



Completion Report

Project Number: 33418
Loan Number: 1939-CAM
July 2010

Cambodia: Tonle Sap Environmental Management Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – riel (KR)

		At Appraisal	At Project Completion
		6 May 2002	31 December 2008
KR1.00	=	\$0.00026	\$0.00025
\$1.00	=	Kr3,835	Kr4,034

ABBREVIATIONS

ADB	–	Asian Development Bank
CFO	–	community fisheries organization
CNMC	–	Cambodia National Mekong Committee
DMF	–	design and monitoring framework
DOF	–	Department of Fisheries
FAO	–	Food and Agriculture Organization of the United Nations
FIA	–	Fisheries Administration
GEF	–	Global Environment Facility
MAFF	–	Ministry of Agriculture, Forestry, and Fisheries
MCO	–	mobile community outreach
MOE	–	Ministry of Environment
MOEYS	–	Ministry of Education, Youth, and Sports
NGO	–	nongovernment organization
PCR	–	project completion review
PIO	–	project implementation office
PIU	–	project implementation unit
PMCO	–	project monitoring and coordination office
PSC	–	project steering committee
PSO	–	project support office
RRP	–	report and recommendation of the President
TA	–	technical assistance
TSBR	–	Tonle Sap Biosphere Reserve
TSBR-ED	–	Tonle Sap Biosphere Reserve–Environmental Information Database
TSCP	–	Tonle Sap Conservation Project
TSEMP	–	Tonle Sap Environmental Management Project
TSI	–	Tonle Sap Initiative
TSSLP	–	Tonle Sap Sustainable Livelihoods Project
UNDP	–	United Nations Development Programme
UNESCO	–	United Nations Educational, Scientific, and Cultural Organization
VSO	–	Voluntary Service Overseas
WCS	–	Wildlife Conservation Society

NOTES

- (i) The fiscal year (FY) of the government and its agencies ends on 31 December. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2009 ends on December 2009.
- (ii) In this report, “\$” refers to US dollars.

Vice-President	C. Lawrence Greenwood Jr., Operations 2
Director General	K. Senga, Southeast Asia Department (SERD)
Director	J. H. Mir, Agriculture, Environment and Natural Resources Division, SERD
Team leader	N. Ikemoto, Senior Natural Resources Management Specialist, SERD
Team member	C. R. Garcia, Senior Project Administration Officer, SERD

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BASIC DATA

A. Loan Identification

1.	Country	Cambodia
2.	Loan Number	1939
3.	Project Title	Tonle Sap Environmental Management Project
4.	Borrower	Kingdom of Cambodia
5.	Executing Agency	Ministry of Agriculture, Forestry and Fisheries
6.	Amount of Loan	SDR 8,248,000
7.	Project Completion Report Number	CAM 1169

B. Loan Data

1.	Appraisal	
	– Date Started	6 May 2002
	– Date Completed	24 May 2002
2.	Loan Negotiations	
	– Date Started	7 October 2002
	– Date Completed	9 October 2002
3.	Date of Board Approval	21 November 2002
4.	Date of Loan Agreement	7 February 2003
5.	Date of Loan Effectiveness	
	– In Loan Agreement	18 May 2003
	– Actual	27 March 2003
	– Number of Extensions	None
6.	Closing Date	
	– In Loan Agreement	30 June 2008
	– Actual	2 September 2009
	– Number of Extensions	1
7.	Terms of Loan	
	– Interest Rate	1% during grace period; 1.5% during implementation
	– Maturity (number of years)	32 years
	– Grace Period (number of years)	8 years
8.	Disbursements	

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
21 Nov 2003	2 Sep 2009 ^a	69.3 months
Effective Date	Original Closing Date	Time Interval
27 Mar 2003	30 June 2008	60.3 months

^a Date the Asian Development Bank received the refund of \$583,153.

b. Amount (SDR)

Category	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance
Civil Works	221,000	269,966	77,504	269,966	192,462	0
Vehicles	475,000	375,299	(5,071)	375,299	380,370	0
Equipment and Boats	154,000	355,687	18,416	355,687	337,271	0
Training and Workshops	240,000	262,209	20,080	262,209	242,129	0
International Consultant	2,512,000	4,224,451	(211,272)	4,224,451	4,435,723	0
Domestic Consultant	1,487,000	81,814	45,999	81,814	35,815	0
Aerial Photography	566,000	227,948	46	227,948	227,902	0
Surveys, Investigations, and NGOs	565,000	537,585	258,686	537,585	278,899	0
Operation and Maintenance	1,101,000	1,010,555	366,807	1,010,555	643,748	0
Interest Charge	225,000	225,000	63,762	225,000	161,238	0
Unallocated	702,000	677,486	677,486	677,486	0	0
Total (SDR)	8,248,000	8,248,000	1,312,443	8,248,000	6,935,557	0
Total (\$)	10,910,000	12,448,546^a	2,052,557	12,448,546^a	10,395,989	0

NGO = nongovernment organization.

^a US dollar equivalent of loan amount at loan closing.

10. Local Costs (Financed)

- Amount (\$)	1.26
- Percentage of Local Costs	34.98
- Percentage of Total Cost	9.90

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	8.77	9.14
Local Currency Cost	10.59	5.70
Total	19.36	14.84

2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower-Financed	3.91	2.34
ADB-Financed	10.61	10.15
Other External Financing (GEF)	3.93	2.10 ^a
UNDP (Capacity 21)	0.61	n.a.
Total	19.06	14.59
IDC Costs		
Borrower-Financed	0.00	0.00
ADB-Financed	0.30	0.25
Other External Financing	0.00	0.00
Total	19.36	14.84

ADB = Asian Development Bank, GEF = Global Environment Facility, IDC = interest during construction, UNDP = United Nations Development Programme.

^a Source UNDP. 2007. *Midterm Evaluation Report: Tonle Sap Conservation Project*. Manila.

3. Cost Breakdown, by Project Component (\$ million)

Component	Appraisal Estimate	Actual
1. Strengthening Natural Resource Coordination and Planning	4.20	2.25
2. Organizing Communities for Natural Resource Management	8.42	8.54
3. Building Management Capacity for Biodiversity Conservation	4.09	3.80
Subtotal	16.71	14.59
Physical Contingencies	1.47	0.00
Price Contingencies	0.88	0.00
Interest during Construction	0.30	0.25
Total	19.36	14.84

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
- Louis Berger	Q2 Year 1	12 September 2003
- Acil	Q3 Year 1	22 March 2004
- Food and Agriculture Organization (FAO)	Q2 Year 1	6 January 2005
- PASCO-FINNMAP	Q2 Year 1	22 November 2004
- Live & Learn Environmental Education	Q4 Year 1	6 June 2005
- Daruma Technologies	Q2 Year 2	13 January 2006
Civil Works Contract		
Date of Award	Q1 Year 2	12 March 2004
Completion of Work	Q2 Year 2	31 May 2004
Vehicles		
First Procurement	Q2 Year 1	27 January 2004
Last Procurement	Q2 Year 2	15 March 2007
Equipment and Supplies		
First Procurement	Q3 Year 1	25 March 2003
Last Procurement	Q2 Year 2	22 December 2008

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
21 November 2002 to 31 December 2002	Satisfactory	Satisfactory
1 January 2003 to 31 December 2003	Satisfactory	Satisfactory
1 January 2004 to 31 December 2004	Satisfactory	Satisfactory
1 January 2005 to 31 December 2005	Satisfactory	Satisfactory
1 January 2006 to 31 December 2006	Satisfactory	Satisfactory
1 January 2007 to 31 December 2007	Satisfactory	Satisfactory
1 January 2008 to 31 December 2008	Satisfactory	Satisfactory
1 January 2009 to 31 October 2009	Satisfactory	Satisfactory

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Fact-Finding Mission	25 Feb–15 Mar 2002	4	53	a, b, c, d
Appraisal Mission	6–27 May 2002	5	65	a, c, d, e, f
Inception Mission	5–7 May 2003	3	21	a, c, g
Review Mission 1	10–12 Dec 2003	1	3	a
Review Mission 2	14–28 Jun 2004	1	5	a
Review Mission 3	6–15 Dec 2004	2	20	a, g
Midterm Review	17–28 Oct 2005	3	21	a, c, g
Review Mission 5	24 Apr–3 May 2006	1	10	a
Review Mission 6	13–15 Sep 2006	2	6	a, g
Loan Disbursement Mission	18–22 December 2006	2	2	h, i
Review Mission 7	13–16 Feb 2007	3	12	a, b, j
Special Project Administration	14 and 16 Mar 2007	1	2	b
Review Mission 8	27 Apr–4 May 2007	2	16	b, g
Review Mission 9	18–26 October 2007	2	18	b, g
Review Mission 10	18–22 February 2008	3	10	b, g
Review Mission 11	18–28 November 2008 ^a	2	10	b, g
Project Completion Review	19 Nov–17 Dec 2009 ^b	3		b, f, g

a = economist, b = environment specialist, c = project specialist, d = social development specialist, e = counsel, f = natural resources management specialist (consultant), g = project administration officer, h = financial control specialist, i = analyst, j = engineer

^a Combined with review of other projects.

^b Site visits were intermittent.

I. PROJECT DESCRIPTION

1. A series of progressive reforms introduced by the government in the fisheries sector in October 2000 gave the fishery communities responsibility for sustainable fisheries management and therefore access to fishery resources that were formerly auctioned off to the private sector. As more than half of commercial fishing lot areas were moved from private concessions to local communities, the government and its Fisheries Department came under considerable pressure to manage the transition.

2. On 21 November 2002, the Asian Development Bank (ADB) approved a loan of \$10.90 million¹ in various currencies from its Special Funds resources for the Tonle Sap Environmental Management Project (TSEMP).² ADB also approved an associated technical assistance (TA) project for \$540,000 from its TA funding program to improve the regulation and management of inland fisheries.³ The loan agreement was signed on 7 February 2003, took effect on 27 March 2003, and had a closing date of 30 June 2008. The project was physically completed on 31 December 2008, after an approved extension.

3. The TSEMP was the first of four major projects of the Tonle Sap Initiative (TSI),⁴ a partnership of organizations and people launched by ADB in 2002 to reduce poverty and manage natural resources on the Tonle Sap Lake and within the Tonle Sap Biosphere Reserve (TSBR) through a sustainable balance between human activity and resource productivity. Behind the TSI was a comprehensive Tonle Sap Basin Strategy,⁵ which gave geographic focus and cross-sectoral direction to ADB's country strategy and program.⁶

4. The project had for its primary goal the sustainable management and conservation of natural resources and biodiversity in the Tonle Sap Basin. Its principal objective was to enhance systems and develop the capacity for natural resource management coordination and planning, community-based natural resource management, and biodiversity conservation in the TSBR.

¹ The total project cost, including contingencies, taxes, and duties, was estimated at \$19.36 million—\$8.77 million in foreign exchange cost and \$10.59 million in local currency cost. The Global Environment Facility (GEF) was to provide \$3.93 million in cofinancing through a grant implemented by the United Nations Development Programme (UNDP) (the UNDP-funded Tonle Sap Conservation Project [TSCP] made up most of component 3), and a \$610,000 grant from UNDP's Capacity 21 program was to support the strengthening of the staff capacity of the Community Fisheries Development Office. Monitoring and management systems were to be developed for the core areas with \$200,000 in cofinancing from the Wildlife Conservation Society although this was not included in the appraisal financing plan.

² ADB. 2002. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to the Kingdom of Cambodia for the Tonle Sap Environmental Management Project*. Manila.

³ ADB. 2002. *Technical Assistance to Cambodia for Improving the Regulatory and Management Framework for Inland Fisheries (TA 3993-CAM)*. Manila. This component 1 project was implemented by the Food and Agriculture Organization of the United Nations (FAO) under a contract agreement with the Ministry of Agriculture, Forestry, and Fisheries (MAFF) representing the Government of Cambodia.

⁴ ADB. 2004. *Future Solutions Now: The Tonle Sap Initiative*. Manila. Revised and updated May 2006. Three other major projects are Tonle Sap Sustainable Livelihood Project, Tonle Sap Lowland Rural Development Project, and Tonle Sap Poverty Reduction and Smallholder Development Project.

⁵ ADB. 2005. *Tonle Sap Basin Strategy*. Manila. The development objective was to promote and facilitate (i) pro-poor, sustainable economic growth; (ii) access to assets; and (iii) management of natural resources and the environment.

⁶ ADB. 2005. *Country Strategy and Program: Cambodia, 2005–2009*. Manila.

5. The TSEMP had three components:

- (i) **Component 1: Strengthening natural resource management coordination and planning for the TSBR.** This component was to (a) establish a coordination framework and information dissemination mechanism, (b) map the TSBR, and (c) improve regulation and management planning.
- (ii) **Component 2: Organizing communities for natural resource management in the TSBR.** Component 2 would (a) put together an implementation structure, (b) empower communities, and (c) evaluate technical packages in support of sustainable livelihoods.
- (iii) **Component 3: Building management capacity for biodiversity conservation in the TSBR.** Component 3 would (a) strengthen management capacity, (b) develop monitoring and management systems; and (c) promote biodiversity conservation awareness, education, and outreach.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

6. At the government's request, ADB provided TA for the preparation of a detailed investment proposal for the community-based integrated management of the fisheries, forestry, and agricultural resources of the Tonle Sap. ADB reviewed the feasibility study and analysis reports of consultants in late 2001, and fielded loan fact-finding (February–March 2002) and loan appraisal (May–June 2002) missions to review and analyze the loan proposal. The project preparation was efficient and very timely, and fit in well with the government's plans for major policy changes in community fisheries management, in particular in the Tonle Sap Basin area.

7. The project design did not change significantly during project implementation, as it was considered relevant from appraisal to completion in its consistency with ADB's country strategy and program, the soundness of its design, and the adequacy of its formulation. Government institutions and beneficiaries participated actively in overall project management.

8. The formulation and the project design were, however, deficient in one major respect: the assumptions and therefore the risks associated with continuing government support⁷ for major project outcomes were not adequately assessed. Since the completion of the TSEMP in December 2008, the government has invested very little financial or human resources in maintaining the significant gains made by the project. Community fisheries organization (CFO) structures and local protection work in particular need constant funding and technical support so they do not succumb to the pressures of a very avid private sector or revert to a state of *ana-thep-athay*.⁸ The ADB-funded Tonle Sap Sustainable Livelihoods Project (TSSLP)⁹ provides a small equipment budget for only 73 of the 178 CFOs created under the TSEMP. The Fisheries Administration (FiA) of the Ministry of Agriculture, Forestry, and Fisheries (MAFF)

⁷ Appendix 1 of the report and recommendation of the President (see footnote 2) declares the commitment of the government to community-based natural resource management and to biodiversity conservation, and of the government and the communities to the sustainable management of the TSBR for multiple use.

⁸ Khmer word meaning "anarchy," used by several CFOs interviewed during the project completion review (PCR) mission to describe the situation that existed before the project put in place a legal and administrative framework for CFOs.

⁹ ADB. 2006. *Grant Agreement (Special Operations): Tonle Sap Sustainable Livelihoods Project*. Manila. With amendment letter of June 2006. This ADB-funded TSI project began in June 2006.

does not have the budget and program for regular field support to the CFOs. The other major investment that could collapse because of lack of government support and interest is the TSBR Environmental Information Database (TSBR-ED; website and database). Given the long history of donor relationships with the government (government–donor consultative group meetings have been held since 1993) and the well-known difficulty of securing continuing government support for project-funded initiatives, the assumptions and risks should have been more thoroughly addressed in the project design.

B. Project Output

9. The targets set in the design and monitoring framework (DMF) for the project were mainly qualitative. There were many time-specific targets (most of which were not met) and some specific targets with respect to the number of staff to be trained. The project completion review (PCR) mission used the DMF indicators to assess progress toward the targets.

10. As detailed in the DMF, the project had three distinct components, each one with three distinct types of output. The output results are summarized below. Appendix 1 gives details of the key measurable output and performance indicators, with actual achievement against the report and recommendation of the President (RRP). Appendix 2 contains an assessment of the project output.

1. Strengthening Natural Resource Management Coordination and Planning for the Tonle Sap Biosphere Reserve

11. The establishment and operation of the TSBR secretariat office led to (i) the development of a TSBR strategy, (ii) the design and implementation of a national program of environmental education and awareness training, and (iii) the development of an environmental database and its sharing. The draft strategy was submitted to the Council of Ministers but its approval was put on hold by the establishment of the Tonle Sap Authority and its overlapping functions. A teacher's manual in Tonle Sap environmental education was developed and approved by the Ministry of Education, Youth, and Sports, and an education tool for the management of community natural resources was tested and adopted by the 11 pilot communities and non-project communities. The TSBR-ED was established, and more than 4,000 data and information items were collected and uploaded to the TSBR website.

12. Orthophotomaps¹⁰ on a scale of 1:12,000–1:25,000 were produced for the general TSBR area and three core areas. The quality control technical working group combined representatives from the Ministry of Land Management (through its department of urban planning and construction and department of mapping and geography) and the FiA. Area maps based on the orthophotomaps and detailed documentation were developed and completed for each of the 178 CFOs created under the project. But only 40% of the CFO boundaries were physically marked; the concrete markers that had been designed and manufactured were too heavy to transport to the sites on small wooden boats.

13. The associated TA supported the development of recommendations and comments on the draft Fisheries Law and the Sub-decree on Community Fisheries Management, which resulted in the revision of the law and the sub-decree. The draft Proclamation on Community Fisheries Bylaws and Area Agreements and revised Guidelines for the Establishment of Community Fisheries Management Organizations, both produced under the TA, led to the

¹⁰ Maps based on aerial or satellite photos.

Prakas (Circular) on Guidelines for Community Fisheries (approved by MAFF on 13 July 2007). A draft General Fisheries Plan for Management and Development of the Tonle Sap was also developed in 2004 but was not adopted.

2. Organizing Communities for Natural Resource Management in the Tonle Sap Biosphere Reserve

14. A total of 178 CFOs was organized according to the site selection criteria in the Sub-decree on Community Fisheries and with the participation of stakeholders, through the community fisheries congress¹¹. Efforts were made to have the congress organized regularly to build rapport and strengthen planning. At least 33% of the elected women members had to be present at the meetings. Training in a wide range of topics was organized for commune councils, village chiefs and their deputies, and community fisheries committees and their members to develop the skills and knowledge needed to organize, run, and manage the CFOs. About 87,700 participants from local communities in the target areas attended.

15. All 178 CFOs went through the registration process laid down in the Prakas on Guidelines for Community Fisheries and submitted their lists of membership, bylaws and internal regulations, community fisheries maps, and CFO area agreements and area management plans. The area agreements and management plans define the boundaries and management responsibilities of each CFO area. A total of 191 fish sanctuary sites (1,005 hectares) were established in 161 CFO areas to protect biodiversity, particularly endangered or rare fish species, and increase the population of fish and other aquatic flora and fauna, an important source of livelihood for the local people. While only 40% of the physical marking was completed, signposts and sign stands were successfully installed. Flood forest conservation areas (14,431 hectares, plus an additional 2,110 hectares of replanted areas) were also established in 92 CFO areas. Guardhouses, patrol boats, and materials for patrol activities were provided under the project. Of the 178 CFOs, 173 were registered with the national and local governments and 5 are under review. In addition, the area management plans were integrated into commune development plans.

16. Livelihood activities were not part of the original design, but household livelihood activities were included in the area management plans and began in mid-2007 after technical activities for sustainable livelihood were assessed and a strategy and methods were developed for improving livelihood activities. Income-generating activities, such as fish and earthworm raising, pig and chicken raising, mushroom culture, and vegetable growing, benefited 5,923 households. To generate additional income and revenues for CFO operating budgets pilot ventures in fish hatchery and fingerling development, fish processing and marketing, jasmine production and marketing, organic vegetable production and marketing, and community-based ecotourism were carried out in 31 CFOs from July to December 2008. The livelihood support also provided 11,125 CFO members with potable water, 31 wells and 84 latrines.

3. Building Management Capacity for Biodiversity Conservation in the Tonle Sap Biosphere Reserve

17. Component 3 was financed mainly by the Global Environmental Facility (GEF) and implemented through the United Nations Development Programme (UNDP) under the Tonle

¹¹ A congress is a process specified in the Prakas on Community Fisheries (approved in August 2007) to engage members of a community fishery organization to discuss and make decision in a transparent and participatory manner. A community fishery committee organizes a congress.

Sap Conservation Project (TSCP). The TSCP is ongoing and is due to be completed in June 2011. Three core area management centers were set up in Prek Toal and Boeung Tonle Chmar under the ADB loan. Core area management plans were developed for the three core areas and approved by the Ministry of Environment (MOE). Three more protected areas were identified and area management plans were adopted by the respective commune councils. Limited GEF and government funding, however, kept the area management plans for these other protected areas from being implemented.

18. A biodiversity monitoring program was designed by the Wildlife Conservation Society (WCS). Long-term monitoring has standard protocols including the protection of biodiversity and control of exotic species. In each of 99 selected communes around the Tonle Sap Lake the commune council appointed an environmental focal point team to collect and analyze monitoring data. WCS worked with MOE to develop and set up a rapid response mechanism using MIST, a specialized database program for rapidly assembling data reported by rangers. Field protection activities were integrated into MIST usage protocols, and rangers in all three core areas were given initial training in the use of MIST. The WCS is carrying on biodiversity monitoring under the TSCP. Five nongovernment organizations (NGOs) were recruited to implement a program of alternative livelihood activity for the communities living in the protected areas and their surroundings in five provinces.

19. The three floating centers (GECKO¹² centers) built in Kampong Thom (Stung Sen core area), Pursat, and Kampong Chhnang provinces serve as education centers for the communities and tourists. Linking up with component 1, Live & Learn Environmental Education conducted an environmental education program with the aid of flipcharts for 10 selected communes to increase awareness and identify and promote best practices. Similar campaigns were carried out by other NGOs and the TSBR secretariat. The environmental education materials have been improved and used in the ADB-financed TSSLP.

C. Project Cost

20. At appraisal, the total project cost, including taxes, price and physical contingencies, and service charge, was estimated at \$19.36 million—\$8.77 million in foreign exchange cost and \$10.59 million in local currency cost. The table below shows the budget planned at appraisal and the actual expenditure for each project component at completion.

Project Cost Summary, Estimated and Actual (\$'000)

Component	Budget	Actual	
		Amount	% of Budget
Strengthening Natural Resource Coordination and Planning	4,742	2,247	47.4
Organizing Communities for Natural Resource Management	9,654	8,542	88.5
Building Management Capacity for Biodiversity	4,665	3,799	81.4
Total Project Cost before Service Charge	19,061	14,588	76.6
Service Charge during Construction	298	246	82.6

21. Less than half of the budget for the first component was used because the aerial photography and operating costs turned out to be less than estimated. ADB-financed expenditures amounted to \$10.15 million (about 96% of the \$10.61 million budget). About \$2.053 million was canceled at the end of the project since the US dollar value of the loan had increased to \$12.45 million.

¹² Originally, "Greater Environment Chong Khneas Office."

D. Disbursements

22. The cumulative disbursement of funds from all financiers targeted at appraisal was about 11% in 2003, 51% in 2004, 34% in 2005, 7% in 2006, and 8% in 2007 (see Appendix 3 for details). The negotiations with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) suffered prolonged delays and were eventually fruitless. As a result, disbursements picked up only in the third year of implementation. After loan effectiveness, the Ministry of Finance opened two imprest accounts at the National Bank of Cambodia to speed up the disbursement of the loan proceeds. The operation of the imprest account and the bank's statement-of-expenditure procedures conformed to ADB's disbursement guidelines. But delay in the release of counterpart funds led to the use of the imprest account to temporarily cover government's contribution. The actual disbursements started in 2003 and were completed in 2009. Appendix 4 shows the actual quarterly disbursements of the ADB loan. There are no consolidated records of detailed disbursements of funds from other financiers.

E. Project Schedule

23. Project implementation lagged in the early stages. By the end of 2004 project activities were 6 months to 1 year behind schedule¹³ because of the delayed allocation of counterpart operating funds and setting up of provincial accounts, and an unsatisfactory pre-contract award arrangement with UNESCO and the Food and Agriculture Organization of the United Nations (FAO). After negotiations with UNESCO broke down in the latter part of 2004, a decision was made to seek these services elsewhere. FiA sought improvements in the FAO proposal to meet ADB's minimum requirements for the recruitment of consultants. Negotiations took place in September 2004, with mobilization in March 2005, 6–12 months beyond the date anticipated in the RRP, but still with enough time to complete the 3-year contract within the remaining period. Another delay occurred in the mobilization of the NGO contract under component 2, which did not get under way until mid-2007. Much thought went into the hiring of NGOs for the project, but no agreement was reached until late 2006 (3 years into the project). A contract was awarded in late 2007 and implemented over the remaining period. The project team working with the ADB staff was, however, proactive in minimizing delay and keeping to the overall schedule.

F. Implementation Arrangements

24. MAFF was the executing agency and also implemented the bulk of the project. A project steering committee (PSC) under the MAFF minister advised on project implementation and reviewed progress. Three implementing agencies—the TSBR secretariat, FiA, and the department for nature conservation and protection of MOE—were responsible for implementing components 1, 2, and 3, respectively. A project monitoring and coordination office (PMCO) was set up in the TSBR secretariat to coordinate project operations among the three components, consolidate financial and project progress reporting, and facilitate PSC meetings and ADB review missions. A project implementation office (PIO) was created in each implementing agency to contract and oversee consulting services and procure equipment. Under the supervision of the PIOs, project implementation units (PIUs) of FiA and MOE were established in the five provinces bordering the TSBR. The PIUs did most of the field work, but the TSBR secretariat PIO, which lacked a PIU equivalent, used PIO staff in field work involving analysis of issues, case studies, and public participation. PIO and PIU staff seconded from the executing and implementing agencies were trained and guided by international and national consultants

¹³ ADB. 2005. *Report for Fourth Quarter 2004: Tonle Sap Environmental Management Project*. Sec. II.B. Manila.

hired by the PIOs according to the project administration memorandum¹⁴ to assist in project implementation and operations.

G. Conditions and Covenants

25. No covenant was modified, suspended, or waived during project implementation. In general, the loan covenants were satisfactorily complied with, some with delays (Appendix 5). NGOs were scheduled to be recruited in the second year of implementation but were recruited only in 2007. Counterpart funds were provided but their release was often delayed.

H. Related Technical Assistance

26. At appraisal, an associated TA grant amounting to \$540,000 for Improving the Regulatory and Management Framework for Inland Fisheries (see footnote 3) was proposed. The TA, completed in June 2004, generated valuable output that facilitated the introduction of the Royal Decree on the Establishment of Community Fisheries (effective on 29 May 2005), the Sub-decree on Community Fisheries Management (effective on 20 March 2007), and Prakas on Guidelines for Community Fisheries (approved by MAFF on 13 July 2007). The TA completion report was circulated in August 2004 and the TA was rated *highly successful*.

I. Consultant Recruitment and Procurement

27. The PIOs and PIUs were supported by 16 service contracts—4 awarded through direct selection, 5 through quality- and cost-based selection and 7 through individual recruitment. The selection process and all contracts conformed to ADB's Guidelines on the Use of Consultants (2007, as amended from time to time).

28. UNESCO was selected directly to perform two service contracts under component 1. Because of difficulties in finalizing implementation arrangements, these services were later sourced through quality- and cost-based selection (Louis Berger for TSBR-ED) and direct selection (Live & Learn for the national environmental education and awareness campaign).

29. FAO was selected directly to provide the consulting services under component 2. The consulting firms of Louis Berger and ACIL filled individual project management and policy and strategy adviser positions. FiA retained an individual consultant for the fisheries management adviser position. NGOs, consulting firms, and individuals were retained for various other support services under the contract.

30. Consulting procurement stalled at various stages of the project. The (ultimately unsuccessful) direct selection of UNESCO for the national environmental education and awareness campaign and TSBR-ED slowed down the implementation of these activities in the first year. FAO work was delayed for about 1 year, but remained in step with the overall schedule. NGO contracting under component 2 was delayed until the final year of the project, when Live & Learn was (finally) hired to administer sub-agreements with a single NGO in each of the five provinces in October 2007, leaving a very short period of time too late in the project for implementation. ADB had to intervene to resolve the issues in the selection process.

31. Subcontracts under the TSCP, funded by GEF and Capacity 2015, were administered by UNDP and were therefore not discussed in this report.

¹⁴ ADB. 2003. *Project Administration Memorandum: Tonle Sap Environmental Management Project*. Manila.

32. The use of Voluntary Service Overseas (VSO) personnel was covered by a partnership agreement between the government and VSO. VSO volunteer professionals filled around 25 positions with a term of 1–2 years; five others were recruited by MOE. They made important, generally high-quality contributions in tourism, small grants, and water and sanitation support for CFOs, office and planning skills training, and other areas.

33. Delay in the payment of suppliers was a persistent issue, causing loss of confidence among some suppliers. Some internal government procedures were very time consuming and frustrating to project management personnel, who had to cope with this distraction from the important tasks of monitoring the technical work. Considerable delays resulted from disagreements over FAO's proposed staffing and schedule. FAO was inefficient in finding a timely solution to these issues to the satisfaction of MAFF.

J. Performance of Consultants, Contractors, and Suppliers

34. The consultants' performance was generally satisfactory, although the FAO team leader was replaced twice because of poor performance. Overall, the contractors and suppliers performed well and finished their work on time, despite limitations that were generally outside the control of the contracted parties. No failure or penalties for delay in finishing activities were reported. The procurement of equipment and spare parts, however, was delayed, mainly by internal government processes and conflicting interpretation of procedures. The performance of contractors and suppliers is rated *satisfactory*.

K. Performance of the Borrower and the Executing Agency

35. The minister of MAFF, the executing agency, chaired the PSC. This committee met regularly to advise on implementation, resolve problems that went beyond individual ministerial mandates, and review progress. Overall, the performance of MAFF is rated *satisfactory*.

36. MAFF was responsible for the second-generation imprest account, and it had direct responsibility for monitoring all implementation, administrative, and accounting requirements relating to the operation and use of the funds allocated to the department of fisheries (DOF). MAFF reviewed consolidated project accounts prepared by the PMCO and submitted these to the Ministry of Economy and Finance and to ADB. Overall, the performance of MAFF is rated *satisfactory*.

37. The DOF (which later became the Fisheries Administration) was responsible for all project activities within the jurisdiction of MAFF that were centrally managed: mapping the TSBR, improving regulation and management planning, strengthening the community fisheries development office under the DOF, and evaluating technical packages in support of sustainable livelihood. Overall, the performance of FiA is rated *highly satisfactory*. Indeed, there is enough evidence to suggest that the commitment of the FiA deputy director and PIO head was instrumental in bringing CFO formation to successful completion.

38. The PIUs in the five target provinces were formed by the provincial departments of agriculture, forestry, and fisheries, but they derived day-to-day support from the PIO (within FiA). Overall, the performance of the PIUs is rated *satisfactory*.

39. The Cambodia National Mekong Committee (CNMC) was responsible for overall technical coordination. Its chairman was a member of the PSC. CNMC assigned the day-to-day responsibility for project monitoring and coordination to the TSBR secretariat, whose permanent

deputy became the project coordinator. The PMCO, created by the TSBR secretariat, had full time administrative, financial, and secretarial staff providing day-to-day technical support to the project. Overall, the performance of CNMC and the TSBR secretariat is rated *satisfactory*. However, as noted in para. 50, the secretariat is effectively nonoperational 12 months after the project, and the investment in staff and other resources has not been sustained.

40. MOE was responsible for activities that had to do with building management capacity for biodiversity conservation in the TSBR and implementing the national environmental education and awareness campaign. The MOE minister was a member of the PSC. The TSBR secretariat and MOE collaborated closely. MOE established a PIO.

41. The multiplicity of government departments and agencies responsible for projects with intersecting components, albeit around a common objective, continues to be a problem in Cambodia. Overall coordination was not impressive, largely because of the disparate personal and political agendas of senior staff. A major expectation was the drafting of common policy objectives for managing the TSBR. The existence of two separate ministries and one government agency with quite different mandates and agendas prevented this from happening. Future ADB projects in Cambodia must be more rigorous in analyzing constraints on multi-ministry projects and assessing risk during project design.

L. Performance of the Asian Development Bank

42. ADB fielded 15 missions (11 loan review, 1 inception, 1 midterm review, 1 disbursement, and 1 special administration) during project implementation. Project developments were assessed daily at ADB headquarters. ADB prepared a detailed project administration memorandum to guide implementation (see footnote 13). ADB also explained to the executing and implementing agencies its guidelines and procedures for project implementation, consulting services, procurement, bid evaluation, and disbursement, and provided consistent support to the PMCO and PIO at FiA in the processing of withdrawal applications.

43. ADB effectively supervised implementation and took action where necessary. It acted to address the delay in contract processing by MAFF and the Ministry of Economy and Finance that was blocking contractual procurement and payment processes. It also gave clear direction to PMCO and PIOs on more appropriate approaches to selecting contractors, thereby helping them to overcome the persistent lack of progress in years 1–3.

44. There were no evident problems with ADB procedures. Government agencies and contractors deemed ADB's support timely and its advice appropriate. Overall, the performance of ADB is rated *highly satisfactory*.

III. EVALUATION OF PERFORMANCE

A. Relevance

45. The project was consistent with the government's policy of reforming the fisheries sector in Cambodia, in particular to give local communities access to fishery resources that were formerly the domain of the private sector. Project work to improve the regulation and planning of community fisheries was also relevant, given the adoption of the Royal Decree on the Establishment of Community Fisheries, the Sub-decree on Community Fisheries Management, and the Prakas on Guidelines for Community Fisheries. Moreover, the project was very relevant to strategies for the conservation of endangered or at-risk flora and fauna in the TSBR.

Alternative livelihood models for traditional fisher households showed that workable alternatives do exist. The establishment of 178 CFOs and proof that CFO members, now with an assured local resource base, are highly satisfied clearly show the relevance of the project. Overall, therefore, the project is rated *highly relevant*.

B. Effectiveness in Achieving Outcome

46. The project made a very significant impact on the lives of the people from 50,800 households in and around the Tonle Sap Lake. The certainty created by establishing 178 CFOs with clear responsibility for managing their local habitat in a sustainable way, while at the same time securing a better future through improved livelihoods, highlights the effectiveness of the fundamental premise of the project. The participation of local communities throughout the process greatly strengthened the outcomes. The involvement of schoolchildren through an environmental awareness education program contributed to the long-term success of the initiatives started under the project. Overall, the project is rated *effective*.

C. Efficiency in Achieving Outcome and Output

47. This project significantly improved access to natural resources in the Tonle Sap Basin. Over the 5-year life of the project, the legislative and administrative framework for community fisheries successfully underwent major reforms and 178 CFOs were fully established in an area covering 30% of the Tonle Sap. This achievement is quite remarkable and attests to the commitment of FiA in particular to meet the project output and outcomes.

48. The main output for achieving the primary outcome—the legislative and administrative framework, orthophotomaps and digital images, and CFO agreements—was timely, given the constraints, and cost-efficient.

49. Livelihood and venture activity output was achieved at costs that were within acceptable limits, though the indirect costs of the NGO input were higher than what is normally accepted and efficiency could have been improved. Overall, the project is rated *efficient*.

D. Preliminary Assessment of Sustainability

50. Almost 1 year after project completion, the TSBR secretariat exists but without full-time functionaries, for lack of sustained funding. Its website has not been updated since the end of the project. Project investment in this valuable website is at risk if immediate action is not taken to continue generating and uploading up-to-date information through an appropriate hosting department. The Tonle Sap Authority established by the government has functions that overlap with those of the TSBR secretariat. The approval of the draft Tonle Sap Biosphere Strategy submitted to the Council of Ministers does not appear to be moving forward.

51. The Royal Decree on the Establishment of Community Fisheries, the Sub-decree on Community Fisheries Management, and the Prakas on Guidelines for Community Fisheries provide immutable legislative support for the functioning of CFOs (despite repealing legislation and the strength of private interests in the Tonle Sap). Additionally, 173 formally registered CFOs are backed by a prakas signed by the MAFF minister with full details of each CFO appended. This ensures the sustainability of the CFOs for at least the short to medium term.

52. The CFOs need to develop further their managerial and financial competence to sustain their activities and environmental, livelihood, and quality-of-life interventions. Many CFOs do not

have a sufficient budget for patrols. Under the terms of the Sub-decree on Community Fisheries Management, CFO agreements are valid for only 3 years. All current CFO agreements will therefore expire in December 2011. Without ongoing technical support from the provincial DOFs, some CFOs may be vulnerable and have difficulty continuing.

53. Livelihood activities were ongoing in all villages visited by the PCR team. Revolving credit schemes were still in place and committees continued to function. The main shortcoming of the livelihood activities was the failure to build extension concepts into the program. Although the ecotourism ventures were interesting in concept, in reality much more had to be done to ensure their viability and sustainability. It may also have been a better idea to involve the private sector in managing such a venture, not a large-scale operator interested in large tourist dollars but a small entrepreneur with an eye for detail and innovation. Fish hatcheries set up as a venture activity provided breeding fish stock, thereby successfully creating a viable alternative fish source for fishers accustomed to catching from the lake. Hatchery production could have been increased three- to fourfold with little additional input.

54. The national education and awareness campaign envisaged in the original project design was not in place. This goal may have been too ambitious, since part of the project had a specific geographic focus. Community awareness of the importance of protecting the local environment and preventing depletion of natural resources, particularly fish stock, is potentially sustainable. Many communities now seem to understand the economic importance and benefits. But ongoing awareness and behavior change communication programs are needed to avoid a relapse into previous behaviors.

55. The core area management centers do not seem to be functioning as originally planned. In the case of the core area management center at Prek Toal the relatively new fixed structure already needs major repair and maintenance. The state-of-the-art solar power system is totally unserviceable, yet MOE does not plan to maintain or repair it. The financial disclosure of the center's income and expenditure was an issue during project implementation. With ongoing technical support from the Wildlife Conservation Society under the TSCP, progress has been made in standardizing visitor fee protocols to manage and allocate income for center activities. Financial disclosure to all parties specified in the approved core area management plan has not yet been implemented.

E. Impact

56. Identifying the impact of the project on socioeconomic and environmental conditions would require pre- and post-project assessments of the state of the TSBR environment and standard-of-living profile across all project provinces. As no provision was made for this process in the project design, there has been no formal assessment of outcomes or impact. However, output assessments bring out the following:

- (i) The increased participation of local communities in resource management and conservation through community fisheries and general awareness has had a positive impact on the sustainable use of Tonle Sap resources, at least on a local scale.
- (ii) Increased forest protection and decreased illegal forest cutting and burning of flooded forest have at least preserved, and to some extent extended, the forest cover, and have thereby had an important positive impact on fish breeding.

- (iii) Improved wildlife conservation and protection of local native fauna has increased wildlife population and species (WCS data may be available to support this observation).
- (iv) Respect for fish sanctuaries and CFO boundaries, combined with wider recognition of the harm caused by illegal fishing methods, has decreased illegal fishing, increased the quantity and size of regularly caught fish species, and led to the return of rare fish species (anecdotal evidence from local CFO members is the main source of this assessment of positive impact).
- (v) The empowerment of local communities, through their involvement in the establishment of CFOs and the subsequent formal recognition of community rights over fishing areas, has reduced the disputes and confusion.
- (vi) The livelihood of local communities has gradually improved, though their technical skills and knowledge are not yet self-sustaining.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

57. The project was successfully implemented in line with the arrangements envisaged at appraisal and detailed in the RRP. The delays caused some frustration but were eventually overcome and all activities were carried out. The project contributed to the decentralization of natural resources management by improving the enabling environment (Fisheries Law, Sub-decree on Community Fisheries Management, Prakas on Guidelines for Community Fisheries, Tonle Sap Biosphere Strategy, core area management plans). The successful establishment of 178 CFOs with clearly defined responsibilities and boundaries not only accords with the spirit of decentralization and deconcentration but is also a pathbreaking achievement, both for Cambodia and for the rest of the world. Natural resource protection improved through support for livelihood activities as an alternative to fishing in the Tonle Sap. Area management plans were incorporated into many commune development plans. The environment education awareness program prepared with project support has the potential for use in the national school curriculum. Overall, the project is rated *successful*.

B. Lessons

58. The project can point to the setting up of CFOs and the empowerment of local communities as huge successes in the short and medium term. However, in the long term, the CFOs may come under considerable pressure from outside interests without technical and moral support from FiA provincial teams in the field.

59. Cross-ministerial implementation of projects brings complications beyond just day-to-day technical issues. Experience shows this to have been the case with other projects. TSEMP experienced many delays caused by having to obtaining agreement and approval across departments.

60. Alternative livelihood programs, while functioning satisfactorily, were focused on individual households, with little built-in capacity for extension. Small-scale livelihood activities must be appropriate to the situation. TSEMP has shown that the most successful small-scale activities are those that people themselves can sustain, given their income, time, and material constraints. Training is a necessary part of livelihood work, particularly if the participants have no previous experience.

61. Overall, the project outcome appears successful. However, an important opportunity was missed. The project did not establish a recognized baseline with pre- and post-project comparisons to demonstrate to ADB, the government, and key stakeholders the natural resource management, environmental, community, and economic benefits. It would have been possible to provide well-documented evidence that the project had achieved its primary goal.

C. Recommendations

1. Project-Related

62. The provincial DOFs must provide the CFOs with continued field-based technical support to sustain their capacity to operate and manage their defined areas, and to guide them in dealing with emerging issues. The physical demarcation of boundaries for the remaining 114 CFOs should be completed as soon as possible.

63. The 178 CFOs must have continued support from FiA and the provincial DOF to go through the election process and start preparing their area management plans for 2012–2014.

64. Close coordination should be maintained with the ongoing TSSLP to provide continuous financial support to the CFOs under TSSLP and strengthen their managerial and financial competence.

65. ADB should facilitate follow-up action from by FiA or FAO to ensure that the demarcation boundary posts for the remaining 114 CFOs are installed as soon as possible.

66. CNMC and other ministries and government institutions must engage in dialogue to identify and agree on urgent action to continue the TSBR-ED website.

2. General

67. Future projects should have simpler implementation arrangements. It is important to assess and describe comprehensively as well as in detail the assumptions and risks associated with sustained government commitment to strategic initiatives after the project. The project design should include a phaseout strategy for securing investments.

68. Alternative livelihood activities provide poor communities with sustainable alternative sources of income and make them less dependent on natural resources, thereby helping to protect the Tonle Sap Biosphere environment and biodiversity. Therefore, livelihood support is necessary as an important natural resource management strategy. However, the objective and design of livelihood activities—the types of interventions and their scale, duration, targeted beneficiaries, and mode of implementation, with clear output and outcome indicators—must be carefully considered as part of the overall design of a project. Livelihood support for households may improve their situation but its sustainability is uncertain. Without a comprehensive baseline at the household level, assessing the output and outcome of such household-based livelihood support is also difficult. Small-scale ventures pilot-tested under TSEMP were alternative income-generating activities for CFO members that could also contribute revenues to sustain CFO operations. While some of the ventures are still ongoing, the development of appropriate economies-of-scale ventures requires careful market assessment, training, and private sector involvement.

69. In future projects a comprehensive baseline study on the status of the project target area and the communities should be clearly required, and specific indicators set as goals for the project.

70. The government should release counterpart funds on time to avoid having to use imprest funds to temporarily cover the government's contribution.

PROJECT PERFORMANCE AGAINST INITIAL DESIGN FRAMEWORK

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
Goal Sustainable management and conservation of natural resources and biodiversity in the Tonle Sap Basin	Systems and capacity for natural resource management and biodiversity conservation are in place and functioning	Contributed to the Common Property Resources (CPR) management and regeneration through improved regulatory and policy framework, empowerment of community fisheries, and improved access to information.	178 CFOs still active and operating to manage and protect their management boundary.
Objective 1.1 To enhance systems and develop the capacity for natural resource management coordination and planning, community-based natural resource management, and biodiversity conservation in the Tonle Sap Biosphere Reserve (TSBR)	1.1 Natural resource management coordination and planning strengthened by the end of year 5 1.2 Community-based natural resource management in the TSBR facilitated by the end of year 5 1.3 Management capacity for biodiversity conservation in the TSBR built by the end of year 5	1.1 Due to a creation of Tonle Sap Authority, the coordination role of Tonle Sap Biosphere Reserve was diminished. 1.2 Awareness and ownership of natural resources management in the TSBR were strengthened through a creation of 178 CFOs and demarcation of CFOs management boundaries. 1.3 Management Plans for 3 protected areas and biodiversity monitoring are in place by utilizing the monitoring tools developed under the project.	The roles and responsibilities between TSA and TSBRS are not clearly defined.
Component 1: Strengthening Natural Resource Management Coordination and Planning for the Tonle Sap Biosphere Reserve (TSBR)			
1.1	Establish a coordination framework and information dissemination mechanisms.		
1.1.1 Strengthen the TSBR secretariat's structures and facilities.	TSBR secretariat structures and facilities strengthened by the end of year 1	Secretariat office was established at MOE; relocated to former MRC building by the end of year 2; fully equipped office, with administrative staff and facilities to effectively coordinate project work and set out and implement TSBR policy and strategy	12 months after project completion the TSBR secretariat exists in name only; there are no full-time functionaries working at the TSBRS office and therefore none of the functions established under TSEMP are ongoing. Lack of ongoing (external) funding is given as the primary reason for this situation.
1.1.2 Create the TSBR secretariat's capacity to address legal and policy issues.	Policy, strategy, and networking division of the TSBR secretariat strengthened by the end of year 1	Staff seconded from line agencies; received training from international and domestic policy advisers, project management advisor and VSO staff. Liaison and field work related to common policies was carried out. Policy coordination issues were processed with varying capacity.	See above comment.

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
1.1.3 Formulate common policy objectives for management of the TSBR.	Common policy objectives formulated by the TSBR secretariat by the end of the first quarter of year 2, and quarterly interministerial meetings held to refine and adopt them by the end of year 2	<p>Five national and provincial workshops formulated and reviewed TSBR common policy and strategy. Set of common policy objectives and strategy for implementation refined and evaluated among national and provincial stakeholders. Draft TSBR strategy submitted to COM.</p> <p>Land use classification achieved agreements on land use in 9 communes involving all relevant local officials, providing a planning guideline that has been tested in the field.</p>	<p>Approval for TSBR strategy not obtained from COM.</p> <p>Agreements not replicated and future application of the process uncertain.</p>
1.1.4 Develop a TSBR Environmental Information Database (TSBR-ED).	Service provider appointed by the end of the third quarter of year 1, TSBR-ED operational by the middle of year 2, and TSBR-ED continuously updated thereafter	<p>TSBR-ED consultant was mobilized early in year 3, and the website was established and made operational early in year 4.</p> <p>MOU signed with MLMUPC, MIME, MOT, MPWT, MOH, MOE, MOP, provincial governors' offices, CDC, and CARD (MAFF did not sign) to facilitate access to information for inclusion on the website.</p> <p>TSBR Bulletin published yearly; 5 editions from Jun 06 to Dec 08.</p>	<p>Website development and public access delayed beyond target by difficulties in obtaining access to data.</p> <p>Website remained functional at time of PCR with limited funds from UNDP (TSCP). However, the website has not been updated since the end of the project and all contact references on the website are nonfunctional; most recent "news and events" entry is dated Feb 08.</p> <p>Website investment is at risk without immediate action to ensure an appropriate hosting department.</p>
1.1.5 Formulate and implement a national environmental education and awareness campaign.	Service provider appointed by the end of the third quarter of year 1, and environmental education messages formulated by the middle of year 2 and disseminated through appropriate media outlets and schools from the middle of year 2	<p>NEEAC was satisfactorily executed by Live & Learn from the middle of year 2 to early year 4 and final report submitted. Main output: (i) education tool (flip chart) for pilot-testing in 10 communities and adopted by other non-project communities; (ii) Tonle Sap Environmental Education Teacher's Manual approved for trial by MOEYS; (iii) eco-club established in pilot school and replicated in other schools; (iv) media toolkit/guide prepared to promote awareness of the TSBR and core areas.</p> <p>Materials were extended for use in the Mobile Community Outreach (MCO) program under component 3.</p>	<p>Tonle Sap Environmental Education Teacher's Manual continues to be used with support from TSSLP with long-term plan to integrate it into the national textbook curriculum.</p> <p>However, at completion of TSEMP a "national" education and awareness campaign was not in place.</p>

Design Summary		Performance Indicators and Targets	Output	Achievements and Comments
1.2 Map the TSBR				
1.2.1	Prepare orthophotomaps on a scale of 1:5,000 from new aerial photographs on a scale of 1:25,000.	Aerial photography completed by the middle of year 2 and orthophotomaps prepared immediately thereafter	Aerial photography, processing of the orthophotomaps, and digitizing work were successfully carried out in years 2–4.	The task proved more complicated than planned, with completion delayed until the middle of year 4; this had a direct bump-on effect on the completion of the CFO area mapping task.
1.2.2	Define biosphere zone and boundaries of commercial and community fishing lots, fish sanctuaries, administrative regions, and physiographic features.	Biosphere zoning and other boundaries defined from the middle of year 2 and zoning maps prepared by the end of year 2	Boundary mapping of 178 CFO areas was completed and approved by local authorities.	Area maps for each CFO were completed but the important physical demarcation (posting) was only about 40% completed. The transportation of the posts was the main limiting factor, given their heavy weight. An understanding with another development agency to complete demarcation did not bear fruit.
1.3 Improve regulation and management planning.				
1.3.1	Prepare, complete, or as necessary amend the Fisheries Law and its associated sub-decrees, proclamations, and directives or circulars and develop the 5-year Tonle Sap fisheries management plan.	Regulatory framework prepared, completed, or amended and 5-year Tonle Sap fisheries management plan developed by the middle of year 2	Detailed recommendations for improving the regulatory framework for fisheries and a 5-year General Fisheries Management Plan were prepared under TA 3993-CAM. <ul style="list-style-type: none"> - Royal Decree on the Establishment of Community Fisheries, effective on 29 May 05 - Sub-decree on Community Fisheries Management, effective on 20 Mar 07 - Prakas on Guidelines for Community Fisheries, approved by MAFF on 13 Jul 07 	Better regulatory and policy framework in place due to the introduction of revised Fisheries Law, sub-decree on Community Fishery Management and Prakas on guidelines for community fisheries General Fisheries Plan for Management and Development of the Tonle Sap, completed by FAO in Apr 04 but not approved or adopted.
1.3.2	Set standards and guidelines for formulation of community and commercial fisheries management plans.	Standards and guidelines for formulation of community and commercial fisheries management plans set by the end of year 1 and disseminated thereafter	9 basic documents covering legislative and management issues and recommendations were prepared.	Guidelines and methodology were developed through a comprehensive process and tested through the establishment of 178 CFOs.
1.3.3	Build the capacity of the community fisheries development office (CFDO) within the department of fisheries (DOF)	Six key staff of CFDO trained by the middle of year 2 and study tours conducted by the middle of year 3	Members of staff of the CFDO and the PIUs in DOF received training under the UNDP Capacity 2015 program grant (including regional study tour for CFDO staff).	

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
Component 2: Organizing Communities for Natural Resource Management in the Tonle Sap Biosphere Reserve			
2.1 Formulate an implementation structure			
2.1.1 Refine the approach to community organization.	Previous approaches to organizing communities for natural resource management reviewed, preferred approach refined, and service provider appointed by the end of year 1	The Prakas on Guidelines for Community Fisheries was approved in August 2007.	Approach to community fisheries is institutionalized.
2.1.2 Strengthen provincial office structures and facilities in the five project provinces.	Provincial office structures and facilities strengthened by midyear 2	The rehabilitation of PIUs was completed on time.	Ongoing role of PIUs to support CFOs is weakened by lack of adequate government budget.
2.1.3 Implement a training program for staff of relevant provincial line agencies.	In each of the five project provinces, 16 staff from the Department of Agriculture, Forestry, and Fisheries, 4 staff from the Department of Environment, and 4–5 staff of selected nongovernment organizations (NGOs) nominated and trained by the end of year 2	Training provided to all target groups under contract with FAO and UNDP Capacity 2015 program, on the basis of Training Needs Assessment carried out by FAO team.	
2.1.4 Develop a selection process and identify communities for organization.	Fisheries and forestry communities identified in each project provinces by the end of year 2	Draft classification systems prepared and a final community fisheries site classification system approved at a workshop held in the first quarter of year 3	178 CFOs were selected and established.
2.2 Empower communities.			
2.2.1 Activate commune councils and appropriate village structures for natural resource management.	Commune council and village-level meetings address natural resource management by the end of year 2	Commune councils, local authorities, and community actively involved in CFO consultation, formation, and capacity building.	
2.2.2 Conduct community organization for natural resource management.	Commune councils and village structures actively networking by the middle of year 3 with support from NGOs (e.g., Community Aid Abroad, Leucaena Japonica, Southeast Asia Development Program, Community Capacity for Development)	Original focus of establishing community organizations was expanded to include livelihood activities under natural resource management. Livelihood activities were successfully implemented under FAO and Live & Learn (L&L) contracts with high level of community participation in decision making.	Pilot venture activities were all implemented as designed, though with mixed success. Ecotourism centers struggle to continue because of lack of skill and knowledge of committees. Agricultural activities including mushroom and jasmine farming have been successful pilot ventures, with all activities ongoing 12 months after the project.

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
2.2.3 Review boundaries and describe community resources rights.	Agreements and endorsements on boundaries and resource rights obtained not later than the end of year 3	Boundary delineation was completed through digitization and resources mapping, and was incorporated into community fisheries area maps for all 178 CFOs.	<p>Formal endorsement of agreements and boundary maps did not occur until second to last day of the project (Prakas 619, dated 30 Dec 08). 5 CFOs missed the cutoff date, resulting in only 173 of 178 CFOs being formally registered under Prakas 619.</p> <p>Project Completion Review mission (12 months after the project) observed that all CFOs met continued to function and demonstrated high degree of awareness of legal rights and responsibilities with technical skills to protect fish sanctuaries and patrol within their boundary.</p> <p>However, lack of financial resources beyond the project period and limited capacity to raise funding have a major effect on sustainability of CFO operations.</p>
2.2.4 Encourage formulation by communities of natural resource management plans.	Formulation of natural resource management plans by communities encouraged from year 3	Draft technical guidelines on natural resource management planning were developed and tested for 5 CFOs in Battambang province. Participatory natural resource management was carried out by FAO, PIU staff, and VSO and 178 CFOs were assisted in preparing area management plans. Implementation of plans was carried out under the FAO and L&L contracts.	
2.2.5 Conduct independent progress audits.	Independent progress audit reports submitted yearly from the end of year 2	FiA regular progress reports on CF outcomes formed the basis of ongoing monitoring and audit.	
2.3 Evaluate Technical packages in support of sustainable livelihoods.			
2.3.1 Survey previous and ongoing approaches to technical packages based on sustainable natural resource management	Technical packages for sustainable fisheries, aquaculture, agro-forestry, and community forestry surveyed by the end of the third quarter of year 2	FAO team with the PIUs conducted participatory design of sustainable livelihood alternatives at village level in all target provinces.	Livelihood training was targeted at the individual level and resulted in limited impact in terms of sustainable increase in income and application of knowledge and skills gained.

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
<p>2.3.2 Recommend selected technical packages based on sustainable natural resource management for replication or further development.</p> <p>2.3.3</p>	<p>Selected technical packages recommended for replication or further development by the end of year 2</p>	<p>25 CFOs in 5 provinces received support for protection of natural resources and livelihood activities through domestic NGOs.</p>	
Component 3: Building Management Capacity for Biodiversity Conservation in the Tonle Sap Biosphere Reserve			
3.1 Enhance capacity for management.			
<p>3.1.1 Establish and equip protected area management units and core area management centers.</p>	<p>Two protected area management units and three core area management centers established and equipped by the middle of year 2</p>	<p>Two Core Area Management Centers are established and two Protected Area Management Units were equipped, and functioning.</p>	<p>12 months after project completion Prek Toal Center is not functioning as planned; the relatively new fixed structure is already in need of major maintenance; the state-of-the-art solar power system is totally unserviceable.</p> <p>Financial disclosure by center of income and expenditure remains an issue, though progress has been made in preparing fee protocols,</p>
<p>3.1.2 Institute a process for identifying additional core areas and fish sanctuaries.</p>	<p>Identification process for additional core areas and fish sanctuaries instituted by the end of year 2 and applied continuously thereafter</p>	<p>Core area management plans developed for Prek Toal, Stung Sen, and Boeung Tonle Chmar were approved by the MOE. Three additional protected areas were identified and approved by commune councils.</p>	<p>Management plans for 3 additional core areas were in place but had not been implemented because of limited funding from GEF and the government.</p>
<p>3.1.3 Formulate and implement staff training for protected area management and biodiversity conservation.</p>	<p>Training needs analysis conducted by the third quarter of year 2 and annual training program implemented from year 3 until the end of year 5</p>	<p>Domestic and international training specialists were appointed by the end of year 2. Six training modules provided to 88 rangers from the three core areas and 74 technical and management staff from Provincial Department of Environment and Fisheries. Study tours were made to Kenya and Bangladesh.</p>	

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
3.2 Develop systems for monitoring and management.			
3.2.1 Design and implement a biodiversity monitoring system.	Indicator species for monitoring system identified by the fourth quarter of year 1, system designed by the end of year 1, and system implemented from year 2	A biodiversity monitoring program was designed by Wildlife Conservation Society with emphasis on waterbirds and water snakes. Long-term monitoring has a standardized protocol including protection of biodiversity and control of exotic species. Ninety-nine communes around the Tonle Sap lake were selected and environmental focal point team was appointed by each commune council for data collection and analysis/monitoring. Land use and community buffer zone monitoring was carried out.	
3.2.2 Establish a rapid response mechanism for seasonal protection of biodiversity.	Fully resourced rapid response team in operation by the end of year 2	WCS worked with MOE to develop and establish a rapid response mechanism. Data recording uses MIST, a specialized database program for rapidly assembling data reported by rangers. Field protection activities were integrated into MIST usage protocols and initial training in the use of MIST was provided to rangers at all three core areas.	Wildlife Conservation Society reports this is continuing under UNDP-funded Tonle Sap Conservation Project.
3.2.3 Develop a strategy, carry out an awareness campaign for the control of exotic species, and conduct management trials.	Strategy and campaign in place by the fourth quarter of year 2 and management trials operational by the end of year 2	By the end of year 3, PIO and PIU had completed a field survey to identify threats to the Boeung Tonle Chhmar and Stung Sen core areas and proposed Prey Koh biodiversity conservation area in collaboration with WCS.	Completed.
3.2.4 Develop and implement a strategy to enforce laws and regulations in and around the core areas and other important sites.	Strategy in place by the end of year 2 and enforcement operational after that	Patrol teams were established to prevent wildlife poaching in the core areas.	Ongoing under TSCP (UNDP) and TSSLP

Design Summary	Performance Indicators and Targets	Output	Achievements and Comments
3.2.5 Identify income-generating activities that directly threaten biodiversity in the core areas and develop alternative livelihoods to modify these activities.	Detrimental activities identified by the fourth quarter of year 2, alternative livelihoods developed by the end of year 2 and disseminated thereafter	5 NGOs were recruited to implement a program of alternative livelihood activity in 5 provinces; implementation began in year 3. Concepts and successful technology were replicated in an expanding area.	
3.3 Promote biodiversity conservation awareness, education, and outreach.			
3.3.1 Develop and implement an environmental awareness, education, and outreach program (EAEOP) for the TSBR.	EAEOP developed and implemented by the end of year 2	With support from MOE and PIU, Live & Learn implemented Mobile Community Outreach (MCO) program and prepared extension materials and content for MCO presentations in TS lake communities. Target population included commune councils, civic groups, and schoolchildren in 131 communes in the 5 provinces, with 22 communes identified as priorities. This outreach program was linked to environmental education in component 1. Implementation began in the middle of year 5.	L&L has improved materials with TSSLP support.
3.3.2 Provide floating environmental education centers.	Four floating environmental education centers provided by the middle of year 2	Three floating centers built in Stung Sen Core, Pursat, and Kompong Chhnang provinces serve as education centers. The GECKO Center at Chong Kneas was refurbished and equipped with new display panels.	
3.3.3 Incorporate the EAEOP into selected schools around the TSBR.	EAEOP incorporated in the cluster schools program of the Ministry of Education, Youth, and Sports from year 3	Manuals and textbooks were finalized and endorsed by MOEYS. Training of trainers was conducted and the school program implemented. With department(s) of the MOEYS and other partner agencies the program established a cooperative approach to integrating materials into the existing curriculum of "Local Life Skills", thus making the program fundamentally sustainable.	Ongoing success of this work not known

CARD = Council for Agriculture and Rural Development, CDC = Council for the Development of Cambodia, CFO = Community Fisheries Organization, COM = Council of Ministers, FAO = Food and Agriculture Organization, FiA = Fisheries Administration, GEF = Global Environmental Facility, MAFF = Ministry of Agriculture, Forestry and Fisheries, MIME = Ministry of Industry, Mines and Energy, MIST = Management Information System, MLMUPC = Ministry of Land Management, Urban Planning and Construction, MOE = Ministry of Environment, MOH = Ministry of Health, MOP = Ministry of Planning, MOT = Ministry of Tourism, MPWT = Ministry of Public Works and Transport, NEEAC = National Environmental Education and Awareness Campaign, PCR = project completion review, PIU = Project Implementation Unit, UNDP = United Nations Development Program, VSO = Voluntary Service Overseas.

Source: Asian Development Bank.

ASSESSMENT OF PROJECT OUTPUT

A. Component 1: Strengthening Natural Resource Management Coordination and Planning for the Tonle Sap Biosphere Reserve

1. Output 1 of component 1 involved the establishment of a coordination framework and information dissemination mechanisms. The Tonle Sap Biosphere Reserve (TSBR) secretariat office was established in the Cambodia National Mekong Committee (CNMC) and relocated to the former Mekong River Commission building. There was a fully equipped office, with administrative staff and facilities to effectively coordinate project work and set out and implement TSBR policy and strategy. Staff were seconded from line agencies to the TSBR secretariat and received training from international and domestic policy advisers, the project management adviser, and Voluntary Service Overseas (VSO) staff. Liaison and field work related to common policies was carried out. Policy coordination issues were processed with varying aptitude. Five national and provincial workshops were conducted to formulate and review TSBR common policy and strategies. A set of common policy objectives and strategy for implementation was refined and evaluated by national and provincial stakeholders. The draft TSBR strategy was submitted to the Council of Ministers. The project completion review (PCR) team noted that, 12 months after project completion, the TSBR secretariat existed in name only; no full-time functionaries were working at the secretariat office and therefore none of the functions established under TSEMP were ongoing. The lack of ongoing (external) funding was given as the primary reason for this situation. The PCR team also learned that the government had established the Tonle Sap Basin Authority, with some functions duplicating those of the TSBR secretariat.

2. Another key activity under output 1 was the development of a TSBR Environmental Information Database (TSBR-ED). A consultant was mobilized by the TSBR secretariat early in year 3, and the TSBR-ED website was established and operational early in year 4. The scope of this website was expanded beyond the environment to include information and data on communes, community fisheries organizations (CFOs), agriculture, and rural development. A memorandum of understanding was signed with Ministry of Land Management, Urban Planning and Construction, Ministry of Industry, Mines and Energy, Ministry of Tourism, Ministry of Public Works and Transport, Ministry of Health, Ministry of Environment, Ministry Of Planning, provincial governors' offices, Council for the Development of Cambodia and Council for Agriculture and Rural Development (the Ministry of Agriculture, Forestry, and Fisheries [MAFF] did not sign) to facilitate access to information for inclusion on the website. Website development and public access were delayed beyond the target by difficulties in obtaining access to data. With limited funds from the United Nations Development Programme (UNDP, under the Tonle Sap Conservation Project [TSCP]) to pay for website hosting, the website remains just barely operational 12 months after the project. The PCR team noted that the website had not been updated since the end of the project and all contact references on the website are non-functional; the most recent "news and events" entry is dated February 2008. Many links on the website no longer work. Project investment in this valuable website is at risk without immediate action to ensure an appropriate hosting department.

3. The formulation and implementation of a national environmental education and awareness campaign was another significant output under component 1. The campaign was satisfactorily executed by the subcontracted nongovernment organization (NGO) Live & Learn from the middle of year 2 to early in year 4 following a tortuous and drawn-out selection

process.¹ The output consisted mainly of the following: (i) education tool (flip chart) for pilot-testing in 10 communities, adopted by other non-project communities; (ii) Tonle Sap Environmental Education Teacher's Manual approved for trial by Ministry Of Education, Youth and Sports; (iii) eco-club established in a pilot school and replicated in other schools; and (iv) a media toolkit/guide to promote awareness of the TSBR and core areas. Materials were extended for use in the Mobile Community Outreach (MCO) program under component 3. The Tonle Sap Environmental Education Teacher's Manual continues to be used with support from the Tonle Sap Sustainable Livelihoods Project (TSSLP) with a long-term plan to integrate this manual into the national textbook curriculum. However, the PCR team noted that, at project completion, a "national" education and awareness campaign was not in place as envisaged in the project design and monitoring framework (DMF). This goal may have been a little too ambitious for this part of the project with a specific geographic focus.

4. Output 2 of this component—the mapping of the TSBR—was central to being able to define boundaries for CFOs. The Fisheries Administration (FiA) contracted a consortium headed by PASCO-FINNMAP for technical services in aerial photography and map production. The contractors cooperated closely with FiA in preparing a proposal for the approval of the government to import a temporary airplane to Cambodia for aerial photography of the target area. Orthophotomaps were produced for six areas covering 1.76 million hectares on a scale of 1:25,000 and for 430,000 hectares of core area on a scale of 1:12,000.² The quality control technical working group consisted of representatives from the Ministry of Land Management, and the departments of urban planning and construction department and of mapping and geography. The data were to be reexamined for the project, according to the contract. This activity resulted in the production of the CFO boundary maps. A contract for the application of the maps, including CFO zoning and geographic information system (GIS) references, was awarded to Daruma Technologies. Area maps and detailed documentation were completed for each of the 178 CFOs. However, by the end of the project the important physical demarcation (posting) was only about 40% complete. The concrete markers, as designed and already manufactured, were very heavy and difficult to transport to the sites on small wooden boats; this was given as the main reason the task was not completed. An understanding with another development agency to complete post installation did not bear fruit, so the posts remain in storage. Further follow-up from FiA or the Food and Agriculture Organization of the United Nations (FAO) is necessary to ensure that the remaining boundary posts are installed.

5. Output 3 of component 1 called for improvements in the regulatory and management framework to support community fisheries. The success of this component was absolutely central to the success of component 2 as it would provide the fundamental underpinning for the establishment of CFOs. This work was carried out by FAO and independent consultants under the associated TA3993-CAM project.³ The technical assistance completion report⁴ noted that TA outputs were generated efficiently, effectively, and on time. The most valuable output included (i) comments and recommendations on the draft Fisheries Law and its Sub-decree on Community Fisheries Management, (ii) the draft Proclamation on Community Fisheries Bylaws and Area Agreements, (iii) revised Guidelines for the Establishment of Community Fisheries

¹ The Asian Development Bank (ADB) review mission had to intervene to resolve the impasse resulting from the preselection of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) by the TSBR secretariat and MOE.

² Higher definition was required for core zone areas.

³ ADB. 2002. *Technical Assistance to Cambodia for Improving the Regulatory and Management Framework for Inland Fisheries (TA 3993-CAM)*. Manila.

⁴ Prepared by O. Serrat, then Senior Project Economist with the Agriculture, Environment and Natural Resources Division, Mekong Department (MKAE).

Management Organizations, and (iv) General Fisheries Plan for Management and Development of the Tonle Sap. The practical outcomes were:

- (i) Royal Decree on Establishment of Community Fisheries, effective on 29 May 2005;
- (ii) Sub-decree on Community Fisheries Management, effective on 20 Mar 2007;
- (iii) Prakas on Guidelines for Community Fisheries, approved by MAFF on 13 July 2007; and
- (iv) General Fisheries Plan for Management and Development of the Tonle Sap, completed by FAO in April 2004, but not approved or adopted.

6. Output 3 also produced an important document that reviewed selected physical, biological, and human components of the fisheries of the Tonle Sap Basin.⁵ No comprehensive summary or review of the fisheries of Tonle Sap had been published since the 1950s; this document was therefore seminal and in effect could have been the “baseline” for the state of the Tonle Sap Basin area. No similar follow-up review was conducted at the end of the project. Given the fundamental premise of the project—the “sustainable management and conservation of natural resources and biodiversity in the Tonle Sap Basin”—such comparative reviews 5 years apart would have made sense.

B. Component 2: Organizing Communities for Natural Resources Management in the Tonle Sap Biosphere Reserve

7. The entire component was the responsibility of FiA, which contracted FAO to provide technical support for the implementation of the activities. This component also included livelihood support, which was implemented by FiA with technical support from FAO and VSO. FiA also subcontracted the implementation of part of the livelihood component to Live & Learn as the umbrella NGO.

8. Output 1 of this component involved formulating and putting in place an implementation structure for the establishment of CFOs. FiA established a project implementation office (PIO) in Phnom Penh and five project implementation units (PIUs) in the fisheries cantonment offices of Kampong Chhnang, Pursat, Battambang, Siem Reap, and Kampong Thom provinces. The PIUs assigned a total of 72 persons to the project. Each PIU was supported by 2–3 national technical specialists, 2 FAO (project support office [PSO]) counterparts, and a VSO professional. The PSO in Siem Reap was led by an international technical adviser as team leader and a national technical specialist as deputy team leader. A total of 34 persons worked in the PSO. Provincial capacity was strengthened through training relevant to PIU personnel, fisheries and environmental sectors personnel, and the NGOs, summarized in Table A2.1. The PCR noted, however, that the ongoing role of the provincial department of fisheries in providing technical support to CFOs beyond the end of the project was quite weak primarily because of the lack of adequate government funding. Boats purchased for the project and intended for ongoing FiA field work have not been adequately maintained and at least one is unserviceable just 12 months after project completion. The role of FiA in providing outreach support should receive urgent consideration by all concerned parties and a strategy should be implemented for supporting CFOs to sustain the structure and prevent its disintegration.

⁵ Garry Bernacsek et al. 2003. *Review of Environment, Fish Resources and Fisheries of the Tonle Sap*. FAO.

Table A2.1: Training for Provincial PIU Staff and NGOs

Topic	Duration (days)	Number of Participants
Establishment of CFO action plan	6	67
Training of trainers	4	72
Basic geographic information system (GIS)	13	15
Participatory resources map	3	55
CFO boundary delineation	6	33
Use of GPS	2	35
Facilitation skills	6	60
Two-way communications	2	45
Active listening in group facilitation processes	1	45
Impact of uncontrolled pesticide use on aquatic resources	2	50
Flooded forest management in TSBR	3	67
CFO bylaws and internal regulations	3	67
CFO area agreement	1	67
CFO area management plan	3	82
Community environmental management planning	4	58
Conflict resolution in CFO	3	68
Establishment of CFO fish sanctuary	2	65
CFO fund management and growth	3	84
Participatory planning for complementary sustainable livelihoods	3	67
Total	70	1,102

CFO = Community Fishery Organization, GPS = Geographic Positioning System, NGO = Non Government Organization, PIU = Provincial Implementation Unit, TSBR = Tonle Sap Biosphere Reserve.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

9. Training in a wide range of topics was organized for commune councils, village chiefs and their deputies, community fishery committees, and CFO members, with some 35,864 participants attending (see Table A2.2). The purpose of these courses was to provide the skills base necessary to establish community fisheries.

Table A2.2: Training for Local Authorities, CFOs, and CFMs

Type of Training	Duration (days)	No. of CFOs Attending	Total No. of Participants
Good communication/CFO facilitation	2	30	775
Flooded forest management	2	115	3,605
Fundamental GIS	2	37	571
Report/Minutes writing	1	164	3,059
Conflict resolution in CFOs	1	28	1,195
Action and management planning	4	115	5,561
Proposal writing and accounting	2	49	1,875
Use of chemicals and pesticides on crops	1	38	1,578
Production and use of EM	2	30	977
Vegetable and jasmine planting	2	77	2,130
Mushroom planting	2	33	902
Fish raising in pond and rice field	2	73	3,293
Fish hatching and fingerling nursery	1	14	245
Earthworm and frog raising	1	31	667
Pig, cow, and goat raising	1	26	791
Chicken and duck raising	1	67	2,450
Hygienic quality fish (<i>naim</i>) and shrimp processing	2	2	134
Community-based ecotourism	2	2	114
Establishment of CFO fish sanctuary	1	18	395
Investment plan for livelihood	1	15	285
System of rice intensification (SRI)	1	21	882

Type of Training	Duration (days)	No. of CFOs Attending	Total No. of Participants
Strategic planning and small-scale credit	1	29	851
Preparation of CF congress	1	38	1,415
Preparation of founder group	1	23	527
Flooded forest and fruit tree planting	1	2	96
Roles and responsibilities and rights of CFOs	1	52	1,355
Environmental management and water filter use	1	10	136
Total			35,864

CF = Community Fishery, CFM = Community Fisheries members, CFO = Community Fisheries Organization, EM = Effective Microorganism, GIS = Geographic Information System.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

10. Training courses were also held to disseminate information on the legal instruments related to natural resource management and establishing community fisheries (see Table A2.3). About 87,700 participants from local communities in the target area attended these courses.

11. Draft CFO classification systems were prepared and a final community fisheries site selection process was approved. Selection criteria were based on the Sub-decree on Community Fisheries Management. In all, 178 CFOs were selected and successfully established, and 173 were formally recognized⁶ on 30 December 2008 (1 day before the project wound up).

Table A2.3: Workshops for Dissemination of CF-Related Documents

Topic	No. of CFOs Involved	Total No. of Participants
Strategy for reducing electro and mosquito net fishing	36	75
Strategy for preventing illegal fishing activities	36	60
Flooded forest management	38	67
Experiences of CFO management	40	66
Results of TSEMP in each PIU	178	636
CFO management and development	officers	52
Community fisheries management sub-decree dissemination	169	10,344
Fisheries laws	118	8,947
Bylaws, internal regulations, and CFO area agreement	170	16,970
Community fisheries area management plan	170	16,194
Significance of flooded forest	117	4,864
Fish sanctuary management	106	22,198
Rice field fish culture	20	1,000
Environmental protection	12	312
Close season	109	5,890
Total		87,675

CF = Community Fisheries, CFO = Community Fisheries Organization, PIU = Provincial Implementation Unit, TSEMP = Tonle Sap Environmental Management Project,

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

12. Output 2 was directed at the empowerment of communities for local area natural resource management and the establishment of community resource access rights. Full participation of commune councils, village leaders, and CFO members was actively sought and

⁶ Five CFOs were not included in Prakas 619 that gave formal recognition to CFOs, as not all relevant details were available for these CFOs at the cutoff date.

achieved. This resulted in a wider understanding of the importance and benefits of community-based natural resources management. Stakeholders were motivated and accepted greater responsibility for managing their resources through protection, conservation, and more sustainable ways of farming. Commune council and village structures were strengthened in natural resource management through training and awareness programs. Some community fishery area management plans have been integrated into the commune development plan. The fisheries resources, especially flooded forest in the community fishery areas, were protected and reforested and destructive fishing activities declined. Fish sanctuaries were established and protected by the CFOs. The development of alternative livelihood activities continues to progress; CFO member incomes have increased and livelihood activities have lessened pressure on fishery resources. Close cooperation between community fisheries and local authorities has improved.

13. The establishment of CFOs for natural resource management was carried out by provincial PIU staff in cooperation with FAO counterparts and national specialists using a 10-step process:

- (i) Step 1: Submit the application form for the establishment of the CFO;
- (ii) Step 2: Collect information through participatory rapid assessment for assessing the possibility of establishing the CFO;
- (iii) Step 3: Disseminate the information and register CFO members;
- (iv) Step 4: Form the group of founders;
- (v) Step 5: Prepare the bylaws and internal regulations;
- (vi) Step 6: Select candidates and vote for members of the community fisheries committees (CFCs);
- (vii) Step 7: Define the CFO boundaries;
- (viii) Step 8: Sign the CFO area agreement;
- (ix) Step 9: Register the CFO; and
- (x) Step 10: Prepare the CFO area management plan.

14. The selection process resulted in 178 CFOs being established in 358 villages covering a total area of 438,543 hectares. There are 1,736 CFC members (260 are women) and the total number of CFO members is 50,748. Details are in Table A2.4.

Table A2.4: Number of CF Committees and CF Members in Project Target Area

Province	No. of CFOs	No. of CF Committees			No. of CFM Households	No. of Members		
		Total	M	F		Total	M	F
Siem Reap	22	242	211	31	15,013	21,821	12,911	8,910
Kampong Thom	31	293	236	57	7,841	10,676	5,750	4,926
Kampong Chhnang	52	522	466	56	6,010	13,053	6,621	6,432
Pursat	27	297	243	54	7,941	11,552	5,809	5,743
Battambang	40	316	264	52	10,407	15,011	9,160	5,851
Banteay Meanchey	6	66	56	10	3,536	13,787	7,582	6,205
Total	178	1,736	1,476	260	50,748	85,900	47,833	38,067

CF = Community Fishery, CFM = Community Fishery members, F = Female, M = Male, No. = Number.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

15. All identified community fisheries completed their membership lists, bylaws and internal regulations, CFO maps, and CFO area agreements and management plans. The CFO area agreements with the head of the fisheries cantonment office, provincial government, district authorities and commune councils were also signed. FiA prepared a proposal for the registration

of 173 community fisheries in Kampong Chhnang, Pursat, Battambang, Banteay Meanchey, Siem Reap, and Kampong Thom provinces; this proposal was accepted, recognized, and officially signed by the MAFF minister on 30 December 2008 (Prakas 619). The total area covered by CFOs and the number of villages, communes, and districts involved is shown in Table A2.5.

Table A2.5: CFO Area and Number of Villages, Communes, and Districts Covered

Province	No. of CFOs	Area (ha)	Villages	Communes	Districts
Siem Reap	22	109,583	126	18	6
Kampong Thom	31	43,635	64	19	5
Kampong Chhnang	52	43,079	52	12	4
Pursat	27	81,120	43	14	4
Battambang	40	154,475	62	19	4
Banteay Meanchey	6	6,651	25	4	2
Total	178	438,543	372	86	25

CFO = Community Fisheries Organization, ha = hectare, No. = Number.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

16. The installation of boundary posts and signposts in the CFO areas assisted the local community in recognizing conservation and protected fish and bird sanctuary areas. The markers were also designed to help CFO members determine their responsibilities for controlling illegal activities in their area. The PIUs collected coordinates for post setting and produced 1,640 cement posts, 410 stands, and 164 community signposts. Posts, stands, and CFO signposts were transported to the PIU in each province. However, installation was not completed because of difficulties in transporting the heavy posts to the sites and in gaining access to the sites; at time of the PCR mission (12 months after the project) this task was still incomplete. The number of posts, stands, and signposts successfully installed is in Table A2.6.

Table A2.6: GCP Markers and CF Signposts Installed

Province	No. of CFOs	No. of GCP Markers Proposed	No. of Signs Proposed	No. of CFOs with Installed Markers and Signs	No. of GCP Markers Installed	No. of Signposts
Siem Reap	22	220	55	18	125	22
Pursat	27	258	65	8	79	27
Battambang	40	360	90	13	97	36
Kampong Thom	31	300	70	19	183	26
Kampong Chhnang	52	502	130	10	73	36
Total	172	1,640	410	68	557	147

CFO = Community Fisheries Organization, GCP = ground control points, No. = number.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

17. The establishment of fish sanctuaries in CFO areas was designed to protect biodiversity, particularly endangered or rare fish species. Sanctuaries also protect brood stock and promote an increase in the population of fish and other aquatic flora and fauna, is an important source of livelihood for the local people. The PIUs cooperated closely with the CFOs, local authorities, and local NGOs in establishing 191 fish sanctuary sites in 161 CFO areas. The project deployed artificial habitats (cement rings and tree/palm tree stumps) in these sanctuaries, as detailed in Table A2.7 and Table A2.8.

Table A2.7: Number and Area of Fish Sanctuaries Established

Province	No. of CFO Areas with Fish Sanctuaries	No. of Fish Sanctuaries Established	Total Area of Fish Sanctuary (ha)
Siem Reap	19	19	121.37
Kampong Thom	31	46	212.53
Kampong Chhnang	38	38	168.15
Pursat	27	38	322.15
Battambang	40	43	127.20
Banteay Meanchey	6	7	53.90
Total	161	191	1,005.30

CFO = Community Fisheries Organization, ha = hectare, No. = number.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.**Table A2.8: Artificial Habitat, Signboards, and Signposts**

Province	No. of CFO Areas with Fish Sanctuaries	No. of Artificial Habitats (cement ring and palm stump)	No. of Signboards Installed	No. of Sanctuary Boundary Posts Installed
Siem Reap	19	785	189	260
Kampong Thom	31	358	75	705
Kampong Chhnang	38	300	94	1,765
Pursat	27	110	60	117
Battambang	40	190	38	299
Banteay Meanchey	6	2000	15	75
Total	161	3,743	471	3,221

CFO = Community Fisheries Organization, No. = number.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

18. Flooded forest is a very significant natural resource in the TSBR, providing a natural ecosystem for fish, wildlife, and plant species. It also provides many benefits to the community relating to its culture, economy, and living conditions. Flooded forest destruction has been occurring at an alarming rate with overexploitation and improper management. Under component 2, flooded forest conservation areas were established in 92 CFO areas covering 14,431 hectares. The replanting results are summarized in Table A2.9.

Table A2.9: Flooded Forest Conservation Area

Province	No. of CFO Areas with Flooded Forest Conservation Area	Area of Flooded Forest Conservation Area (ha)	No. of Flooded Forest Seedlings Planted	Area Planted with Trees and Protected (ha)
Siem Reap	7	2,807.00	69,000	456
Kampong Thom	23	4,070.18	20,528	282.55
Kampong Chhnang	7	120.00	83,000	11.61
Pursat	27	7,204.39	7,800	1,332.23
Battambang	28	229.35	14,700	27
Banteay Meanchey	0	0.00	2000	1.12
Total	92	14,430.92	197,028	2,110.51

CFO = Community Fisheries Organization, ha = hectare, No. = number

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

19. Guardhouses, patrol boats, and materials for patrol activities were provided to a number of CFOs. The CFCs selected had shown good cooperation and involvement with patrol activities, with details in Table A2.10. This initiative was funded from the FAO contingency funds and the Live & Learn technical package.

Table A2.10: Guardhouses, Boats, and Patrol Materials

Province	Guard-house	Boat/Engine	Motorcycle	Mobile Phone	Radio equip.	Camera
Siem Reap	1	9	0	0	0	2
Kampong Thom	10	2	0	13	21	10
Kampong Chhnang	4	9	0	0	26	8
Pursat	5	10	1	5	21	9
Battambang	7	8	4	0	15	6
Banteay Meanchey	2	1	2	1	3	3
Total	27	41	6	19	88	39

Equip = equipment.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

20. Community fisheries area management plans (CFAMPs) were the latest documents submitted by the CFOs to FiA for review and approval. Like community fisheries area agreements, the approved CFAMP is valid for three years. PIUs facilitated the 178 CFO area management plans, following guidelines set by FiA and management plans developed by PSO specialists. In all, 178 CFO area management plans were sent to FiA/PIO for review and approval. Follow-up shows that 131 of these plans have been integrated into commune development plans and are being implemented, as shown in Table A2.11.

Table A2.11: CFAMP Integration with CCDP

Province	No. of CFOs	No. of CFAMPs Developed	No. of CFAMPs in CCDP
Siem Reap	22	22	22
Kampong Thom	31	31	30
Kampong Chhnang	52	52	6
Pursat	27	27	27
Battambang	40	40	40
Banteay Meanchey	6	6	6
Total	178	178	131

CCDP = Commune Council Development Plan, CFAMP = Community Fisheries Area Management Plan, CFO = Community Fisheries Organization.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

21. The PCR mission interviewed committees, members, and livelihood activity participants from 25 CFOs across all target provinces. All CFO members and CFCs demonstrated a clear understanding of the significance and benefits of participation in community natural resource management. Cooperation between the community fisheries and local authorities has reduced illegal fishing in the CFO areas. Twelve months on from the end of the project, the PCR mission noted:

- (i) Reduced illegal practices and conflicts in the CFO area through ongoing patrols;
- (ii) Improved conservation and use of fishery resources in the CFO area;
- (iii) Increase in fishery resources, especially brood stock, due to fish sanctuaries, deployment of artificial habitats, and signage; and

- (iv) Improved condition of flooded forest areas in CFOs as a result of flooded forest conservation, protection and replanting of flooded forest.

22. Progress audits were not conducted yearly as envisaged in the DMF. However, the PIO, with support from international technical consultants and VSO professionals, did implement an effective ongoing monitoring and evaluation regime. CFO progress was verified every 3 months by the PIU in each province using the CF progress monitoring form. Information on the quality of CFO assessments was collected and evaluated by the PIO. Consultants contracted by the TSBP secretariat collected baseline information on fisher communities in the target area in 2005. The baseline report⁷ acknowledges that the “survey provided a status report for the TSBP, but was too limited to be used for monitoring and evaluation of individual fisheries.” The report contained no terms of reference for the baseline and offered no clear conclusions, though it had recommendations for subsequent (annual) surveys. The length (72 questions in the village survey) and structure of the data collection forms and the low usefulness of data collected indicate that the survey was poorly designed. Subsequent data were collected in September 2008 (toward the end of the project); however, the data were not analyzed and an end-of-project comparison with the original baseline was not carried out. The original project design appears to confuse the collection of data and information for a community-based needs assessment with what is generally considered a baseline for monitoring and evaluation.

23. Under output 3 of component 2, a package of technical activities to support sustainable livelihoods was implemented. Livelihood activities, though clearly necessary as important natural resource management strategy, were not included in the original project design. Alternative livelihood activities provided poor communities with sustainable alternative sources of income, thus protecting the Tonle Sap biosphere environment and biodiversity. Strategies and methods used to develop livelihood activities included participatory rapid assessment, limitation assessment, and review of the existing data and livelihood experiences. PRA tools and open discussion with the community members provided baseline information. Capacity building was seen as a major precursor to the success and sustainability of livelihood activities. The project trained, and disseminated information to, PIU staff, commune councils, CFCs, and CFO members. Training courses dealt with fund raising for community development, preparation of CFO action plans, livelihood technical support, flooded forest seedling production, and the effects of chemical pesticide use. Fifteen of the 178 community fisheries in the project target area were randomly selected for the consultation on livelihoods development. Project teams spent 2–3 days in each community. Thirty-five livelihood activities were identified for implementation in the field. Although 11 priority livelihood activities were identified, 19 were actually supported as a result of the community consultation process.

24. Household-scale livelihood activities began in mid-2007 and continued until the end of the project in December 2008. Small-scale livelihood activities focused mainly on the establishment of alternative livelihoods for CFO members, particularly widows, the poor, and those strongly committed to improving their living conditions. In all, 19 livelihood options were supported in 137 CFs, or about 77% of CFs in the project target area. There were a total of 5,932 beneficiary households—12 % of the total number of CFO member households (see Appendix 3).

25. In general, small-scale livelihood activities, in particular livestock raising, were successfully implemented. Although large-scale changes in livelihoods did not occur, the production of animals such as ducks and chickens provided supplementary food, as well as

⁷ The report is undated and its main conclusions are difficult to ascertain.

additional income from the sale of meat or live animals. CFO members interviewed by the PCR team expressed strong ownership of and ongoing support for livelihood activities. Group ownership is not strong; families work individually with little or no involvement from the CFO except during the “donation” of the livestock.⁸

26. Project activities for output 3 of component 2 were amended in 2008 for the implementation of medium-scale business ventures from July to December 2008 using contingency funds remaining from the contract with FAO. The rationale for venture project activities was in part to generate revenue for CFO operating budgets; venture activity beneficiaries signed an agreement to hand over a percentage of their income to the CFO in their area. Venture project activities focused mainly on providing medium-scale business ventures to CFO members especially women, the poor, and those interested in and strongly committed to improving livelihood incomes. Guidelines and criteria for business venture selection and management were established and FiA worked closely with local authorities and the CFO to develop proposals. A total of 31 CFOs submitted proposals in five categories: (i) fish hatchery development, and fingerling production and marketing; (ii) hygienic fish processing and marketing of fermented fish (*naim*); (iii) jasmine production and marketing; (iv) organic vegetable production and marketing; and (v) community-based ecotourism. The venture projects, by type and province, are given in Table A2.12. Twelve months from project completion, the PCR mission visited three fish hatcheries, two jasmine farms, one organic vegetable farm, and three ecotourism ventures. Except for the ecotourism ventures, all activities continued to function well, with beneficiaries reporting increasing incomes from their efforts. The ecotourism ventures were not functioning well mainly because of a lack of expertise among the committees for overall management and promotion. Dwindling interest from the community, insufficient income from visitors, and deterioration of the hardware will most likely bring down these ventures in the near future.

27. Under this output, activities with a primary-health focus improved water and sanitation; 2,193 water filters gave 11,125 CFO members access to potable water, 31 wells benefited 5,418 CFO members, and 84 latrines were built and used by more than 100 CFO households. These activities were spread around 38 CFOs in six provinces. Their implementation was funded out of FAO contingency funds, the Live & Learn budget for livelihood packages, and some funds from local donors. No impact assessment of these activities was carried out.

Table A2.12: Venture Project, by Type and Province

Province	No. of Fish Hatcheries	No. of Jasmine Farms	No. of Veg. Farms	No. of CFET Sites	No. of Fish Process. (Naim)	No. of Fish Sanct.	No. of CFOs	Total Beneficiary Families
Siem Reap	1	1	1	1	0	1	5	21
Kampong Thom	1	2	0	0	0	2	5	4
Kampong Chhnang	1	0	0	1	0	1	3	16
Pursat	1	2	2	0	0	2	7	13
Battambang	2	2	1	1	1	1	8	41
Banteay Meanchey	1	0	0	1	0	1	3	15
Total	7	7	4	4	1	8	31	110

CFET = community fisheries eco-tourism, No. = number, Process. = Processing, Sanct = Sanctuary.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

⁸ Rachel Wildblood. 2008. *Evaluating the Impact of the Tonle Sap Environmental Management Project on Livelihoods, Conservation and Community Fisheries Development*. Cambodia.

C. Component 3: Building Management Capacity for Biodiversity Conservation in the TSBR

28. The output under component 3 was focused on building capacity for biodiversity conservation in the TSBR. This included: enhancing management capacity, developing systems for monitoring and management, and promoting biodiversity conservation awareness, education, and outreach. This component was financed mainly by the Global Environmental Facility as a grant and implemented through the UNDP under its rules and procedures. The UNDP-funded TSCP is ongoing, and is scheduled for completion in mid-2011. Links between the Tonle Sap Environmental Management Project (TSEMP) and TSCP were unclear, and there appeared to be different interpretations of its implementation. The Project Monitoring and Coordination Office for the TSEMP could and should have played a more proactive role in “joining the dots” and bringing together an innovative approach to the complex strategic issues of conservation and management of the TSBR involving multiple parties and interests.

29. Under output 1 of component 3, three core area management centers and two protected area management units were established and equipped. The PCR team had insufficient time to visit all centers and units but was able to observe the Prek Toal Center. Twelve months after project completion this center is not functioning as planned; the relatively new fixed structure is already in need of major maintenance; the state-of-the-art solar power system is totally unserviceable, yet MOE has no plans to carry out maintenance or repairs. While a feasibility study was carried out, the decision to support the construction of a large fixed (concrete) structure within the core area should have been subject to an environmental impact assessment with a detailed environmental management plan for the continuing use of the center. For example, there is no effective human waste disposal system in place. Financial disclosure of the center’s income and expenditure remains an issue and income received before the end of the project is still unaccounted for, despite the fact that the accounting was included in agreed action plans of ADB review missions in 2008. With ongoing technical support from the Wildlife Conservation Society (WCS) under the TSCP, progress has been made in standardizing visitor fee protocols. MOE management of the Prek Toal core area has changed since the end of TSEMP.

30. Core area management plans for Prek Toal, Stung Sen, and Boeung Tonle Chmar were developed and approved by MOE, and implemented under TSCP. TSEMP required the identification of three other protected areas. These were identified in consultation with local authorities and draft plans were prepared. However, the plans have not been implemented because of limited funding from the Global Environment Facility and the government. Ensuring that the three main core area management plans were functioning effectively before identifying additional areas could have improved the project design.

31. Also under the first output of this component, staff training in protected area management and biodiversity conservation was carried out. Domestic and international training specialists were appointed and training needs analysis was conducted. Six training modules were conducted for to 88 rangers from the three core areas and 74 technical and management staff from provincial offices of environment and Fisheries Administration. Study tours were made to Kenya and Bangladesh to observe similar models of biodiversity conservation.

32. Under output 2 of component 3, a biodiversity monitoring program with emphasis on waterbirds and water snakes was designed by WCS. There is a standard protocol for long-term monitoring, including the protection of biodiversity and the control of exotic species. Some 99 communes around the Tonle Sap Lake were selected for this monitoring program and an

environmental focal point team was appointed by each commune council to collect and analyze monitoring data. Land use and community buffer zone monitoring was carried out.

33. WCS worked with MOE to develop and establish a rapid response mechanism. Data recording used MIST, a specialized database program for rapidly assembling data reported by rangers. Field protection activities were integrated into MIST usage protocols and rangers in all three core areas went through initial training in the use of MIST. Regular patrols by MOE staff and the use of rapid response systems in the core areas are continuing under the UNDP-funded TSCP.

34. The third distinct activity for output 2 was to develop a strategy for an awareness campaign to protect and control the exploitation of exotic species and conduct management trials. In collaboration with WCS, the PIO and PIU (of MOE) completed a field survey to identify threats to the Boeung Tonle Chhmar and Stung Sen core areas and the proposed Prey Koh biodiversity conservation area. Patrol teams were established to prevent wildlife poaching in the core areas; this work is ongoing under TSCP.

35. Activity 5 under output two required the project to “identify income-generation activities that directly threaten biodiversity in the core areas and develop alternative livelihoods to modify these activities.” Five NGOs were recruited to implement a program of alternative livelihood activities in five provinces. These activities are reported here in the sections dealing with component 2. A detailed final report⁹ was provided by Live & Learn, which had oversight of these activities.

36. The third output of component 3 was biodiversity conservation awareness and education and outreach programs. A comprehensive environmental awareness, education, and outreach program was developed for the TSBR. With support from MOE and PIU, the environmental education NGO Live & Learn implemented a Mobile Community Outreach (MCO) program and prepared extension materials and content for MCO presentations in Tonle Sap Lake communities. The target population included commune councils, civic groups, and schoolchildren in 131 communes in the five project provinces, with 22 communes identified as priorities. This output was linked to component 1 environmental education. The implementation of this output began late (middle of year 5) but is ongoing under TSSLP. Three floating education centers were built in Kampong Thom (Stung Sen core area), Pursat, and Kompong Chhnang provinces and serve as education centers. The GECKO Center at Chong Kneas was refurbished and equipped with new display panels.

37. Education resources including interactive flip charts with detailed teacher notes were developed by Live & Learn in consultation with the Ministry of Education, Youth, and Sports (MOEYS). The strategy was to incorporate the environmental awareness, education, and outreach program into selected schools around the TSBR. Manuals and textbooks were finalized and endorsed by MOEYS. Training of trainers was conducted and the school program implemented. With department(s) of the MOEYS and other partner agencies, the program established a cooperative approach to integrating materials into the existing curriculum of “Local Life Skills,” thus imparting fundamental sustainability to the program. It was not confirmed whether the environmental education program developed under TSEMP has become part of the national curriculum, but this matter should be followed up.

⁹ Live & Learn. 2008. *Final Report, Domestic NGO Services Contract: Tonle Sap Environmental Management Project*. Cambodia.

Table A2.13: Community Fisheries Livelihood Activities

Type of Livelihood	Siem Reap		Kampong Thom		Kampong Chhnang		Pursat		Battambang		Banteay Meanchey		Total Beneficiary Families
	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	
Fish and eel raising	9	112	12	141	19	152	20	224	3	48	1	20	697
Earthworm culture	0	0	12	51	2	44	13	39	3	14	0	0	148
Cow and goat raising	1	2	0	0	1	1	0	0	0	0	0	0	3
Pig raising	12	147	9	177	3	8	5	86	7	65	2	52	535
Chicken and duck raising	10	122	10	303	19	380	20	495	5	84	1	14	1,398
Vegetable growing	11	298	15	366	13	223	20	660	2	19	0	0	1,566
Mushroom culture	0	0	10	61	12	150	4	69	6	58	4	40	378
EM composting	0	0	23	501	0	0	3	39	0	0	0	0	540
Rice banking	0	0	2	15	0	0	0	0	0	0	0	0	15
Mat weaving	0	0	0	0	0	0	0	0	1	6	0	0	6
SRI	0	0	3	57	0	0	3	21	0	0	0	0	78
Grocery selling	0	0	0	0	0	0	0	0	2	7	0	0	7
Fruit tree planting	0	0	0	0	0	0	0	0	4	428	0	0	428
Credit	0	0	0	0	0	0	0	0	5	119	0	0	119
Shrimp drying	1	5	0	0	0	0	0	0	0	0	0	0	5
Total	20	686	23	1,672	41	958	20	1,633	21	848	4	126	5,923

CFO = community fisheries organization, EM = effective microorganism, No. = number, SRI = system of rice intensification.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

Table A2.14: Household Livelihood Activities

Type of Livelihood	Siem Reap		Kampong Thom		Kampong Chhnang		Pursat		Battambang		Banteay Meanchey		Total Beneficiary Families
	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	No. of CFOs	No. of Families	
Fish and eel raising	9	112	12	141	19	152	20	224	3	48	1	20	697
Earthworm culture	0	0	12	51	2	44	13	39	3	14	0	0	148
Cow and goat raising	1	2	0	0	1	1	0	0	0	0	0	0	3
Pig raising	12	147	9	177	3	8	5	86	7	65	2	52	535
Chicken and duck raising	10	122	10	303	19	380	20	495	5	84	1	14	1,398
Vegetable growing	11	298	15	366	13	223	20	660	2	19	0	0	1,566
Mushroom culture	0	0	10	61	12	150	4	69	6	58	4	40	378
EM composting	0	0	23	501	0	0	3	39	0	0	0	0	540
Rice banking	0	0	2	15	0	0	0	0	0	0	0	0	15
Mat weaving	0	0	0	0	0	0	0	0	1	6	0	0	6
SRI	0	0	3	57	0	0	3	21	0	0	0	0	78
Grocery selling	0	0	0	0	0	0	0	0	2	7	0	0	7
Fruit tree planting	0	0	0	0	0	0	0	0	4	428	0	0	428
Credit	0	0	0	0	0	0	0	0	5	119	0	0	119
Shrimp drying	1	5	0	0	0	0	0	0	0	0	0	0	5
Total	20	686	23	1,672	41	958	20	1,633	21	848	4	126	5,923

CFO = community fisheries organization, EM = effective microorganism, No. = number, SRI = system of rice intensification.

Source: Project Implementation Office. 2009. *Final Report: Tonle Sap Environmental Management Project*. Cambodia.

Planned and Actual Disbursements, 2003–2009 (\$'000)

Year	Plan	Actual^a		
	at Appraisal	ADB	Government	Total (ADB + Government)
2003	2,060	1,102	15	1,117
2004	9,645	671	233	904
2005	4,446	2,328	598	2,926
2006	1,345	2,910	499	3,409
2007	1,562	2,163	478	2,641
2008	0	1,412	523	1,935
2009	0	(188)		(188)
Total	19,062	10,398	2,346	12,744

ADB = Asian Development Bank.

^a Excludes UNDP expenditures. Latest disbursement figure (as of June 2008) is \$2.10 million.

Source: ADB Loan Financial Information System; government's audited financial statements (for government contributions).

YEARLY CONTRACT AWARDS AND DISBURSEMENTS
(\$ million)

Year	Quarter	Contract Awards		Disbursements	
		Projected	Actual	Projected	Actual
2003	I	0.000	0.000	0.000	0.000
	II	0.000	0.000	0.000	0.000
	III	0.000	0.000	0.000	0.000
	IV	0.000	0.551	0.500	1.102
	Subtotal	0.000	0.551	0.500	1.102
2004	I	0.530	0.494	0.000	0.028
	II	0.190	0.284	0.340	0.116
	III	0.110	0.000	0.580	0.108
	IV	0.870	0.245	0.540	0.419
	Subtotal	1.700	1.023	1.460	0.671
2005	I	4.539	4.671	1.781	1.296
	II	0.378	0.709	0.470	0.383
	III	0.826	0.470	1.321	0.582
	IV	0.141	0.450	0.253	0.067
	Subtotal	5.884	6.300	3.825	2.328
2006	I	0.290	0.492	1.000	1.461
	II	0.250	0.080	0.855	0.135
	III	0.310	0.097	0.575	1.004
	IV	0.370	0.125	0.660	0.310
	Subtotal	1.220	0.794	3.090	2.910
2007	I	0.340	0.108	0.605	0.270
	II	0.450	0.100	0.710	0.190
	III	0.270	0.195	0.520	0.549
	IV	0.245	0.404	0.435	1.154
	Subtotal	1.305	0.807	2.270	2.163
2008	I	0.104	0.057	0.226	0.245
	II	0.177	0.107	0.722	0.498
	III	0.114	0.150	0.482	0.213
	IV	0.000	0.089	0.000	0.456
	Subtotal	0.395	0.403	1.430	1.412
2009	I	0.160	0.077	0.400	0.395
	II	0.000	0.194	0.000	0.000
	III	0.000	0.000	0.000	(0.583)
	IV	0.000	0.000	0.000	0.000
	Subtotal	0.160	0.271	0.400	(0.188)
	Total	10.664	10.149	12.975	10.398

Source: ADB Loan Financial Information System

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Project Executing Agency. MAFF shall be the project executing agency and shall directly implement components 1 and 2 of the Project relating to the strengthening natural resources management coordination and planning for the TSBR and organizing communities for natural resources management in the TSBR</p>	Sched. 6, para. 1	Complied with.
<p>Project Steering Committee. A Project Steering Committee (PSC) consisting of the Minister of MAFF, Minister of MOE, Minister of MEF, Chairman of CNMC and the Governors of the project provinces, or their representatives, shall be chaired by the Minister of MAFF and shall be responsible for (i) providing advice on project implementation, (ii) providing mechanism for resolving project implementation problems beyond single ministerial mandates and (iii) reviewing project progress. PSC shall hold meetings every 6 months and, to the extent possible, concurrent with CNMC Board meetings.</p>	Sched. 6, para. 2	Complied with. The PSC met for the first time on 26 July 2004 and then every 6 months thereafter.
<p>Project Monitoring and Coordination Office. A Project Monitoring and Coordination Office (PMCO) shall be responsible for integrating project operations, including consolidating financial statements, harmonizing equipment specifications and procurement procedures, scheduling project activities and general administration. The PMCO shall be located in the TSBR Secretariat. The Permanent Deputy Secretary (Environment) of the TSBR Secretariat shall be the project coordinator. An international project management advisor, a domestic finance and administration specialist, a strategy and policy advisor, and other local staff for clerical, financial matters, shall assist the project coordinator. The three divisions of the TSBR Secretariat shall provide day-to-day technical support to serve the PMCO.</p>	Sched. 6, para. 3	Complied with. The PMCO was established at the TSBR secretariat with the deputy secretary of the secretariat as project coordinator. A project management adviser, a strategy and policy adviser, a domestic finance and administration specialist, and other local staff members (for clerical and other matters) were recruited to assist the project coordinator.
<p>Project Implementation Offices. The Project Implementation Offices (PIOs) shall assume responsibility for planning and budgeting of project activities and, as required, supervision and monitoring of provincial level field activities through Project Implementation Units (PIUs). The PIOs will be set up, respectively, in the DOF, the Department of Nature Conservation and Protection within MOE and the TSBR Secretariat. Each of the PIOs shall be staffed by, at least, one full-time staff designated to supervise and manage direct implementation activities under the Project. A PIU shall be set up</p>	Sched. 6, para. 4	Complied with. PIOs and PIUs were established and fully staffed.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>within 3 months of the Loan Effectiveness in each of the project provinces and to be located in the Office of Fisheries in the Department of Agriculture, Forestry and Fisheries and in the Department of Environment. The PIUs shall be responsible for implementing project activities at the provincial level.</p>		
<p>NGOs. The Borrower shall select and engage NGOs, with expertise in community organization for natural resource management, to assist in executing component 2 of the Project from the second year and to undertake annual independent progress audits from the end of the second year. The NGOs shall be selected from a shortlist agreed upon between ADB and MAFF.</p>	Sched. 6, para. 5	Complied with late. NGOs were recruited in 2007.
<p>Counterpart Funds. Without prejudice to Section 4.02 of the Loan Agreement, the Borrower shall ensure that all necessary counterpart funds for project implementation are provided in a timely manner and, to such end, the Borrower shall make timely submissions of annual budgetary appropriation requests and take all other measures necessary or appropriate for prompt disbursement of appropriated funds during each year of project implementation.</p>	Sched. 6, para. 6	Complied with. Adequate counterpart funds were provided although their release was often delayed.
<p>Regulatory Framework. The Borrower shall ensure that it will prepare an amendment to the current legislation on fisheries, including the law, sub-decrees, proclamations and directives or circulars, on time and in the form and substance proposed and developed by the accompanying Technical Assistance on Improving the Regulatory and Management Framework for Inland Fisheries (the TA). Within 18 months of the Effective Date, the draft amendment to the Fisheries Law developed under the TA will have been submitted to the National Assembly. Within 6 months of the promulgation of the amended Fisheries Law, the Borrower shall issue the sub-decrees or the necessary implementing regulations.</p>	Sched. 6, para. 7	Complied with. The TA had the following output: (i) comments and recommendations on the Draft Fisheries Law, (ii) draft Proclamation on Community Fisheries Bylaws, (iii) revised Guidelines for the Establishment of Community Fisheries Management Organizations, and (iv) General Fisheries Plan for the Management and Development of the Tonle Sap. The Sub-decree on Community Fisheries Management was passed by the Council of Ministers on 20 May and signed by the Prime Minister on 10 June 2005. The Fisheries Law was approved in March 2006.
<p>Mapping. The Borrower shall ensure and shall cause the executing agency to ensure that all maps and database products developed under Project will be made available to all interested parties.</p>	Sched. 6, para. 8	Complied with. Orthophotomapping was completed and the maps were made available to all interested parties.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Gender. The Borrower shall ensure that the Project will provide full opportunities for women, particularly female-headed households, to participate in community organization, representation and decision-making. At least 40percent of seats in community organizations shall be allocated to women. Women shall be organized for training and capacity building for participation and leadership development. The Borrower shall further ensure that women will be selected for training on livelihoods development, value adding activities and preparation of linkages with ongoing micro finance programs.</p>	Sched. 6, para. 9	Complied with. About 30%–50% of CFO members are women. Women were given training in alternative livelihoods and access to micro-credit.
<p>Ethnic Minorities. The Borrower shall ensure that ethnic minorities will have equal opportunities to participate in training in community organization. The Project's impact on ethnic minorities will be observed during Project's monitoring and evaluation.</p>	Sched. 6, para. 10	Complied with. Training was given to ethnic minorities (Cham and Vietnamese people).
<p>Project Performance Monitoring and Evaluation. The Borrower shall ensure that the progress of the Project and the achievement of its benefits are monitored based on the project framework. The Borrower shall further cause PMCO to submit to the Borrower and ADB 6-monthly progress reports with close attention to project output accomplishment and improvement of activities.</p>	Sched. 6, para. 11	Complied with. Six monthly progress reports were submitted regularly.
<p>Involuntary Resettlement. The Borrower shall ensure that persons who have traditionally lived within the TSBR be included as part of the environment planning and management activities, as their existence is recognized and guaranteed under the TSBR decree; and the rights of nontitled land users to remain within the area shall be recognized. The Borrower shall further ensure that prior to the award of civil works contracts, it shall screen for involuntary resettlement effects, to ensure that there are no losses of land, income, housing, community facilities and resources that would require compensation to be paid in accordance with ADB's <i>Policy on Involuntary Resettlement</i>.</p>	Sched. 6, para. 12	Complied with. The preparation of commune fisheries management plans involved fisherfolk.
<p>Particular Covenants. In the carrying out of the Project, the Borrower shall cause competent and qualified consultants and contractors, acceptable to the Borrower and ADB, to be employed to an extent and upon terms and conditions satisfactory to the Borrower and ADB.</p>	Art. IV, sec. 4.03(a)	Complied with. International and national consultants were recruited to assist the PIUs.
<p>Particular Covenants. The Borrower shall (i) maintain, or cause to be maintained, separate accounts for the Project; (ii) have such accounts and</p>	Art. IV, sec. 4.06(b)	Complied with. Separate accounts were established, and audited financial statements

Covenant	Reference in Loan Agreement	Status of Compliance
<p>related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB; (iii) furnish to ADB not later than 9 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.</p> <p>Particular Covenants. The Borrower shall furnish, or cause to be furnished, to ADB quarterly reports on the carrying out of the Project and on the operation and management of project facilities.</p> <p>Particular Covenants. Promptly after physical completion of the Project, but in any event not later than 3 months thereafter or such date as may be agreed for this purpose between the Borrower and ADB, the Borrower shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by the Borrower of its obligations under the Loan Agreement, and the accomplishment of the purposes of the Loan.</p>	<p>Art. IV, sec. 4.07(b)</p> <p>Art. IV, sec. 4.07(c)</p>	<p>were submitted yearly.</p> <p>Complied with. Quarterly progress reports were submitted.</p> <p>Complied with. The project completion report was submitted in February 2009.</p>

ADB = Asian Development Bank, CFO = Community Fisheries Organization, CNMC = Cambodia National Mekong Committee, MAFF = Ministry of Agriculture, Forestry and Fisheries, MEF = Ministry of Economy and Finance, MOE = Ministry of Environment, NGO = non-government organization, TSBR = Tonle Sap Biosphere Reserve.
Source: Asian Development Bank.