yukihiro	11/22/2003~ present	
3	Improvement of Exhibit	Mr. Keiichiro Teshima	01/12/2003~ 01/13/2004	Output 2

(2) Short-term expert

	Fields	Name of experts	Period of assignment	Relevant Activities of PDM
1	Chief Advisor/Organizational Development	Dr. Akira Kasi	10/01/2002~ 06/19/2003	Overall & Output1
2	GIS and Database Management	Dr. Masao Watanabe	10/06/2002~ 11/09/2002	Activity 3-3
3	Research Advisor	Dr. Hideo Ooba	11/11/2002~ 11/30/2002	Activity 3-2
4	Research Advisor	Dr. Hiroomi Uchida	11/24/2002~ 12/22/2002	Activity 3-2
5	GIS and Database Management	Dr. Tsuyoshi Yoshida	1/16/2003~ 02/13/2003	Activity 3-3
6	Marine-biology and Ecology	Dr. Makoto Oomori	07/19/2003~ 07/29/2003	Activity 3-8
7	Coral Reef Geology and Chemistry	Dr. Hajime Kayane	07/20/2003~ 07/27/2003	Activity 3-8
8	Oceanography	Dr. Kazuo Nadaoka	07/22/2003~ 07/30/2003	Activity 3-8
9	Algae Survey	Dr. Hideo Ooba	03/22/2004~ 04/17/2004	Activity 3-2
10	Aquarium Facility Operation and Maintenance	Dr. Akira Komoda	04/27/2004~ 05/25/2004	Activity 2-3
11	Data Management by GIS	Dr. Tsuyoshi Yoshida	05/17/2004~ 06/14/2004	Activity 3-3, 3-8
12	Hydrodynamic Study	Dr. Keita Furukawa	10/23/2004~ 11/05/2004	Activity 3-2, 3-4
13	Hydrodynamic Study	Dr. Keita Furukawa	08/16/2005~ 08/30/2005	Activity 3-2, 3-4
14	Remote sensing	Dr. Hajime Kayane	09/01/2005~ 09/20/2005	Activity 3-2
15	Mograph editing	Dr. Hajime Kayane	03/28/2006~ 04/10/2006	Activity 3-2

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Appendix A-3 List of Palauan Counterpart Personnel Trained in Japan

(1) Short-term trainings

No.	Name	Job Title	Title of training course	Period	Relevant Outputs/Activities of PDM	Remarks
1	Asap Bukurrou	Aquarist	Handling and Feeding Technique of Fish (Fish	2002/02/02 - 2002/04/20	Activity 2-3	Left PICRC in July 2004
2	Singeo Franz	Senior Aquarist	Water Quality Monitoring and Analysis	2002/10/22 - 2002/12/17	Activity 2-2	
3	John Wong	Chief Engineer	Management and Maintenance of the Aquarium	2002/11/13 - 2002/12/10	Activity 2-3	
4	David Koro Idip	Researcher	Image Analysis Technique for Coral Reef GIS	2003/03/24 - 2003/04/24	Activity 3-2, 3-3	
5	Tiffany B. Rengulbai	Administrative Manager	Marketing	2004/01/13 - 2004/02/15	Activity 1-5	Left PICRC in Nov. 2004
6	Fabian Bai Iyar	Chief Executive Officer	Management of Center(PICRC)	2005/07/03 - 2005/07/20	Output 1	
7	Steven Victor	Head of Research Department	Numerical Simulation and current modelling	2005/09/21 - 2005/10/14	Activity 3-4	
8	Jay Oruetamor	Aquarist	Maintenance of Aquarium	2005/08/30 - 2005/10/09	Activity 2-3	
9	Tublai Iliau	Education Officer	Environmental Education	2005/09/26 - 2005/11/21	Activity 4-1~4-5	
10	Charlene Mersai	Researcher	Conservation and Sustainable Management of Mangrove	2005/05/31 - 2005/08/21	Activity 3-2, 3-7	

(2) Long-term training

No.	Name of counterpart	Job Title	Title of training course	Period	Relevant Outputs/Activities of PDM
1	Mr. David Koro Idip	Researcher	MSc in the University of Tokyo	2004/03/30 - 2006/03/31	Activity 3-2, 3-3

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Appendix A-4 List of Machinery and Equipment Provided by Japan

Japanese Fiscal Year (Apr-Mar)	2002	2003	2004	2005	2006 (Plan)
Total Value (US\$)	61,640.00	106,122.85	106,123.00	100,426.00	17,347.00
Items (number)	<ul style="list-style-type: none"> -Cash Register (1) -Apparatus for financial management (1 set) -Depth echo sounder (1) -Color printer (1) -Apparatus for education (1) -Personal computer (3) -Apparatus for laboratory (1 set) 	<ul style="list-style-type: none"> -Digital camera (2) -Underwater thermometer (12) -Microscope (1) -Dryer (1) -Boat engine (1) -Desk-top computer (1) -Computer as Server (1) -Trailer (1) -Projector (1) -GIS Software (1 set) 	<ul style="list-style-type: none"> -Research boat (1) -4WD vehicle (1) -Apparatus for meteorological observation(2 sets) -Spare parts for Aquarium 	<ul style="list-style-type: none"> -FRP Rectangular aquaria(1) -Computer -Software for Remote Sensing Data Analysis -GIS software -Spare parts for Aquarium -Tables for the conference room -Data loggers for marine environmental observation -Air pump -Sea water pump 	<ul style="list-style-type: none"> -Accounting software -Satellite imagery

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	FY 2003	FY 2004	FY 2005(unaudited)
Operating Revenue			
Income			
Facility user and admission fees	43,373	99,965	120,180
Merchandise sales	43,293	63,272	69,810
Office space rental	28,800	24,000	-
Boat fee	15,796	22,511	23,848
Research facilities	16,321	13,151	17,688
Accommodation	4,740	9,820	11,179
Endowment fundraising	2,960	7,740	13,064
Education program fee	1,715	1,552	1,705
Total Income			
Total Operating revenues	156,998	242,011	257,473
Operating expenses			
Depreciation Expense	758,350	607,152	646,357
Salaries, wages and fringe benefits	657,453	579,255	616,388
Utilities	71,126	77,777	93,446
Supplies and printing	62,021	58,415	70,480
Travel	51,394	53,301	132,297
Merchandise cost	42,318	47,500	41,993
Bad debts	-	37,413	-
Rental	7,545	23,891	10,406
Insurance	25,898	19,979	27,797
Repairs & Maintenance	6,117	17,407	13,607
Professional fees	6,494	13,556	50,420
Communications	14,708	13,544	13,403
Sales & marketing	11,659	11,202	19,028
Training	26,812	10,912	13,477
Promotional items	11,408	7,238	448
Entertainment	2,545	4,097	7,709
Catering services	4,695	2,763	1,325
Honorariums and meetings	1,521	2,302	564
Dues and subscriptions	139	1,734	380
Fuel boat	1,018	450	19,677
Other	25,836	69,771	56,324
Total operating expenses	1,789,057	1,659,659	1,835,524
Operating loss	(1,632,059)	(1,417,648)	(1,578,051)
NON-OPERATING REVENUES (EXPENSES)			
Appropriations	450,000	450,000	450,000
Grants	50,693	127,795	271,098
Other Income	121,323	27,746	17,018
Donations	10,899	3,922	6,466
Interest Income	16	127	18
Total nonoperating revenues	632,931	609,590	744,598
Change in net assets	(999,128)	(808,058)	(833,453)
Net Assets at beginning of year	5,462,108	4,921,690	4,441,195
Net assets at end of year	4,462,980	4,113,632	3,607,742

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Appendix C

List of Publications related to PICRC Strengthening Project (As at Apr. 7, 2006)

I. PAPERS

Peer-reviewed Papers

- (1) **Golbuu Y, Victor S, Wolanski E, Richmond RH** (2003) Trapping of fine sediment in a semi-enclosed bay Palau, Micronesia. *Estuarine, Coastal and Shelf Science* 57: 941-949
- (2) **Penland L, Kloulechad J, Idip D, van Woesik R** (2004) Coral spawning in the western Pacific Ocean is related to solar insolation: evidence of multiple spawning events in Palau. *Coral Reefs* 23:133-140
- (3) **Victor S, Golbuu Y, Wolanski E, Richmond RH** (2004) Fine sediment trapping in two mangrove-fringed estuaries exposed to contrasting land-use intensity, Palau, Micronesia. *Wetlands Ecology and Management* 12: 277-283
- (4) **Wolanski E, Colin P, Naithani J, Deleersnijder E, Golbuu Y** (2004) Large amplitude, leaky, island-generated, internal waves around Palau, Micronesia. *Estuarine, Coastal and Shelf Science* 60: 705-716
- (5) **Fabricius KE, Mieog JC, Colin PL, Idip D, Van Oppen JH** (2004) Identity and diversity of coral endosymbionts (zooxanthellae) from three Palauan reefs with contrasting bleaching, temperature and shading histories, *Molecular Ecology* 13: 2445-2458

Other Papers

- (1) **Victor S, Golbuu Y, Wolanski E, Richmond R**, (2004) Effects of land use change on coastal coral reefs, Palau, Micronesia. In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003*. PICRC Publication No. 04-001, 60-68
- (2) **Penland L, Kloulechad J, Idip D** (2004) Timing of coral spawning in Palau. In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003*. PICRC Publication No. 04-001, 94-104
- (3) **Idip D** (2004) Annual Reproduction Cycle of *Acanthaster planci* (L.) in Palau. In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003*. PICRC Publication No. 04-001, 87-91

II. INTERNATIONAL REPORTS

- (1) **Richmond R, Kelly R, Craig P, Emaurots C, Green A, Birkeland C, Davis G, Edward A, Golbuu Y, Gutierrez J, Houk P, Idechong N, Maragos J, Paulay G, Starmer J, Tafleichig A, Trianni M, Velde NV** (2002) Status of the coral reefs in Micronesia and American Samoa: US Affiliated and Freely Associated Islands in the Pacific. In: *Status of Coral Reefs of the World, 2002*, Australian Institute of Marine Science, 217-236
- (2) **Abraham T, Beger M, Burdick D, Cochran E, Craig P, Didonato G, Fenner D, Green A, Golbuu Y, Gutierrez J, Hasurmai M, Hawkins C, Houk P, Idip D, Jacobson D, Joseph E, Keju T, Kuartei J, Palik S, Penland L, Pinca S, Rikim K, Starmer J, Trianni M, Victor S, Whaylen L** (2004) Status of the coral reefs in Micronesia and American Samoa (eds. Kelly R, Kuartei J). In: *Status of Coral Reefs of the World, 2004*, Australian Institute of Marine Science, 381-409
- (3) **Golbuu Y, Bauman A, Kuartei J, Victor S** (2005) The Status of the Coral Reef Ecosystems of



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- Palau. The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2004, NOAA, 506-525*
- (4) **Golbuu Y, Penland L, Idip D, Victor S, Emaurois C, Kloulechad J, Okaji K (2004)** Status of Palau's Coral Reefs. In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003. PICRC Publication No. 04-001, 12-19*
 - (5) **Emaurois C (2004)** MAREPAC Role in the Micronesian Node (MAREPAC NODE). In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003. PICRC, 7-11*
 - (6) **Emaurois C (2004)** Summary of discussions on the future of the GCRMN in Micronesia. In: *Proceedings of Palau Coral Reef Conference – Toward the Desirable Future of Coral Reefs in Palau and Western Pacific – July 23-26, 2003. PICRC, 24-25*

III. PICRC TECHNICAL REPORTS

- (1) **PICRC (2002)** Environmental assessment for Big Blue Explorer grounding. State of Koror, Republic of Palau. February 27, 2002. PICRC Publication No. 02-001
- (2) **Watanabe M, Idip D, Victor S (2002)** Bathymetry surveys of Airai Bay and Ngederrak Reef, Palau. November 2002. PICRC Publication No. 02-028
- (3) **PICRC (2002)** Kyowa Pacific Falcon Grounding: Coral Reef Restoration Project. PICRC Publication No. 02-030
- (4) **PICRC (2003)** Big Blue Explorer: Coral Reef Restoration Project. PICRC Publication No. 03-018
- (5) **Victor S, Furukawa K (2004)** Environmental Status of Ngeremeduu Bay. Preliminary survey on fate of tidal current and sediment transport. PICRC Publication No. 04-005

IV. RESEARCH ANNUAL REPORT

- (1) **Palau International Coral Reef Center (2005)** 2005 Annual Report. Palau International Coral Reef Center, 43pp.

VIII. Books in preparation

- (1) Palau Monograph "Coral Reefs of Palau"
- (2) Field Guidebook Seaweed of Palau
- (3) Socio-economic survey method for MPA management (tentative title)





Appendix D: List of international/overseas organizations that have collaborated with the Project

	Organizations	Field of collaboration	Relevant PDM activities	Type of collaboration	Period of collaboration
1	World Bank / Global Environmental Facility (GEF)	(1) Coral Restoration	Activity 3-2 (Coral reef recovery)	Joint research with Dr. Makoto Omori from Akajima Marine Science Laboratory	2006-
		(2) Targeted research on coral disease	Activity 3-2 (Coral reef recovery)	Joint research with Dr. Drew Harwell from Cornell University	2005-
		(3) Targeted research on Remote Sensing	Activity 3-3	Joint research with Dr. Peter Mumby from University of Exeter, et.al	2005-
		(4) Activities for environmental education	Activity 4-1-4-4	Grant	2005-
2	University of Hawaii (University of Guam)	(1) Waters & Watershed Project	Activity 3-2 (watershed)	Joint research with Dr. Robert Richmond	2002-
		(2) Coral Reef Monitoring Workshops for the Micronesian region	Activity 3-8	Dispatch of a lecturer	2004,2006
		(3) Community Outreach	Activity 4-2	Grant	2004-
3	Lucille & Packard Foundation	(1) Community Outreach	Activity 4-2	Grant	2004-
		(2) Marine Protected Area (MPA) effectiveness study	Activity 3-7	Grant	2004-
		(3) Technical assistance in state governments' MPA management	Activity 3-8	Grant	2004-
		(4) Assistance in developing evaluation criteria for MPAs	Activity 3-8	Grant	2004-
		(5) Research Department brochures	-Output 3	Grant	2005
		(6) Ecosystem Based Management Planning Grant	Activity 3-2 (Watershed)	Grant	2004
		(7) Ecosystem Based Management Grant	Activity 3-2 (Watershed)	Grant	2006-
5	University of New Hampshire	(1) Seagrass monitoring (SeagrassNet)	Activity 3-2 (Algae)	Grant	2004

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	Organizations	Field of collaboration	Relevant PDM activities	Type of collaboration	Period of collaboration
6	University of Tokyo	(1) Study on Reef formation	Activity 3-2 (Coral reef recovery)	Joint research with Dr. Hajime Kayane	2005-
7	National Institute for Land and Infrastructure Management, Japan	(1) Hydrodynamic study	Activity 3-2 (Watershed) & Activity 3-4	Joint research with Dr. Keita Furukawa	2004-
8	National Fish & Wildlife Foundation, US	(1) Research Department brochures	Output 3	Grant	2005
		(2) Socio-economic survey	Activity 3-7	Grant	2005-
9	Nagao Foundation	(1) Coral reproduction survey	Activity 3-2	Grant	2002-2003
10	TNC(The Nature Conservancy)	(1) PICRC fund raising plan	Activity 1-4	Grant	2003
11	Tokyo University of Marine Science and Technology	(1) Phenological study on marine algae, Padina spp.	Activity 3-2 (Algae)	Joint research with Dr. Hideo Ohba	2004-
12	Florida Institute of Technology	(1) Survey on Acroporid corals examining coral recover	Activity 3-1	Joint research with Dr. Robert van Woesik	2004-
13	United States National Oceanic and Atmospheric Administration (NOAA)	(1) Monitoring Workshop	Activity 3-1	Grant	2005
14	UNESCO	(1) Watershed Training	Activity 3-2 (watershed)	Grant	2005

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Activities	Expected outcome	Relevant modified Strategic Plan (2003-2006)	Responsible persons	Other major inputs	Results
Output 1: Center is administered in organized and planned manner.		Goal 5 Efficient and effective management of PICRC Goal 6: Provide comprehensive maintenance and support services for the facilities Goal 7: Profitable income generation program for PICRC	Overall: CEO	*LE: (Chief Advisor/ Org. Dev) *Training: (Mgt. of Center)	
1-1 Staff enhancement & capacity building	n/a	(5-3) Implement effective & efficient financial policy & procedures manual & human resources 5.3.1 Training program	Administrative Manager		So far, 5 administrative staff (CEO, Administrative Manager, Accounting Officer, an office assistant, and a sales clerk) been trained in administrative matters. Local training courses/ seminars attended by them are Administrative Training Seminar, Training Management Seminar, Customer Service, Supervisory Training, Financial Analysis / Budget Training, Association of the Pacific Island Public Auditor's Conference, Management Training, Leadership Assessment, and Stress Management Training. In addition, CEO was dispatched for a short-term training course in Japan in the field of Maintenance of Center in July 2005. Ex-Administrative Manager was dispatched for a short-term training course in Japan in the field of Marketing in 2004.
1-2 Establishment of financial management	n/a	(5-3) Implement effective & efficient financial policy & procedures manual & human resources 5.3.2 Financial policy and procures manual	Administrative Manager, Accounting Officer	*Eqmt (Apparatus for financial mgmt. cash register)	*Financial policy and procedures manual: The manual, which was approved in **, has been implemented. The accounting software has been updated from QuickBooks Pro 99 to 2003. The on-line banking system has been introduced to be able to check daily activities, transactions and the PICRC account.
1-3 Facility maintenance & improvement	n/a	(6-1) Establish maintenance plan (6-3) Develop concept design and plans to seek funding for capital improvement plans (6-4) Develop a comprehensive computerised system to track equipment and spare parts inventory	Chief Engineer, Maintenance Technician		*Maintenance plan: Standard operating procedures have been prepared. Maintenance Reserve fund has been established, setting aside 5 % of indirect cost of the grants received and 2 % of self-revenue for future maintenance. *Tracking and inventory: The computerized equipment tracking and inventory system with a lap-top computer provided by JICA in the Engineering Department has been introduced. The inventory of the equipment, spare parts, and other donated items are updated into the database.
1-4 Planning and implementation of revenue generation program	n/a	(7-3) Increase revenue generation from facility user's fee by 25%	Development Officer		*Night tour of the Aquarium has been implemented since **. Currently night tour staffs are volunteers from other Departments as there is no funding for additional staff. Schedules only on payday weed-Friday. *Joint package tour agreement with Flying Fish Tours has been signed. *The Sponsorship Program to obtain supports for PICRC activities from local clubs and organization has been launched. *Adopt a tank and sponsorship flyers are now under printing and will be delivered in the middle of April

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Activities	Expected outcome	Relevant modified Strategic Plan (2002, 2006)	Responsible persons	Other major inputs	Results
1-5 Marketing activities	n/a	(7-1) Capture 25% of Palau's tourism market every year	Development Officer	<ul style="list-style-type: none"> Japanese Palau Training (Marketing) 	<ul style="list-style-type: none"> *A leaflet of Aquarium was produced. PICRC is also presented in the guide book produced by Palau Visitors Authority. *PICRC has released the information of the center and activities to the local press and radio station, and established an information booth at the airport shared with Dolphins Pacific. * A new directional road sign has been ordered and will be delivered in April 2006 for installation. The sign provides message in 4 languages: English, Japanese, Chinese, and Korean. *Marketing and promotional materials have been ordered and will be delivered in April 2006. *Annual report and website are under preparation and are expected to be completed by the end of April. *Marine Calendar proposed by Japanese tour operators and Mr. Tanaka, Economic Advisor to President and a member of the Palau Product Committee, is under planning stage. *City passport, a city tour arrangement including the Center, Belau National Museum, and Etipison Museum is pending discussion and final consideration by other agencies. *Recommendations for Aquarium by Japanese tour operators has been discussed.
Output 2: Aquarium is self-sustained in exhibition, operation and maintenance.		Goal 2: Internationally renown aquarium representing Palauan marine habitats	Overall: Head of Aquarium Dept.		
2-1 Renewal and improvement of exhibitions	n/a	(2-1) Increase annually 10 different species of marine organism in the aquarium exhibit (2-2) Highlight 1 aquarium species each year	Head of Aquarium Dept.	*LE(Improvement of Exhibit)	*The standards in exhibiting organisms has been established. The general theme of the Aquarium is the coral reef ecosystem. It is comprised of ten sub-themed aquariums conveying details on 17 different habitats imitated with marine animals in their unique environments. The updates of the exhibition have not been implemented because each exhibition tank has a set specific theme. Aquarium Department plans to update the exhibition of a newly established tank, which was made open to public in April 2006, every three months.
2-2 Research on rearing species	n/a	(2-3) Maintain & expand coral propagation to limit collection from the wild	Aquarist		The Aquarium Department tried to rear seahorse from 2001-2003. Rearing was stopped because it was unsuccessful. Since January 2006, a researcher at the Research Department carries out a research on coral recovery in one of the tank.
2-3 Proper Operation and maintenance of the facility	n/a		Aquarist, Chief Engineer, Maintenance Technician	<ul style="list-style-type: none"> *SE:(Aquarium Facility Operation and Maintenance) *Training: (Mgt and maintenance of the Aquarium, Water Quality Monitoring and Analysis) *Eqmt:(Spare parts for aquarium) 	<ul style="list-style-type: none"> *The standard operating procedures in maintenance of tanks have been established. The facilities of the Aquarium have been maintained periodically as described in Annex 3. They have been maintained without major disruption. The inventory database for spare parts has been completed.. *In Feb-Apr. 2002, then Senior Aquarist was dispatched to Japan for a training in management and maintenance of the aquarium but he left PICRC in Oct. the same year.

Activities	Expertise/Scientific	Relevant modified Strategic Plan (2002-2006)	Responsible persons	Other major inputs Japanese Palau	Results
2-4 Exchange of resources and information with overseas institutions	n/a	(2-3) Begin contact with at least two aquariums	Head of Aquarium Dept.		<p>*PICRC has established a connection with Japanese Aquariums including Fukusima Aquarium since 3 C/P participated in short-term training courses related in Japan. PICRC has provided nautilus endemic species of Palau to Fukushima Aquarium as a friendship aquarium of PICRC for exhibition in Japan</p> <p>* PICRC has also established communications with various overseas organizations, institutes, and aquariums, including Monterey Bay Aquarium, Aquarium of the Pacific, National Museum of Marine Biology and Aquarium, International Society for Mangrove Ecosystems and Fish Base, and Hongkong Ocean Park Aquarium.</p> <p>*In Dec. 2004, the Head of the Aquarium Department attended 6th International Aquarium Congress held in USA, together with the long-term expert, where he made a poster presentation.</p>
2-5 Obtaining increased number of visitors	n/a	(7-1) Capture 25% of Palau's tourism market every year	Development officer		<p>*PICRC have distributed posters, brochures for international trade shows and local events. PICRC has organized tours of the aquarium for familiarization groups, media and film groups through Palau Visitors Authority. Visitors are able to access PICRC website through a link at the new Palau Visitors Authority website. Joint Tour Package between PICRC and tour operators such as Dolphins Pacific have been formed to guide visitors to Aquarium.</p> <p>*Number of visitors to the Aquarium for Palau fiscal year 2003-2005 is as follows. PFY 2003 - 7,267 (9% of the total visitors to Palau) PFY 2004 - 28,452 (32% of the total visitors to Palau) PFY 2005 - 25,470 (29% of the total visitors to Palau)</p>
Output 3: Coral reef research and monitoring function is firmly established.		Goal 1: Self-sustained internationally recognized Palauan Marine Research facility	Overall: Head of Research Dept.	Overall: LE (Research Coordinator)	Note: Most of the research activities under Output 3 are either financed by grants from other funding sources or carried out through collaborative research with various organizations/institutes.
3-1 Monitoring surveys (permanent sites and spot check)	n/a	(1-1) Conduct at least 6 research projects annually 1.1.1 Coral reef monitoring	Chief Researcher (Y. Golbuu)	*Eqmt (Depth echo sounder, digital camera, boat engine, trailer)	<p>*So far, 21 permanent monitoring sites have been established throughout the Palau archipelago under the National Long-Term Coral Reef Monitoring Program.</p> <p>*Results were published in "Status of Coral Reefs of the World" 2002 and 2004. Three oral presentations were made at the International Palau Coral Reef Conference 2003 and were published in the Proceedings of the Conference. (For details, please see a list of scientific publications in Appendix C)</p> <p>*A poster presentation was made at the 10th International Coral Reef Symposium 2004 in Okinawa, Japan.</p> <p>*Note: University of New Hampshire has provided a grant to seagrass monitoring (Seagrass Net)</p>
3-2 Research projects	n/a	(1-1) Conduct at least 6 research projects annually		*SE (Monograph Editing) *Eqmt (Apparatus for laboratory, underwater thermometer, microscope, dryer, FRP rectangular aquaria data logger for marine environmental observation)	Under the activity 3-2, PICRC has been carrying out the following 6 research projects :

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Activities	Expended amount	Relevant modified Strategic Plan (2002-2006)	Responsible persons	Other major inputs	Results
Coral reproduction		(1-1) 1.1.3 Study of coral Spawning and Reproduction	Head of Dept. (S. Vector)	Japanese *SE (Research Advisor-Uchida)	Coral reproduction: A peer-reviewed paper was published in "Coral Reefs" in 2004. An oral presentation was made at the Palau Coral Reef Conference 2003 and the article was published in the proceedings of the Conference. A poster presentation was made at the 10th International Coral Reef Symposium in Okinawa. (For details, please see a list of scientific publications in Appendix C) *Note: Nagao foundation has provided a grant for the research.
Watershed projects		(1-1) 1.1.5 Waters and watershed project	Head of Dept. (S. Victor), Chief Researcher (Y. Golbuu), Researcher (C. Mersai), Noda Coordinator (S. Marimo)	*SE (Hydrodynamic study) *SE (Mangrove) to be dispatched *Training (Mangrove)	Watershed projects: A peer-reviewed paper was published in "Micronesia, Estuarine, Coastal and Shelf Science" in 2003, and another one in "Micronesia, Wetlands Ecology and Management" in 2004. An oral presentation was made at the Palau Coral Reef Conference 2003 and the article was published in the proceedings. (For details, please see a list of scientific publications in Appendix C) *Note: University of Hawaii has provided a grant to the project. Lucille & Packard Foundation has provided Ecosystem Based Management Planning Grant and Ecosystem Based Management Grant.
Coral reef recovery study		(1-1) 1.1.12 Study on factors affecting coral recruitment @ Ngederak	Head of Dept. (S. Vector)	*SE (Research Advisor-Uchida)	Coral reef recovery study: Data is being collected. Interim results were reported in "Research Annual Report" of PICRC in 2005. A peer-reviewed paper was published in "Molecular Ecology" in 2004. An oral presentation was made at the Palau Coral Reef Conference 2003 and the article was published in the proceedings. In addition, three technical reports have been published. *Note: World Bank/GEF has provided a grant to the study
Algal Phenology study		(1-1) 1.3 Algae Phenology	Head of Dept. (S. Vector), Chief Researcher (Y. Golbuu)	*SE (Research Advisor-Ooba)	Algal phenology study: Data is still being collected. Interim results were reported in "Research Annual Report" of PICRC in 2005. Field Guidebook on Seaweed and Seagrass in Palau will be published in September 2006.
Weather observation		(1-1) 1.1.6 Weather observation	ditto	*Eqmt (Aparatus for meteorological survey)	Weather observation: Basic meteorological data has been collected daily and analyzed periodically. The data has been used for several research projects. (For details, please see a list of scientific publications in Appendix C)
3-3 GIS and database management	n/a	(1-1) 1.1.11 GIS	Head of Dept. (S. Victor), Chief Researcher (Y. Golbuu), Researcher (Idip)	*SE (GIS and DB Mgt. Data Mgt by GIS) *Training (Image Analysis Technique for Coral Reef GIS) *Eqmt (GIS software, software for remote sensing data analysis)	The results of the spot-check surveys from the Activity 3-1 have been organized in a GIS linked database. By clicking on a certain area on the GIS map, a pop-up screen will appear with photos, all biological and physical data collected from that particular spots. Algae database with links to specimen photos have been established. So far, about two hundred hard coral species, over a hundred algal and eight seagrass species have been collected. All specimens are stocked in the specimen room. *Note: World Bank/GEF has provided a grant for remote sensing
3-4 Current and bathymetry study	n/a	(1-1) 1.1.7 Off-shore current study	Head of Dept. (S. Victor)	*SE (Hydrodynamic Study) *Training: (Numerical Simulation and Current Modeling)	A peer reviewed paper was published in "Micronesia, Estuarine, Coastal and Shelf Science" in 2004. In addition, 2 PICRC technical reports were published in 2002 and 2004 respectively. (For details, please see a list of scientific publications in Appendix C)

Activities	Expected outcome	Relevant modified Strategic Plan (2002-2006)	Responsible persons	Other major inputs		Results
				Japanese	Palau	
3-5 Facilitating visiting research and collaborative research	n/a	(1-4) Facilitate up to 12 research of university groups annually at the research center	Chief Researcher (Y. Golbuu)			PICRC facilitated * visiting researchers and * collaborative research projects. (For details, please see a list of visiting researchers and collaborative research in Appendix C)
3-6 Strengthening function as Global Coral Reef Monitoring Network Regional Node	n/a	(1-6) Facilitate the collection and sharing of monitoring data from Marine Resource Consortium (MAREPAC) countries and incorporating reports into the biennial status of coral reefs to the Coral Reef Monitoring Network (GCRMN) and the US Coral Reef Task Force	Node Coordinator (S. Marino)			The GCRMN Node Coordinator made up the list of the responsible person in Republic of Maritail Islands (RMI) and each state of Federal States of Micronesia. (FSM). PICRC held regional workshop in order to enhance capacity of the responsible person from RMI and each states FSM and in 2004 with support of JICA, in 2005 with support of National Oceanic and Atmospheric Administration (NOAA), and will hold another one in June 2007. The Node Coordinator made field trips to FSM and RMI to assess the capacity of the region and disseminate the information on appropriate coral monitoring technique.
3-7 Surveys of Marine Protected Areas	n/a	(1-1) 1.1.8MPA effectiveness	Chief Researcher (Y. Golbuu), Researcher (S. Mersal)			The Research Department is currently carrying out four (4) MPAs monitoring for evaluation and effectiveness of MPA. Habitat mapping of MPAs and coral disease survey will also be conducted in MPAs. Working with state governments (Koror State, Kayangel, Ngchesar, and Ngarchelong) on socio-economic impacts of MPAs. The monitoring work is in progress. Handbook on socio-economic survey method toward better MPA management will be published by the end of the Project. *Note: Lucille & Packard Foundation has provided grants to MPA effectiveness study & development of evaluation criteria for MPAs. US National Fish & Wildlife Foundation has provided a grant for socio-economic survey.
3-8 Holding trainings, workshops and symposium	n/a	(1-7) Provide technical assistance and training to meet state and national management needs (1-8) In 1 year, research staff will conduct visits to 13 states to present PICRC research programs & results			*SE (Marine biology and Ecology, Coral Reef Geology and Chemistry, Oceanography, Data Management by GIS)	(For details, please see the results of the Objectively Verifiable Indicator 3.4 under Output 3 in Annex 3) *Lucille & Packard foundation has provided grants to technical assistance for state government's MPA monitoring

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Activities	Expected outcome	Relevant modified Strategic Plan (2002-2006)	Responsible persons	Other major inputs	Results
Output 4: Education division capable of conducting environmental education on coastal resources for students and community.		Goal 3: The community understands the importance of their marine resources and coastal environment, and can make decisions on their sustainable use	Overall: Head of Education Dept.	Overall: *Egmt (Apparatus for education, 4WD vehicle) *JOCV (Env. Education)	Note: For the Palauan fiscal year 2006 (October 2005-September 2006), most of the activities are funded by a grant provided by the World Bank / GEF.
4-1 Provision of environmental education under the school support program	n/a	(3-1) Provide marine environmental education to at least 4 schools in Palau each year	ditto		<u>School Support Program for the Project</u> *School outreach and visit program: At the request of school teachers, presentations are made based on a requested topic, lesson plan objectives, and the learning level of the students. So far, the program has covered 11 elementary and secondary schools. In total, 794 students participated in the program *Annual art & tides calendar: An annual art contest for school age children has been organized. A different conservation theme is chosen each year. Artworks of contest winners are showcased in the PICRC's calendar, publication of which is sponsored by local private enterprises. The calendar is available for purchase at the Center's giftshop. For the 2007 calendar, a total of 697 entries were received. *School support aquarium tours: So far, PICRC provided school support aquarium tours to all of 18 elementary schools and most of secondary schools. In total, 2,632 students have visited the Aquarium. *After school program: After school educational activities for students, generally related to conservation issues and other topics pertinent to Palau and the region, are offered throughout the year. So far, the program has been carried out at 9 elements
4-2 Planning and implementation of community outreach program	n/a	(3-3) Develop a community outreach program & implement in at least 4 states each year	ditto		*State visit and community outreach: it is carried out in order to help the community to better understand the research of PICRC. The Program has been implemented in 12 states already. It is expected that the remaining states will be covered by the end of the Project.
4-3 Development of collection and database of published marine scientific works about Micronesia	n/a	(3-4) Maintain & update database of all published marine scientific works about Palau	Education Officer		The reference library is located on the second floor of the research building of PICRC. The library's collection of written materials, books, manuals, and reports relating to cultural, historical, marine, and terrestrial areas affecting Palau, Micronesia and the Pacific region. So far, 1,401 published and unpublished papers have been collected. All the collected papers have been put into PDA format. In addition to the reference library, PICRC has developed a digital library, which contains photos of marine specimens, underwater and terrestrial maps of the region.
4-4 Teacher's Training	n/a	n/a	Head of Education Dept.		The Environmental Education Department has discussed with the Minister of Education and Chief of Curriculum and Instruction about possibilities for Ministry of Education to take advantage of PICRC's resources, including teacher's training and science fair. Chief of Curriculum and Instruction informed the division on summer plans for teachers with summer classes, PEC, and teacher's convention, and other back-to-back activities for teachers that have been scheduled. However, the actual activities has not been accomplished.
4-5 Science program with Palau Community College	n/a	(3-2) Implement the marine science program with PCC, teaching 1 course per semester	ditto		PICRC has implemented the following 3 courses at PCC: (1) Marine Biology (Fall semester), (2) Oceanography (Spring Semester), and (3) Field Studies (Summer Semester). The Department also established relationship with Palau Community College library and University of Hawaii Hamilton Library.

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