

REPUBLIC OF THE FIJI ISLANDS: COUNTRY ENVIRONMENTAL ANALYSIS

Mainstreaming Environmental Considerations in
Economic and Development Planning Processes



(FINAL DRAFT)

Prepared by: James T. Berdach
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The views expressed in this document are those of the consultant and do not necessarily represent positions of the Asian Development Bank or the Government of the Republic of the Fiji Islands.

CURRENCY EQUIVALENTS

(as of 15 November 2004)

Currency Unit	–	Fiji Dollars (FJD)
FJD 1.00	=	\$0.5955
\$1.00	=	FJD 1.6793

ABBREVIATIONS AND TERMS

ADB	–	Asian Development Bank
ADTA	–	advisory technical assistance
ALTA	–	Agricultural Landlord Tenant Act
BOD	–	biochemical oxygen demand
CDM	–	Clean Development Mechanism
CEA	–	Country Environmental Analysis
CHARM	–	Comprehensive Hazard and Risk Management
CLIMAP	–	Climate Change Adaptation Program for the Pacific
CSP	–	Country Strategy and Program
CSPU	–	Country Strategy and Program Update
DOE	–	Department of Environment
DPP	–	Director of Public Prosecution
DRRF	–	Disaster Relief and Rehabilitation Fund
EEZ	–	Exclusive Economic Zone
EIA	–	environmental impact assessment
EMB	–	Environment Management Bill
EU	–	European Union
FBSAP	–	Fiji Biodiversity Strategy and Action Plan
FEA	–	Fiji Energy Authority
FEU	–	Forestry Economics Unit
FIMSA	–	Fiji Islands Marine Safety Administration
FLMMA	–	Fiji Locally Managed Marine Area
FRUP	–	Fiji Road Upgrading Project
FSC	–	Fiji Sugar Corporation
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GHG	–	greenhouse gas
ha	–	Hectare
ICT	–	information and communications technology
IFI	–	international financial institution
IPP	–	independent power provider
km	–	Kilometer
km ²	–	square kilometer
KPI	–	key performance indicator
LC	–	Local Council
m	–	Meter
<i>matagali</i>	–	indigenous land use area/group
MDG	–	Millenium Development Goal

MPA	–	marine protected area
MWh	–	megawatt-hour
NCLP	–	National Code of Logging Practices
NDMO	–	National Disaster Management Office
NEDC	–	National Economic Development Council
NES	–	National Environment Strategy
NGO	–	non-governmental organization
NLTB	–	Native Land Trust Board
OCR	–	ordinary capital resources
ODS	–	ozone-depleting substance
OHS	–	occupational health and safety
OP	–	Operational Program
PARD	–	Pacific Department
PDMC	–	Pacific Developing Member Country
PICCAP	–	Pacific Islands Climate Change Assistance Project
PPTA	–	project preparation technical assistance
PRES	–	Pacific Region Environmental Strategy
PWD	–	Public Works Department
<i>qoliqoli</i>	–	indigenous ocean use area/group
<i>ratu</i>	–	high chief
REEP	–	Renewable Energy and Energy Efficiency Program
RESCO	–	renewable energy service company
RET	–	renewable energy technology
RETA	–	regional technical assistance
SDB	–	Sustainable Development Bill
SDP	–	Strategic Development Plan
SIDS	–	Small Island Developing State
SME	–	small and medium-size enterprise
SOPAC	–	South Pacific Applied Geoscience Commission
SPC	–	Secretariat of the Pacific Community
SPREP	–	South Pacific Regional Environment Programme
SPSO	–	South Pacific Subregional Office
TAC	–	total allowable catch
TBT	–	tributyl tin
UNCCD	–	United Nations Convention to Combat Desertification
UNDP	–	United Nations Development Programme
UNFCCC	–	United Nations Framework Convention on Climate Change
USP	–	University of South Pacific
WSSD	–	World Summit on Sustainable Development
WWF	–	World Wide Fund for Nature

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The Republic of the Fiji Islands (Fiji) has generally returned to normalcy after a period of political unrest and uncertainty. Instability over a period of nearly two decades, highlighted by the military coups that occurred in 1987 and again in 2000, has brought into focus the urgent need to achieve peace and security, in order to restore private sector confidence, and to accelerate various proposed public sector reforms needed to promote sustainable economic growth and poverty reduction. In 2001, the Government pledged to build a better Fiji. Eleven task forces, representing a wide cross-section of the island community, were formed to discuss and submit recommendations on key economic and social issues. The Strategic Development Plan (SDP)¹ for 2003-2005 emerged from this work with a vision for a “peaceful and prosperous Fiji” and a mission to develop and implement the best political, social and economic policies to realize this vision for the nation.

2. One of the guiding principles articulated in the SDP is to create the enabling preconditions necessary for achieving environmental sustainability in the country. Given Fiji's many desirable environmental attributes, including its highly productive agricultural lands, forests, and seas, its rich biodiversity, and its mild tropical climate and scenic coastlines and landforms, substantial opportunities exist for further development in the natural resources and tourism sectors. However, if such development is to be sustainable, due care must be taken in planning and managing future development activities, so that the normal ecological functioning and ‘environmental services’ (such as water balance, carbon cycling, and habitat to support biodiversity), upon which all these economic activities depend, are preserved. Key environmental indicators, intended to track Fiji's progress toward achieving environmental sustainability in its economic development, are shown in Appendix 1.

3. The Asian Development Bank (ADB) has been providing development assistance to Fiji for over three decades. The guiding document that details ADB's framework for lending and technical assistance to the country is the Country Strategy and Program (CSP). While annual updates to Fiji's most recent CSP have been prepared,² it is planned that a new CSP, to cover the program period 2006-2010, will be produced in 2005.

4. The Country Environmental Analysis (CEA) is an integral part of the CSP preparation process, and provides the information needed to ensure that programmed funding for the future development of the nation is grounded on a firm foundation of sound environmental management principles and practices. Recognizing (i) the sizeable contribution that natural resources-based activities make to the Fijian economy overall; (ii) the potential for that contribution to continue into future; and (iii) the existence of a number of key barriers and problems that threaten the sustainability of Fiji's environment and natural resources base, it is imperative that the new CSP place strong emphasis on environmental management objectives, in order to ensure the viability of these critical resources over the long-term.

5. The present CEA thus (i) describes the role of natural resources and the environment in the national economy; (ii) provides an overview of key environmental issues; and (iii) outlines the policy, regulatory and institutional framework for environmental management in the country. The CEA goes on to analyze the existing environmental conditions, and includes a review of ADB's current investment portfolio. Emerging from the review and analysis, priorities for action are

¹ Republic of the Fiji Islands. November 2002. *Rebuilding Confidence for Stability and Growth for a Peaceful, Prosperous Fiji: Strategic Development Plan 2003-2005*. Parliamentary Paper No. 72.

² ADB. August 2003. *Fiji Islands Country Strategy and Program Update (CSPU) 2004—2006*; and ADB. August 2004. *Fiji Islands CSPU 2005—2007*.

identified, and recommendations are made for projects for possible inclusion in ADB's future country program, that could proactively incorporate, integrate and support sound environmental management practices and mainstreaming of environmental considerations into the economic development planning and policy-making for the country.

II. METHODOLOGY FOR THE ANALYSIS

6. ADB prepared an internal draft for the CEA in March 2004. This was augmented and strengthened through subsequent further literature review, research and an in-depth participatory, consultative process. In October and November, 2004, ADB fielded a mission³ to Fiji during which meetings with some 60 stakeholders were conducted. These extensive in-country consultations culminated with the organization and hosting of a consultative workshop.⁴ Over forty key stakeholders participated in the workshop and provided valuable feedback on the preliminary CEA findings. The participants represented a wide cross-section from various sectors, including national and local government, inter-governmental donor and assistance agencies, NGOs, community groups, women's groups, academia, and the private sector. The consultations and workshop discussions helped to confirm preliminary findings, identify key issues, and develop concepts for possible interventions to address specific problems and barriers to effective environmental management. Proceedings of the workshop were posted to the ADB website, and workshop participants were afforded the opportunity to provide further comment. Appendix 2 provides a list of references, while Appendix 3 includes a list of persons contacted during the consultations.

III. BACKGROUND INFORMATION

A. Country Setting

7. The Republic of the Fiji Islands lies in the Southwestern Pacific Ocean between approximately 15° to 20° south latitude and 175° to 182° east longitude. Fiji's total landmass comprises some 332 islands scattered across nearly 1.3 million km² of ocean within its declared Exclusive Economic Zone (EEZ). The two main islands of Viti Levu and Vanua Levu together comprise around 87 percent of the total land area of around 18,333 km², with most of the remaining islands being small, low-lying, and widely dispersed. Fiji's larger islands are volcanic in origin and dominated by steep mountainous terrain that is deeply cut by perennial rivers and streams. There are 30 peaks over 1,000 meters (m) in elevation, with the highest, Tomaniivi, at 1,323 m.

8. The total population, based on 2003 estimates, is around 831,600 persons, made up primarily of indigenous Melanesians, and Fijian Indians, the latter being mostly descendants of immigrants brought to Fiji in the late 1800s. The majority of the population is concentrated in the urban centers on the main islands; many of the smallest islands are uninhabited. Appendix 4 presents a more detailed overview of Fiji's environmental setting.

³ Mr. Edy Brotoisworo, Senior Environmental Specialist, Pacific Division (PARD), and Ms. Ophelia Iriberry, Senior Operations Officer, PAR, visited Fiji from 19 November to 26 November 2004. Mr. James. T. Berdach, Environmental Management Specialist, visited Fiji from 24 October to 26 November 2004. Mr. Berdach's consultancy was supported under ADB RETA 6039-REG: Formulation of Pacific Region Environmental Strategy (PRES).

⁴ The one-day Consultative Workshop was held on 25 November 2004 at the Tradewinds Hotel Floating Restaurant, in Lami, near Suva.

B. Role of Environment and Natural Resources in the Economy

9. Fiji's natural endowment of forest, agricultural, fishery and mineral resources has historically played a key role in supporting its economic development. This South Pacific island nation enjoys a tropical climate that allows production of a wide range of food crops, both for local consumption and export, and provides one of the basic attractions for the tourism industry. Over a third of the country's gross domestic product (GDP) and 70 percent of exports can be attributed to natural resource-related activities such as agriculture, forestry, fisheries, tourism, and mining.

10. Tourism is the fastest growing industry in the country, contributing about 17 percent to GDP.⁵ The sugar industry's share of GDP, while declining in recent years, is still around 5 percent, while other agricultural food crops, fruits, vegetables, and livestock cumulatively contribute another 3-4 percent. Forest products add about 1 percent to GDP. The marine and fisheries sectors account for 3 percent. The mineral sector contributes between 1-2 percent and employs about 1,800 persons. This includes extraction of drinking water from mineral springs. In 2002, the export value of bottled mineral water was estimated at FJD28.6 million, up from FJD1.1 million when first exported in 1997. In addition to these contributions to the cash economy, virtually all subsistence activities, estimated at over 4 percent of total GDP, are based on use of natural resources. Fiji's biodiversity resources, which support many of the economic activities listed here, produce ecological benefits valued at FJD973 million per year, which represents more than 42 percent of Fiji's 1994 GDP.⁶ Figures for Fiji's GDP, broken down by activity, are presented in Table 1.

11. While much of Fiji's environment is still in a relatively pristine state overall, developments in several sectors are at a critical crossroad, and a number of key problems pose direct threats to continuing environmental functionality and resource sustainability. These include, among others (i) conversion of remaining stands of native forest into exotic mono-species plantations; (ii) inappropriate zoning and land use; (iii) overexploitation of marine resources; (iv) inadequate mechanisms for effective waste management; (v) air and water pollution; (vi) climate change, with resultant increased risks of drought and flooding; and (vii) adverse social and environmental impacts associated with rapid development and urbanization. One of the key underlying causes for many of these threats is that, while laws exist for environmental compliance, the regulatory framework is in need of overhaul, and resulting environmental governance practices in the country are weak. The increasing demands being placed on the finite natural resources base makes pursuit of more sustainable development options imperative for the country.

⁵ Tourism is not disaggregated as a distinct sector in the GDP calculations. The estimate comes from the SDP Midterm Review.

⁶ FBSAP 1999.

Table 1 Fiji's GDP By Activity at Constant Prices of 1995 at Factor Cost (FJD thousands)

Activity	1995	1996	1997	1998	1999	2000	2001	2002	% of 2002 GDP
1 AGRICULTURE, FORESTRY & FISHING	475,901	498,373	443,037	412,265	467,816	462,433	435,567	454,250	16.3
1.1 Crops	233,422	247,339	202,479	163,374	207,977	199,329	186,309	197,718	7.1
1.1.1 Sugarcane	178,607	178,607	136,497	100,689	143,059	131,761	121,853	124,721	4.5
1.1.2 Other Crops	54,815	68,732	65,982	62,685	64,918	67,568	64,456	72,997	2.6
1.2 Livestock Products	16,679	17,757	15,259	16,125	15,886	16,028	15,822	16,168	0.6
1.3 Fishing	65,765	71,666	65,857	68,740	82,292	84,617	70,986	80,959	2.9
1.4 Forestry	38,806	39,657	35,924	39,222	34,790	36,334	35,370	30,706	1.1
1.5 Subsistence	103,152	--	108,914	110,298	111,543	112,097	112,789	114,311	4.1
2 MINING & QUARRYING	37,650	48,945	50,128	40,178	47,633	40,845	41,566	40,081	1.4
3 MANUFACTURING	330,612	346,272	372,550	392,101	421,004	391,660	435,845	436,268	15.6
3.1 Sugar	88,579	88,579	67,702	49,948	70,239	65,556	60,483	61,849	2.2
3.2 Other Food Industries	32,743	32,874	29,862	31,040	30,484	26,325	30,058	33,267	1.2
3.3 Non-Food Industries	178,282	192,706	240,931	275,437	280,213	259,061	299,808	292,487	10.5
3.2.1 Clothing, Footwear	54,534	68,331	110,213	139,934	147,242	139,825	178,054	156,349	5.6
3.3.2 Other Non-Food	123,748	124,375	130,718	135,503	132,971	119,236	121,754	136,138	4.9
3.3 Informal Sector	9,617	10,123	10,461	10,798	11,169	11,541	11,912	12,215	0.4
4 ELECTRICITY AND WATER	76,438	81,971	84,165	87,043	95,444	93,980	100,150	104,419	3.7
5 CONSTRUCTION	132,179	142,250	129,157	124,766	131,942	114,351	121,817	139,045	5.0
6 WHOLESALE & RETAIL TRADE, RESTAURANTS & HOTELS	361,484	368,113	382,987	407,707	438,541	413,646	442,126	457,559	16.4
6.1 Wholesale & Retail Trade	248,954	253,961	263,368	279,948	297,520	300,180	319,157	323,610	11.6
6.2 Restaurants & Hotels	112,530	114,152	119,619	127,759	141,020	113,466	122,969	133,948	4.8
7 TRANSPORT & COMMUNICATION	293,624	321,038	330,348	342,667	380,338	362,215	353,333	375,316	13.4
7.1 Transport and Storage	208,510	222,379	232,814	245,235	273,361	249,860	249,568	274,978	9.8
7.2 Communication	85,114	98,659	97,534	97,432	106,977	112,355	103,765	100,338	3.6
8 FINANCE, INSURANCE, REAL ESTATE, BUSINESS SERVICES	383,412	390,232	348,746	339,269	316,939	345,113	368,634	365,399	13.1
8.1 Finance	141,909	137,967	127,295	131,971	77,672	92,663	102,957	98,448	3.5
8.2 Insurance	52,681	56,311	33,810	28,256	60,975	67,088	91,526	107,647	3.9
8.3 Real Estate & Business Services	188,822	195,954	187,640	179,042	178,293	185,362	174,151	159,304	5.7
8.4 Ownership, Dwellings	114,476	115,519	117,457	118,799	120,140	120,736	121,482	123,121	4.4
9 COMMUNITY, SOCIAL & PERSONAL SERVICES	433,579	435,665	424,119	454,288	468,928	484,484	491,068	527,992	18.9
OTHERS	382,206	382,974	371,181	400,399	412,612	426,663	431,732	467,387	16.7
LESS IMPUTED BANK SERVICE CHARGES	151,891	147,672	136,250	141,255	83,136	99,181	110,199	105,374	3.8
GRAND TOTAL	2,372,987	2,485,187	2,428,987	2,459,029	2,685,449	2,609,548	2,679,907	2,794,965	100.0
MEMORANDUM ITEMS:									
SUGAR PRODUCTION (tonnes)	454,000	454,000	347,000	256,000	364,000	335,000	310,000	317,000	--
VISITOR ARRIVALS (# persons)	318,000	340,000	359,000	371,000	410,000	294,000	348,000	398,000	--

Source: *Key Statistics* (Fiji Islands Bureau of Statistics, March 2004); 2002 percentage calculation by the author.

C. Key Environmental Issues and Challenges

1. Land Use and Management

12. The total land area of the Fiji Islands is around 1.83 million hectares, comprising native lands (traditionally-owned lands); state lands (formerly Crown lands); and freehold (privately owned) lands (Table 2). About 45.3 percent of this land area is estimated to be farmland under cultivation, and the remaining 54.7 percent is classified as non-farm lands. Non-farm lands comprise 453,603 hectares (63.4 percent) of natural forest, 196,967 hectares (27.6 percent) of non-agricultural land, and 64,624 hectares (9.0 percent) of planted forest.

Table 2 Type of Land Tenure/Ownership in Fiji Islands

tenure type	area (ha)	percent of total land area
Native Land	1,646,814	90.00
Freehold	147,448	8.06
State Land	31,195	1.70
Rotuman Communal Land	4,452	0.24
Total	1,829,909	100.00

Source: Fiji Islands National Assessment Report to BPoA+10. 2003

13. Fiji's annual population growth rate is only around 0.7 percent,⁷ but the absolute increase in population over the past 40 years has resulted in increased demand for agricultural production, and consequently has put significant pressure on arable lands. Intensive application of fertilizers and pesticides, monocropping, and short fallow periods have depleted and prevented recovery of soil fertility, caused increased soil erosion, lowered yields, reduced food security, and increased rural poverty. A by-product of rural poverty has been increased rural-urban drift, which has in turn led to other adverse social, economic, and environmental consequences. Further compounding the problem has been conversion of many prime arable lands into industrial and commercial areas and housing estates to accommodate the needs of the growing population.

14. While over 60 percent of the total land area is suited to some form of agricultural activity, only about 29 percent of the land area is flatland appropriate for sustainable cultivation. As early as 1965, most of these arable lands were already under cultivation. Thus, since that time, further agricultural development of necessity has been directed towards lands that are less appropriate for cultivation.

15. A host of unsustainable agricultural practices are on-going in Fiji. In addition to the intensive cultivation practices already described above (para. 12), these include sloping land cultivation of sugar-cane, ginger and *dalo*; commercial livestock farming without good pasture management; reclamation of large freshwater swamps for growing rice; and reclamation of large mangrove swamplands for agricultural use. Over the years, these practices have dramatically increased erosion, resulting in the loss of soil nutrients and thinning of topsoils, progressive siltation of rivers, deterioration of drainage on river flats, and inundation of coastal areas. A case study of the use of inappropriate methods in the cultivation of ginger, illustrates just how damaging and costly these practices can be (Box 1). Other serious impacts, such as the irreversible loss of biodiversity, have also resulted from these inappropriate land uses.

16. Patterns of land tenure are also a major concern.⁸ Ninety percent of the land is traditionally owned by indigenous Fijians (through land-owning units known as *mataqali*), and most development occurs only on leased land. While government has the authority to acquire lands for purposes deemed to be in the public interest, this authority is rarely⁹ used, owing to the unpopular political response it is expected that such action might generate. With a rapidly growing population and the need for continued commercial development, increasing pressure on land resources may contribute to more frequent land disputes between government, tenants, and landowners in the future. In recent times, the transition from a subsistence to a cash

⁷ Secretariat of the Pacific Community (2003).

⁸ It is general consensus that land tenure issues are at the heart of Fiji's recent social and political unrest. Problems arising from customary tenure patterns have caused ill-will between government and resource-owners, and resource owners and land lease holders, particularly in the context of income-generating activities, especially in the agriculture and tourism sectors.

⁹ The Government has acquired some traditional lands needed for road construction and for construction of the Monasavu hydropower dam.

economy has been accompanied by an deterioration of traditional environment-friendly systems of natural resource allocation and land management.

Box 1: Environmental Costs of Ginger Cultivation in Fiji
<p><u>On-site costs:</u></p> <p>Loss of soil resource expressed as a capita loss:</p> <ul style="list-style-type: none"> • Average erosion rate – 100–300 t/ha/yr on 271 ha ginger (1990) • 27,100 – 81,300 tons of soil is lost each year by ginger growers • soil capital loss \$7.57 - \$22.72 /t (15-5% discount rate respectively) <p>Annual capital loss of \$410,294 - \$1,231,424 (15-5% discount rate respectively) for 200t/ha erosion rate.</p> <p>This figure does not include the cost of restoring soil resources, which is effectively impossible. It represents only the lost opportunity cost –the value of net returns foregone through lost production.</p> <p><u>Off-site costs:</u></p> <ul style="list-style-type: none"> • Dredging has cost the nation over \$16 million between 1986-91. A significant proportion of the sediment can be attributed to the ginger industry • Each ton of sediment costs \$3.5 to remove – at 200t/ha erosion rate = \$189,700. <p>This figure does not include a value for impacts on fisheries and tourism (sedimentation of reefs and mangroves), navigational costs, and flood risks.</p> <p>Adapted from IUCN 1993. National Environment Strategy – Fiji.</p>

17. One of Fiji's largest economic contributors, the sugar industry, is ailing and currently facing a period of crisis that could have major implications for macroeconomic and social stability. The Fiji Sugar Corporation (FSC), a government entity that owns four sugar mills, is insolvent and requires significant investment to upgrade its mills, which are outdated and inefficient. It is also necessary to start reducing production costs, in order to remain competitive in a climate of declining world sugar prices.¹⁰ Phasing out of sugar price supports by the European Union (EU) is imminent, and will be completed by 2008.¹¹

18. In addition, the expiration and non-renewal of leases under the Agricultural Landlord and Tenant Act (ALTA) is causing the loss of access to land (and loss of livelihood) for a large number of sugar-cane farmers. During the period 1997-2000, of a total of nearly 4,000 ALTA leases that expired, 86 percent were not renewed. For Indian Fijian sugar farmers who are losing access to farmlands, some are already being pushed into practicing unsustainable cultivation on steeply sloping lands. Without an extension of their leases, sugar growers face a very uncertain future, and those whose leases are soon to expire are already unable to get bank loans for their working capital. While some indigenous Fijian landowners are keen to enter the industry, they often lack the capital and appropriate skills for effective and efficient production. Hence, the long-term viability of the sugar industry depends (among other factors) upon the

¹⁰ It has been mentioned that in other countries where sugar has traditionally been an important cash crop, e.g., Brazil, sugar has now been relegated to by-product status. Cane is now being grown instead largely for ethanol production for use as alternative fuel and for production of rum. There has been downward pressure on the price of sugar as a result. Nonetheless, the possibility of producing higher-value, ethanol-based products from sugar-cane offers at least one alternative source of revenue that could help to bolster the struggling sugar-growing industry.

¹¹ From current prices of around FJD 50 per ton, it is anticipated that the price for sugar will drop to around FJD 35 per ton by 2008.

successful resolution and reform of land policies, especially the ALTA. Further background information, plus discussion on the prospects for the Fijian sugar industry, is presented in Appendix 5.

2. Forest Resources

19. Fiji's forest resources cover an area of approximately 870,000 hectares, or about 47.5 percent of the total land area. Rain forests exist on the windward sides of the mountainous islands, while the leeward sides have grassy plains. Plantation forests, mainly exotic pine and mahogany, account for 6.14 percent of the total forest area (Table 3). While these plantations are generally regarded to have had, on balance, positive environmental impacts, the rate of conversion of diverse natural forests into exotic mono-species plantations needs to be monitored and regulated, with greater attention paid to the role of natural forest cover in the protection of watersheds, streams, soil resources, and biodiversity. The functionality of natural forested areas as habitat for many of Fiji's native species of wildlife cannot occur in areas that are converted to plantation. Thus, while plantations of pine and hardwood do not presently account for a large proportion of the total forest cover, any major increase would result in loss of important biodiversity resources, and also increase the risk of pest or disease outbreaks.

Table 3 Estimate of Fiji Islands' Forest Resources

forest type	hectares	percent of total land area
Indigenous Logged Forest	309,940	16.93
Protection Forest	260,330	14.22
Indigenous Forest	187,700	10.25
Plantation Forest	112,490	6.14
Total Forest Area	870,460	47.56
Total Land Area	1,830,000	100.00

Source: Fiji Islands National Assessment Report to BPoA+10. 2003

20. Some of the other threats potentially affecting forest resources include (i) the increasing incidence of wild fires which destroy wildlife habitat; (ii) disregard for restrictions on logging in protection forests; and (iii) inattention to stream flow, soil erosion and other watershed and ecological considerations during logging.

21. Seemingly disparate figures are found for rates of change of forest cover in Fiji. On the one hand, an increase in forest cover from 878,600 hectares in 1992, to 897,298 hectares in 2002, (an increase of 2.1 percent overall, and 0.2 percent annually), is reported. In contrast, a modest deforestation rate of 0.5-0.8 percent per year is reported by the same source.¹² Where losses of natural forests do occur, they are accompanied by resulting soil erosion, loss of soil nutrients, and siltation of coastal waters. Some 21 million tons of soil are estimated to be lost annually in four watershed areas alone (Table 4).

22. Among the key sectoral issues identified in a recent policy paper¹³ are: (i) absence of comprehensive regional and national land use plans; (ii) limited protection and enforcement for conservation, especially in natural (native) forest areas; (iii) inadequate knowledge of forest resources; (iv) inadequate research effort; (v) poor fire protection capabilities and procedures;

¹² Source: Fiji Islands National Assessment Report to BPoA+10. 2003. It seems likely that figures for the reported increase may include new areas of plantation forest, while the deforestation figure may refer only to losses in natural forested areas.

¹³ Ministry of Fisheries and Forests. August 2004. National Forest Policy Statement. GTZ Regional Forestry Project/SPC Forests and Trees Programme. (draft)

(vi) institutional weaknesses, and difficult bureaucratic processes; (vii) outdated forestry legislation; and (viii) absence of detailed forest management and harvesting plans. Clearly, there is a need for major reforms in order to support sustainability in the forestry sector.

Table 4 Soil Loss in Four Major Watersheds, Viti Levu Island

Watershed	Soil Loss (tons/ha/yr)	Soil loss (mm/yr)	Total soil loss (million tons/yr)
Rewa	32.2	2.2	9.3
Ba	69.0	4.6	6.4
Sigatoka	76.9	5.1	1.1
Nadi	81.4	5.4	4.2
TOTAL			21.0

Source: Leslie and Ratukalou 2002. Review of Rural Land Use in Fiji.

3. Marine and Coastal Resources

23. Fiji controls commercial fishing within some 1.3 million km² of ocean area inside its Exclusive Economic Zone (EEZ). Artisanal and subsistence fishing activities are practiced within the territorial waters, which lie within 12 nautical miles of the shoreline. The fishing industry makes a significant contribution to the Fijian economy (Table 5). However, destructive fishing practices occur in the subsistence, artisanal, and commercial fisheries, and are becoming a more widespread and serious problem in many parts of the country. Left unchecked, these damaging practices could threaten the viability of fisheries stocks and the long-term viability of the sector.

24. Despite legislated restrictions, dynamite fishing is prevalent in some areas of northern Viti Levu and northern Vanua Levu, while use of traditional fishing poisons (e.g. *duva* or *derris*) is also common. Exploitation of coastal resources at an unsustainable level is also a critical concern. Overharvesting of mangrove wood, and the sale of undersized fish and crustaceans, are becoming more widespread. Even small sizes of Serranidae (groupers) and Lethrinidae (emperor fishes) are captured and sold, especially in heavily populated areas. *Trochus* (button shell), mangrove crabs, and *beche-de-mer* (sea cucumber) are also overfished. While traditional chiefly bans on harvest of turtles and mangrove crabs have served to maintain turtle populations in the past, increasing incidence of harvest of these species, possibly to unsustainable levels, is reported. Populations of highly-prized species such as giant clams (*Tridacna* and *Hippopus* spp.) and coconut crabs (*Birgus latro*), are overexploited, and are now nearly extirpated in some areas.

Table 5 Estimated Annual Fisheries Production of Fiji Islands by Volume and Value, late 1990s

Fishing Method	Volume (metric tons)	Value (in US\$'000)
Subsistence Fishing	21,600	24,675
Coastal Commercial Fishing	9,320	15,232
Offshore Fishing	5,500	25,640
Offshore Foreign Fishing	917	555
Total	37,337	66,102

Source: Gillet and Lightfoot 2001

25. Tuna are the key target species in the pelagic commercial fishery. The annual total allowable catch (TAC) for tuna in Fiji's waters is currently set at 15,000 tons; according to the Department of Fisheries, this target has not been achieved. The number of licenses issued currently stands at 90 per year, i.e., around 30 more than the sustainable limit proposed by the

Secretariat of the Pacific Community (SPC). This has raised concerns within the industry regarding excessive fleet sizes and the threat of overfishing.¹⁴

26. There is also a fleet of domestic joint-venture small longliners which operates within the 12-nautical mile territorial waters. This local longline fleet includes several vessels registered in Korea, Australia, Japan, Taiwan and US, which are operated by Fijian residents. Twenty-three of these vessels operated in 1992, targeting bigeye and yellowfin tuna, with a substantial albacore tuna by-catch. The proportion of albacore in the catch of these vessels varied from 27 to 44 percent during this period. The number of vessels active in the fishery (Table 6) has increased dramatically, since 5 vessels fished in 1989. Marine ecologists are very concerned about the numbers of vessels operating, the sustainability of the catch effort, and the potential impacts both upon pelagic fisheries resources and nearshore coral reefs.

27. Apart from potential overharvesting of resources, other problems also affect the marine and coastal sectors. Land-based and nearshore impacts, including erosion due to loss of forest cover, runoff of pollutants from agricultural lands, siltation caused by land reclamation projects, impacts from mineral and oil exploration activities, and dumping of sewage and other wastes, are only some of the ongoing processes that are damaging coastal water quality. Nearshore coral reef ecosystems are especially affected by such impacts.

Table 6 Tuna catch (metric tons) by species for the Fijian domestic longline fishery 1989-1992

Year	Vessels Active	Vessels covered	Yellowfin tuna	Bigeye tuna	Albacore tuna	Others	Total
1989	5	4	10.1	13.6	3.4	25.5	52.6
1990	10	5+(1)	22.6	27.5	68.5	39.3	157.9
1991	18	6+(3)	106.0	122.7	207.9	135.8	572.4
1992	23	14+(4)	201.3	186.6	243.2	252.1	883.2

Note: Vessel numbers in parentheses () are Korean vessels fishing as part of the local fleet.

Source: Forum Fisheries Agency 1994. Fiji Fisheries Resources Profiles. FFA Report No. 94/4.

28. The legislative framework put in place by the colonial government to safeguard the rights of indigenous Fijians reflects traditional fishing and coastal use practices. The coastal and foreshore water resources are shared under dual ownership, wherein the state owns the land beneath the sea and the Fijian clans own the right to fish for subsistence purposes in their respective traditional fishing-grounds (*qoliqoli*). In the past, the *qoliqoli* system functioned effectively in providing for fair and equitable sharing and sustainable management of nearshore resources. Integrating this traditional system of nearshore land and water use rights with more modern ownership practices will be a major challenge facing the responsible Fijian government agencies. One of the mechanisms that could help to improve the conservation of valuable fisheries resources is the establishment of networks of marine protected areas (MPAs) to protect breeding stocks from overharvesting (discussed in Section II.C.4 which follows). Depending on site-specific conditions, management of MPAs, which is usually undertaken by the adjacent communities and affected resource users, could combine traditional and modern management methodologies.

29. Fiji has an estimated 1,129 km of coastline, and because of the confluence of biophysical, socioeconomic, and institutional factors that operate in the coastal zone, applicable management issues are especially challenging. There have been rapid changes in coastal

¹⁴ Despite the fact that the number of licenses issued already exceeds the SPC-recommended level, Government stands by its estimated total allowable catch (TAC) of 15,000 tons, of which it reports only 11,000 tons are being harvested annually. It therefore would like to further increase the number of fishing licenses granted, to the legally allowed maximum of 110.

geography associated with increasing reclamation projects undertaken in an attempt to accommodate a growing tourism industry and rapid urbanization. Most national assets and public infrastructure are located in low-lying coastal areas, including major towns, international airports, hotels, sugar-cane fields and most major industrial facilities. The intensification of such development is placing increasing pressure on the coast, and leading to greater risks of physical and economic losses from coastal erosion and the effects of storm surges.

30. To protect reclaimed land from the destructive effects of ocean waves and storm surge, various coastal works such as concrete seawalls, groynes and riprap revetments have been constructed. However, construction has been haphazard and often not in accordance with the current level of knowledge regarding accepted coastal engineering practices. Further, these protection structures have been put in place without an in-depth analysis of wave and current patterns around the islands, reflecting a misconception that coasts are inherently and eternally stable. Such deficiencies in the design and development of structures intended for coastal protection have in certain instances only made the problem worse. Indiscriminate reclamation and aggregate mining in the reef areas also have added to coastal instability and beach erosion. Ultimately poor design and execution of structures in the coastal zone have led to loss of infrastructure valued in the millions of dollars, loss of life, and the continuing added costs of dredging and reconstruction.

4. Biodiversity Resources

31. The unique marine and terrestrial biodiversity resources of Fiji are of global importance. As is true of most isolated island groups, the terrestrial flora and fauna of Fiji demonstrate a high degree of endemism (unique occurrence of species within a limited geographic area)—over half (56 percent) of Fiji's 1,594 known plant species are endemic, with some groups being completely or almost entirely endemic (e.g., all 24 native species of palms in Fiji are found nowhere else). More than 40 percent of the native forest cover of the islands is still intact, and some islands, like Taveuni, still have contiguous forest cover stretching from the mountain peaks to the coast. Forested areas provide habitat for a wide array of unique birds mammals, reptiles and amphibians, insects and other invertebrates. In the marine environment, areas such as the Vatu-I-Ra Channel that separates Viti Levu and Vanua Levu islands, harbor some of the most unique assemblages of coral reefs in the world, comprising barrier, fringing, and lagoon reefs. These reefs support varied biodiversity including large groupers and Napoleon wrasses, other coral reef fishes and invertebrates, sharks, and cetaceans. The area is also of ecological importance and of great research interest because it is believed to show resilience toward large-scale climatic events, including coral bleaching,¹⁵ which have devastated reefs in other areas.

32. However, biodiversity in Fiji is threatened due to a number of important factors, including: (i) cyclones and destructive waves, which cause physical damage to coral reefs; (ii) overfishing; (iii) pollution and deteriorating water quality; (iv) forest denudation; and (v) introduction of a wide range of exotic and invasive species of plants and animals that out-compete and displace native species. The biodiversity resources of Fiji are summarized in Table 7.

33. In keeping with its commitments as a signatory to the international Convention on Biological Diversity (CBD), a Fiji Biodiversity Strategy and Action Plan (FBSAP) was prepared in 1999. The Plan outlines the current status of biodiversity resources in the country, and highlights several key areas that need greater attention in order to ensure the sustained viability of

¹⁵ Believed to be a biological response to the warming of ocean waters caused by the El Niño Southern Oscillation (ENSO).

biodiversity: (i) community support, awareness, involvement, and ownership; (ii) improving the knowledge base; (iii) developing protected areas; (iv) species conservation; (v) control of invasive species; and (vi) capacity building and strengthening.

34. The principal weaknesses that are hindering effective conservation of biodiversity resources at present are inadequate legislation, and institutional failures in establishing and managing protected areas. The 1997 National Report submitted by the Fiji Islands to the CBD underscores the lack of a systematic strategy in establishing and managing protected areas in the country. So far, only 1.4 percent of the total land area is declared as protected area (ADB 2003). While only about two dozen terrestrial sites are formally protected to date, some 129 terrestrial, marine and mangrove sites that are included within a larger list, the "Preliminary Register of Sites of National Significance" have potential biodiversity importance. Listings of Fiji's protected areas, and of the sites included on the Register of Sites of National Significance, are presented in Appendix 6.

Table 7 Native, endemic, extinct, threatened and introduced species in the Fiji Islands

Group	Est. total no. of living native species	Est. no. (%) endemic (unique) to Fiji	Number of extinct species	Number (%) of threatened species	Number of introduced species
TERRESTRIAL					
Birds	56	27 (48%)	7	13 (23%)	11
Mammals	6	1 (17%)	1	2 (33%)	5
Amphibians	2	2 (100%)	1	2 (100%)	1
Reptiles	26	10 (38%)	1	8 (31%)	0
Invertebrates	N/A	N/A	N/A	N/A	N/A
Macrolepidoptera-butterflies, moths	400	17 (4%)	2	N/A	N/A
Cicadas	15	14 (93%)	N/A	N/A	0
Phasmids Stick Insects	19	12 (63%)	N/A	10 (52%)	0
Odonata Dragonflies, Damselflies	33	22 (67%)	N/A	N/A	?
Plants - Flora	1594	893 (56%)	1	281 (18%)	936
Ferns	303	90 (30%)	N/A	58 (19%)	7
Palms	24	24 (100%)	N/A	12 (50%)	6
<i>Psychotria</i> spp. Rubiaceae	76	72 (95%)	N/A	21 (28%)	0
AQUATIC					
Freshwater bivalves, Gastropods and Crustacea	61	7 (11%)	N/A	1 (2%)	3
Fresh and Brackish Water Fish	91	Few if any	N/A	N/A	10
Fish (freshwater and marine combined)	1930	1 (<1%)	N/A	N/A	c.10
Marine Invertebrates					
Echinoderms	240	0 (0%)	N/A	N/A	N/A
Crustaceans	262	1? (<1%)	N/A	N/A	N/A
Gastropods - Cones	99	0 (0%)	29	N/A	N/A
Gastropods – Cowries	71	0 (0%)	4	N/A	N/A
Insects	2	2 (100%)	N/A	N/A	N/A
Bivalves	382	0 (0%)	96	N/A	N/A

Source: FBSAP 1999.

35. Providing adequate protection for these sites in the future will require additional trained personnel, capital and material resources, strengthened legislation, and revised institutional structures. Establishment of protected areas for biodiversity conservation is further complicated by land tenure practices in the country. Because the vast majority of land is traditionally held, it follows that most sites of biodiversity significance are found on traditional lands. Because outright acquisition of such lands by government, in order to set them aside as nature reserves may not be likely, or even possible under existing laws, innovative options for effective management of these areas need to be explored. Undoubtedly, such options will need to include the building of strong partnerships between government, traditional communities, and other affected stakeholders.

36. Among the biodiversity conservation initiatives that have shown some success are the Fiji Locally Managed Marine Areas (FLMMAs), a network of village-managed marine protected areas. Communities are partnering with academia and conservation NGOs in order to develop effective management mechanisms for each area within the FLMMA network. Another approach which also holds promise, is the proposed establishment of a World Heritage Seascape in the Vatu-I-Ra channel/Lomaiviti area that stretches between the two main islands of Viti Levu and Vanua Leu. Classification of this expansive area as a World Heritage Seascape, and establishment of a network of community-managed protected sites within the seascape, could bring international recognition to the area, and help to preserve some of Fiji's most important coral reef and marine biodiversity resources.

37. While there have been some modest successes for biodiversity conservation, the threats to Fiji's rich biodiversity resources are real and imminent, and in fact some unique habitats and species have already been pushed to the brink of disappearance. As examples:

- Native dryland forests, once occupying lowland coastal areas, have been almost entirely eliminated to make way for sugar plantations; only 1 percent of the estimated original extent of native dryland forest habitat remains today. This habitat is home to the Fijian crested iguana, an endemic reptile, and a number of other endemic species.
- Increased issuance of logging licenses is resulting in the removal of large trees from old-growth interior forests. Such practices are destroying habitat that supports biodiversity.
- Black, Norway and Pacific rats, and two species of mongoose, introduced to the islands by early settlers, have had a devastating impact on all manner of native birds, reptiles, insects and mollusks. Native species of birds, reptiles, land snails and other organisms, having evolved in the absence of these predators, have no natural defenses against them.
- Issuance of licenses for longline fishing is not being adequately monitored. Longliners that are licensed to fish for tuna in open waters are moving into nearshore areas and fishing for sharks over coral reefs. This has an overall destabilizing effect on the fragile coral reef ecosystem.

38. These and other examples make it clear that immediate action is needed to halt the trend toward irreversible loss of Fiji's unique biodiversity resources. Creating sufficient motivation and building institutional capacity to protect the country's biodiversity, and to ensure sustainable development, are the major challenges. Only if these conditions are established will it be possible to achieve the goal articulated in the FBSAP: "to conserve and sustainably use Fiji's

terrestrial, freshwater and marine biodiversity, and to maintain the ecological processes and systems which are the foundation of national and local development.”

5. Mineral and Groundwater Resources

39. Fiji has significant mineral deposits of gold, copper, lead and zinc. Gold has been exported from the country since 1932 and continues to be a major foreign exchange earner. Large copper deposits have been discovered at Namosi in east-central Fiji, and copper exploration and feasibility study is on-going. Bauxite exploration is taking place on Vanua Levu. Quarrying aimed at exploiting hardrock, gravel and sand deposits is supplying the steady demand for construction materials.

40. Offshore exploration is still at a nascent stage. Exploratory surveys, however, reveal the extensive presence of polymetallic massive sulfides (rich in copper, lead, zinc gold and silver) on the ocean floor, at depths of 2500 m, in the Fiji Exclusive Economic Zone (EEZ). Several exploration companies have expressed interest in these findings and have applied for exploration licenses to assess the extent of the deposits and the potential for future development. An offshore policy is being formulated to set up the legal and regulatory framework for private marine mineral exploration.

41. Some potential also exists for extraction of hydrocarbons in Fiji. In 1993, a natural oil seep was confirmed in the South Bligh Water. While one commercial concern was recently involved in on-land and offshore oil exploration, currently there are no active licenses in place for exploration. Only if significant deposits were discovered is it likely that the heavy investments required for further exploitation would be justified.

42. Extraction of groundwater for production of bottled mineral water has grown to be an important industry in recent years. Authority for regulation of water abstraction for this purpose is unclear, but has been handled by the Mineral Resources Department. In 2003, export earnings from bottled mineral water were estimated at FJD45.5 million, up from FJD5.9 million in 1999, during the early stages of development of the industry. Government recognizes the value that such a high-visibility export product brings, not only for direct revenue generation but also in terms of market exposure. Thus the Trade and Advisory Committee is in the process of establishing strict standards for bottled water to uphold the integrity of this important export product, which can benefit not only the bottled water industry itself, but also enterprises such as tourism which are sensitive to maintaining a positive market image.

43. Current weaknesses in the legal and institutional framework for environmental management pose some risks because of the potential environmental impacts associated with mining activities. Fortunately, despite the absence of a formal legal instrument for environmental impact assessment at the present time, the Department of Mineral Resources has voluntarily imposed this requirement “as a matter of policy” on new and ongoing mining operations. In addition, a new Mining Act is presently being drafted that will (i) incorporate requirements for sound environmental management procedures; (ii) establish linkages with the pending Environmental Management Bill; and (iii) adopt an environmental Code of Practices as an overall guideline to minimize adverse impacts of mining operations.

6. Water Resources

44. Given the abundant rainfall and relatively intact forest cover that allows capture and retention of water in underground aquifers, and the presence of several important perennial

rivers and streams, the larger islands within the Fiji archipelago have adequate supplies of water to meet the needs of the population. However, fragmented authority for the use of water creates the principal barrier to effective and efficient management of this critical resource. At least four separate agencies share primary responsibility for regulating water use or ensuring adequate water delivery to the public: (i) the Department of Drainage and Irrigation (Ministry of Agriculture) regulates the uses of water for irrigation of farmland; (ii) the Department of Lands (in the Ministry of Lands and Surveys) has responsibility for the utilization and management of water resources within river basins; (iii) the Department of Mineral Resources (in the Ministry of Lands and Surveys) has authority for licensing the abstraction of groundwater to be used for production of bottled mineral water; and (iv) the Water and Sewerage Section, Public Works Department (PWD) (in the Ministry of Works) is involved with the delivery of safe drinking water to the public, primarily in urban areas. Correspondingly, there is no piece of legislation that confers authority on a single government entity for water management. As a result, there is no clear ownership within any single government department when it comes to addressing the issues of regulating, managing, and delivering water resources and services.

45. Provision of reliable potable water sources on the smaller outer islands is problematic, since these small low-lying islands lack significant freshwater aquifers or lenses. Here, rainwater collected in roof catchment systems provides the principal source of drinkable water for residents. The Ministry of Regional Development is conducting programs in outer island locations (Lau and Yasawa Groups) to develop improved roof catchment and ferro-cement or plastic storage tank systems. At some sites, desalinization facilities are being planned.

46. Wastewater management, though not as fragmented as the management of clean water resources, is also problematic. As is the case for water supply, the Water and Sewerage Section of the Public Works Department has responsibility to provide sewerage services to users, primarily in urban areas.¹⁶ In rural areas, responsibility for ensuring that wastewater is safely disposed of rests with the respective Rural Local Authorities, but in reality is often left to individual landowners to deal with. It is estimated that more than 50 percent of the rural population does not have access to proper waste disposal services. In areas where no sewerage connection is available, typically septic tanks are employed. Peri-urban populations are also underserved, although ultimately, a number of the sewerage systems serving urban areas may be expanded to reach peri-urban communities as well.

47. Government is presently considering ways in which the issues of water and wastewater management can be addressed in a more integrated manner. A National Water Policy statement has been drafted, and consultations with stakeholders are ongoing, which can hopefully lead to a comprehensive and integrated "Water Resources Management Act" being developed and put in place by 2005. Given the overlapping and sometimes conflicting responsibilities ascribed to various ministries at present, creation of a new ministry may be required to fully harmonize and integrate the responsibilities that are now divided among multiple departments, and this is being considered as one possible institutional scenario.

¹⁶ The PWD operates a total of 12 regional water supply systems, and has 9 sewerage systems (6 operational, 3 more planned) for urban centers around the country. The systems that are already operational are being enlarged to expand coverage of the service area. PWD only provides services, but does not regulate or set policies with respect to water use or wastewater management.

7. Urbanization

48. The population of the Fiji Islands was 775,077 in 1996.¹⁷ The total population in Fiji in 2003 was estimated at 831,600,¹⁸ with the annual growth rate in 2003 estimated at 0.7 percent. Over 50 percent of the population is rural-dwelling (an estimated 51.9% in 2003), but urban drift is significant and increasing; the percentage of the total population living in urban areas increased from 38.7 percent in 1986, to 48.3 percent in 2002. Much of this rural to urban displacement is due to loss of access to land as farmland leases expire.

49. As a result of the influx of large numbers of impoverished and jobless persons from rural areas, squatter settlements continue to increase in the urban centers. According to a survey conducted by the Squatter Resettlement Unit in 1999, 9,231 households (approximately 46,155 people) were living in informal housing throughout the country. The latest available inventory, conducted by the Ministry of Local Government, Housing, Squatter Settlement and Environment in 2003, has shown a marked increase from the previous level, to some 13,700 squatter households (approximately 68,500 people, an increase of nearly 50 percent within four years). These increases have led to corresponding increases in sub-standard housing, poor sanitation, overcrowding, pollution, crime, and related urban ills.

50. The lack of an agreed-upon urban policy has contributed to the poor performance of municipalities in addressing urban problems. There is a need for better public accountability of Town Councils, which need to assume a larger role in solving local problems and issues on urbanization. Another problem is the lack of clarity in planning and management for peri-urban areas. These areas, typically excluded from coverage under urban plans, come under the authority of the Rural Local Authorities. However, peri-urban areas often have different needs and a different set of management issues than strictly rural areas, and more attention should be given to meeting the unique management and planning requirements for these important transitional areas.

51. In a recent "Urban Policy and Action Plan",¹⁹ recommendations are made to address the following main issues within the urban environment: (i) haphazard, unplanned urban growth; (ii) limited capacity of Local Councils (LCs) to fulfill their urban management mandates; (iii) inadequate affordable housing; (iv) lack of secure tenure, with accompanying inadequate municipal infrastructure and services; and (v) neglect of populations living in peri-urban areas. The document includes an implementation strategy which has among its key elements (i) a strategic urban land development program (upgrading of squatter settlements, provision of serviced residential lots, and provision of infrastructure services in peri-urban areas); (ii) devolution of local planning and development activities to local government agencies; (iii) matching funds for capital improvements; and (iv) capacity building and training for local governments.

52. While the actions proposed in the Urban Policy and Action Plan have the potential to address many of the principal urban problems named above, in order to ensure sustainability, Government will also need to seek ways in which to manage the underlying causes of rural-urban drift, promote rural development, and address problems relating to the expiration of agricultural land leases.

¹⁷ National census. Census data are only gathered every ten years; the next census will be in 2006.

¹⁸ ADB CSPU . August 2004.

¹⁹ Ministry of Local Government, Housing, Squatter Settlement and Environment. 16 April 2004. Urban Policy and Action Plan 2004-2006 (draft).

8. Pollution and Waste Management

53. The principal sources of nearshore water pollution in Fiji are from mining, shipyards and slipways, moorings, sugar mills, timber mills, cement factories, and other industrial operations, as well as municipal waste disposal sites, sewage, agricultural pesticides and herbicides, changing land use, and tourism developments. A review of pollution in Suva Harbor revealed elevated biochemical oxygen demand (BOD), elevated nutrients (nitrates and phosphates), increased levels of suspended solids, elevated pH, and high coliform bacterial levels, originating in residential and industrial effluents. Discharge of untreated sewage has resulted in fecal coliform concentrations several thousand times higher than accepted safe levels in streams around Suva.²⁰ have been reported from streams in the Levels of tributyl tin (TBT), likely contributed through its use in anti-fouling paints for boat hulls, are higher in Suva Harbor than in any port reported in the literature. Levels of other heavy metals in Suva Harbor are also high, and are equal to the most polluted harbors in Australia. Lagoon sediments and shellfish from the Lami area have high levels of mercury, zinc and lead.

54. Large-scale clearing of land, and planting on steep slopes has led to serious soil erosion problems in some areas, posing a major threat to nearshore coral reefs. Some reefs in the Suva area were destroyed as early as the 1920s because of heavy sedimentation from the Rewa watershed. High levels of nutrients (nitrates and phosphates), associated with runoff waters carrying agricultural fertilizers and pesticides, are found in the nearshore areas around Suva, and sedimentation and eutrophication of waters in northern Viti Levu and Vanua Levu may have already caused some damage to adjacent coral reefs.

55. Another problem relating to effluent waters is thermal pollution. At the FSC sugar mills, water used to cool mill machinery is discharged into rivers or coastal areas still at elevated temperatures. This is seriously affecting the aquatic and marine life along these stretches of river and coastline.

56. While air pollution appears to be fairly limited, the Ministry of Health has noted that there is a high incidence of respiratory disease in some rural areas. It is believed that this may be attributed to high levels of airborne dust occurring adjacent to unsurfaced roadways (although this correlation has not been confirmed).

57. Litter and solid waste are a conspicuous environmental problem, especially in and around urban areas. Solid wastes such as plastic bags and containers, metal cans, and glass, are often discarded indiscriminately, and end up deposited in large quantities along the coast on beaches and in mangroves. All but two of the designated municipal solid waste disposal sites in Fiji are situated in mangrove areas or next to rivers, resulting in the degradation of these very important ecological areas. These dump sites are poorly managed, and currently accepted landfill operational and management procedures (e.g., waste segregation, and site covering and rehabilitation) are not being practiced.

58. Thus far, efforts to institute public programs for recycling, waste segregation, or waste minimization have been very limited in Fiji. While much of the rubbish at all municipal dumps could be recycled, in the National State of the Environment Report (1992) it was stated that "the Suva City dump has exceeded normal capacity, and is merely increasing in height." Similarly, according to ADK Consulting Engineers (1998), around 60,000 tons of waste is dumped at Lami annually.

²⁰ From Fiji School of Medicine, as reported in National State of the Environment Report (1992).

59. As is true in most developing countries, Fiji's municipal governments lack the power, resources, and trained personnel to effectively implement waste management initiatives. While a Litter Decree was enacted by Parliament in 1992 to minimize visual pollution around the country, adequate manpower for proper implementation is lacking. As is the case for wastewater, the institutional mandate for management of solid waste in areas outside the urban centers is unclear, leading to inadequate provision of services in rural and peri-urban communities.

9. Tourism Development

60. Tourism is increasingly recognized as one of the most dynamic economic sectors, contributing substantially to the growth of developing countries through: (i) job creation; (ii) rural and outer islands development; and (iii)

61. Fiji is the main center for tourism in the South Pacific, with tourism arrivals reaching 410,000 in 1999.²¹ Tourism is the country's largest contributor to economic growth, investment, and foreign exchange earnings, with nearly 17 percent of GDP derived from tourism-related activities. The government has recently announced its target of 1,000,000 visitor arrivals within ten years. While tourism has brought significant economic benefits, it has also created tangible environmental threats. These threats become especially evident when environmental principles are ignored in planning, development, or facilities operation. The following examples highlight some of the key problems associated with tourism development in Fiji:

- (i) Conflicts have occurred between resort operators and local communities. For example, some coastal resorts have been set up without consultation with the traditional fisheries rights owners of certain *qoliqoli*. Tourism development that is carried out in the absence of adequate consultation and without cooperation from the community, or which does not involve community members as participants and potential beneficiaries, can result in heated disputes, disrupt community social structure, and be detrimental to the long-term viability of the tourism development itself.
- (ii) Some coastal resort developments are poorly designed or inappropriately sited, and are thus vulnerable to impacts from natural coastal erosion, wave action and storm surge. Such developments are at risk of damage or loss of costly facilities and infrastructure.
- (iii) A number of smaller resorts, notably along the Coral Coast, have exceeded their infrastructural design capacity—systems which were initially adequate can no longer handle existing user loads. One problem that has been reported as a result has been the discharge of inadequately treated sewage effluent into nearshore waters, affecting water quality, potentially posing a risk to human health and safety, and threatening the viability of nearshore coral reefs.

62. Several steps are being taken to improve environmental performance within the tourism sector:

²¹ While growth slipped in following years (in part as a reaction to increased threats of international terrorism), the trend has again been increasing. Arrivals in 2000 were 294,000, in 2001 about 348,000 and in 2002 around 398,000 (WTO 2002, <http://www.world-tourism.org> and South Pacific Tourism Organization [SPTO], May 2003.

- (i) Ecotourism has been adopted as an integral component of Fiji's tourism development strategy, incorporating principles that support preservation of unique ecological and biodiversity resources, and environmental sustainability. This strategy has been formally incorporated into government policy, through government approval of the National Tourism Development Plan (1998-2005) and the 1999 Ecotourism and Village-Based Policy and Strategy.
- (ii) Government has endorsed "Green Globe 21" as the framework for 'best practices' within the tourism industry. The program involves an industry-wide system for sustainable tourism and eco-tourism benchmarking and certification, allowing for monitoring and verification to ensure adherence to sound environmental management principles.
- (iii) Passage of the proposed Environmental Management Bill will help to ensure sustainable tourism development, and preservation of ecologically important areas utilized by tourists, especially along the coastlines of Nadi Bay, the Mamanuca Group, and the Coral Coast.
- (iv) While some beachfront resort operators have had disputes with the resource owners of the *qoliqoli* (the traditional coastal resource gathering areas), in other cases, beneficial partnerships between commercial interests and traditional communities have been formed. The Tavarua Island Resort and the Namotu Island Resort, in the Mamanuka Islands, are examples where operators and resource owners have achieved mutually-beneficial agreements. Through a profit-sharing arrangement, part of the proceeds from these operations are returned to the community, and used to support initiatives such as improved housing and scholarships. Another portion of the proceeds is returned to the resort operators and utilized for improving environmental management. The operators of these resorts are keenly aware of the natural limits, or carrying capacity, of the surrounding environment, and strictly enforce limits on the numbers of visitors in order to avoid unnecessary impacts to the environment, that could have an adversely effect on their business.

63. While these steps will help to promote better environmental practices within the tourism sector, the policy and institutional framework for tourism development is still weak and fragmented, and there is poor coordination among involved agencies. Accordingly, there is a need for a general policy review with respect to existing sector legislation and management structures. In particular, institutional overlap should be eliminated to avoid regulatory and management conflicts. Strengthening capacities and awareness-building within local institutions, communities, and the private sector are also essential to achieving more widespread sustainability in the tourism sector. Finally, there is an urgent need to assess the existing physical, biological and social resources, so that reasonable parameters are established to measure carrying capacity, to guide the future development of the sector.

10. Energy Sector

64. With light industries and tourism serving as the main engines for economic growth, the energy requirements of the Fiji Islands have been growing steadily. Total electricity demand in 2003 was around 630,000 megawatt-hours (MWh), or approximately 0.76 MWh per capita. Currently, about 55 percent of the power requirement is met by production from indigenous renewable resources, mostly hydropower. The 80-MW hydroelectric project at Monasavu on the

main island provides the bulk of this production, supplemented by a number of small-scale solar and micro-hydro projects undertaken by the Department of Energy. Power generated through imported diesel fuel accounts for the remaining 45 percent.

65. About 60 percent of the population has access to electricity. Provision of electricity to rural communities has improved, through an implementation of the highest number in any year, 140 schemes, in 2003, and a total of 706 schemes over a ten-year period (Table 8). About half of all households (approximately 48 percent according to the 1996 census results) still rely on traditional fuels (e.g., fuelwood, coconut shell).

66. While Fiji depends less on foreign oil for energy generation than perhaps most other countries, hydropower has some environmental vulnerabilities. This was clearly demonstrated in late 2003, when water levels at the main Monasavu Dam dropped to a meter below the safe minimum operating level. This resulted in a decrease in electricity generation at the dam, from 70 percent of total production at full capacity, to just 30 percent, resulting in 50 percent reduction in total production for the year. While, production at the dam returned to normal levels following heavy rains in early 2004, the Fiji Energy Authority (FEA) is now warning (as of early November 2004) that rains are low for this time of year so there may be low hydro power production two years in a row. A trend towards steadily declining hydro power production, as a percent of total electricity production, has been seen year by year (Table 9).

Table 8 Summary of Rural Electrification Projects Installed (1994-2003)

Year	Number of Schemes, by Type					
	FEA connection	Diesel	Solar	Hydro	Government Station	Total
1994	5	9	4	1	0	19
1995	10	20	4	1	0	35
1996	17	17	3	0	0	37
1997	16	12	1	0	2	31
1998	38	39	0	0	0	77
1999	56	75	1	3	0	135
2000	19	14	1	0	0	34
2001	52	33	0	1	0	86
2002	52	58	2	0	0	112
2003	60	79	0	0	1	140
Total	325	356	16	6	3	706

Source: SDP Mid-term Review

Table 9 Percentage of energy from hydro, diesel and bagasse, 1990 - 2002

Source	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Bagasse	0.6	0.5	0.7	0.9	2.0	1.9	3.2	3.2	2.6	4.5	5.7	3.8	3.6
Diesel	4.2	5.4	6.5	5.7	5.4	7.7	15.1	8.4	14.5	12.5	18.0	15.8	22.9
Hydro	94.5	93.4	92.1	92.8	91.9	89.8	81.1	87.8	82.2	82.3	75.6	79.6	72.7

Source: prepared by Dr. Luis Vega from information provided by FEA, 2004.

67. Despite the significant production shortfall that occurred in 2003, scientists and energy sector specialists generally feel that hydropower and other indigenous, renewable energy sources are the way of the future and the most appropriate, environmentally-friendly, and cost-effective means for securing Fiji's future energy needs. Several programs to pilot-test renewable resources and methodologies, and to evaluate options for sustainable rural electrification, have been conducted by the Department of Energy with assistance from various agencies. These have included ADB's review of rural electrification policy; the UNDP-GEF project on promoting

sustainability of Renewable Energy Technologies (RETs) and Renewable Energy Service Companies (RESCOs); and the ADB-supported Renewable Energy and Energy Efficiency Program (REEP). Generally, these programs are investigating market-driven options to develop, fund and implement renewable energy projects and establish a framework for market-driven energy efficiency improvements. Apart from the technologies already mentioned, opportunities to develop wind energy, geothermal, and wave energy schemes are also under investigation.²²

68. Another important aspect of energy consumption and demand in Fiji, often overlooked, is the very real potential that exists for more efficient end-use. In contrast to new technologies that may be quite costly to develop and initiate, changing end-user practices to encourage more efficient use of energy, is a cost-effective means to reduce demand and thus conserve valuable resources, especially non-renewables.

69. Several weaknesses and deficiencies constrain the expanded use of renewables, and sustainable development generally, in the energy sector. Key among these is the absence of a market and regulatory environment in which independent power providers (IPPs) might successfully compete. In addition, the tariffs charged to consumers by the State-owned utility, the Fiji Energy Authority (FEA), have been only marginally adequate to cover the costs of production. Having grown accustomed to receiving electricity at subsidized prices, consumers are reluctant to pay fair market value for these services. Further, disconnection of non-paying customers is difficult to implement. These conditions create significant barriers to profitability for electricity providers, thus threatening the long-term viability of their operations.

11. Natural Hazards and Disaster Management

70. The destruction and loss of human life left in the wake of the magnitude 9.0 earthquake and resultant tsunamis of 26 December 2004, affecting a dozen Asian and African nations, has caused a global re-thinking of the critical importance of disaster preparedness. Fiji is subject to cyclones, earthquakes, landslides, flooding and storm surges, and is second only to Papua New Guinea as the Pacific Island Country most affected by natural disasters since 1990. The location of the Fiji Archipelago between approximately 15° to 20° south latitude places it in a tropical cyclone belt, with an average of one cyclone passing through its waters every year. Over the last decade, tropical cyclones, by far the most prevalent and destructive of the natural hazards occurring in Fiji, have caused an estimated FJD500 million in damage and loss of about 100 lives. The damage caused by Cyclone Kina in 1993 was estimated at \$124 million. Cyclone Ami, which hit the country in early 2003, damaged 50 percent of all buildings and 75 percent of all tree crops, also causing over \$100 million in damage. The Government has had to divert a significant portion of its capital expenditure budget for post-Ami recovery work, and this is likely to place a substantial drag on the country's economic growth, especially in the absence of foreign assistance. The overall impact of Ami also has graphically shown how poor building standards have resulted in large infrastructural losses, and aggravated the human catastrophe.

71. Other natural disasters are also known in the islands. Floods occur periodically, and those which affected the country in April 2004 were estimated to have caused around FJD30 million in

²² While wave energy may be an attractive option in the long term, there are no commercial plants currently operating anywhere in the world, although there are working prototypes in Europe. Wind is likely to be marginally viable at best in Fiji, where wind speeds are moderate; energy derived from wind is proportional to the cube of the wind speed, so a consistently strong wind is important. FEA has signed a power purchase agreement with a private company to provide about 200 kW (0.2 MW) from a wind farm, and plans to build its own wind farm in 2005-2006 on Viti Levu. Support for two other wind farms is under study and consideration through REEP.

damage. Significant seismic events, while less common, occur occasionally, and include impacts from earthquakes, landslides, and *tsunamis* (tidal waves).

72. Since 1918, when reliable recording began in Fiji, a potentially dangerous earthquake of magnitude 6.0 or more has occurred on an average of once every three years. The magnitude 7.0 quakes in 1928 and 1949 are the largest known to have occurred in Fiji. The area of Rabi and northern Taveuni was severely shaken (maximum intensity 8.0) by the 1919, 1932 and 1979 earthquakes, causing severe landslides, mud volcanoes, changes to natural water supplies and severe damage to buildings. The stone church at Napuka sustained serious damage on each occasion.

73. Eleven tsunamis have been recorded in Fiji, of which three were generated within Fiji waters. The most damaging tsunami, in 1953, claimed five lives in Suva and Kadavu, and flooded parts of Suva City. The wave heights in Suva were estimated to be about 2 m, and about 5 m at Nakasaleka in Kadavu. Had the tsunami occurred at high tide, the damage would have been more severe.

74. Recently, steps have been taken to improve disaster response and preparedness, and to improve the performance of the National Disaster Management Office (NDMO). To improve efficiency, the NDMO has been relocated from the Ministry of Regional Development to the Ministry of Home Affairs. A Disaster Relief and Rehabilitation Fund (DRRF) was created, with a budget of FJD2.6 million for 2004.²³ A National Disaster Committee has been established in the Prime Minister's office to administer the DRRF and assist the NDMO to effectively deal with disaster events.

75. Other constraints and concerns have been identified that affect disaster response and preparedness in Fiji. These include the need to: (i) develop early warning systems for floods, earthquakes, and tsunamis; (ii) provide sufficient funding to ensure public safety and provide adequate relief assistance to victims; (iii) develop better coordination with the Red Cross, NGOs, international funding institutions, and other partners; (iv) expand the coverage of the NDMO to include both manmade and natural disasters; and (v) shift emphasis from disaster mitigation to reducing risk and vulnerability, in order to help to minimize damage and danger when disasters occur. The South Pacific Applied Geoscience Commission (SOPAC) has just completed preparation of a regional Environmental Vulnerability Index (EVI) that will enable Pacific Island leaders to understand their vulnerability to natural disasters, and put in place plans and actions to remedy the situation. The EVI, developed in response to the Barbados Plan of Action for the Sustainable Development of Small Island Developing States, is a model composite vulnerability index that incorporates both ecological and economic parameters, which may prove helpful to the Fijian government in better understanding the country's vulnerabilities and facilitating improved disaster preparedness.

12. Climate Change

76. An Intergovernmental Panel on Climate Change has confirmed that ADB's Pacific Developing Member Countries (PDMCs), already highly vulnerable to natural disasters, may be among the most susceptible to the adverse impacts of climate change, and therefore the first to be forced to adapt. Impacts include reduced security of fresh water supply due to higher variability of rainfall and rising sea levels; coral bleaching; disturbances to agricultural

²³ Unfortunately, the urgent need for extensive assistance in the aftermath of flash floods that occurred in early 2004 has already exhausted the annual allocation in the DRRF.

production; changed human disease patterns (e.g., the spread of malaria to areas currently unaffected); and increased climatic extremes, such as unusually intense and unseasonal cyclones, flooding, droughts, and other natural phenomena. Appropriate responses involve mainstreaming climate change adaptation strategies (or “climate proofing”) into development strategies, in order to assess and address risks to the natural environment, infrastructure, and human development. These measures will involve additional costs to PDMCs.

77. As mentioned in the foregoing section (II.B.11), the Fiji Islands, particularly the low-lying outer islands and atolls, are already highly vulnerable to extreme weather and climatic events, including droughts, flooding, storm surge, and cyclones. Future climate shifts may further exacerbate adverse impacts, including sea-level rise, and increase the costs of disaster response and rehabilitation. Areas most likely to be affected include coastal ecosystems, marine resources, and tourism developments, with impacts that will likely be felt in sensitive sectors such as water and sanitation, energy infrastructure²⁴, agriculture and fisheries. At present, Fiji has limited capacity to respond effectively to these climate risks. In order to develop and implement appropriate response strategies, a comprehensive baseline of the current situation is needed, along with an understanding of the effects of climate change, the degree of vulnerability, and the national capacity to adapt.

78. A Vulnerability and Adaptation Assessment for the Fiji Islands, prepared by the International Global Change Institute of the University of Waikato (New Zealand) in partnership with the South Pacific Regional Environment Programme (SPREP) and the Pacific Islands Climate Change Assistance Project (PICCAP) Fiji Islands Country Team was produced in 2000. In this report, vulnerability and adaptation assessment for the island of Viti Levu was carried out under four sectors: agriculture, coastal resources, human health and water resources. The ADB, through its regional Climate Change Adaptation Program for the Pacific (CLIMAP),²⁵ has drafted a climate profile (through a desk study) for the Republic of the Fiji Islands (October 2004). The profile includes a general vulnerability profile, as well as climate sensitivity analyses for ADB’s programmed technical assistance projects. Fiji’s principal potential climate-related vulnerabilities, as identified by these and other studies, include the following:

- (i) Water resources: climatic variations could result in reduced rainfall, increased drought conditions, and failure to recharge groundwater aquifers. Reduced water availability would have major impacts both on natural ecosystems, especially forested watersheds, and on human populations.
- (ii) Human health: climatic impacts that reduced drinking water supplies and agricultural production could cause stresses on human health. Injuries, illness, and loss of human life could occur during cyclones, droughts, and floods. Climatic disturbances could also induce increased incidence of vector-borne diseases (dengue fever), water-borne diseases (diarrhea), and toxic algae (ciguatera). Any such human health impacts would more severely affect the impoverished sectors of society.

²⁴ The impacts of drought on the operation of the Monasavu hydropower plant, already discussed (Section II.B.10), graphically illustrate the potential impacts of weather variability on energy infrastructure. It remains to be seen if ENSO patterns are changing long-term. A climate adaptation strategy with respect to electricity production could include developing geothermal, wind, biofuels, and solar, even if these are a bit costlier than hydropower, to provide diversification when weather or climate affects an individual resource.

²⁵ ADB RETA No. 6064-REG, Pacific Department (PAR).

- (iii) Fisheries: El Niño events, causing changes in the location of oceanic warm-water masses, could also affect patterns of movement and capture of commercially-important migratory species such as tuna.²⁶ Warmer surface water temperatures could induce coral bleaching events that may result in declining productivity of coral reefs, upon which a large proportion of coastal populations depend for their subsistence fishing needs.
- (iv) Agriculture: Changing climate patterns could have major impacts on agricultural crops. Droughts could dramatically reduce crop productivity, with significant repercussions for human health and nutrition. Adaptive measures, such as utilization of crops that have reduced water requirements, could help to mitigate such impacts.
- (v) Infrastructure, Coastal Developments and Tourism: The large majority of infrastructure, urbanized areas and tourism developments in Fiji are found within the coastal belt, and are thus particularly vulnerable to many of the effects of climate change. Increased flooding, sea-level rise, and increased storm events, could severely damage or destroy roads, power transmission systems, hotels and housing developments, and commercial areas.

79. Within the Fiji SDP, a number of targets are identified that would help in adapting to climate change impacts. For example, the SDP recommends (i) investigation of historical shoreline changes, currents, and spatial and temporal dynamics in order to model and monitor coastal change; (ii) preservation of natural coastal protection through such measures as reduced mangrove logging and planting of mangrove seedlings, and protection of coral reefs by reducing coral extraction activities; (iii) implementing engineered infrastructure improvements for flood control; and (iv) alleviating the impacts of drought through improved water resources management. Despite the enumeration of such objectives, there is no section within the SDP dedicated specifically to identifying and integrating climate change issues and concerns. In addition to these targets, another important adaptation that could help to mitigate the costs and adverse effects of climate change would include review and modification of design of major infrastructure, to ensure more effective climate-proofing.

80. With respect to proactive steps being taken to help mitigate global climate change, government completed its first Greenhouse Gas (GHG) inventory in November of 1997. In addition to the baseline inventory, the report highlighted biodiversity needs, such as reduction of deforestation, and establishment of conservation or protected areas for the purpose of reducing greenhouse gas emissions in the Fiji Islands. These concerns have been included in the Fiji Biodiversity Strategy and Action Plan (FBSAP) produced in 1999.

81. The Fijian government has also taken steps toward the implementation of agreements under the Vienna Convention and Montreal Protocol, through passage of the Ozone Depleting Substances Act (ODS Act) in 1998 and ODS Regulation in 2000. The intention was to establish an administrative framework for the enforcement of controls and to phase out completely by 2010 the import, use and storage of ozone-depleting substances. The ODS Unit established in

²⁶ During major El Niño-Southern Oscillation episodes, such as in 1997-98, yellowfin tuna become more vulnerable to purse-seine gear in the central-western Pacific. During an El Niño, the thermocline shoals from east to west, compressing the preferred, mixed-layer habitat of yellowfin tuna. The change in ocean conditions causes the yellowfin tuna to migrate up the water column, where they swim closer to the surface, in reach of the purse-seine fishery. Large yellowfin tuna (>75 cm fork length) are particularly affected by these climatic changes (Source US Fisheries Southwest Science Center).

the DOE monitors and enforces implementation of the ODS Act. The Unit has trained other enforcement officers, including Fiji Islands Marine Safety Administration (FIMSA) officers; Quarantine Officers; Customs Officers; Director of Public Prosecution (DPP) Legal Officers; and a few staff of the Police and Occupational Health & Safety (OHS) office. More than 400 technicians have also been trained in the safe handling, use, and storage of refrigerants, and two recycling centers have been established in Suva and Nadi within the National Fire Authority compounds to store used ODSs from the refrigeration and air-conditioning sector. Enforcement of the ODS Act in 2003 has included confiscation of HCFC-22 refrigerant from companies due to non-compliance, and issuance of permits to store controlled substances.²⁷

82. The Fijian government has yet to approve a consistent and comprehensive policy with regard to climate change. However, efforts are being undertaken along these lines. A recent policy paper²⁸ outlines the following primary policy objectives: (i) mainstreaming; (ii) data collection, storage, and sharing; (iii) awareness raising; (iv) adaptation; (v) mitigation; (vi) government commitments to environmental conventions; and (vii) promotion of community participation and equitable access to assistance among all social sectors, including marginalized groups.

D. Policy, Regulatory, and Institutional Framework

83. The Fijian Government recognizes the importance of effective and efficient functioning of institutions for rebuilding confidence in the country. In the area of environmental governance, legislation aimed at sustainable environmental management must be enforced. To support effective enforcement and management, measures must be taken to bring about increased public awareness and understanding, and to effect a change of attitude in order to reduce and eliminate ongoing environmentally-damaging practices. Environmental Impact Assessment (EIA) must be strictly imposed upon all development projects, especially for projects located on environmentally-sensitive sites or in areas that are prone to environmental degradation.

84. In part due to recent political disruptions, until recently, it has not been possible to achieve needed policy, regulatory, and institutional reform for environmental management, and to mainstream environmental concerns into Fiji's economic and development planning and decision-making processes. A 1998 study²⁹ reported that decision-making at the national level has traditionally dealt almost exclusively with economic issues, without the integration of social and environmental considerations. As a result, in the past, the focus has been on short- to medium-term development policies and strategies, which do not take into account benefits of environment protection that become evident only over the long-term.

85. Within the present institutional framework, mandates and resources for environmental management in Fiji are scattered among more than twenty ministries, departments, statutory bodies and related agencies. While a host of environment-related policies, legislation and regulations have already been promulgated, implementation and full enforcement are generally lacking. Policies, laws, and institutional responsibilities need to be better integrated and harmonized, and adequate technical assistance and funding provided to support these efforts. A

²⁷ Controlled substances include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons/bifluorocarbonos (BFCs), methyl chloroform, methyl bromide and carbon tetrachloride.

²⁸ Department of Environment. 22 October 2004. Fourth Draft Climate Change Policy Paper for Fiji: Adapting to Climate Change, Variability and Sea Level Change—Planning for the Future.

²⁹ ESCAP. 1998. *Integrating Environmental Considerations into Economic Decision-making Processes at the National Level*.

summary matrix of existing policies, laws and regulations, and agencies responsible for environmental management, is provided in Appendix 7.

86. Improved political stability over the last three to four years has enabled the Fijian government to start to tackle some of the major requirements for improved environmental management. Key among these is a new Environment Management Bill (EMB), currently before Parliament; it is expected that the bill will be signed into law sometime in 2005. Effective implementation of the bill, if enacted, will require significant resources to be devoted to building up capacity and capabilities within the various relevant government agencies. The sections that follow detail recent progress in reform of the policy, legal, and institutional framework for improved environmental management.

1. Policy Framework for Sustainable Development

87. The principal policy instrument guiding the sustainable development of the Fiji Islands is its Strategic Development Plan (SDP), 2003-2005, prepared in 2002.³⁰ The Plan sets as its medium-term strategy “rebuilding confidence for stability and growth.” It identifies the priorities that Government must concentrate on during the three-year implementation period. It consists of an integrated set of policies in the areas of macroeconomic management; economic development; social and community development; and key cross-sectoral issues, including environment. To facilitate the implementation of the SDP, a National Economic Development Council (NEDC) was established, especially to assist in developing mechanisms for integrating sustainable development policies into national planning and budgeting.

88. The key elements of environmental policy articulated in the SDP are: (i) the critical need for proper management of the environment and sustainable use of natural resources; (ii) recognition of the country’s rich natural endowment, which is fragile, diverse and unique; (iii) the acknowledgement of the existence of serious environmental problems, including land degradation through expanded development, air and water pollution, inappropriate refuse disposal, and vulnerability to climate change and sea level rise; (iv) the need to enact comprehensive legislation to address these problems, and especially to require the conduct of EIAs for all development; and (v) Fiji’s commitment to the Millenium Development Goals (MDGs), the World Summit on Sustainable Development (WSSD) Plan of Implementation, and other international environmental conventions.

89. Specific environmental policy objectives set forth in the SDP are to: (i) minimize degradation of natural resources and protect biodiversity; (ii) reduce and eliminate pollution; (iii) raise awareness of the importance of sustainable development; and (iv) initiate environmental auditing procedures in sensitive sectors and industries. A series of key performance indicators (KPIs) are identified, by which progress in achieving the policy objectives can be measured. Similarly, policy objectives and KPIs are established for all major development sectors.

90. A draft mid-term review of the SDP has recently been produced.³¹ The review provides a thorough evaluation of progress made since the SDP was released. In particular, the review evaluates progress toward achieving the KPIs presented in the SDP. Of an original 615 KPIs, some 149 have been removed because they have already been achieved. Other KPIs have been deleted to reduce duplication or because they are not relevant. A total of 103 KPIs are suffering delays due to lack of funding or lack of technical capacity. The number of KPIs that still

³⁰ Government of the Fiji Islands. November 2002. Parliamentary Paper No. 72.

³¹ National Planning Office. September 2004. Strategic Development Plan: Mid-Term Review. Ministry of Finance and National Planning, Suva.

remain to be achieved after this review are 490. There are recommendations for adding a number of important KPIs that were not included in the original Plan.

91. An integral part of the policy framework for sustainable development is based upon the global Millenium Development Goals (MDGs), which were adopted as part of the “roadmap” for achieving sustainability under the UN’s Millenium Declaration.³² The MDGs have been adopted by the Fijian government, and are integrated into the SDP goals and objectives, and into the KPIs. Eight goals representing key focal areas are comprised in the MDGs, including Goal 7, “Ensure Environmental Sustainability.” Relevant MDG indicators for environmental sustainability are included among the Country Environment Indicators for Fiji (see Appendix 1).

2. Legal and Regulatory Framework

92. Fiji’s National Environment Strategy (NES), which was endorsed by Cabinet on 20 April 1993, identified weak environmental management capability as the most critical environmental issue faced by the country. The Department of Environment has identified over eighty Acts that have relevance for environmental and natural resources management. These laws and regulations are administered by more than 20 different ministries, statutory bodies, or other agencies. Most of this legislation is outdated, and ineffective for environmental management in the modern era. Many of the existing laws overlap, or have sections that are in conflict with one another. Among the most glaring deficiencies that exist is the absence of a clear-cut, well-defined, and comprehensive piece of legislation requiring environmental impact assessment (EIA) of all major development projects.³³

93. Recognizing that urgent action was necessary to address these shortcomings, government in early 1995 approved the drafting of new legislation intended to strengthen, modernize, and overhaul the existing legal framework for environmental management. In support of this effort, later in the same year ADB initiated technical assistance through its Environmental Awareness, Legislation and Database Project for Fiji.³⁴

94. By 1996, legal drafting of a new Sustainable Development Bill (SDB) was completed. However, the proposed SDB, in its original form, contained 19 parts and 22 schedules, and was considered by Parliament to be overly broad, and not adequately focused solely on environmental management issues. In addition, during the period leading up to and following the 2000 coup, work was interrupted on the normal processing of the legislation. As a result of these and other factors, passage of the legislation has now been delayed for nearly a decade.

95. After a return to more peaceful conditions following the coup, the SDB was significantly modified, and has been reintroduced as the Environmental Management Bill (EMB) of 2004. It is

³² This resolution was unanimously adopted by all UN member nations during the 8th Plenary Meeting of the UN General Assembly on 8 September 2000.

³³ In the absence of an EIA law, the responsibility for reviewing and evaluating the environmental impacts of proposed development projects has fallen largely to the Town and Country Planning Department of the Ministry of Local Government, Housing, Squatter Settlement and Environment. As provided in the Town Planning Act, the Director of Town and Country Planning has discretionary authority to request an Environmental Impact Assessment for any projects that involve zoning changes or construction of buildings. Similar discretionary powers are given to the Director of Lands for foreshore and offshore development, including reclamation.

³⁴ ADB TA No. 2180.

now hoped that this bill may be passed into law sometime in 2005.³⁵ A more detailed account of the progress and history of this legislative effort is contained in Appendix 8.

96. The revised EMB contains the following principal provisions: (i) mandates the formation of an Environmental Impact Assessment Unit, and requires EIA for all major development projects, including those undertaken by the government; (ii) provides for a framework of permitting and enforcement orders to ensure compliance with pollution control and waste management regulations; and (iii) contains provisions for ensuring the effective sustainable management of all natural resources. While the long delays and failure to quickly enact effective environmental management legislation has no doubt had some weakening effects, it appears that finally the government is very close to putting in place a critical piece of legislation that can help to secure environmental and natural resource sustainability for Fiji's future.

97. Apart from the need for passage of the EMB, a whole host of associated enabling regulations will need to be drafted, reviewed, and implemented following passage of the bill into law, to empower the relevant responsible government agencies to action. Apart from that, other legal instruments will undoubtedly be required to strengthen environmental management. Many of these have to do with protection of the marine environment and biodiversity resources, and include (i) enactment of the Marine Pollution Prevention Bill; (ii) review, update, and implementation of the FBSAP; (iii) implementation of a National Control on Coral Harvesting; (iv) review and endorsement of the Mangrove Management Plan; and (v) legal declaration of nature and marine parks.

98. Fiji is signatory to an array of international environmental and resource conventions that place considerable added responsibility on the Government.³⁶ While these agreements ensure that the nation has a voice in global and regional environmental policy decision-making, and strongly support sustainable environmental management principles, they increase the burden being placed on already overtaxed institutions with limited capacity, which is a serious barrier limiting government's ability to carry out its commitments under these agreements. Technical assistance provided by various international and regional organizations has made it possible for government to undertake national-level projects, and to participate in regional programs, aimed at improving environmental management and sustainability. Most notable of these are: (i) the FBSAP; (ii) Pacific Invasive Species Management; (iii) South Pacific Biodiversity Conservation Program; (iv) Strategic Action Program for the International Waters of the Pacific Small Island Developing States; and (v) Oceanic Fisheries Management. As already mentioned, government has also committed to achieving the Millennium Development Goals (including environmental sustainability), and the World Summit on Sustainable Development (WSSD) Plan of Implementation.

³⁵ Until very recently, most legislators and environmental administrators had felt confident that the EMB would be passed into law during the November 2004 session of Parliament. However, during the publication of the 2005 fiscal year budget on 5 November 2004, it was announced that further consideration and likely passage of the EMB into law will be deferred until 2005.

³⁶ Both preceding and following its participation in the Rio Declaration (Agenda 21) at the United Nations Conference on Environment and Development (UNCED) or "Earth Summit" in 1992, Fiji has signed, ratified or other wise been party to more than 30 international and regional environmental conventions. A complete listing of these is provided in Appendix 9.

3. Institutional Framework for Environmental and Natural Resources Management

a. Government Institutions

99. As mentioned above, there are apparent duplications, conflicts, and overlaps among the laws pertaining to environment and natural resources management, and therefore, of the mandates and functions of the various government agencies and statutory bodies that administer them. For example, all the following entities have some responsibility for land management: the Ministry of Lands and Mineral Resources; the Ministry of Agriculture, Sugar and Land Resettlement; the Native Lands Trust Board; the Department of Town and Country Planning, (in the Ministry of Local Government, Housing, Squatter Settlement, & Environment); and the Ministry of Fijian Affairs, Culture and Heritage (especially concerning traditional communal lands). The same is true in managing forest and fishery areas, coastal and marine areas, water resources, mining areas, protected areas, as well as in discharging duties like disaster management, addressing climate change, tourism development, health and sanitation, and pollution control (see Appendix 7 for a matrix that illustrates the jurisdiction of these different institutions, together with the related legislation, regulations, policies, strategies, plans and programs).

100. To help harmonize administration of various responsibilities for environmental management, it is envisioned that under the proposed EMB, if passed, the Department of Environment (DOE), within the Ministry of Local Government, Housing, Squatter Settlement, & Environment, will take the lead in environmental management, impact assessment, and compliance. Environmental Management Units will be set up within each of the line ministries having authority in relevant natural resources or environment-related sectors, and will conduct liaison with the DOE to ensure effective coordination. The new EMB also provides for the creation of a National Environment Council that will be an advisory body to Cabinet on resource management policy, and will coordinate the formulation of these policies.

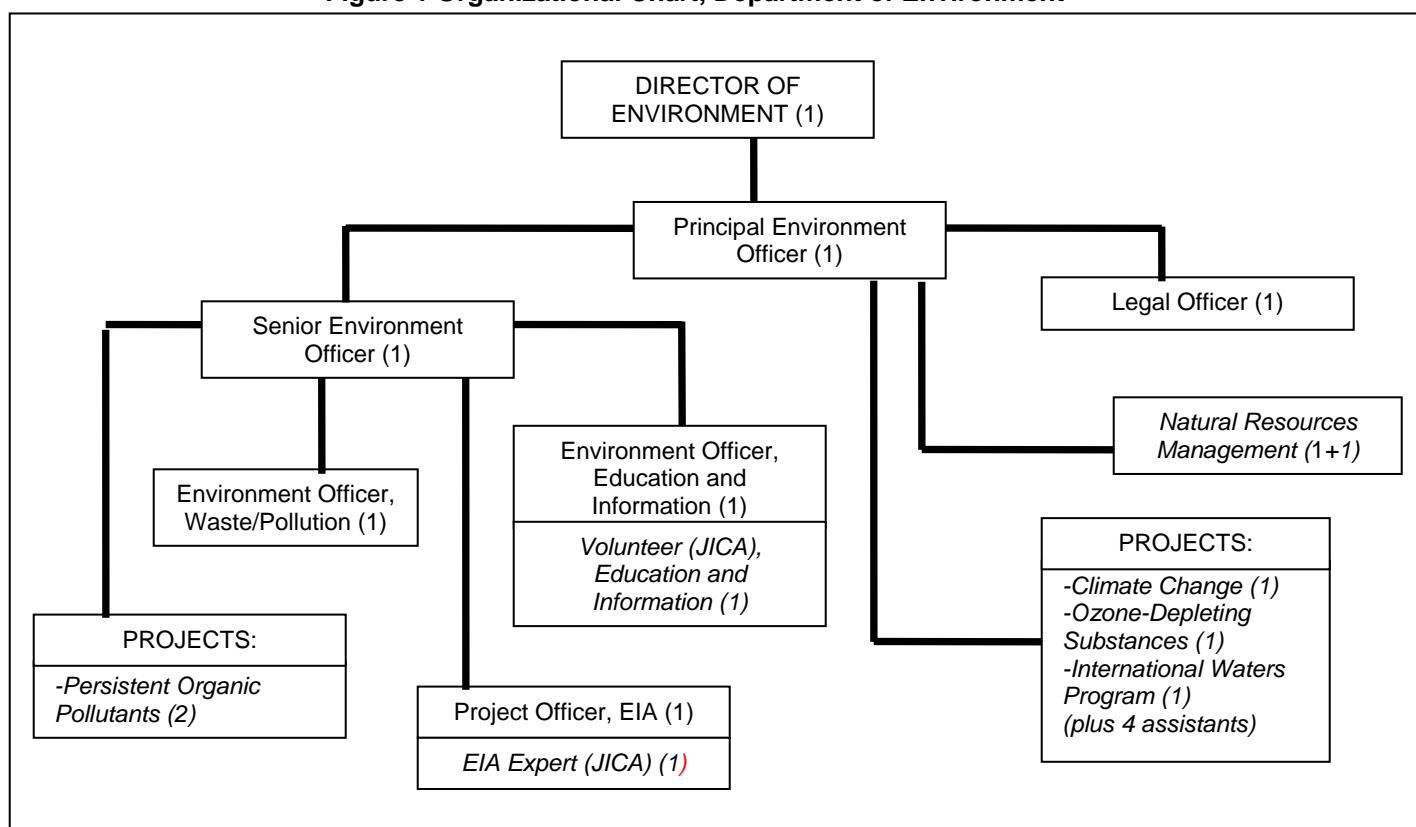
101. While these proposed institutional changes will be a positive step in helping to harmonize environmental management, it is anticipated that, with passage of the proposed EMB, the new responsibilities and activities to be given over to DOE, as well as to other key ministries, will represent an exponential increase in workload. As can be clearly seen from the existing budget and human resources allocation for the Department of Environment (Table 10 and Figure 1, respectively) this entity has limited capacity for implementation of such a far-reaching law. While only around 20 professional staff are counted within the department, not even all of these positions are permanent recurrent staff positions. Rather, most are paid for out of temporary project budgets or other donor funds (e.g., CIDA-funded Climate Change project; GEF-/UNEP POPs project; JICA-funded staff for environmental education and environmental impact assessment, among others). Therefore, it is incumbent upon Parliament to ensure that, along with passage of the new proposed legislation, adequate budgetary resources are allocated to enable development of the requisite human resources³⁷ needed for implementation of all the activities that are required for effective environmental management, including research and information management, planning, compliance monitoring, and enforcement. Such support will clearly represent the most tangible evidence of governmental commitment to truly mainstream environmental concerns within national economic development planning and decision-making processes.

³⁷ Currently with only 8 permanent budgeted positions, the Department of Environment has already requested that some 23 additional staff be added to its current technical complement, once the EMB is passed into law.

Table 10 Budget and Staffing, Department of Environment, 2003-2005

	Year		
	2003	2004	2005
Recurrent budget (FJD '000)	1,115.8	2,144.3	1,166.9
Budget, operations and maintenance (FJD '000)	5.6	6.4	7.0
Budget, travel and communications (FJD '000)	9.6	9.1	8.8
Number of professional staff	8	8	8 (+23 additional requested)

Source: Department of Environment

Figure 1 Organizational Chart, Department of Environment

Source: adapted from information provided by Department of Environment
Positions indicated in *italics* are non-recurrent positions

b. Other Institutions

102. A host of other institutions, including international financial institutions (IFIs) and bilateral donors; non-governmental organizations (NGOs); academia and research institutions; social, traditional, and religious groups; and the private sector, all potentially have key roles to play in planning, policy-making, and support and implementation of sound management practices for Fiji's environment.

103. **IFIs and Donors.** Numerous IFIs and bilateral donors fund activities in Fiji, and many of these maintain offices in Suva. Among the key partners in this category are European Union (EU), Australia, New Zealand, Japan, the United Nations, ADB and World Bank. Despite the large number of organizations, the total level of funding support being delivered to Fiji is low, on a per capita basis, as compared to other countries in the region. A summary of key projects being financed by these partners, and their linkages to ADB's own funding activities, is presented in Appendix 10.

104. **NGOs.** Among the NGOs active in Fiji, several have mandates that include mainstreaming of environmental considerations into the policy and planning framework, conducting environmental advocacy, and raising environmental consciousness and awareness within formal and non-formal educational sectors, in both urban and rural communities. Many of these are international or regional NGOs that have a strong presence in the country (often with regional offices located in Suva). A representative listing of NGOs that are undertaking environment-oriented activities in the country is presented in Appendix 11.

105. **Academia and Regional Intergovernmental Agencies.** The premier institution of higher learning in the country and the region, the University of the South Pacific (USP), has many ongoing, completed and planned research and demonstration projects that are relevant to environmental and natural resources management issues. These include (among others) projects and studies on environmental policy, community based management, coastal resources management, forestry, and climate change. Regional intergovernmental agencies active in Fiji, that have an environmental focus include Forum Secretariat, SOPAC, SPC, and SPREP.

106. **Social, Traditional and Religious Groups, and Women.** Various civil society groups in Fiji wield great influence in national decision-making processes. Interests of indigenous Fijians are represented through the Native Land Trust Board (NLTB), the Ministry of Fijian Affairs, and the Great Council of Chiefs (among others). As the majority landowners, indigenous Fijians control access to most of Fiji's natural resources, and thus have key responsibilities in resource management and environmental preservation. Because of the high degree of participation among members of all communities in their respective religious practices (with Christianity being practiced primarily by the indigenous Fijians, and Hinduism and Islam being practiced mainly by Indian Fijians), opportunities exist to utilize churches and temples as media for disseminating environmental messages and instilling a sense of environmental responsibility and ethical behavior among religious observers. As family caregivers, women, too, have a potentially important role to play in supporting environmental sustainability and passing along environmental teachings to future generations.

107. **Private Sector.** Natural resources are exploited for revenue generation and economic gain through private-sector enterprises. Therefore the private sector has a heavy obligation to ensure that the resources being tapped are utilized in a sustainable manner. The resource base needs to be maintained, both for the public good, and to guarantee that adequate opportunities for economic development will be available for future generations. The continuing viability of such sectors as agriculture, fisheries, forestry, and tourism depends directly upon the continued health of the environment and upon available natural resources.

108. The presence of such a diversity of institutions that have important roles to play in the environmental arena offers the potential to offset some of the weaknesses inherent in government institutions. It has been pointed out, for example, that government has so far failed to fully utilize the many data and human resources that are available within these other

institutions, to assist with the planning and implementation of environmental projects. More effective partnering between government and these other types of institutions could provide the stimulus to revitalize better environmental decision-making, planning, and management, with benefits to be realized by all parties concerned, across a multitude of sectors.

IV. PRIORITIES FOR ACTION

A. Recent Environmental Record

109. The SDP of 2002 set a policy framework for Fiji to pursue economic development in an environmentally-sustainable way. The National Environment Strategy (NES),³⁸ prepared in 1993, identified several environmental issues of major significance, first and foremost of which was “*the inability of Government to manage natural resources on a sustainable basis because of inadequate policies, legislation, forward planning and administration.*” The government responded by calling for the drafting of legislation to address this critical need. Although more than a decade has elapsed, passage of the proposed legislation (in its present form as the EMB), is still pending.

110. During the past 10 years of waiting for the enactment of the EMB, Fiji’s institutional set-up for environmental management has been in a state of flux, with mandates and resources scattered among more than 20 ministries, departments, statutory bodies and related agencies.³⁹ While numerous environmental policies, laws and regulations already exist on paper, implementation is generally inadequate, with lack of resources and capacities across the whole administrative spectrum. This has led to ineffective legal enforcement and compliance in many cases.

111. The absence of a well-articulated law requiring EIA is one area of particular concern. In light of this situation, environmental compliance has been handled as a discretionary matter by various agencies. For example (i) at the discretion of the Director of Town and Country Planning, EIA may be requested for projects involving the subdivision of land (under the Subdivision of Land Act) or for projects involving the construction of buildings, or requiring changes in zoning (under the Town Planning Act); and (ii) at the discretion of the Director of Lands, EIA may be requested for projects for foreshore or offshore development (e.g., reclamation projects), or, if illegal reclamation has already occurred, the Director may call for preparation of a management plan in lieu of an EIA. In addition, other departments may also establish requirements for EIA on a discretionary basis. For example, the Director of Mineral Resources has called for EIAs for all new mining operations as a matter of policy, in the absence of a formal requirement to do so.

112. While this discretionary system has worked reasonably well in helping to avoid serious impacts to Fiji’s environment over the years, there is always the danger that projects posing significant environmental threats are not subjected to EIA, because of the lack of a legal requirement. In addition, under the current system, there is some argument about whether the government itself is or should be exempt from an EIA requirement, for projects that it undertakes. Under the proposed EMB, all projects would be evaluated to determine the level of

³⁸ Watling D. and Stuart Chape. 1993.

³⁹ Including the Ministry of Agriculture, Sugar and Land Resettlement, Ministry of Fijian Affairs, Culture and Heritage, Ministry of Fisheries and Forests, Ministry of Health, Ministry of Home Affairs, Immigration and National Disaster Management, Ministry of Local Government, Housing, Squatter Settlement and Environment, Ministry of Lands and Mineral Resources, Ministry of Tourism, Ministry of Regional Development, Ministry of Works and Energy, the Native Lands Trust Board (NLTB), Native Land Commission, and many others.

environmental assessment required, regardless of whether the proponent is a government- or non-government entity.

113. The absence of an enforceable EIA law is recognized as one of the major shortcomings in Fiji's environmental management framework. Apart from this critical deficiency, the principal shortcomings within government that are hindering effective implementation of sound environmental management practices are institutional ones, especially limited capacity, as reflected by inadequate numbers of skilled, qualified, and trained personnel. Underlying this institutional weakness are budgetary deficiencies. Beginning about 10 years ago, when government articulated its intention to follow a sustainable development path, and began efforts to enact focused environmental legislation, these institutional deficiencies have been in part made up for by (i) actions undertaken by stakeholders within civil society, and (ii) efforts supported by external assistance. Nongovernmental organizations (NGOs), regional inter-governmental agencies, and academic institutions have played an important role in carrying out a number of important environmental projects, especially in the areas of biodiversity conservation, water resources management, and awareness-raising, among others. Assistance from external donors, bilateral aid agencies, and international financial institutions (IFIs), has also been critical in advancing work in key environmental areas, such as policy and institutional strengthening, climate adaptation, development of renewable energy, and biodiversity conservation. It is expected that reliance on such sources of technical and financial assistance will continue for some time to come, at least until the Fijian governmental institutions having responsibility for environmental management are on a much firmer footing, both in terms of technical capability and budget allotments.

114. While the delay in passing a comprehensive environmental bill into law must be regarded as a serious failure of government, there is a feeling of confidence that the legislation will be voted into law and signed sometime in 2005. It is expected that the institutionalization of virtually all activities for sustainable environmental management will flow from the EMB. Thus the importance of passing this bill into law as soon as possible cannot be overstated.

B. Environmental Information and Data Needs

115. Review of most government documents and statistical compilations for accuracy of data shows numerous flaws, inconsistencies, and gaps in the quantitative data being presented. Worse yet, it has been reported that the quality of environment-related information being gathered and reported in Fiji shows a deteriorating trend. This deterioration is most likely the result of several causes, among them, reductions in the funding of monitoring efforts, and also, the cumulative effects of collecting information without a good understanding of the reasons for, and importance and benefit of, the data-gathering effort. While new information is being gathered for projects in well-defined areas of emerging environmental priority, such as climate change, little support has been provided to establish a broad-based, integrated information system for gathering, processing, interpreting, storing, and disseminating critical environmental data. Planning documents such as the SDP incorporate targets for sustainability based on measurement of quantifiable indicators (KPIs and MDGs), but how can these be properly measured if a well-designed and functional monitoring system is not in place? For effective planning, monitoring, and evaluation in virtually all sectors, more consistent, reliable, and comparable sets of data need to be gathered in a time series.

116. These observations lead to the conclusion that reforms in monitoring, data collection, and reporting and information dissemination are urgently needed to properly inform the environmental planning, management, and decision-making process. Some specific data

deficiencies and needs in the environmental and natural resources sectors are briefly presented below:

- **Environmental Planning:** There is a need to prepare and update a national state of the environment report and national environmental strategy every 4-5 years for national environmental planning purposes. The value of these reports would depend upon regular and accurate environmental monitoring conducted as part of a periodic natural resource inventory.
- **Biodiversity:** Although the IUCN Red Data Book offers a good initial assessment of Fiji's terrestrial vertebrates, the list is deficient in many other areas. For example: (i) though about 60 plant species are listed as endangered, an additional 200-300 plants species may qualify for endangered status based on their very limited distribution; (ii) a large number of fish and invertebrate species have not been adequately evaluated; and (iii) specific notable deficiencies include listings that are lacking for endemic land snails, endemic insects (e.g., Fijian longhorn beetles, Fijian stick insects), and a number of tree species only known from single recorded occurrences. More comprehensive field surveys are required for describing biodiversity resources, characterizing threats, and feeding into biodiversity planning, especially through periodic updating of the Biodiversity Strategy and Action Plan.
- **Protected Areas:** A systematic survey of areas of ecological and biological importance is needed. While a good start has been made in the marine environment through the Fiji Locally Managed Marine Area (FLMMA) Network, additional marine and terrestrial sites must be identified, and set aside for legal declaration as protected areas, in order to ensure preservation of valuable biodiversity resources.
- **Traditional Resources Management Practices.** While traditional resource users have both the right and the responsibility to manage their own resources, both through the *matagali* on land and through the *qoliqoli* in nearshore areas, they usually lack the information needed to ensure that resources are appropriately utilized and managed. As a result, unsustainable practices are legitimized through owners' granting of resource use rights to other operators through leases, licensing arrangements, or joint ventures. It is feared that such arrangements could seriously threaten the sustainability of a variety of fragile natural resources, including natural timber stands, commercially important fish stocks, and other significant biodiversity resources.
- **Health:** A variety of environmental data is needed to support public health planning. For example, parameters for the incidence of water-borne disease, as well as water quality data, need to be more widely and regularly gathered.
- **Tourism:** Project-specific and sector-wide studies of carrying capacity for tourism development are required. Carrying capacity studies should evaluate expected environmental impacts of varying levels of development, using such indicators as water demand, water quality, solid waste generation, potential social impacts, and possible impacts on biodiversity resources of tourism interest (e.g., coral reefs, native forests). In addition, information for the tourism sector is apparently not segregated within the national GDP database (though estimates of tourism's contribution to the national economy have been made; see Table 1, and Section II.C.9). Such fundamental information would be very useful in assessing trends and facilitating better economic planning in the future.

- **Fisheries:** A disparity in the estimates of total allowable catch (TAC), as concluded by government, vs. the estimates produced by the SPC, are worrisome—without accurate catch data, if excessive fishing is permitted in Fiji's EEZ, the sustainability of tuna stocks could be threatened. Studies are required to accurately assess the standing tuna stocks, and also to establish appropriate valuation of those stocks, so that more appropriate licensing fees can be established. The contribution of fisheries to GDP may also not be accurately known.⁴⁰
- **Forestry:** Improved statistics concerning the extent and composition of native forested areas need to be confirmed and verified. In some cases, it appears that data reporting the total area of forest cover combines areas of native forest with forest plantation. While this information may be acceptable for some purposes (e.g., calculating total vegetation biomass available for sequestration of atmospheric carbon, with implications for mitigating climate change), it cannot be used to support other types of investigations (e.g., assessment of biodiversity resources in native forests).
- **Climate Change:** While fluctuations in sea level in Fijian waters have been accurately recorded for many years, data about other climatic parameters is required to assess climate change impacts. Such data are important for enabling appropriate adaptation and response. As an example, changing climate patterns may affect crops, fish populations, stored water for irrigation, drinking, and power production, and a range of other important sensitive resources. Without adequate data to know the current status of resources (and ideally, to forecast future trends) climate change vulnerability is heightened, with potentially greater impacts that could affect the economic and physical well-being of the population.
- **Energy:** There is a general need for greater precision in the gathering and reporting of data within the energy sector. Examples of areas where available information is vague or limited include figures for household and per capita energy consumption, uses of traditional fuels vs. modern energy sources, comparisons between rural and urban communities regarding access to energy, and quantitative data for alternative energy schemes (e.g., number of beneficiaries, amount of energy produced).

C. Review of Country Strategy and Program (CSP) and Country Strategy and Program Update (CSPU)

117. Since 1970, and through December 2003, ADB has funded 15 loans to Fiji valued at a total of \$224.9 million. These have included three loans for road upgrading, two for port development, three for the power sector, three for agricultural and rural development, two for the development bank, one for low-income housing development, and one for water and sewerage upgrades. Currently, three loans are being implemented: the Third Fiji Road Upgrading Project (FRUP III) worth \$40.0 million; the Fiji Ports Development Project worth \$16.8 million; and the Suva Nausori Water Supply Project, valued at \$47.0 million.

118. In the same period (1970-2003), 74 grant-funded TAs have been approved and implemented, totaling \$23.0 million. These advisory TAs have covered a wide range of needs, including strengthening debt management capacity, support for land mapping, port asset management, supporting economic management and development policies, and

⁴⁰ Fisheries contribution to GDP was estimated by consultants (Gillett and Lightfoot) to be 131.8 percent greater than the government estimate.

implementation of an ICT strategy. Most of ADB's assistance to Fiji in environmental sectors has been through its TA grants, including projects in forestry and agricultural development; tourism master planning; watershed management; and environmental awareness, legislation, and database. Other TAs have targeted improved environmental management of infrastructure, such as rural electrification, and capacity building for water and sewerage services. The current ADB country program for Fiji is presented in Appendix 12.

119. In May 2003, the ADB Board approved the establishment of a South Pacific Subregional Office (SPSO) in Suva, and the office was officially opened and inaugurated 18 June 2004. The presence of the SPSO in Suva is expected to substantially improve ADB's operations in the country, including its portfolio performance, since it should enable better communications and closer coordination with government agencies, and facilitate improved project monitoring and management.

1. Strategic Priorities

120. The long-term goal of ADB for the Fiji Islands, as articulated in the most recent Country Strategy and Program Update,⁴¹ is to raise the living standards of the Fijian people, especially among the poor. To realize this goal, the guiding objectives that are identified are to: (i) support increased public investments in productive physical infrastructure development in key sectors for stimulating economic growth and poverty reduction; (ii) strengthen the associated policy, institutional and regulatory frameworks, including setting appropriate tariffs and revenue collections to instill good governance and accountability; and (iii) support increased private sector participation and competition in key sectors by creating enabling conditions for private sector as well as public-private partnership development.

121. Three key sectors are identified in the CSPU, within which ADB's programmatic activities are to be focused, including: (i) **infrastructure development**, (ii) **agriculture and natural resources**, and (iii) **environment**. The levels of progress for program development within these different sectors is directly reflected in the kinds of loans acquired by the Government and TAs granted by ADB. Perhaps because Fiji only has access to funds from Ordinary Capital Resources (OCR), the country's loan portfolio is weighted heavily towards "hard" improvements, i.e., infrastructure development.

122. Under **infrastructure development** (which includes transport, urban development, ICT, and other social services infrastructure), ADB's on-going loans are focused on road upgrading and improvement (FRUP III, approved 1997), ports development (Fiji Ports, approved 2002), and water and sewerage (the Suva Nausori Water Supply and Sewerage project, approved 2003). The indicative lending program for infrastructure includes a proposed concept for Power Sector Development,⁴² including Rural Electrification (for 2005); a continuing road upgrading project (FRUP IV, programmed for 2005); an Airport Rehabilitation and Upgrading project (programmed for 2005); an Urban Sector Development project (for 2006); and a Rural and Outer Islands Development Project.⁴³ These loan projects will be strengthened through associated technical assistance projects for road upgrading (FRUP IV), urban sector

⁴¹ ADB. 25 August 2004. Fiji Islands Country Strategy and Program Update (2005-2007).

⁴² ADB. Fiji Islands Power Sector Development Program ADB Reconnaissance Mission 18-26 October 2004 Memorandum of Understanding.

⁴³ The scope of the Rural and Outer Islands Development Project, originally initiated for tourism development and biodiversity conservation in the outer islands, is in flux. As most recently conceived, the project includes major elements for infrastructure development. Agreements regarding the scope of the project are still to be finalized between ADB and Government.

development, rural and outer islands development, and improved aviation sector performance, all included within the indicative program.

123. Currently, there is a relative paucity of projects in the other key sectors identified in the CSPU. In the **agriculture and natural resources** sector, a PPTA for Alternative Livelihoods and Development is being concluded. This PPTA proposes alternative livelihoods that will help to provide income for families of workers displaced from livelihoods in the sugar industry. The loan for this activity is included in ADB's indicative scheduling and is expected to commence within the first quarter of 2005. In addition to these projects, only ADTAs for Implementation of Sugar Sector Restructuring (approved 2002), and Fisheries Sector Review, are currently underway. Also within this sector, upcoming projects included in the indicative program are Strengthening Commercial Agriculture Development (piggybacked to the Alternative Livelihoods project, targeted for 2004) and further technical assistance for fisheries development (targeted for 2007). There are currently no projects included in ADB's country program for Fiji within the **environment** sector.⁴⁴

124. Remaining ADB projects within the country program for Fiji are all TAs in such cross-cutting disciplines as public sector financial governance, economic management, women's plan of action, capital market development, and private sector development. In general, most of these projects have relatively little overlap with environmental mainstreaming objectives.

125. In addition to projects within the country program, two regional TAs that are currently nearing completion should help to promote improved environmental management in Fiji. The first, Formulation of the Pacific Region Environmental Strategy (PRES), seeks to identify effective environmental management strategies through a series of case studies around the region. In the Fijian case study for the PRES, a strategic environmental assessment was conducted of Fiji's Tourism Development Plan. The purpose of a second regional project, the Climate Change Adaptation Program for the Pacific (CLIMAP), is to ensure that Pacific Island nations are able to adapt to climate change and variability. For Fiji, a climate profile was prepared through a desk study, which provides a general assessment of the country's climate vulnerability, and identifies climate-sensitive projects within the ADB program.

2. Assessment of Environmental Impacts

126. Of 33 TAs included in the Fiji country program over the last 10 years (1994-2003), three have had clear environmental or natural resource implications. These are (i) the Environmental Awareness, Legislation, and Database Project advisory TA; (ii) the Agriculture Sector Study advisory TA; and the Suva-Nausori Water Supply and Sewerage Development Project PPTA. The single environment-related loan from ADB during this period is for the development of the Suva-Nausori Water Supply and Sewerage system.⁴⁵

127. **Institutional Strengthening and Capacity Building.** In April 1993, the Government of Fiji Islands adopted the National Environmental Strategy (NES)—a broad-based program of action aimed to place the Fiji Islands firmly on a path to sustainable development. More specifically, the NES, which was prepared with ADB's assistance,⁴⁶ called for enhancing

⁴⁴ A small TA to provide support for the implementation of the Environment Bill, originally included in the indicative scheduled projects for 2004, has been dropped.

⁴⁵ The primary classification of the loan project is for Poverty Intervention, and secondary classifications are for Human Development and Environmental Protection.

⁴⁶ ADB 1990. Regional Technical Assistance for the Strengthening of Environmental Management Capabilities in PDMCs.

environmental awareness and education and informing the public of the benefits of environmental management and conservation. It also sought to improve environmental management capacity within the government's mandated institutions, and strengthen environmental legislation.

128. As already noted, responsibility for environmental management in the Fiji Islands has been highly fragmented, with line ministries given discretionary authority for management within their respective sectors. This has led to duplication of activities and inconsistent environmental policies across sectors. Recognizing the need to consolidate authority for environmental management and policy-making, the Department of Environment (DOE) was established in 1993 under the (then) Ministry of Housing, Urban Development and Environment. However, it soon became apparent that the newly formed DOE would require significant institutional strengthening assistance to fulfill its legislated mandate. ADB responded with another advisory TA,⁴⁷ with objectives for strengthening the institutional capability of the DOE, increasing environmental awareness, helping to prepare comprehensive environmental legislation, and developing an environmental information system.

129. While at the time this TA did result in some tangible improvements and was considered generally successful, more than ten years after its implementation, many of its objectives remain largely unachieved, as reflected by the following:

- (i) legislation for environmental management is still pending, with no comprehensive environmental management law yet in force;
- (ii) the success of efforts to raise environmental awareness must be questioned, since there is little evidence that government officials, especially at higher levels, are sufficiently aware of key environmental issues, nor are motivated enough to take the strong actions necessary to address them, and have the political will to effectively mainstream environmental considerations into national level policy-making and budgeting;
- (iii) the Department of Environment has significant weaknesses in staffing and technical capacity, and has been given neither the mandate nor adequate resources for effective environmental management; and
- (iv) while a database system has been set up within the Department of Environment, the system is in need of upgrading. Furthermore, a more comprehensive information management framework is needed, that will facilitate the gathering, storage, and dissemination of consistent and relevant information for more effective environmental management.

These deficiencies point to an urgent need for a comprehensive program of added environmental institutional strengthening and capacity-building.

130. **Social Infrastructure.** Aside from projects aimed to build capacity in Fiji's environmental institutions, ADB also has provided assistance to improve the water supply and sewerage system for the Suva-Nausori area. The PPTA⁴⁸ was implemented to prepare a master plan for the development of water supply and sewerage services, and to formulate an investment project for ADB financing. The loan for the Suva-Nausori Water Supply and Sewerage Project, and an

⁴⁷ ADB 1994. Technical Assistance to Fiji Islands on Environmental Awareness, Legislation and Database.

⁴⁸ ADB 1998. Technical Assistance to Fiji Islands on Suva-Nausori Water Supply and Sewerage.

associated advisory TA on Capacity Building in Water and Sewerage Services are currently underway.

131. As part of an advisory Urban Sector Strategy Study TA,⁴⁹ an Urban Policy Action Plan 2004-2006 has recently been drafted. The TA also supports the preparation of a Greater Suva Region Urban Management Plan. While aspects of urban environmental services provision are covered in the Action Plan, there is little emphasis given to understanding and establishing the basis for overall improvements in urban environmental quality and health.

132. **Agriculture, Marine, and other Natural Resources.** ADB has conducted several TAs aimed at strengthening various elements within the **agriculture** sector. The Bank's support under the current work program for restructuring the sugar industry has already been described. In a related area, since only the project preparation for the Alternative Livelihoods Development Project has been completed to-date, it remains to be seen whether this project will help to bring about meaningful access to sustainable livelihood opportunities for those workers displaced from work in the sugar industry. The Fisheries Sector Review project, an advisory TA started in late 2004, is the only ADB project in recent years that is dealing with **marine resources**. ADB has not provided support to the **forestry** sector for more than 10 years. An advisory TA⁵⁰ was implemented in 1993 to activate and strengthen the Forestry Economics Unit (FEU) of the Forestry Department, to enable it to conduct high priority studies on the proper utilization of the country's forest resources. While this TA was generally successful, there is still a need for stronger organization and logistical support at the FEU, and within the Forestry Department, to identify and address critical issues relating to resource exploitation within the sector. In terms of **other natural resources**, ADB conducted a preparatory TA in 1989 for watershed management,⁵¹ but a loan project for watershed management never materialized. ADB has not yet implemented any projects in Fiji with a specific focus on management in other ecosystems, or on biodiversity conservation.

3. Coordination with Other Funding Institutions

133. External assistance has been a critical element in Fiji's economic and social development. Key partners have been ADB, the European Union (EU), Australia, New Zealand, Japan, and various United Nations agencies. The universality of the Millennium Development Goals (MDGs), which have been embraced by the government, suggests a common ground for closer cooperation among these various agencies. During Fiji's first round-table donor coordination meeting (April 2003), stakeholders agreed that: (i) there is a need for better country ownership of development assistance; (ii) wider stakeholder consultations are required for better utilization of aid funds; and (iii) improved coordination among external agencies is needed to minimize duplication of effort and reduce transaction costs. ADB has actively sought to coordinate with development partners, including World Bank and other regional agencies, and is promoting cofinancing in all its activities. The EU and ADB have developed close partnering relationships in the agricultural sector, especially in sugar industry reforms and the proposed alternative livelihoods project.

134. For its Rural and Outer Islands Development Project, in cooperation with World Wildlife Fund (WWF), ADB has drafted a proposal for funding from the Global Environment Facility (GEF). This funding, if granted, would be used to support marine biodiversity conservation activities that could enhance sustainable ecotourism enterprises in rural and outer islands

⁴⁹ ADB 1999. Technical Assistance to Fiji Islands on Urban Sector Strategy Study.

⁵⁰ ADB 1993a. Technical Assistance to Fiji Islands for Institutional Strengthening of the Forestry Economics Unit.

⁵¹ ADB 1989. Rewa and Ba River Watershed Management (Phase I).

communities. However, as earlier mentioned, the scope of this project is still not confirmed, and needs to be agreed upon between government and ADB. (Refer to 10 for an overview of recent external assistance to Fiji, showing linkages between ADB's funding activities and those of other international and multilateral funding institutions).

4. Conclusions and Recommendations

a. Priorities for Sustainable Development in Fiji: Sectoral Goals and Objectives

135. In the SDP, priority thrusts were identified by Government under each key natural resource and economic sector. In addition, during the consultative process undertaken as part of this CEA, especially in working group sessions of the Consultative Workshop, stakeholders helped to identify the principal sectoral goals and priorities. Taking into account the most pressing issues, the key sectoral goals and objectives are summarized here to serve as a basis for decision-making and identification of potential interventions and projects that could help to promote better environmental mainstreaming and improved environmental management in the future.

136. **Land Resources Development.** The key to sustainable development of land resources in Fiji will be through establishment of an effective land management system. Given the rigidity of the ALTA, government has proposed an alternative lease arrangement under the Native Lands Trust Act. Working in close consultation with the NLTB, there is an urgent need to harmonize traditional tenurial rights, with the requirement that all of Fiji's citizens be given fair and equitable access to land. Land use planning processes need to be strengthened, to ensure that (i) inappropriate land uses are minimized (e.g., residential, industrial, and infrastructure development is not implemented in flood zones, upland watersheds are not cleared of forest cover, etc.); (ii) areas of special significance (e.g., wildlife habitats, critical ecosystems, watersheds, historic sites) are protected and preserved; and (iii) lands are generally utilized in an appropriate manner compatible with economic, social, and environmental requirements. Land use planning processes need to be conducted at the national, divisional and district level.

137. **Agriculture and the Sugar Industry.** Lack of commitment to pursue reforms, and lack of cooperation among key stakeholders in the sugar industry have contributed significantly to its poor performance. There is a need to review and restructure the industry to make it more efficient, sustainable, and commercially viable. Two recent studies—the ADB Intermediation of Sugar Sector Restructuring (2003) and Indian Technical Team Report on Revival of the Sugar Industry (2004)—have recommended ways to bring about improvements in the industry. A House of Representatives Select Committee has been set up to consider the recommendations of the Indian study. Through a related loan project (Alternative Livelihoods Development) ADB is expected to assist farmers in sugar-producing areas.

138. Apart from dealing with land leasing and access issues, and associated livelihood development problems, the steps that need to be taken to deal directly with problems in the sugar industry include: (i) improving the general physical condition of the mills as well as the industry's transportation system; (ii) rehabilitating sugar lands that have been damaged or depleted through inappropriate cultivation practices and (iii) achieving diversification within the industry, and within the agriculture sector generally. Diversification within the sugarcane-growing industry itself means that different revenue-generating uses are identified for the sugarcane crop, other than sugar itself. For example, production of ethanol for fuel use and human consumption, extraction of specialty compounds such as polycosinol (a high-value

compound used for lowering cholesterol), and generation of electricity from sugarcane biomass, are only some of the options for diversification of sugarcane-based products to be considered (discussed in greater detail in Appendix 5).

139. Diversification within the agriculture sector as a whole is a priority that has been identified within the SDP, and should help to provide alternative livelihood opportunities for a portion of the workers who are displaced out of the sugar industry. In addition, to further promote sustainability within the sector, there is a need to improve agricultural land use and management practices. Decision-making for upland agricultural land uses needs to be linked to better awareness of impacts downstream.

140. **Forestry.** Sustainable development and management of forest resources is critical for continued productivity and contribution of this sector to the country's GDP. Equally important is the role of healthy forest cover in preserving Fiji's environmental values. These values include: (i) the maintenance of Fiji's unique terrestrial biodiversity resources, many species being dependent upon and constituting part of the natural forest ecosystem; (ii) capture and retention of groundwater within forested watersheds; (iii) retention of soil and nutrients, and minimization of soil erosion on forested lands; (iv) preservation of scenic values on forested mountains and hillsides; and (v) maintenance or increase of biomass in long-lived forest species that can serve as a sink for sequestration of atmospheric carbon, thus mitigating the impacts of global climate change. There is a clear need to review sectoral priorities and policies, to ensure that environmental considerations are more effectively incorporated, along the lines recommended in a recent draft "National Forest Policy Statement."⁵² Specific steps to be taken to achieve sustainable forestry objectives include (i) institution of a forest certification program; (ii) better adherence to the National Code of Logging Practices (NCLP); (iii) completion of a Watershed Management Master Plan; (iv) promotion of community-based forest management; (v) improving protection and management of forest parks, reserves and conservation areas; (vi) placement of greater emphasis on diversification through the use of non-timber forest products; (vii) maintaining or increasing the extent of coverage of native vegetation, including forests, mangrove swamps, and other wetlands (viii) implementation of an integrated data management system for forest resources; and (ix) capacity-building and training, to be carried out through the Forest Training Center and Timber Industry Training Center.

141. **Coastal, Marine and Fisheries Resources.** The continuing viability of fisheries in Fiji is important not only for future economic development within the sector, but also because poor coastal families depend upon use of fisheries resources as an important source of high-quality food protein for their subsistence. There is a need for significant reform in this sector to ensure sustainability. Among the key actions that are required are: (i) empowerment of indigenous Fijians for greater participation in the sector, through [a] enactment of the Fisheries Management Bill which will confer ownership of *qoliqoli* areas to traditional custodians; [b] increased training and capacity-building; and [c] establishment of a National Fishing Corporation, or similar vehicle, for greater participation within the sector by indigenous resource owners; (ii) harmonization of utilization of coastal resources among different interest groups and use categories (e.g., tourism, fisheries, coastal infrastructure, subsistence use); (iii) integration of upland and coastal management activities, to ensure that the impacts of actions in upper watersheds upon important coastal resources and ecosystems, especially coral reefs, are minimized (iv) improved data-gathering, especially in the pelagic tuna fishery, for establishment of realistic targets for total allowable catch (TAC), appropriate levels for total numbers of fishing

⁵² Ministry of Fisheries and Forests, and German Regional Forestry Project/SPC Forests and Trees Programme. August 2004. (draft)

vessels to be licensed, and appropriate licensing fees; and (v) implementation of more effective enforcement measures designed to protect unique and important coastal and marine resources, especially within designated marine protected areas.

142. Biodiversity and Protected Area Management. To ensure that important and biologically significant species are protected and conserved, critical areas of intervention identified in SDP, and confirmed during CEA consultations, are: (i) formulation and enactment of a national policy/legislation on biodiversity conservation and an integrated system of protected area management; (ii) assessment of critical areas/sites for biodiversity conservation; (iii) continuous inventory of rare, threatened, and endangered wildlife species (both flora and fauna); (iv) documentation of traditional, community-based biodiversity-related conservation practices; and (v) full implementation of Fiji's Biodiversity Strategy and Action Plan.

143. Water Resources Management. As has already been pointed out, the management of water resources in Fiji is highly fragmented, with authority for various water uses divided among many agencies. There is a need to (i) put in place relevant water legislation; (ii) integrate water management activities, by operationalizing an inter-agency Water Resources Management Committee or similar body; and (iii) establish tariffs, taxes, and user fees, that realistically reflect the economic value of the resource, in order to capture adequate funds to be applied to water conservation and water quality management efforts.

144. With respect to water and sanitation infrastructure, and provision of water for human consumption, ADB's loan project for Suva-Nausori water and sewerage will provide much-needed improvements for Fiji's major population center. Other improvements that will still be required include (i) expansion of rural water supply infrastructure; (ii) extension and upgrading of water schemes in other major urban areas and regions; (iii) provision of access to sanitation and environmentally safe sewerage waste systems and treatment facilities; (iv) improvements in efficiency of water and sewerage services; (v) greater private sector participation; (vi) reassessment of current water legislation in order to prevent the overexploitation and other abuses by large water users, especially during times of extreme surface water scarcity; and (vii) development of alternative water resources (e.g., groundwater, rainwater catchment) and promotion of better water conservation practices, both at the household level and the watershed-ecosystem level.

145. Tourism. Because it is one of the primary drivers of economic development in Fiji, the tourism sector needs to grow in a sustainable manner. This need becomes all the more challenging, given the government's projected rapid growth in visitor arrivals over the next decade (expected to double from present levels). A significant step toward supporting sustainable tourism development was made in the completion of the strategic environmental assessment of Fiji's National Tourism Development Plan. To continue to support sustainability, the following additional prerequisites will need to be met: (i) assessments of the carrying capacity of major tourism developments need to be conducted; (ii) institutions such as the National Tourism Council must be strengthened; (iii) new infrastructure (especially for water supply, sanitation, and waste management) for supporting continued tourism development needs to be designed and built to ensure adequate capacity to handle expected visitor loads, and so that all environmental impacts are minimized; (iv) new tourism development should place greater emphasis on development of low-impact, eco-friendly development. Tremendous opportunities exist in Fiji to form partnerships among governmental, non-governmental, private sector and traditional indigenous stakeholders, to develop ecotourism projects that can help to promote the preservation of biodiversity, cultural heritage, and other unique resources.

146. **Energy.** While a significant increase in access to electricity has been reported among urban households,⁵³ rural households are still significantly underserved. Of some 185 rural electrification schemes implemented under the 1974 program, around 140 are in need of overhaul and upgrading. Power disruptions or failures continue to plague electricity customers, with the frequency of these incidents having remained at a high level during the 2001-2003 period. In addition to these specific problems, considerable work still needs to be done regarding formulation of broader energy policies and achievement of higher levels of energy efficiency. Thus the priorities for this sector are as follows: (i) formulating and implementing a national energy policy; (ii) conducting an integrated program on demand-side management, including public awareness raising and providing financial incentives to promote energy conservation; (iii) promoting greater participation of the private sector in power generation; and (iv) emphasizing development of more renewable energy sources, and removing economic barriers so that more renewable energy service companies (RESCOs) can be established.

147. **Climate Change Adaptation and Disaster Management.** As a Small Island Developing State (SIDS), Fiji is recognized as being one of the nations most vulnerable to the impacts of climate change. While the predominant vulnerabilities have been identified in several studies, there is a need to incorporate adaptive features into the nation's development planning, to minimize the risks associated with the impacts of climate change.

148. Key steps that need to be taken include the following: (i) a clear articulation of policy, and mainstreaming of climate change adaptation as a focal area of concern, by incorporation of a dedicated section on climate change within the national Strategic Development Plan; (ii) strengthening of capabilities and capacities to respond to climate change variation; and (iii) development of objectives, targets, and indicators to achieve effective climate-proofing of infrastructure, and protection of other resources from climate change impacts.

149. Closely linked to climate change adaptation are measures to reduce Fiji's vulnerability to other natural disasters. A number of advances in this area have already been made, through support of the NDMO and funding of the DRRF. Additional important steps that are required for achieving effective disaster management include (i) mainstreaming of disaster management into decision-making processes for national development; (ii) development of early warning systems to forecast and communicate major natural events (e.g., earthquakes, tsunamis, droughts and flooding); (iii) establishment of a comprehensive disaster preparedness database system; and (iv) adoption of Comprehensive Hazard and Risk Management (CHARM) principles, formulation of response plans, and improvement of community preparedness.

b. Potential ADB Actions for Promoting Environmental Mainstreaming and Strengthening Environmental and Natural Resources Management

150. Taking the sustainable development priorities identified in the previous section as a starting-point, through extensive research and consultation, this analysis has identified several key areas in which ADB assistance could be utilized to help promote environmental mainstreaming, or to strengthen environmental or natural resources management.

⁵³ From 75% in 1996 to 90% by July 2002, Household Income and Expenditure Survey, as reported in SDP Mid-Term Review.

i. CSP Revision

151. ADB's Environment Policy is grounded in its *Poverty Reduction Strategy*⁵⁴ and *Long-Term Strategic Framework*.⁵⁵ The *Poverty Reduction Strategy* recognizes that environmental sustainability is a prerequisite for pro-poor economic growth and efforts to reduce poverty. Environmental sustainability is also one of three crosscutting themes of the long-term strategic framework.

152. To reduce poverty through environmentally sustainable development, ADB's Environment Policy contains five main elements: (i) promoting environment and natural resource management interventions to reduce poverty directly, (ii) assisting developing member countries (DMCs) to mainstream environmental considerations in economic growth, (iii) helping maintain global and regional life support systems that underpin future development prospects, (iv) building partnerships to maximize the impact of ADB lending and nonlending activities, and (v) integrating environmental considerations across all ADB operations.⁵⁶

153. In keeping with these clear directives, and given the fact that the vast majority of Fiji's economic sectors are directly dependent upon a clean and healthy environment, and upon continuing viability and sustainability of the natural resource base, effective environmental management should occupy a correspondingly important position in ADB's statement of country program objectives. However, in reviewing the latest CSPU, a clear and strong articulation of ADB's commitment to help Fiji to achieve these conditions is missing. This is despite the fact that environment is called out as one of the three key sector focal areas within the country strategy. Thus it is proposed that for the new CSP that will be prepared, the Summary Statement of Strategy be modified to incorporate within the three strategic objectives already stated (as cited in Section IV.C.1) a stronger statement of environmental sustainability goals. Strengthening the statement of the strategic objectives in this manner is seen as at least one way to ensure that ADB's own programming activities give adequate recognition to the critical need to implement projects that will positively affect Fiji's environment. The proposed revisions of the Summary Statement of Strategy are presented in Appendix 13.

ii. Environmental Roadmap

154. ADB could significantly contribute to Fiji's environmental mainstreaming process by promoting **roadmapping** as an environmental management and planning tool for measuring progress in environmental sustainability and resource conservation efforts over time.⁵⁷ While in the past roadmapping has generally been used for project-level management, it could as well be applied to an entire sector or national strategic planning effort. The roadmapping process would comprise the following sequential steps or elements: (i) identify critical needs and problem areas; (ii) measure baseline conditions; (iii) specify a timeframe within which change is to be measured; (iv) develop goals and targets to address urgent problems and to achieve the desired changes; (v) identify actions and activities that are required to meet the specified targets; (vi) identify the implementers; (vii) identify and put in place a system to measure the changes; (vi) review progress at pre-determined intervals; and (vii) feed back information from the review process into the implementation process. The following points should be noted

⁵⁴ ADB. 1999. *Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy of the Asian Development Bank*. Manila.

⁵⁵ ADB. 2000. *The Long-Term Strategic Framework of the Asian Development Bank (2001–2015)*. Manila.

⁵⁶ ADB. 29 October 2003. *Operations Manual, Bank Policies*. OM Section F1/BP.

⁵⁷ For further information see U.S. Department of Energy, Office of Environmental Management. July 2000. *Applying Science and Technology Roadmapping in Environmental Management*. (draft B).

regarding the use of roadmapping as suggested here: (i) targets for environmental improvement should always be linked to broad national policies, strategic plans, and objectives; (ii) the timeframe for measuring environmental improvement typically ranges from five to twenty years; (iii) measurement of change for most parameters can be specified on a percentage change basis; and (iv) to the extent practicable, actions and strategies to promote improvement should be innovative, test new theories and alternative technologies, and promote breakthroughs for solving difficult problems. Roadmapping could be incorporated into an integrated environmental institutional strengthening and capacity-building project, as suggested in Section IV.C.4.b.iv., below.

iii. Strategic Actions for Environment Strengthening of Existing Country Program

155. ADB's on-the-ground interventions for environmental improvement are accomplished through the projects that constitute its country program. In addition to the above-mentioned revisions that could be incorporated into ADB's CSP documentation, environmental strengthening opportunities have been identified for certain of the existing and pipeline projects within the country program. These are presented in project tables contained in Appendix 14.

156. Many of the suggestions for strengthening or improving projects already in the Program have to do with the inclusion of climate-related considerations. For a number of projects (e.g., most of the infrastructure-related projects), these considerations are absent or not adequately detailed in project documents. Taking climate considerations into account in the early stages of infrastructure project design could potentially reduce risk of lost resources, and result in considerable cost savings over the long term.

157. Other types of strengthening measures are recommended for a number of projects. The Fisheries Sector Review, currently underway, could benefit by giving clear emphasis to environmental aspects of fisheries activities. Analysis of existing pressures on pelagic and coastal fish stocks; recommendations for maintenance of stocks at sustainable levels; and concepts to improve conservation and appropriate licensing arrangements, could help to ensure the long-term viability of the sector.

158. The Rural and Outer Islands Development Project, in the indicative project pipeline, has been redefined and been subject to a series of scope revisions. As originally conceived, a component was included to support sustainable ecotourism as an important livelihood opportunity for outer islands communities. Because of the importance of Fiji's coral reefs as a tourism attraction, the original concept also included a proposed element for marine biodiversity conservation to be supported with GEF grant financing. It is suggested that these elements be reinstated, either as part of the original project, or in a reformulated project. Another way to strengthen this project would be to incorporate detailed carrying capacity analyses of current and proposed tourism areas (see the more detailed concept for an integrated project in Appendix 15). For the Women's Action Plan II, also an indicative project, opportunities exist to develop synergies between gender considerations and environmental issues, and to utilize women as an entry point to help to tackle environmental problems and enhance environmental awareness. For the Alternative Livelihoods project, great benefits could be derived by supporting diversification of activities within the sugarcane growing industry, based on the development of new products from cane. Finally, for the Urban Sector Development Project, greater emphasis should be placed on considering the environmental aspects of urbanization, and how to best address them.

iv. Opportunities for New Interventions

159. Several opportunities for potential new ADB environmental projects or interventions have been identified as an outcome of this CEA. These are presented in Appendix 15. These project concepts constitute both lending and non-lending products, and fill needs not currently addressed through other donor investments or by programs of the Fijian government itself. These projects reflect actions that are intended to strengthen environmental performance in several key sectors and cross-cutting areas, as described below.

160. **Environmental Institutions, Capacity-Building, and Management.** Already mentioned (Section IV.C.1, above) is the fact that, despite the identification of environment as one of three key sector focal areas in the CSP/CSPU, no stand-alone environmental projects are included in ADB's country program for Fiji at present. Furthermore, an urgent need for environmental institutional strengthening within the country has been identified. Therefore, it is proposed that a project be developed for improving institutional capacity for environmental management. The principal elements of such a project would include: (i) support of the Environment Management Bill, once passed into law, through the drafting of associated enabling regulations; (ii) training and other capacity-building activities for staff of the Department of Environment, as well as key staff within other relevant agencies and ministries; (iii) focus on strengthening processes for Environmental Impact Assessment (EIA) as a mechanism for ensuring sustainability of future development projects; (iv) a broad-reaching environmental awareness campaign, targeting a wide spectrum of stakeholders; (v) policy and institutional analysis aimed at making additional needed improvements in institutional and legal structures for environmental management in the country; and (vi) development of an "environmental roadmap" to monitor progress in mainstreaming environmental considerations into national economic planning and policy-making.⁵⁸

161. **Integrated Land Management.** The CEA consultative process has shown that Fiji's land-based natural resources, while still relatively intact as compared to other countries in the region, are under significant threat due to varied pressures and inappropriate uses. Both commercial interests and subsistence users are clearing remaining areas of natural forest for the harvest of timber or to convert the land for agricultural use and human settlement. Pressures created through the expiration of land leases under ALTA have forced displaced farmers to practice cultivation on steep slopes, leading to soil loss and erosion. Collectively, these actions have caused unnecessary and avoidable adverse environmental impacts to the environment, representing not only the loss of forest area in upper watersheds, but also soil loss and erosion, which are causing problems in downstream ecosystems. These losses potentially have much wider-reaching impacts, including land degradation, lost capacity for carbon sequestration, and loss of globally-important biodiversity. To be dealt with effectively, these problems need to be addressed in an integrated way. Therefore, an Integrated Land Management Project is proposed. The main components of such a project would be: (i) land use studies in the most important and sensitive watershed areas, including upper watersheds and downstream areas that are affected; (ii) development of community-based integrated watershed management plans; (iii) protection of the most sensitive ecosystems and watershed areas; and (iv) identification of additional targeted on-the-ground interventions to be implemented to improve sustainable land management practices and develop sustainable livelihoods, especially in

⁵⁸ The purpose of the roadmap, and a brief overview of its components, has been presented in Section IV.B.4.c.ii, above. The proposed TA would develop the roadmap in greater detail and advocate for its adoption by government to ensure long-term environmental commitment and accountability.

agriculture and forestry (e.g., promotion of environment-friendly practices including agroforestry, utilization of non-timber forest products, appropriate sloping agricultural land technology, etc.).

162. **Establishment of Environmental Data Center.** The deficiencies in data for decision-making in the natural resources and environmental sectors have already been noted (Section IV.B). Available data are often inaccurate, incomplete, or out of date, and it is typically difficult to draw meaningful data comparisons over time, due to inherent inconsistencies. Planning, policy formulation and decision-making based on flawed data can potentially lead to adverse environmental consequences. To address this problem, it is proposed that a national Environmental Data Center be established. The Center would consist of new physical facilities dedicated for this purpose, and housing offices for staff, a library and research center, and computers and other equipment needed for data management. The principal functions of the Center would be to serve as: (i) a clearinghouse for collection, storage, interpretation, dissemination, and exchange of data for the natural resources and environmental sectors; (ii) an environmental learning and awareness center; (iii) a coordinating body to harmonize and standardize the types of data gathered for environmental decision-making; and (iv) an advisory body which would provide guidance to government decision-makers based on sound environmental information.

163. **Sustainable Ecotourism and Biodiversity Conservation.** With several very large tourism developments already built, in progress or planned for the main tourism center of Nadi (including Denarau and a new large-scale cultural center), there is concern that the infrastructure in the Nadi area will soon reach full capacity, and will not be able to support any further expansion. The government has projected a doubling of visitor arrivals, from around 400,000 at present to 1,000,000 within a decade. So the question arises: what areas are to be developed to accommodate the projected expansion, and how should such expansion be conducted? At the same time, development in outer islands and rural communities in general has lagged behind the more urban areas. There is a need to offer greater and more diverse economic opportunities to these communities. One option for sustainable development in these areas is in ecotourism and the related livelihood activities.

164. Most tourism activities in Fiji depend upon the islands' natural beauty, and this is especially evident in the marine and coastal environment. Because of the linkages between dive tourism and the maintenance of the health of coral reefs, it is appropriate to connect these two elements in a project that promotes sustainable ecotourism for economic development, through the conservation of the unique coral reef biodiversity resources that are found in Fiji. It is suggested to reinstate the previous proposal for Sustainable Tourism and Biodiversity Conservation, and either link it to, or incorporate it with, the current Rural and Outer Islands Development Project. Based on the CEA consultations, important features that may be appropriate to include into the project design include: (i) a detailed assessment of tourism carrying capacity in the Nadi tourism zone; (ii) assessment of rural and outer island areas to identify those that offer the greatest possibility for expansion of tourism; (iii) evaluation of potential impacts to coastal areas that may result from land-based activities, and establishment of an integrated management system to address potential cross-ecosystem impacts; (iv) development of support infrastructure that may be required for further tourism development; and (v) application to GEF for support of marine biodiversity conservation (under GEF OP#2) as part of the project. The overall goals of the project for alleviating poverty, creating sustainable employment opportunities for disadvantaged rural communities, replacing environmentally-damaging practices with environment-friendly ones, would be consistent with, complementary to, and supportive of the biodiversity conservation objective.

165. Support for Fiji's Sugar Industry through the Clean Development Mechanism (CDM). Fiji's sugar industry is in crisis, due primarily to imminent declines in sugar prices with the scheduled removal of EU price supports in 2008, and continuing displacement of large numbers of long-time sugarcane workers due to expiry of land leases under the ALTA. The Clean Development Mechanism (CDM), an internationally-supported market-based financing mechanism, could be utilized to help promote diversification within the sugarcane-growing industry, bring about significant environmental improvements, and generally revitalize the industry. An initial feasibility study would investigate opportunities for several diverse activities within the sugar industry, to ascertain their eligibility for CDM financing, among them: (i) replacement of fossil fuel with biomass (i.e., bagasse, the cane by-product from the sugar harvest) for energy production; (ii) sale of excess energy from sugar mills to the electricity grid; (iii) production of ethanol from sugarcane as an alternative fuel source; and (iv) expansion of sugarcane-growing lands to increase absorption of atmospheric carbon. Following the initial feasibility study, pilot projects would be developed in cooperation with the Fiji Sugar Corporation and private sector, to test the most promising of these opportunities.

166. Mainstreaming Climate Change Considerations into Planning and Economic Development. As pointed out in the foregoing discussion (Section II.B.12), climate change has not yet been adequately taken up as a key element of the national planning framework. Following on the initial work undertaken as part of ADB's regional CLIMAP, a more in-depth project to develop a framework for Fiji's climate adaptation and mitigation activities will be conducted. In terms of climate adaptation, the key components of such a project would be to: (i) draft appropriate sections for the national Strategic Development Plan and other government planning and policy documents, highlighting climate change as a significant cross-cutting issue; (ii) take steps to develop capabilities for climate change forecasting and early warning; (iii) evaluate the vulnerabilities of existing and future proposed infrastructure to climate-related impacts, and propose design modifications to address these; (iv) evaluate productive sectors such as fisheries, forestry, and agriculture, as well as tourism, and make recommendations for adaptive steps to be taken to minimize climate-related risks and vulnerabilities; (v) maintain or improve natural features of ecosystems that provide resiliency to climate-related impacts (e.g., maintaining coral reefs and mangroves are natural buffers for absorbing the energy of storm waves, minimizing flooding, and other coastal impacts); and (vi) advocate for appropriate budget support by government to implement the needed adaptive modifications. For climate change mitigation, the project would also seek to: (i) support reduction of vehicle and factory emissions, and develop alternative fuels, in order to reduce the production of GHGs; (ii) promote reforestation and other activities that improve capacity for absorption of atmospheric carbon; and (iii) maintain and regularly update inventories relevant to monitoring and mitigating climate change.

Appendixes

- 1: Country Environment Indicators: Republic of the Fiji Islands
- 2: References
- 3: Persons Consulted
- 4: Fiji's Environmental Setting
- 5: Fiji's Sugar Industry
- 6: Fiji's Protected Areas and Sites of National Significance
- 7: Government Agencies, Legislation, and Strategies Relating to Environmental Management
- 8: History of the Development of the Environment Management Bill
- 9: Fiji's International Environmental Agreements and Conventions
- 10: Coordination Matrix for Key External Assistance
- 11: Environmental NGOs Working in Fiji
- 12: Current ADB Operations Summary for Fiji
- 13: Proposed Revision of Summary Statement of Strategy for Fiji CSP
- 14: Opportunities for Environmental Strengthening of Projects Within the Existing ADB Country Program for Fiji
- 15: Concept Papers: Potential New Projects for Inclusion in ADB's Country Program for Fiji

Appendix 1: Country Environment Indicators: Republic of the Fiji Islands¹

Item	1990			Latest Year
A. Energy Efficiency of Emissions				
1. Traditional Fuel Use (% of total energy use)	45.0			50.0 (1996)
B. Water Pollution: Water and Sanitation				
	(1990)	(1997)		
1. % Urban Population with Access to Improved Water Source	96.0	90.0	43.0	(2000) 80.0 ² (2004)
2. % Rural Population with Access to Improved Water Source	69.0	80.0		(2000)
3. % Urban Population with Access to Sanitation	91.0	90.0	75.0	(2000) 30.0 ³ (2004)
4. % Rural Population with Access to Sanitation	65.0	80.0		(2000)
C. Air Pollution				
1. Carbon Dioxide (CO ₂) Emissions				
Total ('000 metric tons)	813.9			725.9 (1999)
Metric tons per capita per year	1.1			0.9 (1999)
Per unit of GDP (kg/PPP\$ GDP)	0.2			0.2 (1999)
2. Sulfur Dioxide (SO ₂) Emissions				
Total ('000 metric tons)	-			3.0 (1995)
D. Land Use and Deforestation				
1. Total Land Area (km ²)		18,333		18,333 (2003)
2. Total Forest Area remaining km ² (percent forested)	8,700 (47.5%)		8,150 (44.6%)	(2000)
3. Average Annual Change in Forest Cover (-=loss; +=gain)				-0.2 (1990-2000)
4. Arable Land (% of total land)	10.0 (1993)			} 25.0 (2002)
5. Cropland, Permanent (% of total land)	4.0 (1993)			
6. Pastures, Permanent (% of total land)	10.0 (1993)			
7. Rural Population Density (# persons/km ²)				24.3 (2003 est.)
E. Biodiversity and Protected Areas				
1. Nationally Protected Areas				
Land Area under protection, terrestrial (km ²)		-		255.8 (2003)
% of total land area	0.3 (1985)			1.4 (2003)
Number		-		31 (2003)
Ocean Area under protection, marine (km ²)		-		-
Number		-		-
2. Mammals (number of threatened species)	4 (1996)			2 (2002)
3. Birds (number of threatened species)	9 (1996)			13 (2002)
4. Higher Plants (number of threatened species)	-			281 (2002)
5. Reptiles and Amphibians (number of threatened species)	-			10 (2002)
E. Urban Areas				
1. Urban Population				
Total ('000)	276.8 (1986)			393.9 (2002 est.)
% of total population	38.7			48.3 (2002 est.)
Urban population density (# persons/km ²)				205 (2003 est.)
2. Per Capita Water Use (liters/person/day)		-		+/-250 (2004 est.) ⁴
3. Wastewater treated (%)		-		>30% (2004 est.) ⁵
4. Total Solid Waste Generated Per Capita (kg/person/yr)		-		343 (2004 est.) ⁶

¹ Figures in red (sourced from ADB 2004. *CSPU*. Table A.2.1) may be anomalous and require further verification.

² Water and Sewerage Section, Public Works Department

³ Water and Sewerage Section, Public Works Department

⁴ Water and Sewerage Section, Public Works Department

⁵ Water and Sewerage Section, Public Works Department.

⁶ Based on figures from Nadi-Lautoka solid waste study (SPREP).

NOTES:

= no data available; GDP = gross domestic product; kg = kilogram; km² = square kilometer; PPP\$ = purchasing power parity in US dollars

Sources: ADB. August 2004. *Fiji Islands Country Strategy and Program Update (2005-2007)*. ADB. 2002. *Key Indicators 2002: Population and Human Resource Trends and Challenges*. ADB 2002. *Technical Assistance for the Preparation of National Poverty Reduction Strategies in Pacific Member Developing Countries*. Manila (discussion paper on Assessment of Hardship and Poverty, June 2003); ADB. *Republic of the Fiji Islands 1999 Economic Report*; Central Intelligence Agency (CIA), *The World Factbook* (2001-2003) (<http://cia.gov>); Secretariat of the Pacific Community (SPC), *Oceania, Population 2000-2003*; UNDP, *Human Development Report* (2000-2003); UN Statistics Division (UNSD), *Millenium Indicator Database* (2003) (<http://milleniumindicators.un.org>); World Bank, *The Little Green Data Book* (2000-2003); World Resources Institute (WRI), *Earth Trends 2003* (<http://earthtrends.wri.org>)

Appendix 2: References

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Appendix 3: Persons Consulted

National Government

1. Mr. Tevita Banuve, Chief Executive Officer, Ministry of Finance & National Planning
2. Mr. Pita Wise, Deputy Secretary Planning, Ministry of Finance & National Planning
3. Mr. Taito Waqavakatoga, President of the Senate
4. Mr. Cama Tuiloma, Chief Executive Officer, Ministry of Local Government, Housing, Squatter Settlement and Environment
5. Mr. Peni Gavidu, Acting CEO/Deputy Secretary, Ministry of Local Government, Housing, Squatter Settlement and Environment
6. Mr. Napolioni Masirewa, Chief Executive Officer, Ministry of Tourism
7. Ms. Emele Dutuituraga, Chief Executive Officer, Ministry of Women, Social Welfare & Poverty Alleviation
8. Mr. Savenaca Kaunisela, Deputy Secretary, Ministry of Regional Development
9. Mr. Malakai Tadulala, Deputy Permanent Secretary, Office of the Prime Minister
10. Mr. Tomasi Tui, Chief Assistant Secretary, Office of the Prime Minister
11. Mr. Epeli Nasome, Director, Department of Environment
12. Mr. Manasa Sovaki, Principal Environment Officer, Department of Environment
13. Ms. Premila Kumar, Senior Environment Officer, Department of Environment
14. Mr. Luke Qiritabu, Legal Officer, Department of Environment
15. Ms. Sandeep Singh, Coordinator, International Waters Programme, Department of Environment
16. Ms. Sulochna Singh, Community Specialist, International Waters Programme, Department of Environment
17. Ms. Ilisapeci Neitoga, Climate Change Coordinator, Department of Environment
18. Mr. Josefa Sania, Principal Economic Planning Officer (PPED), Ministry of Finance & National Planning
19. Mr. Joela Cama, Economic Planning Officer (PPED), Ministry of Finance & National Planning
20. Mr. Tevita Dawai, Economic Planning Officer (Sectoral/Regional), Ministry of Finance & National Planning
21. Mr. Ram Shandil, Director, Water and Sewerage, Public Works Department
22. Mr. Ifereimi Dau, Acting Director of Mines, Mineral Resource Department
23. Mr. Inoke Ratukalou, Director of Land Resettlement, Ministry of Agriculture, Sugar & Land Resettlement
24. Ms. Makereta Sauturaga, Acting Director, Department of Energy
25. Mr. Saimone Tuilaucala, Acting Director, Fisheries Department
26. Ms. Talei Rokotuibau, Town Planner, Department of Town and Country Planning
27. Ms. Kelera Taloga, Environment Education Officer, Ministry of Education
28. Ms. Lois Katonivualiku, Office of the Prime Minister
29. Mr. Manoa Malani, Principal Tourism Officer- Sustainable Development, Ministry of Tourism
30. Mr. Marika Kuilamu, Senior Tourism Officer-Sustainable Development, Ministry of Tourism
31. Ms. Agnes Peter, Attaché – Sustainable Development Section, Ministry of Tourism
32. Mr. Jonetani Tagiveitaua, Tourism Officer, Sustainable Development, Ministry of Tourism
33. Mr. Timothy Young, Senior Environmental Health Officer, Ministry of Health
34. Mr. Peni Sikivou, Chief Economist, Ministry of Commerce, Business Development & Investment

35. Mr. Michael Mullins, Regulatory Reform Implementation Specialist, Ministry of Commerce, Business Development & Investment
36. Mr. Rafaele Raboiliku, Forestry Officer, Forest Department
37. Mr. Ajay Gautam, Principal Engineer Sewerage, Public Works Department
38. Mr. John Tavo, Principal Engineer Water, Public Works Department

Indigenous Affairs

39. Mr. Alivereti Bogiva, Research & Development Officer, Fijian Affairs Board, Ministry of Fijian Affairs, Culture and Heritage
40. Mr. Sefanaia Tabua, Manager, Research & Development, Native Land Trust Board
41. Mr. Samisoni Matasere, Senior Land Use Planner, Native Land Trust Board

Local Government

42. Mr. John K. Narayan, Health Inspector, Lami Town Council
43. Ms. Josefina Koroi, Health Inspector, Suva City Council

Business Groups and Private Sector

44. Mr. Jone Feresi, Environment Officer, Emperor Gold Mines (and Fiji Employers Federation)
45. Mr. Ulaiasi Taoi, President, Fiji Indigenous Business Council
46. Mr. Jai Shree Gawander, Research Manager, Fiji Sugar Corporation
47. Ratu Osea Gavidid, President, Fiji Tourism Resource Owners Association
48. Ratu Aisea Katonivere, Roko Tui Macuata, Fiji Tourism Resource Owners Association
49. Mr. Joape Nalatu, Roko Tui Saravanua, Fiji Visitors' Bureau
50. Ms. Helen Poulivaati, Policy and Project Analyst, South Pacific Tourism Council
51. Mr. Peter Johnston, Environmental and Energy Policy & Planning Specialist (Private Consultant)

NGOs, Academia, Church Groups, Civil Society

52. Mr. Vilikesa Masibalavu, National Project Coordinator, Bird Life International
53. Dr. Christian Nielsen, Regional Director, Live and Learn Environmental Education
54. Ms. Makereta Takalaivuna, Community Education Officer, Live and Learn Environmental Education
55. Mr. Neil Netaf, Assistant Director Environment, Pacific Concerns Resource Centre (PCRC)
56. Mr. Tupou Vere, Assistant Director, Sustainable Human Development, Pacific Concerns Resource Centre (PCRC)
57. Ms. Alisi Daurewa, Executive Director, Partners in Community Development
58. Mr. Floyd Robinson, Natural Resource Team Leader, Partners in Community Development
59. Ms. Miri Cama, Member, Soqosoqo Vakamarama (indigenous women's organization)
60. Ro Alipate Mataitini, Part-time Administrator/Member, South Pacific Action Committee for Human Ecology & Environment (SPACHEE)
61. Dr. David Olson, Director, South Pacific Program, World Conservation Society (WCS)
62. Ms. Linda Farley, Marine Programme Coordinator, World Conservation Society (WCS)
63. Mr. Dale Withington, Representative, South Pacific Region, World Wide Fund for Nature (WWF)

64. Mr. Etika Rupeni, Fiji Country Director, World Wide Fund for Nature (WWF)
65. Ms. Kesaia Tabunakawai, Programme Director, World Wide Fund for Nature (WWF)
66. Ms. Diane McFadzien, Climate and Energy Officer, World Wide Fund for Nature (WWF)
67. Mr. Paulo Vanualailai, Fiji Country Program Tourism Officer, World Wide Fund for Nature (WWF)
68. Fr. Apimeleki Qilio, President, Fiji Council of Churches
69. Ms. Winifereti Nainoca, Environmental Sciences Lecturer, Fiji Institute of Technology, School of General Studies (Science)
70. Prof. Bill Aalbersberg, Director, Institute of Applied Sciences, University of the South Pacific
71. Dr. Chris Morley, Biology Lecturer, University of the South Pacific
72. Ms. Batiri Thaman, Assistant Project Manager, University of the South Pacific

International Institutions and Agencies

73. Mr. Guido Carrara, Rural Development Advisor, European Commission for the Pacific
74. Ms. Marilyn Cornelius, Environment/GEF/Energy Associate, United Nations Development Programme (UNDP)
75. Dr. Russell Howorth, Deputy Director, South Pacific Applied Geoscience Commission (SOPAC)
76. Mr. Jonathan Mitchell, Research Assistant, South Pacific Applied Geoscience Commission (SOPAC)
77. Mr. Christoph Muziol, Coordinator, German Forestry Project, GTZ/SPC
78. Ms. Eileen Cronin, US Peace Corps

Appendix 4: Fiji's Environmental Setting

A. Area and Physical Characteristics

1. Fiji lies in the Pacific Ocean midway between the equator and the South Pole, and between longitudes 175° and 178° east and latitudes 15° and 20° south. Fiji's exclusive economic zone contains approximately 330 islands of which about one-third are inhabited. It covers about 1.3 million square kilometers (Sq km) of the South Pacific Ocean (Figure 1).

Figure 4.1. Map of the Fiji Islands



2. Fiji's total land area is 18,333 square kilometers. There are two major islands -Viti Levu, which is 10,429 sq km, and Vanua Levu, which occupies 5,556 sq km. Together, they comprise 87 percent of the total land area. Other main islands are Taveuni (470 sq km), Kadavu (411 sq km), Gau (140 sq km) and Koro (104 sq km). Eighty three percent of the land is owned by indigenous Fiji islanders while nine percent is state land and eight percent is freehold land. The islands are characterized by diverse ecosystems including significant areas of natural forest. A variety of tropical coastal and marine ecosystems occur in Fiji, including extensive mangroves, coral formations, and seagrass beds.

3. The islands of Fiji form part of a complex arc structure of volcanics, volcanic-derived sediments and reef deposits dating from the early Cenozoic (40-50 million years ago) to the present. This structure is located in a complex convergence plate boundary zone between the Australian and Pacific Plates. In addition to a record of volcanic, sedimentary and reef rocks,

uplift and erosion have exposed plutonic and low-grade regional metamorphic rocks of greater age.

4. Fiji's larger volcanic islands are dominated by steep, mountainous country deeply incised by rivers and streams. The highest summit, Tomaniivi, is 1,323 m above sea level and there are 30 peaks over 1,000 m. On the four major islands, 67 percent of Viti Levu, 72 percent of Vanua Levu, 49 percent of Taveuni and 78 percent of Kadavu are steep lands with slopes greater than 18 percent. The landforms of the major islands are diverse and often spectacular, marked by sharp volcanic plugs, ruined calderas, deep gorges and ravines carved by mountain streams, and wide, flat-bottomed valleys with impressive rivers terminating in extensive flood plains and mangrove dominated deltas. Limestones of different ages commonly occur on Viti Levu and some bedded deposits are massive, up to 300 m in height. Vanua Levu lacks limestone formations.

5. Only a few of Fiji's islands are classified as true atolls (Wailagilala, Qelelevu), but there are many rings or loops of barrier reef with a more than superficial appearance to an atoll. While Vulaga, Ogea and perhaps Kabara are believed to be elevated atolls because the limestone are composed of raised reefs, the majority of Fiji's 'limestone' islands consist of bedded limestone overlying volcanic rocks. Repeated cycles of past volcanic activity, subsidence and uplift have exposed volcanic rocks to a greater or lesser extent on many of these islands.

6. Fiji enjoys a tropical maritime climate without great extremes of heat or cold. The predominant winds over Fiji are the tradewinds from the east or southeast. Generally these are light or moderate, the most persistent being in the period July to December; strong winds are uncommon, and usually associated with occasional cyclones which usually occur in the period of November to April. About 10-15 cyclones per decade directly affect Fiji, on the average about two to four of these causing severe damage.

7. Although rainfall is highly variable, the average rainfall increases steadily inland from coastal areas. In addition, the windward sides of the major islands intercept the easterly air stream and experience far greater rainfall than the leeward sides, consequently providing a marked distinction between wet and dry zones. Rainfall is usually plentiful from December to April, especially over the larger islands, but from May to October it is often deficient in the dry zones. While the dry zones of the larger islands receive an average annual rainfall of between 165-229 cm annually, the wet zones receive around 305-345 cm. Certain localities such as upland Taveuni commonly receive over 1,000 cm of rainfall per year. While average rainfall figures have been extensively documented and cited, there is great variability in rainfall patterns, and such averages have little value as indicators of the actual rainfall regime.

B. Socioeconomic Development

8. Political instability and insecurity have characterized Fiji's recent history. This has severely eroded the country's image, particularly with the international community, causing major disruptions in its economy. Remedial measures have been implemented to stabilize the economy and return the country to normalcy. But despite this, the Government still needs massive strengthening of its law and order institutions in order to lessen the incidence of illegal activities. Similarly, good governance, public accountability, and transparency need to be instituted. Bureaucratic "red tape" provides a potential conduit for corruption, and poses an impediment to investment and economic advancement.

9. While Fiji's overall Human Development Index¹ compares favorably with that of other countries, this indicator has worsened, from a ranking of 44th in 1995, to 81st in 2003. Nonetheless, its health and education indicators are favorable compared with other countries in the Medium Human Development category. Life expectancy stands at 69.8 years while the Adult Literacy Rate is 93.2 percent. Fiji's overall socioeconomic indicators are far better than its neighboring countries in the Pacific. However, these summary data do not give a detailed look at the real socioeconomic conditions in the country itself, where marked discrepancies in the quality and level of health, education, and infrastructure facilities in rural and urban areas are apparent. The rural areas, where about half of the population live, often suffer from irregularities in transport of goods, inadequate water supply, poor condition of rural roads, and lack of electricity and telecommunication facilities (Table 4.1).

Table 4.1. Key Human Development Indicators, Fiji Islands

Indicators	1995	2000	Most Recent
Social Indicators			
Population (millions)	0.768	0.810	0.819 (2002)
Population Density (person/km ²)	42	44	45 (2002)
Annual Growth Rate (percent)	1.2	0.5	0.7 (2002)
Urban Population (percent of total)	45.5	49.4	50.2 (2001)
Population under age 15 (percent of total)			32.8 (2001)
Labor Force (in thousands)	-	152.8	
Employed (in thousands)	-	111.5	
Unemployment rate (percent)	5.4	12.1	
Life Expectancy at Birth (year)			69.8 (2000-05)
Life Expectancy Index			0.74
Infant Mortality Rate (per 1,000 live births)	50 (1970)		18 (2001)
Maternal Mortality Ratio (per 100,000 live births)			38 (1985-2001)
Adult Literacy Rate (percent of age 15>)	88.6 (1990)		93.2 (2001)
Education Index			0.88
HDI Index			0.754 (2001)
Human Poverty Index (rank)			41
Economic Indicators			
Gross Domestic Product (GDP) (US\$ in billion)			1.7 (2001)
GDP per capita (US\$)			2,061 (2001)
GDP per capita annual growth rate (percent)		1.0 (1975-2001)	1.7 (1990-2001)
GDP Index			0.65

Source: ADB Key Indicators 2002; UNDP Human Development Report 2003, ADB CSPU for Fiji Islands (2004-2006)

¹ UNDP's Human Development Report 2003.

10. The rural population is declining because of the high rate of migration to urban areas (computed at about 2.6 percent per annum from 1986 to 1996). Population growth is occurring mainly in the two existing urban centers of Suva (the capital) and Lautoka, both on Viti Levu.

11. The high rate of urban in-migration is being driven by perceived prospects of jobs, better access to medical, health and other social services, and perception of better education opportunities in urban areas. This has resulted in a deterioration of environmental conditions in the urban centers, arising from the generation of large quantities of waste and pollution, and problems in sanitation, water supply, and many more.

12. Only about one third of Fiji's labor force is engaged in paid employment within the formal cash sector. However, starting in 2000, a declining trend was observed, with only 111,500 employed compared to 114,100 in 1999. Government accounts for a large proportion of paid employment, with about 33,000 personnel in 2001. One of the greatest challenges Government faces now is how to provide decent jobs to 17,000 job-seekers every year, not to mention the increasing rate of unemployment estimated at 12.1 percent of the total labor force in 2000. Although available data are considered unreliable, poverty is estimated to exceed 25 percent of the population in Fiji.

13. However, Fiji's economy is recovering due to improvements in a number of sectors. The most notable change in the economy during the last decade has been the emergence of the garment industry as a major economic contributor. Also, the tourism industry has contributed significantly to the economy and expects to provide about 26,500 new jobs in 2005. If all capital projects and expenditure commitments for 2003 are implemented, GDP growth is expected to be around 4.1 percent in 2004.

C. Natural Resources

14. Fiji's environment is relatively fragile due to its smallness and geographic isolation. The country is characterized by diverse ecosystems, including rainforest and dryland forest, mangroves and other wetlands, coral reefs and offshore fisheries, all of which are richly endowed with natural resources. Fiji's biodiversity, while comprising a relatively small number of species, is exceptionally significant because of the high degree of endemism (species found in discrete geographic areas—sometimes limited to a single island—occurring nowhere else on earth). Although Fiji faces numerous environmental problems, it is fortunate that the serious demographic, economic, and industrial pressures that are the root causes for depletion of natural resources in many other developing countries, are largely absent here.

15. **Land Resources.** Of the total land area of 18,333 sq km, about 45.3 percent is estimated to be in use as farmland, while the remaining 54.7 percent is classified as non-agricultural land. Some 453,603 hectares, or 63.4 percent of the non-agricultural land is natural forest; 196,967 hectares (27.6 percent) is non-agricultural land; and 64,624 hectares (9.0 percent) is planted forest. The vast majority of land in Fiji, about 90 percent, is classified as native land owned by indigenous Fijians in traditional land-owning units; the remaining land area consists of state land (formerly crown land), and freehold land.

16. The increase in population over the past 40 years has resulted in increased demand for food production and consequently has put a significant amount of pressure on arable land areas. Intensive systems of farming, monocropping, reduced fallow periods, and the use of environmentally-damaging inputs (i.e., pesticides and fertilizers), have left no room for farmland soils to recover their natural fertility. This has resulted in increased land degradation, reduced

productivity, lower yields, reduced food security, and increases in poverty. Increasing in-migration in urban areas has worsened the situation. Many prime arable lands have been taken out of production for conversion into industrial and commercial areas and housing estates to accommodate the burgeoning population.

17. As 50 percent of the population in Fiji still live in rural areas and outer Islands, there is a need to develop sustainable economic activities in these areas in order to discourage further migration to urban centers. At present, rural areas and outer islands are lacking in basic social, economic and infrastructure services that constrain development of businesses and commercialization of agriculture. Addressing these deficiencies will lessen the pressure on urban areas, and at the same time will stimulate growth in rural/outer island areas.

18. In addition to the deleterious farming practices cited above, other activities, including steep-slope agriculture, clear-cutting of forests, drainage of wetlands, and other alterations of natural ecosystems, have had damaging environmental effects on lands. One of the greatest ongoing impacts is the loss of large quantities of fertile soil from major watersheds; an estimated 21 million tons of soil is lost annually within four watershed areas alone (Table 4.2). As a party to the United Nations Convention to Combat Desertification (UNCCD), Fiji has already engaged in several land management projects intended to combat land degradation.²

Table 4.2 Soil Loss in Four Major Watersheds, Viti Levu Island

Watershed	Soil Loss (tons/ha/yr)	Soil loss (mm/yr)	Total soil loss (million tons/yr)
Rewa	32.2	2.2	9.3
Ba	69.0	4.6	6.4
Sigatoka	76.9	5.1	1.1
Nadi	81.4	5.4	4.2
TOTAL			21.0

Source: Leslie and Ratukalou 2002. Review of Rural Land Use in Fiji.

19. **Agriculture.** Of the total land area, about 16 percent of Fiji's landmass is suitable for agriculture, and is found mainly along the coastal plains, river deltas, and valleys. Sugar is the main agricultural crop, and has been the backbone of Fiji's economy for most of the past century. (A more detailed discussion of the sugar industry is found in Appendix 5). With regard to non-sugar products, including other crops and livestock, they contribute about 8 percent to the GDP and around 11 percent to agricultural exports. This sector, which benefits approximately 50 percent of the population, consists of traditional food crops (*dalo*, cassava, ginger, and *yaqona*), tropical fruits (pineapple, *pawpaw*, and mango), vegetables, spices, cocoa, and coconut products. Beef, dairy, pork, poultry, sheep, goat, and honey make up the livestock sub-sector.

20. Performance within the agricultural sector over the last decade has been mixed. Only the production and exportation of *dalo* and vegetables have gradually increased, while other crops

² As a party to UNCCD, Fiji Islands has implemented several scientific and technical projects as follows: Watershed Management and Flood Control Program; Soil Surveys and Soil Correlation Program; Soil and Crop Evaluation Project; Establishment of the Ministry of Agriculture Fisheries and Forest Geographical Information Systems; Participatory District / Tikina Based Land Use Planning Program; Integrated Agriculture Development Program; Soil Loss Research and Development of Sustainable Land; Management Technologies Project; Pacific Regional Agriculture Program; Awareness and Training on Sustainable Land Management Program; Transfer of Sustainable Land Management Technologies (SLMT) Program; Drought Mitigation Project; Land Use Options in the Fiji Islands Sugar Industry Project; Farming Assistance Scheme and Land Resettlement Program; and Land Capability Classification Program

like copra and cocoa have stagnated and declined. Lack of necessary infrastructure facilities constrains the growth of this sector, especially in rural areas where there is high potential for traditional food crops and specialty products such as fruits, nuts, cutflowers, spices, herbs, and medicinal plants.

21. Forest Resources. Forest resources in Fiji cover an area of approximately 870,000 hectares or about 47 percent of the total land area. Rainforests exist on the windward sides of the mountainous islands, while the leeward sides have grassy plains. Cultivated plantation forests, mainly pine and mahogany, account for 13 percent of the total forest area. The forestry sector contributed approximately 1 percent to the country's GDP and 3.4 percent of the total export earnings in 2001. Fiji suffers from a 0.21 percent (1990-2000) annual rate of deforestation. The loss of trees has resulted in soil erosion and silt that washes into the ocean.

22. Fiji Pine Limited, a state-owned corporation, manages pine plantations on the two major islands. In spite of its FJD40 million earnings every year from export of pine timber and chips, the company is experiencing financial losses due to poor management. Mahogany plantations are managed by a second state-owned forestry company, the Fiji Hardwood Corporation.³ Great potential is seen for mahogany as a dollar earner, hence, its sustainable management is encouraged.

23. Indigenous forests, which comprise about 300,000 hectares of the total forest area, also offer great potential for production of a range of value-added products including veneer, plywood, and quality hardwood furniture. However, native forest areas are being subjected to massive denudation, with the result that their biodiversity resources are now severely threatened.

24. Some attempts have been made to curb forest destruction. A project on sustainable forestry management and agroforestry farming systems was implemented through the German bilateral program from 1987 to 1994 and later pursued through SPC/GTZ funding. Surveys on traditional agroforestry practices, and pilot testing of the use of *Erythrina subumbrans* (*Drala*) and *Calliandra* leguminous trees for soil fertility improvement were undertaken in selected upland areas. Opportunities also exist for the sustainable production of non-timber forest products. These projects offer some potential to generate sustainable technologies to meet the conservation and economic needs of the local people.

25. Fisheries and Coastal Resources. Fisheries is the third largest export industry in Fiji. With an EEZ covering 1.3 million square miles of ocean, Fiji has a rich resource for commercial exploitation and to supply the subsistence needs of 90 percent of villages located along the coast. The sector accounts for 1.7 percent of GDP or FJD36.5 million. However, in a study conducted by ADB, a much higher contribution to GDP was estimated at 2.4 percent or about FJD 84.6 million.⁴ The same study reported that about 6,246 jobs or about 2.2 percent of the total number of employed individuals in Fiji Islands, were employed by the fishing industry. Around 37,337 metric tons of fish is produced every year with an estimated value of US\$66,102,000. About 44.0 percent of this value or US\$29.1 million is exported. The tuna industry dominates the fisheries sector. Present markets are the United Kingdom, Japan, and the United States.

³ A bill was introduced into Parliament in 2003 for the privatization of the Fiji Hardwood Corporation.

⁴ Robert Gillet and Chris Lightfoot 2001. The contribution of fisheries to the economies of Pacific Island Countries. ADB Manila. December 2001.

26. Coastal areas are of vital importance to Fiji for social and economic development. Most of the urban centers and vast majority of villages are located along the shore. Population concentration and rapid development have been accompanied by inappropriate solid waste management, mismanagement of chemical wastes, pollution of air and waterways, and land degradation. Siltation, sewage dumping, and overfishing threaten Fiji's coral reefs in particular and the coastal ecosystem in general, causing the loss of habitat, as well as depletion of the biologically significant species themselves. Furthermore, unsustainable practices within the artisanal fishery⁵ are also contributing to resource depletion and ecological imbalance.

27. **Freshwater Resources.** Freshwater wetlands occupy only about 0.3 percent of Fiji's land area. On the main island of Viti Levu, approximately 70 percent of the land area is drained by three large river systems (Nadi, Sigatoka and Ba rivers). A total of 10 rivers on Viti Levu have lengths ranging from 21 miles to 73 miles.

28. Two major dams have been constructed in Fiji Islands. The smaller Vaturu Dam (168 hectares) provides water to the dry western division of Viti Levu, and the larger Monasavu dam (670 hectares) provides hydro-electricity. A third, smaller dam (80 hectares) has been built at the Wainikavika Creek to provide water for rice irrigation.

29. On the main islands, which are all volcanic in origin, there is no shortage of groundwater and surface water to supply domestic needs. These islands are characterized by steep, deeply incised mountainous terrain, a relative abundance of annual rainfall, the presence of perennial rivers, good surface drainage, and numerous springs. However, on the low-lying, smaller, and outer islands, rivers and streams are non-existent, and groundwater may be lacking or brackish. Shortages in freshwater supply are a common occurrence in these islands. Despite the fact that rainfall provides a reasonably adequate and readily-available source of raw potable water on these islands, deficiencies in water catchment and storage systems are the reason for the chronic shortages.

30. **Biodiversity Resources.** The Fiji Islands Biodiversity Strategy and Action Plan (FBSAP), developed in 1999 and approved in 2003, presents the state of the country's biodiversity and outlines approaches to conservation. The FBSAP reports that much of Fiji's biodiversity is unique and can be found nowhere else in the world (i.e., is endemic to Fiji). Highlights of Fiji's biodiversity are as follows:

- Fifty percent or more of its plants and birds are endemic
- all 24 of its reported palms are endemic
- 72 of the 76 species of the plant genus *Psychotria* (Rubiaceae, coffee family) are endemic
- of 26 reported species of reptiles, 9 (35 percent) are endemic, including the "flagship" Fijian crested iguana
- over 90 percent of some insect groups such as cicadas and marine insects are endemic
- of 61 species of freshwater mollusks and crustaceans, 11 percent are endemic
- there are 96 recorded species of indigenous freshwater and brackish water fishes
- the total number of vascular plants known is approximately 2,600, of which approximately 1600 are native
- the total number of native insect species is in excess of 3,500
- the only indigenous mammals are bats, of which there are six known species;
- there are two rare endemic species of frogs (genus *Platymantis*)

⁵ This includes indiscriminate harvesting of mangroves and catching of undersized fish and crustaceans.

31. In an economic valuation study carried out for four major ecosystems in Fiji ([i] open sea; [ii] coral reefs, lagoons and beaches; [iii] mangrove forests and estuaries, and [iv] tropical moist forest) eleven ecosystem-related processes were identified as benefits. These included: (i) climate regulation; (ii) disturbance regulation; (iii) water regulation and supply; (iv) erosion control and soil formation; (v) nutrient cycling; (vi) waste treatment; (vii) biodiversity preservation; (viii) food production; (ix) provision of raw materials; (x) recreational opportunities; and (xi) cultural values. The total economic value of these services was computed at FJD973 million per year, which represents over 42 percent of the 1994 national GDP.⁶ The high value ascribed to these ecosystem services clearly highlights their importance for Fiji's continuing economic growth. Any form of unsustainable development that causes imbalances in these ecosystem functions will diminish or destroy the value of the environmental services which these natural systems provide, with accompanying social and economic losses.

32. Mineral and Groundwater Resources. Fiji is endowed with mineral deposits of gold, copper, lead and zinc. Gold has been exported from the country since 1932 and continues to be a major foreign exchange earner. Emperor Gold Mining Company Limited is the largest mining operation in the country, with an annual production of 4,430 kg of gold (1999) and a workforce of over 2,000 people. The company's Vatukoula mine is situated on the margin of the Tavua Caldera in northern Viti Levu. Mt. Kasi mine in the Yanawai Goldfield of southern Vanua Levu is the other major gold mine in the country. The discovery of large copper deposits at Namosi in east-central Viti Levu could increase Fiji's output in the mining sector. However, environmentalists have argued that tailings disposal from the proposed mining operation poses threats to environmental quality that could impact one or more sensitive areas, including the Navua watershed, Waisoi Valley, Sovi Basin, Coral Coast, and Beqa Lagoon. Other ventures being investigated are for commercial exploitation of bauxite, marble, and oil. In 2001, mining operations contributed about 2.5 percent to the GDP.

33. Mineral water for the bottled water market has also shown the potential to be one of Fiji's leading foreign exchange earners. In 2003, export earnings from bottled mineral water were estimated at FJD45.5 million, up from FJD5.9 million in 1999, during the early stages of development of the industry. Currently, "Fiji Islands Water" enjoys a commendable second largest market share for imported bottled water in the US. Efforts are underway to also penetrate Australasia and the European markets.

D. Other Key Sectors

34. Tourism. Fiji is the main center for tourism in the South Pacific region, with tourist arrivals having peaked at 410,000 in 1999.⁷ Visits have grown by an annual average of 9 percent since 1961 and 5 percent since 1990. The contribution to Fiji's employment is estimated at 20 percent of the total employment figure for 2001, with around 40,000 jobs and a contribution to the GDP of about 17 percent, which is more than any other single industry. In addition, tourism receipts have helped to reduce negative economic impacts of trade deficits, contributing to the positive current account positions and general stability of the local currency.

⁶ FBSAP 1999.

⁷ Arrivals in 2000 were 294,000, in 2001 about 348,000 and in 2002 around 398,000 (WTO 2002, <http://www.world-tourism.org> and South Pacific Tourism Organization [SPTO], May 2003) reflecting the impact of the coup in 2000. In 2001, 85percent of arrivals were tourists, 5percent business and official visits, and the balance of visits related to educational and family reasons.

35. The Government has recently adopted⁸ concepts such as sustainable tourism⁹ and the promotion of ecotourism¹⁰. These steps have been perceived as a timely move toward more sustainable natural resource management; enabling economic development, while at the same time, preserving cultural integrity, essential ecological processes, biological diversity, and life support systems. The earliest ecotourism initiatives started around 1972, with the establishment of several designated sites and protected areas.¹¹ In the last decade, activities in this area have been stepped up and local communities are now increasingly involved in tourism and ecotourism. Some local residents may be employed as hotel workers,¹² while others may provide local accommodation or other related services. Based on a recent survey, there are now about 22 licensed “ecotourism” operators in Fiji, with the majority of them based on the western side of Viti Levu, while others operate in Vanua Levu, Taveuni, and in Vanua Balavu, Lau.¹³

36. NZAID has been assisting ecotourism development in Viti Levu (at the Koroyanitu National Heritage Park) and Taveuni (at the Vanua Bouma National Heritage Park) since 1989. These parks are considered among the best models of sustainable park management in the Pacific and have good visitor numbers and activities/attractions, including well-maintained trails and nature interpretation centers, and most importantly, a local village-based management structure. However, as summarized in a recent review prepared by NZAID, the way forward toward a self-managed and sustainable ecotourism system still presents various challenges and requires additional focused external support.

37. With respect to impact management and quality control for sustainable tourism, an important recent initiative is certification of tourism-related companies through “Green Globe 21”.¹⁴ Other initiatives that advocate sustainable tourism development are: (i) national commitment towards the Global Code of Ethics for Tourism; (ii) empowering various tourism trade associations; (iii) institutional strengthening and capacity building in human resources, and community development; and (iv) cost-effective target marketing through the Fiji Islands Visitors Bureau and the tourism industry to achieve a sustainable balance between demand and supply.

38. **Energy.** At the end of 2002, electricity accounted for 3.7 percent of the country’s GDP. Around 60 percent of electricity requirements are met by hydropower, with most of the balance coming from imported petroleum products. The proportion of Fiji’s total population currently having direct access to power supplied by the Fiji Islands Electricity Authority (FEA) is 60 percent, compared to 54 percent in 1990.

⁸ Through the Ecotourism and Village-Based Tourism Policy and Strategy approved in February 1999.

⁹ **Sustainable tourism** is defined as “*tourism and associated infrastructure that: both now and in the future operate within natural capacities for the regeneration and future productivity of natural resources; recognize the contribution that people and communities, customs and lifestyles, make to the tourism experience; accept that these people must have an equitable share in the economic benefits of the local people and the communities in the host areas.*” (Eber. 1992 as mentioned by Butler, R.W. 1999. Sustainable Tourism: A State-of-the-Art Review. Tourism Geographies 1 (1), 1999, 7-25)

¹⁰ **Ecotourism** is defined as “*a form of nature-based tourism which involves responsible travel to relatively undeveloped areas to foster an appreciation of nature and local cultures, while conserving the physical and social environment, respecting the aspirations and traditions of those who are visited, and improving the welfare of local communities*” (Harrison, with Malani and Sawailau. 1999).

¹¹ Some of these areas are: Colo I Suva Forest Trail; Iguana Sanctuary on the Island of Yadua Tabua; Levuka Historic Town; Vaisali Forest Park; Waikatakata Forest Trail; Sagatoka Sand Dunes National park; and the Tavuni Hill Fort (Harrison, D. and Brand, J. 2002. Ecotourism in Fiji Islands. In: Harrison, D. (ed.), *Pacific Islands Tourism*, Cognizant, New York).

¹² which is normally a condition for leasing lands ...

¹³ Strategic Development Plan 2003-2005.

¹⁴ Being implemented through a strategic partnership among the Fiji National Training Council, the Ministry of Tourism, Fiji Visitors Bureau, and Green Globe Asia Pacific.

39. The level of electricity generated by FEA in 2002 was approximately 555 gigawatt-hours (GWh), increased from 449 GWh in 1997. The total number of consumer accounts using electricity services from the FEA grid has also increased from 99,676 to 120,000 over the same period, and was forecast to increase by 5 percent per annum in the next three years.

40. Since the inception of the Rural Electrification Scheme in 1975, a total of 569 schemes have been installed under a cost sharing arrangement between Government and the rural service applicants. About 85,000 people of the total rural population have benefited from this scheme.

41. Non-conventional sources of energy are being increasingly tapped in Fiji to bridge the growing energy gap. A notable example is the Fiji Sugar Corporation's use of bagasse for most of its energy requirements. The Fiji Industries, Ltd cement factory fires its kilns with electrical energy derived from imported coal, but the steel rolling and fabrication industry meets part of its requirements through waste oil. Several isolated power projects use coconut oil, biogas and biomass as alternative fuels. A 10-KV photovoltaic installation has been set up at Lautoka, but the high cost of the photovoltaic cells utilized would constrain introduction of similar solar power schemes in other parts of the country. Household photovoltaics have been utilized for rural electrification, and as of mid-2004, there are an estimated 400 households utilizing solar photovoltaics.

42. Wind resources are being monitored by Department of Energy and Rural Electrification, for proposed wind farms totaling about 25 MW of production capacity; around 5-15 MW of wind power generation systems may be commissioned by 2007. Considerable potential also exists for production of geothermal energy from steam sources in Lambasa, and at several other sites on Viti Levu and Vanua Levu; there is an estimated total generation potential of perhaps 5-15 MW from geothermal. Efficiency in production, transmission and consumption is essential to optimize available energy sources while new and more environmentally benign avenues are being explored.

43. Water and Sewerage Services. The proportion of Fiji's population with access to piped water is about 70 percent, compared to 60 percent in the mid 1980s, but those with access to an improved water source is only 47 percent.¹⁵ The proportion of population having access to improved sanitation facilities is approximately 43 percent, while only about 15 percent have access to treated sewerage facilities.¹⁶ The overall level of services provided by this sector needs major strengthening, and to realize this, there is a need for substantial investment to upgrade and expand existing water and sewerage facilities. The sector is plagued by low cost recovery due to low fees charged for delivery of water and sewerage services, as well as inefficient operations. Water supply master plan and sewerage system projects were initiated to address this problem. But considerable amount of funding assistance is necessary to carry out plans and projects.

44. Government is continuing to implement the Suva/ Nausori Regional Water Supply Master Plan improvement and expansion program, which was revised and updated in 2000. The ADB-funded loan for upgrading Suva-Nausori water and wastewater facilities is a significant contribution that will help bring about much needed improvement in this sector. Additional steps are being taken to meet demand in the greater Suva area, by the extension of the treatment facility at Kinoya. Work on the Kinoya Outfall, which commenced in 2001, is continuing with EU funding.

¹⁵ UNDP Human Development Index 2003

¹⁶ UNDP Human Development Index 2003

45. Government is also providing water supplies to rural communities under the Self-Help Rural Water Supply Scheme and the Borehole Subsidy Scheme. The Self Help Rural Water Supply Scheme is mainly designed for rural communities, villages and schools and operates on a one-third to two-third costs sharing basis between the beneficiary communities and Government. Under the Borehole subsidy scheme, Government subsidizes up to one thousand dollars per borehole for individuals or a collection of farmers living in scattered rural areas. The cost of drilling and developing a borehole as the water source is fully funded by Government, and the community is only levied a one third contribution for the development and reticulation costs from the completed borehole.

Appendix 5: Fiji's Sugar Industry¹

A. Current Issues

1. Since its introduction in 1880, the sugar industry has dominated Fiji's commercial agricultural sector. While dependence on the sugar industry has declined substantially during the past 2 decades (Prasad and Narayan, 2003), currently it still accounts for 7 percent of the GDP, 25 percent of employment and approximately 22 percent of annual export revenue (Fiji Sugar Commission, 2002). About 90 percent of Fiji's raw sugar is exported to international markets, mostly at premium prices under the ACP/EU Sugar Protocol and other preferential arrangements.

2. The sugar industry provides direct and indirect employment to some 41,000 people; these consist of 21,000 growers, 3,000 Fiji Sugar Corporation (FSC) employees, and 17,000 cutters and drivers. In addition, unlike tourism, in which there is a high rate of earnings "leakage" to investors overseas, sugar income remains largely within Fiji, circulating throughout the economy and yielding trickle-down economic benefits. However, the future of sugar exports, and the sugar sector as a whole, is uncertain. The current industry structure is not viable, and restructuring is essential to address the industry's problems such as: (i) declining productivity, both in the field and the factory; (ii) declining sugar quality; (iii) poor industrial relations; (iv) poor supply of cane to mills; (v) transportation issues; (vi) mill inefficiencies (vii) rising production costs; (viii) shortage of skilled manpower; (ix) ineffective management; (x) fluctuations in world free market prices and phasing out of the long-term market in the European Union; and (xi) inequitable access to sugar lands as stipulated under the Agricultural Landlord and Tenant Act (ALTA), and expiration of sugar leases that is causing displacement of skilled sugar workers

3. Of all these ills, perhaps the most serious are the difficulties that exist in land leasing arrangements between primarily Indo-Fijian tenant farmers and traditional indigenous Fijian landowners. The ALTA is the main legislation that directs the procedures in utilization and leasing of lands in Fiji. Many studies have already pointed out the need to revise its provisions in light of expiring leases and the threats that this brings. The inability to address this pressing issue has been one of the key aspects contributing to Fiji's recent political instability.

4. These problems have negative impacts not only to the sugar industry itself, but also to the ecological integrity of upland/forest areas. If leases granted to sugar farmers for suitable sugar croplands are not extended, the tendency is for farmers to utilize instead more marginal, erosion-prone upland areas to continue their farming activities. Such practices will not only damage the sugar industry, but through the impacts of erosion, soil loss, siltation, and impaired water quality, will cause declines in other agriculture, fisheries, and tourism.

5. The FSC is 68 percent owned by the Government of Fiji, with 17 percent of shares held by the Fiji National Provident Fund (FNPF). The International Monetary Fund (IMF), based on information from FSC, has projected increasingly heavy FSC losses, reaching over FJD33 million by 2008, if no action is taken very soon (Table 5-1).

6. Since this analysis was carried out, the World Trade Organization (WTO) has issued a ruling against internal EU sugar subsidies. This will affect the EU agreement with Asia-Caribbean-Pacific countries (the ACP group) providing for subsidized sugar exports from the ACP to the

¹ Sources: FSC Annual Report 2002-2003; PIREP October 2004. Pacific Regional Energy Assessment 2004. Fiji National Report; Mr. Jai Gawander, Research Manager, Sugar Cane Research Centre, FSC.

EU. This decision, if upheld as expected, would reportedly (Fiji Times, 2004) cost Fiji about FJD7 million annually in lost export revenue, based upon expected declines in sugar prices, from current levels of around FJD50/ton, to around FJD30/ton by 2007. According to the FSC chair (reported by Radio Australia, 2004), the impact on Fiji could be ‘catastrophic.’

Table 5-1 FSC’s Estimated Profits and Losses in FJD (millions)

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Profit (-loss)	-1.2	-3.0	2.0	-3.3	-20.8	-19.0	-11.0	-16.1	-18.7	-21.9	-32.0	-33.5

Source: Fiji Selected Issues and Statistical Annex (IMF, 2003)

B. Restructuring and Strengthening of the Industry

7. Government is well aware of the need to restructure the sugar industry. Given the large impact that the sugar industry has historically had on Fiji’s economy, and noting that the percentage of Fijian households living in poverty grew from an estimated 15 percent in 1983 to nearly 26 percent in 1996 (worsening further following the 2000 political crisis according to ADB, 2003), the need to find solutions for the current crisis in the sugar industry is growing ever more urgent.

8. Many options for restructuring have been considered. As part of a Sugar Sector Reform Study conducted by a technical team from India, it was recommended that total sugar-growing area be increased by 25 percent. This would be accompanied by measures to: (i) improve value-adding, by looking at alternative uses for the sugarcane crop; (ii) rehabilitate marginal growing areas through crop diversification and intercropping; (iii) change existing milling equipment for greater efficiency; and (iv) put measures in place to reduce transportation costs. Outcomes of ADB’s TA for Alternative Livelihood Development, which also focuses on reform and restructuring within the sugar industry, have made quite different recommendations, based mainly on the reality that sugar prices cannot be maintained at past or current levels. The TA recommended that (i) sugar planting area be reduced; (ii) areas previously used for sugar crops be replanted with other crops; and (iii) these changes be accompanied by training to place former sugar workers into new livelihoods, especially a variety of non-farm small and medium-size enterprises (SMEs).

9. An important overall guiding principle in looking at proposals for revitalization of the sugar industry is to consider diversification from sugar, but not from sugar cane—in other words, continue producing the cane crop, but use it for products other than sugar. The advantages of this approach are that (i) there is an existing knowledgeable and skilled workforce who would not need new training that would be required for growing new crops; (ii) the technology and facilities for cultivation would be the same (e.g., no need for providing irrigation etc.); and (iii) potentially, cane of inferior quality (inferior for sugar production purposes) might be acceptable to use for other products. This means that sugarcane could possibly be grown profitably in areas that are marginal for growing cane for sugar production (e.g., Suva environs—the mill in Nausori was closed due to the fact that cane was inferior for sugar production, due to higher rainfall).

10. Some of the main areas of opportunity for diversified utilization of sugarcane to generate revenue are for (i) biomass (bagasse) fuel production for power generation; (ii) production of specialty high-value chemicals (e.g., isocoinol, a sugar-derived substance used to lower blood cholesterol); (iii) ethanol production, for food or fuel use; and (iv) carbon trading under the global Clean Development Mechanism (CDM).

11. There are potential spin-off environmental benefits to be gained through such diversification as well. Many of these are tied to benefits recognized under the CDM, and relate to reductions in GHGs. These are as follows:

- replacement of fossil fuel with biomass (i.e., bagasse, the cane by-product from the sugar harvest) for energy production, which decreases Fiji's energy dependency, and sale of excess energy derived from bagasse, to the electricity grid. At present, sugar mills burn bagasse to run their own generators, with some excess electricity being generated. It is estimated that each of the four sugar mills in Fiji could potentially generate up to 5 MW of electricity, which could be sold to the main power grid. There have been discussions between FSC and FEA regarding proposed investments that could substantially increase the amount of electricity provided by FSC to FEA.²
- production of ethanol from sugarcane as an alternative fuel source. Ethanol is a clean and renewable fuel that could be a potential substitute for traditional fossil fuels. Ethanol from sugarcane is already commercially viable in other countries (e.g., Brazil) where sugar is considered a by-product of ethanol production.
- expansion of sugarcane-growing lands to increase absorption of atmospheric carbon. The added sugarcane production would be utilized for biomass, ethanol, and specialty chemical production as described above. At the same time, because sugar is a so-called C4 plant, its photosynthetic processes result in very rapid uptake of atmospheric carbon (carbon dioxide, or CO₂). As a result, sugar potentially could act as an effective carbon sink, helping to sequester carbon and reduce the amount of greenhouse GHGs in the atmosphere.³

12. In addition to the diversification proposals mentioned, other opportunities exist for making improvements in the sugar industry. For example, improving sugar yields could improve Fiji's competitiveness within the world sugar market. At present, annual yields stand at around 5 tons of sugar per hectare; however, it has been estimated that with improved culture techniques, yields could be increased to as much as 10 tons per hectare. Among the ways in which productivity and yield could be improved are: (i) control of erosion and runoff on sloped lands by planting hedgerows of *Vetiver* grass⁴; (ii) providing irrigation for cane lands⁵; (iii) minimizing tillage; intercropping with legumes for soil enrichment; (iv) minimizing burning in canefields, to reduce loss of organic matter; and (v) utilizing recycled filter mud/ash/bagasse mixture to replace costly synthetic fertilizers.

² This has further implications for possible reduction of emissions and benefits under the global Clean Development Mechanism (CDM). The impacts of burning bagasse, in terms of production of GHGs, needs to be examined and a balance sheet set up to determine the net loss or gain in carbon dioxide emissions. Similarly, if ethanol production was taken up, generators could be run on the ethanol residue, and similar calculations would need to be made.

³ However, because of relatively short crop turnover, the permanence of the sequestration needs to be further investigated (e.g., once sugarcane is cut and processed, and residual cane is re-tilled into fields, is the majority of carbon quickly released to the atmosphere, or is it retained as organic matter in soil?). Assuming that carbon retention could be demonstrated, there may be potential for revenue generation through carbon trading as provided for under the CDM.

⁴ Another advantage is that, in addition to their effectiveness for erosion control, *Vetiver* plants are a source for high-value aromatic oils that have reputed therapeutic properties. Since occasional thinning of *Vetiver* hedgerows is required, this offers the opportunity to harvest the grass as a secondary crop for essential oil production.

⁵ Surveys have shown adequate groundwater resources for irrigation in cane-growing areas.

Appendix 6: Fiji's Protected Areas and Sites of National Significance

A. Protected Areas

Protected Area /Status	Year Established	Location	Type Of Feature	Tenure	Area (ha)	Administered by
I. National Parks						
Sigatoka Sand Dunes National Park	1988	South West Coast Viti Levu	Sand Dunes, Beach Forest, Archaeological Site	State, Native and Freehold	240	National Trust of Fiji (State only)
II. Nature Reserves						
Ravilevu	1959	Taveuni Island	Rainforest	Government	4020	Ministry of Forestry
Naqarabuluti	1958	Viti Levu	Rainforest	Government	279	Ministry of Forestry
Draunibota and Labiko Islands	1959	Suva Harbour Viti Levu	Recreation	Government	2.16	Ministry of Forestry
Nadarivatu	1956	Viti Levu	Dakua Forest	Government	93	Ministry of Forestry
Tomaniivi	1958	Viti Levu	Rainforest	Government	1322	Ministry of Forestry
Vuo Islands	1960	Suva Harbour Viti Levu	Coastal Islet		1.2	Ministry of Forestry
J H Garrick Memorial Forest Reserve	1986	Southern Viti Levu	Forest	Freehold	428	National Trust of Fiji
Namenalala Island Nature Reserve	1984	South of Vanua Levu	Sea bird Colony, Barrier reefs	Native	43	NLTB (Lessee)
Taveuni Forest Reserve						
Sovi Basin						
Monosavu-Nadrua Plateau						
Koroyanitu						
Vunivia						
Waisali						
III. Forest, Park and Amenity Areas						
Colo-I-Suva	1952	Suva, Viti Levu	Forest/Stream	Native	91	Ministry of Forestry
Lololo	Early 1970's	Western Viti Levu	Forest/Stream	Native	0.5	Fiji Pine Commission
Tavakubu	Early 1970's	Western	Pine/ Forest/	Native	1	Fiji Pine

Protected Area /Status	Year Established	Location	Type Of Feature	Tenure	Area (ha)	Administered by
		Viti Levu	Stream			Commission
Bouma Forest Park	1991	North Taveuni	Waterfalls/ Rainforest	Native		Landowners with Ministry of Forestry/ NLTB
Waikatakata Forest Park	(in process)	South Viti Levu	Rainforest/ Archaeology	Native		Landowners with Ministry of Tourism/ NLTB
Tavuni Hill Fort	(in process)	South Viti Levu	Archaeology	Native	20	Landowners with Ministry of Forestry/ NLTB
Saweni Beach	Early 1970's	Western Viti Levu	Beach	Native	0.5	Ministry of Forestry
Lomolomo	Early 1970's	Western Viti Levu	Beach	Native	0.5	Ministry of Forestry
Nukulau Island	Early 1970's	Off Suva, Viti Levu	Island and reef	Government		Department of Lands
IV. Wildlife Sanctuaries						
Yadua Taba Island Crested Iguana Reserve	1981	Western Coast of Viti Levu	Island Sanctuary for Crested Iguanas	Native	0.5	National Trust of Fiji
Tunuloa Silktail Reserve						
V. Marine Sanctuaries						
Kadavu			Great Astrolabe Lagoon			
Nadi Bay			Tai Is., Levuka Is., Vomo Sewa Is. – fringing and offshore reef areas			
Namenalala			Fringing and Barrier Reefs			
Yadua Taba			Fringing Reef and surrounding waters			
Lau Group						
VI. Mangrove Areas						
Ba delta			Nawaqarua - Natutu			
Rewa delta			Muanicaka – Nasoata R.			
Labasa delta			Labasa R.;; Labasa Delta			

Protected Area /Status	Year Established	Location	Type Of Feature	Tenure	Area (ha)	Administered by
			Mouth			
VII. Historical/Cultural Sites						
Wasavalu		Near Labasa, Vanua Levu	Cultural Site			National Trust of Fiji and/or Fiji Museum

Source: National State of the Environment Report (1992); FBSAP (1999).

B. Preliminary Register of Sites of National Significance

The register consists solely of 'natural' sites, which includes those of biological, ecological, geological, and geomorphologic and landscape interest. It also includes some sites currently used for recreation. Cultural and archaeological sites are not included. This register is by no means complete.

Site No.	Site	Division	Significance
1	CUVU BEACH	Western	Coastal ecosystem, recreation
2	NATADOLA	Western	Coastal ecosystem, recreation
3	SIGATOKA SAND DUNES	Western	National park, sand dune system
4	SAUTABU CAVE	Western	Limestone cave
5	NAQALIMARE LIMESTONE	Western	Limestone ecosystem
6	TATUBA CAVE	Western	Limestone cave system
7	WAILOTUA LIMESTONE	Central	Limestone ecosystem and cave
8	NAUSORI HIGHLANDS	Western	Dry zone mountain forest
9	NAQALI	Central	<i>Neovetchi storkii</i> Palm habitat
10	CORAL COAST REEFS	Western	Marine ecosystem, recreation
11	WAINISAVULEVU FALLS	Western	Waterfall
12	RAIRAIMATUKU PLATEAU	Western	Mountain rainforest
13	MONSAVU	Western	Dam, hydro catchment protection, rainforest
14	NAKOROTUBU V/ THICKET	Western	Unique tropical vine thicket community
15	NAKAUVADRA RANGE	Western	Dry zone rainforest
16	MALAMALA ISLAND	Western	Marine ecosystem
17	VATIA VINE THICKET	Western	Unique tropical vine thicket community
18	WABU CREEK	Western	Intact Fiji dakua mountain range
19	DREKETI INLET	Western	Coastal environment, mangrove
20	Mt EVANS RANGE	Western	Intact dry zone mountain forest
21	WHITE ROCK	Western	Seabird nesting colony
22	MACUATA ISLAND	Western	Crested Iguana habitat
23	NADI BAY REEFS	Western	Reefs, recreation
24	VATURU DAM CATCHMENT	Western	Catchment protection, dry zone rainforest
25	KADOMO ISLAND	Western	Shear water nesting colony
26	MAMANUCA GROUP	Western	Coastal/marine ecosystem, recreation
27	VOMOSEWA	Western	Flying fox camp, island vegetation
28	MONURIKI ISLAND	Western	Iguana habitat, seabird nesting colony, vegetation
29	MONASAVU SWAMP	Western	Rare mountain swamp community

30	SAVURA CREEK	Central	Catchment protection, rainforest
31	SOVI GORGE	Central	River gorge of high scenic value
32	Mt KOROBA	Central	Rainforest, 5 endemic plant species, recreation
33	NAULU LOKIA SWAMP	Central	White browed rail habitat
34	NASINU CAVE	Central	Cave system
35	VAT-I-RA	Western	Sea bird nesting colony
36	VATU-I-LAMI	Central	Seabird nesting colony
37	MUBULAU	Central	Seabird nesting colony
38	SUVA REEF	Central	Marine habitat and recreational area
39	BATIWAI FOREST	Central	<i>Gulubia microcarpa</i> palm habitat; forest reserve
40	SOVI BASIN	Central	Rainforest, wilderness area, high scenic area
41	KOROBASABASAGA RANGE	Central	High scenic value
42	LOWER NAVUA GORGE	Central	High scenic value
43	UPPER NAVUA GORGE	Central	Spectacular scenery, geological formation
44	QARANIBULUTI NAT. RES.	Western	Rainforest, forest reserve
45	MAKALUVA ISLAND	Central	Sand cay and reef system; recreation
46	MATAGI ISLAND	Northern	Beach forest, flooded volcanic caldera
47	WASALI	Northern	Dakua rainforest, amenity reserve
48	ROKOSALASE	Northern	Buabua forest (<i>Fragraea gracipilles</i>)
49	KIOA ISLAND	Northern	Island environment
50	NASELESELE FALLS	Northern	Waterfall system
51	SALT LAKE	Northern	Unique formation
52	VUNIVIA CATHCMENT	Northern	Lowland dry zone forest
53	VUNIVIA MANGROVES	Northern	Intact mangrove system
54	RAVILEVU NATURE RESERVE	Northern	Wet rainforest habitat, mongoose free
55	COBIA ISLAND	Northern	Beach forest, geological formation
56	TAVEUNI ISLAND	Northern	Potential World Heritage nominee
57	QELELEVU ATOLL	Northern	Atoll habitat
58	NAMENA BARRIER REEF	Northern	Barrier reef, marine ecosystem
59	NAMENALALA ISLAND	Northern	Seabird nesting colony, beach forest
60	GREAT SEA REEF	Northern	Barrier reef, marine ecosystem
61	TUNULOA FOREST	Northern	Rainforest, Vanua Levu Silktail Habitat
62	DUFF REEF	Eastern	Turtle nesting site
63	RAINBOW REEF	Northern	Patch reef, marine ecosystem
64	CAKAULEKALEKA REEF	Eastern	Marine ecosystem
65	YABU ISLAND	Eastern	Seabird nesting colony
66	FULAGA BAY OF ISLANDS	Eastern	Spectacular lagoon, geological formations
67	NANUKU ISLAND	Eastern	Turtle nesting area
68	SOVU ISLAND	Eastern	Seabird nesting colony
69	NUKUTOLU ISLAND	Eastern	Turtle nesting area
70	OGEA LEVU	Eastern	Makatea forest, Ogea flycatcher habitat
71	TUBOU CAVE	Eastern	Island cave system
72	GAU	Eastern	Endangered Fiji petrel nesting habitat
73	QILAQILA BAY OF ISLANDS	Eastern	Coastal formations/ marine ecosystem
74	MASOMO BAY	Eastern	Coastal environment

75	WAILAGILALA ATOLL	Eastern	Atoll, seabird nesting colony, marine ecosystem
76	GARRICK PARK	Central	Rainforest
77	TAQUA ISLAND	Eastern	Seabird nesting colony
78	Mt WASHINGTON	Eastern	Petrel breeding site, unique landscape
79	NADARIVATU NAT. RES	Western	Dakua dominated rainforest
80	GREAT ASTROLABE REEF	Eastern	Marine lagoon ecosystem
81	NORTH ASTROLABE REEF	Eastern	Marine lagoon ecosystem
82	JOSKES THUMB	Eastern	Landscape; geological feature
83	MAKOGAI ISLAND	Eastern	Beach forest, cycad dominated, coastal/marine ecosystem
84	CAKAU MOMO REEF	Eastern	Marine ecosystem
85	WAKAYA ISLAND	Eastern	Coastal marine ecosystem
86	SAWENI SAND FLATS	Western	Feeding site for migratory waders
87	SUVA POINT	Eastern	Feeding site for migratory waders
88	GUSUNIQARA PT.	Western	Geological site – marine notch
89	VATULELE CAVE	Western	Limestone cave system
90	RED PRAWN POOL	Western	Anchialine habitat, red prawn pool
91	NASINUNAQERE	Northern	Geological site – marine notch
92	URABUTA PT	Northern	Anchialine habitat – red prawn pool
93	KOROKUNE	Western	<i>Veitchia johannis</i> palm forest
94	LAVENA	Northern	Geological site – sea stack
95	WAIDAWARA	Central	Geological site – river process
96	VANUALEVU ISLAND	Western	Geological site – rock type
97	KUCUVE PT.	Western	Geological site – rock type
98	MOTOKURO PT.	Western	Geological site – rock type
99	KOROMASOLI PT.	Western	Geological site – rock type
100	DIGIO ISLAND	Western	Geological site – rock type
101	NAMTAYA BAY	Western	Geological site – rock type
102	NAROSALIA ISLAND	Western	Geological site – rock type
103	VATULACA ISLAND	Western	Geological site – rock type
104	YALEWA KALOU	Western	Geological site – rock type
105	VUTUA	Eastern	Geological site – rock type
106	WAINIVUDI R.	Central	Geological site – rock type
107	YADUA QUARRY	Western	Geological site – rock type
108	SEALARK HILL, SUVA	Central	Geological site – rock type
109	YACIWA ISLAND	Eastern	Geological site – rock type
110	SAVASI	Northern	Geological site – rock type
111	MAKASIKO	Western	Geological site – rock type
112	BAKABAKA ISLAND	Northern	Geological site – rock type
113	VIWA ISLAND	Western	Geological site – rock type
114	NANUCA	Northern	Geological site – rock type
115	CIKOBIA ISLAND	Northern	Seabird nesting colony
116	VETAUA	Eastern	Seabird nesting colony
117	NUKUBASAGA	Eastern	Seabird nesting colony
118	NUKUPURETI	Eastern	Seabird nesting colony
119	NUKUSIMANU	Eastern	Seabird nesting colony
120	NANUYA-I-RA	Western	Seabird nesting colony
121	NAIABO	Eastern	Seabird nesting colony

122	VANUAMASI	Eastern	Seabird nesting colony
123	REID REEF	Eastern	Seabird nesting colony
124	LATEIVITI	Eastern	Seabird nesting colony
125	KIBOBO ISLETS	Eastern	Seabird nesting colony
126	VUNIVADRA ISLAND	Western	Seabird nesting colony
127	YANUYA ISLAND, ONO	Eastern	Habitat of endemic <i>Leilopisma alazon</i> skink
128	ROTUMA	Northern	Unique island, geological feature
129	HOFUIUA ISLAND	Northern	Seabird nesting colony
130	HATANA ISLAND	Northern	Seabird nesting colony
131	UEA ISLAND	Northern	Geological features, beach forest
132	VUNIMOLI NAT. RES.	Northern	Rainforest, forestry reserve
133	TOMANIVI NAT. RES.	Western	Rainforest, forestry reserve
134	DRAUNIBOTA NAT. RES.	Central	Bay of islands, forestry reserve
135	LABIKI NAT. RES.	Central	Bay of islands, recreation, forestry reserve
136	VUO NAT. RES.	Central	Bay of islands, recreation, forestry reserve
137	NUKU, CIKOBIA	Eastern	Turtle nesting areas, seabird nesting area
138	VEKAI ISLAND	Eastern	Seabird nesting area
139	NUKU SOGE	Eastern	Seabird nesting colony and turtle nesting area
140	YAGASA LEVU ISLAND	Eastern	Seabird nesting colony

Source: National State of the Environment Report (1992)

Appendix 7: Government Agencies, Legislation, and Strategies Relating to Environmental Management

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
Environmental Governance	<ul style="list-style-type: none"> Department of Environment (of the Ministry of Local Government, Housing, Squatter Settlement and Environment) 	<ul style="list-style-type: none"> Relevant legislations and regulations like Forest Act, Fishery Act, Litter Decree, etc. are already cited in other sectors 	<ul style="list-style-type: none"> Relevant plans and programs like mangrove management plan, forest and fishery strategies, mineral policy, etc. are already cited in other sectors. The approval of the Sustainable Development Bill is expected to chart a new direction on environmental management in Fiji Islands. 	<ul style="list-style-type: none"> Apparently, several legislation, regulations, policies, plans and programs, etc. are scattered and performed by other sectoral agencies. This is viewed as one of the factors why enforcement of environmental-related legislation and regulations is weak. As can be viewed below, conflicting and duplicatory functions/mandates are noted.
Land and Agriculture	<ul style="list-style-type: none"> Department of Land Resources Planning and Development Unit (of the Ministry of Agriculture, Sugar and Land Resettlement) Department of Lands and Survey (of the Ministry of Lands and Mineral Resources) 	<ul style="list-style-type: none"> Agricultural Landlord and Tenant Act Cap 270 (ALTA) Land Conservation and Improvement Act Native Land Trust Act (1940) Crown Acquisition of Lands Act Cap 135 Drainage Act Cap 143 Fijian Affairs Act Cap 120 Land Development Act Cap 142 Land Transfer Act Cap 131 Crown (State) Lands Act Cap 132 	<ul style="list-style-type: none"> MAFF's Corporate Plan (1997-2000) Watershed Management Master Plan Environmental Policy Paper Integrated Pest Management Land Reclamation Programs Construction of Irrigation Facilities IBSRAM Project on Soil Erosion Soil and Crop Evaluation Project National Land Use Plan Land Claims Tribunal 	<p>Other statutory bodies performing related functions:</p> <ul style="list-style-type: none"> Land Conservation Board The Native Land Trust Board The Native Lands and Fisheries Commission also performs role relative to ascertaining and determining lands which are rightful and hereditary property of Fijians in accordance with Native Land Act

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
		<ul style="list-style-type: none"> • Subdivision of Land Act Cap 140 • Town Planning Act Cap 139 • Property Law Act Cap 130 • 	<ul style="list-style-type: none"> • Rural Land Use Policy 	
Sugar	<ul style="list-style-type: none"> • The Ministry of Agriculture, Sugar and Land Resettlement • Fiji Sugar Corporation 	<ul style="list-style-type: none"> • Sugar Industry Act (1984) • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Structure of the sugar industry is complex • Sugar Industry Tribunal, Fiji Sugar Marketing Company, Sugar Cane Growers Fund Authority, Native Land Trust Board, and Sugarcane Lorry Transport Association have, in one way or another, play roles in the overall operations of the sugar industry. • The Prime Minister is responsible for the reform of the Sugar Industry.
Forest Resources	<ul style="list-style-type: none"> • Department of Forestry (of the Ministry of Fisheries and Forests) 	<ul style="list-style-type: none"> • National Code of Logging Practice (1990) • Forest Act 	<ul style="list-style-type: none"> • Forestry Sector Policy and Strategy (2002-2004) • Agroforestry Policy Paper • National Forestry Action Plan (1989) • Sustainable Forest Management System • Operationalization of Timber Industry Training Center 	<ul style="list-style-type: none"> • Fiji Pine Limited (99.8% government-owned company) operates the pine plantation areas.

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
Fisheries, Coastal and Marine Resources	<ul style="list-style-type: none"> Department of Fisheries (of the Ministry of Fisheries and Forests) 	<ul style="list-style-type: none"> UN Convention on the Law of the Sea (1982) Wellington Convention (1994) Fisheries Act Cap 158 Marine Species Act Cap 158A 	<ul style="list-style-type: none"> Green Certification Fisheries Sector Policy and Strategy (2002-2004) Review of TAC and Licensing Implementation of Tuna Development and Management Plan 	
Freshwater	<ul style="list-style-type: none"> Land and Water Resources Management Division (of the Ministry of Agriculture, Sugar and Land Resettlement) 	<ul style="list-style-type: none"> National Water Legislation drafted in 1975 River and Stream Act 	<ul style="list-style-type: none"> National Water Policy National Water Management Strategy 	<ul style="list-style-type: none"> Need to have only one guiding legislation <p>The administration and conservation policies and activities involving freshwater resources are handled by a variety of Government agencies:</p> <ul style="list-style-type: none"> Department of Public Works Department Mineral Resources Department of Forestry (in charge of declaring water catchment)
Biodiversity Conservation and Protected Area Management	<ul style="list-style-type: none"> Department of Environment (of the Ministry of Local Government, Housing, Squatter Settlement and Environment) Department of Forestry and the Department of Fisheries (both of the Ministry of Fisheries and 	<ul style="list-style-type: none"> Birds and Game Protection Act (1923) Endangered and Protected Species Act (2002) Convention on Biological Diversity Convention on International Trade in Endangered Species of 	<ul style="list-style-type: none"> National Environmental Strategy (1993) Biodiversity Strategy and Action Plan Mangrove Management Plan Policies on intellectual property rights, bioprospecting and biosafety 	<ul style="list-style-type: none"> Specific legislation on protected area establishment is lacking. Departments of Environment, Fisheries and Forestry, the National Trust for Fiji Islands, and other concerned agencies all having some legislative

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
	Forests)	Wild Fauna and Flora		responsibilities <ul style="list-style-type: none"> • Important bills need approval are: Sustainable Development Bill and Marine Pollution Prevention Bill
Mineral	<ul style="list-style-type: none"> • Department of Mineral Resources (of the Ministry of Lands, Mining and Energy) 	<ul style="list-style-type: none"> • Petroleum (Exploration and Exploitation Act) • Mining Act • Quarries Act • Explosives and Continental Shelf Act 	<ul style="list-style-type: none"> • Mineral Policy (1997) 	<ul style="list-style-type: none"> • Dependent on other agencies like Public Works, Rural Development or Primary Industries for funding
Disaster Mitigation	<ul style="list-style-type: none"> • National Disaster Management Office of the Ministry of Regional Development 	<ul style="list-style-type: none"> • National Disaster Management Act (1998) • Local Government Act 	<ul style="list-style-type: none"> • National Disaster Management Plan (1995) 	Other agencies perform related functions, such as: <ul style="list-style-type: none"> • Ministry of Home Affairs (management of man-made disasters) • Department of Mineral Resources (monitoring information on geo-related hazards) • Meteorology Department (predicting the occurrences of cyclones and droughts and forewarning the population)
Tourism Development	<ul style="list-style-type: none"> • Ministry of Tourism 	<ul style="list-style-type: none"> • Hotels Aid Act (1964) • Short Life Investment Package (1996) and Half Short Life Investment Project in 1999 	<ul style="list-style-type: none"> • National Tourism Development Plan (1998-2005) • Ecotourism and Village-Based Tourism Policy and Strategy (1999) 	<ul style="list-style-type: none"> • Sections of 1983 Income Tax Act support construction of hotel rooms, building of cruise ships, and development of visitor attractions.

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
				Foreign Investment Act (1999) and Hotel Licensing Act have provisions inadequate for small-scale and village-based tourism
Energy Development	<ul style="list-style-type: none"> • Department of Energy (of the Ministry of Works and Energy) • Fiji Islands Electricity Authority • Rural Electrification Unit 		<ul style="list-style-type: none"> • Pacific Islands Energy Policy and Plan • Rural Electrification Programme • Promotion of RESCOS, renewable energy resources and renewable energy service companies • exploration and exploitation of indigenous energy resources • installations of solar home systems 	
Water and Sewage Management	<ul style="list-style-type: none"> • Multi-agency responsibility 	<ul style="list-style-type: none"> • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal • Public Health Act • Local Government Act • Litter Decree (1997) • Drainage Act Cap 143 	<ul style="list-style-type: none"> • National Waste Minimization and Pollution Control Strategy 	Agencies involved are: <ul style="list-style-type: none"> • Ministry of Health • Ministry of Local Government, Housing, Squatter Settlement and Environment • Department Public Works (of the Ministry of Works and Energy)
Climate Change and Atmosphere	<ul style="list-style-type: none"> • Department of Environment (of the Ministry of Local Government, Housing, 	<ul style="list-style-type: none"> • Montreal Protocol • London Amendment • UNFCCC • Kyoto Protocol 	<ul style="list-style-type: none"> • Pacific Islands Climate Change Assistance Project (PICCAP) helps Pacific Countries in 	

Sector/Key Concern	Government Coordinating Body	Legislation and Regulations	Strategy, Policy, Plans, and Programs	Remarks
	Squatter Settlement and Environment)		preparing reports to UNFCCC and conduct of vulnerability assessments	

Appendix 8: History of the Development of the Environment Management Bill¹

A. Background

1. The National Environment Strategy (NES), which was endorsed by Cabinet on 20 April 1993 identified environmental management capability being poorly developed and regarded this as the nation's most critical environmental issue. The environmental management capability was weak in policies, laws, and institution and administration.

2. Some 80 different laws have been reviewed by the Department of Environment as having an important role on environmental/resource management. These are administered by some 20 different ministries, statutory bodies or other agencies. Most of the laws are outdated, and ineffective in a modern environmental management context, or suffer from a lack of enforcement through inadequate staffing, lack of technical resources and funding, or through administrative failures.

3. On 31 January 1995, Cabinet approved the drafting of a new comprehensive and integrated environmental legislation as an urgent priority. The intention was to develop an administrative/management strategy and an enabling legislation for the Department of Environment, enforced by a suitable legal framework that will address both the sources of environmental problems and their effects. The idea was to also establish a natural resource management system that will ensure the conservation and sustainable usage of the resources.

4. In 1995, the Asian Development Bank initiated the *Environmental Awareness, Legislation and Database Technical Assistance* project in Fiji. The environmental legislation component of the project was intended to assist Government to implement selected recommendations and projects identified in the NES.

5. The Government began the process of producing a single coherent piece of legislation that would draw together and update laws intended to protect the environment and to manage natural resources. The objective was to develop an integrated and consolidated Environmental and Resource Management Legislation.

6. The new legislation was to establish a legal framework that would enhance and improve the powers of existing resource management ministries, departments and agencies, while creating suitable co-ordination and enforcement mechanisms. The legal framework was to be established for:

- (i) environmental impact assessment;
- (ii) pollution and waste management;
- (iii) integrated coastal, water and land management;
- (iv) wildlife conservation and protected areas management

7. The approach taken called for wide consultation and participation by many stakeholders. They were involved in the review of existing environmental and resource management-related legislations, the evaluation of current institutional capacity within various government ministries and agencies, and the identification of outstanding issues and resolutions. The stakeholders were from government departments, the private sector, NGOs, and the public.

¹ Based on a synopsis prepared by Ms. Premila Kumar, Department of Environment.

B. Sustainable Development Bill

8. In 1996, the Department of Environment completed the legal drafting of Fiji's new Sustainable Development Bill (SDB). The result was a draft Bill that contained 19 Parts and 22 Schedules. The provisions within the draft Bill was as follows:

- Preamble: outlined the scope of the Bill
- Preliminary: outlined the date of commencement etc.
- Administration: established the National Council for Sustainable Development, environmental management units, environmental registry, environmental trust fund, tribunal, powers and functions of the Department of Environment, powers and functions of the inspectors, regular assurance audits.
- Environment Impact Assessment: established the Environmental Impact Assessment Unit, its provided its powers and duties.
- Climate Change and Ozone Depletion: established the Climate Change and Ozone Depletion Unit, and defined its powers, duties and responsibilities.
- Pollution and Waste Management: proposed the establishment of a National Waste Management Committee, and policies on integrated waste management
- Management of Wastes: prohibited the unauthorized disposal of waste, established procedure for the issuing of waste management licenses for collection, transport and disposal of waste, and provided for the procedures for the disposal of derelict motor vehicles.
- Marine Pollution: provided for the organizational structure to respond to oil spill, the implementation of national oil pollution contingency plan, and prohibited dumping of wastes from ships and aircrafts.
- Management of Hazardous Substances: regulated the import, export, transportation, storage, selling or disposal of any hazardous substances or wastes.
- Water Quality Management: contained the framework for the policies and procedures for Water Quality Management and water quality criteria.
- Air Quality Management: outlined procedures for the formulation and implementation of a policy on air Quality Management, and established air pollution standard for motor vehicles.
- Environmental Management: required any industrial or commercial facility to negotiate an appropriate Code of Environmental Practice based on ISO14000.
- Resource Management: established a unit responsible for Resource Management, and provided for the formulation and implementation of natural resource management plan.
- Integrated Coastal Resource Management: established Coastal Resource Management Committee, and provided for its functions and duties.
- Fisheries Conservation and Management: empowered the minister responsible for fisheries to effectively manage fisheries in terms of conservation and utilization.
- Sustainable Forestry Management: required the Department of Forestry to establish forestry resource inventory, and resource management plan.
- Energy Conservation: Established Energy Conservation Unit within the Department of Energy to formulate and implement government strategy and Action plan with regard to conservation of energy.
- Biodiversity, Conservation and National Parks Management: established a conservation and National Parks Authority within the Department of Environment, and provided for the implementation of international agreements in the areas of biodiversity protection, conservation and habitat management.

- Penalties and Enforcement: Established a variety of offences under the Act, and defined the penalties to be imposed.
- Repeals and Savings: Listed the provisions and sections within existing legislation that were to be repealed, replaced or amended.

C. Rejection of 1996-SDB

9. The initial draft of the SDB was structured in such a way that it integrated a number of statutes resting with other Ministries and agencies. Whilst the integrated approach was considered ideal, it was realised that it was fraught with practical problems and difficulties in the administration and enforcement of the Bill. The first draft of the SDB was considered to be complex in format as it included both the substantive and procedural provisions, and the areas of coverage were wider than the existing environmental responsibilities of the Department of Environment. As procedures and regulatory measures do change over time, it was felt that the procedural and regulatory measures be developed through other instruments such as regulations and that the Bill should essentially be a framework Bill which establishes environmental principles, power and authority and those functions which fall squarely within the responsibilities of the Department. Where provisions overlapped with the responsibilities of other Departments, they were to be excluded from the draft Bill.

10. The government then found the draft Bill to be too cumbersome and too ambitious in scope. It was never introduced in the Parliament. Instead, a smaller Bill was drafted with the blessing of the Government in 1998. The Department of Environment reviewed the above-mentioned sections of the initial draft and provided the drafting instructions for the First Parliamentary Counsel.

11. Following consultations between the Department of Environment and the First Parliamentary Counsel, revisions to the Bill began. The revised SDB was drafted by the Solicitor-General which retained the following parts from the initial draft:

- Part I – Preliminary;
- Part II – Administration;
- Part III – Environmental Impact Assessment: Some changes were made to Part 111 to make it relevant to Fiji's situation. Devolution of powers to process EIA was given to the existing Approving Authority. EIA also applied to government projects.
- Part IV – Codes of Environmental Practice: The content from initial draft on Environmental Management was retained with a name change.
- Part V – National Resource Management; and
- Part VI – Offences and Penalties.

12. A revised version of SDB was approved by the new Government in 1999; Cabinet approved the revised Bill on 28 September 1999. This Bill was tabled in the Parliament at its October sitting for the First Reading. Comments on the SDB from Members of Parliament varied. Some members thought the Bill would hinder development with too many controls. Some members thought the Bill was being rushed and needed more time for awareness and consultations. Some members saw the need for such a legislation to control pollution and protect Fiji's natural environment.

13. The SDB was eventually referred to a Joint Sector Standing Committee on Natural Resources and Economic Services on 16 February, 2000 for its consideration. Taking into account the oral and written submissions received, the site inspections of selected problem

areas and its own deliberations, the Committee made recommendations and amendments to the SDB.

14. The Committee was to have tabled its report at the next sitting of Parliament commencing 15 May 2000, but could not do so due to the events of 19 May 2000. The Bill lapsed.

D. Post-Coup Developments

15. Since 2001, when Parliament was again held after an election, the Bill went through further revisions. The new post-2001 government wanted a more streamlined Bill.

16. The Bill was referred to the Ministry of Fijian Affairs under section 11 of the Fijian Affairs Act. More consultations took place. The outcome was that further amendments and additions were proposed.

17. On 4 April 2003, Cabinet approved that the 1999 SDB become the basis of a new SDB, and accepted certain amendments proposed to the SDB-1999 based on the comments received from stakeholders. As a result of the recommendations, the Sustainable Development Bill is now renamed the Environment Management Bill-2004. The Ministry of National Planning took over the responsibility for the economic and social components of sustainable development. The Department of Environment was to be responsible for the natural environment management component of sustainable development.

E. Environment Management Bill – 2004

18. The EMB contains only 7 parts and 3 Schedules. It does not seek to repeal or amend any existing law, but it provides for inspectors appointed under this Act (if enacted) with the power to enforce certain other Acts which relate to environmental matters. Other parts of the original Bill can be added to in due course, or enacted separately as required.

19. The Structure of the Environment Management Bill-2004 is as follows:

- Part 1 – Preliminary:
- Part II – Administration: This Part contains the duties and responsibilities of the Department, Environment Units, Approving authorities, Environment Management Committees and a Resource Management Unit. This also follows a grouping approach.
- Part III – Environmental Reports and Plans: This part provides for all reports that are required under the Bill. Thus the Natural Resource Inventory, National State of the Environment Report, National Environment Strategy and the National Resource Management Plan is contained in this part. This is a logical approach in terms of groupings.
- Part IV – Environmental Impact Assessment: same
- Part V – Pollution Control and Waste Management: This has a permit and conditions systems that replaces the Codes of Environment Practice.
- Part VI – Offences and Penalties; and
- Part VII - Miscellaneous

20. Further amendments and additions to the SDB 1999 include:

- The creation of the National Environment Council that shall be the advisory body to Cabinet on Resource Management Policy. This replaces the National Council for Sustainable

Development. The Council will coordinate the formulation of environment management policies.

- The requirement that the provisions on environment impact assessment be binding on the State as well.
- The Codes of Environment Practice, which imposes an international recognised system of environmental management, the ISO 14000 series of environment management system, will be replaced with declarations, enforcement orders, stop work notices that will ensure environmental compliance according to the laws. This was done in light of the finding that in developing countries, environment legislations do not impose any internationally recognised environmental management system.
- Amendments to the Natural Resource Management Plan to address concerns raised by landowners that the Plan would over-ride their rights to decide on the use of their resources. The EM Bill proposes that the Plan is to provide guidance on sustainable use of their natural resources.
- A new part to the Bill to address pollution and waste management, in particular solid waste and chemical waste.

21. The Environment Management Bill is scheduled to be tabled in the Parliament during 2004.

Appendix 9: Fiji's International Environmental Agreements and Conventions

Fiji is party to the following international and regional environmental agreements and conventions:

	CONVENTION OR AGREEMENT	DATE
1.	International Plant Protection Agreement	1956
2.	Convention on the High Seas	1970
3.	Convention on the Continental Shelf	1970
4.	Plant Protection Agreement of South East Asia	1971
5.	Convention on Fishing and Conservation of the Living Resources of the High Seas	1971
6.	Convention on Wetlands (Ramsar Convention)	1971 (observer state, country ratification pending)
7.	Treaty Banning Nuclear Tests in the Atmosphere, Outer Space and Underwater	1972
8.	Treaty on Non – proliferation of Nuclear Weapons	1972
9.	International Convention for the Pollution of the Sea by Oil	1972
10.	Convention on the prohibition of the Development, Production, and Stockpiling of bacteriological and toxic Weapons and their Destruction	1973
11.	International Atomic Energy Agency	1973
12.	International Convention Relating to the Intervention in the High Seas in Cases of Oil Pollution Casualties	1975
13.	International Convention on Civil Liability for Oil Pollution Damage	1975
14.	South Pacific Forum Fisheries Agency Convention	1979
15.	United Nations Convention on the Law of the Sea	1982
16.	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage	1975
17.	South Pacific Nuclear Free Treaty and Protocol	1985
18.	Vienna Convention and Montreal Protocol on Substances that Deplete the Ozone Layer	1989

- | | | |
|-----|--|---|
| 19. | Convention on the Conservation of Nature in the South Pacific (Apia1989 Convention) | |
| 20. | Convention for the Protection of Natural Resource and Environment of1989 the South Pacific and their Related Protocols (SPREP Conventions) | |
| 21. | Convention Concerning the Protection of the World Cultural and1990 Natural Heritage | |
| 22. | Rio Declaration (Agenda 21) | 1992 |
| 23. | United Nations Framework Convention on Climate Change | 1992 |
| 24. | Convention on Biological Diversity | 9 Oct
1992(signed);
25 Feb 1993
(ratified) |
| 25. | International Tropical Timber Agreement | 1994
(supercedes
1983
agreement) |
| 26. | Transboundary Movement of Hazardous Waste in the South Pacific1996 Region (Waigani Convention) | |
| 27. | Convention on International Trade in Endangered Species on WildDec 1997 Fauna and Flora | |
| 28. | Kyoto Protocol (Climate Change Convention) | 1998 |
| 29. | Pacific Tuna Convention | 2000 |
| 30. | Cartagena Protocol on Biosafety | 2001 |
| | Stockholm Convention on Persistent Organic Pollutants (POPS) | June 2001 |

Source: UNEP, others

Appendix 10: Coordination Matrix for Key External Assistance

Sector/Thematic Area	ADB Strategy/Activities	Other Development Partners' Strategy/Activities
A. Agriculture and Natural Resources	<p>Ongoing</p> <ul style="list-style-type: none"> • Review the Fisheries Development - ADTA • Alternative Livelihoods - PPTA • Intermediation in Sugar Sector - ADTA <p>Programmed</p> <ul style="list-style-type: none"> • Outer Island Agriculture Development - PPTA • Montreal Protocol Ozone Depleting Substance, \$0.03 m (UNEP) • Management of Persistent Organic Pollutants, \$0.3 m (GEF/UNEP) • International Waters Programme, \$0.1 m (GEF) • Capacity Building for the Development of Adaption Measures in PDMCs, \$0.15 m (Canada Fund) 	<ul style="list-style-type: none"> • Forage Based Dairy Project, \$0.4 m (FAO) • Cyclone Ami Rehabilitation Program, \$0.2 m (FAO) • Small Rural Community Development, \$1.6 m (JICA) • Adolescents Development Program on Life Skills addressing employment as part of 2003–2007 yrs program \$22 m (UNICEF) • Landowner Educational Training (ITTO), \$0.17 m
B. Energy	<p>Ongoing</p> <ul style="list-style-type: none"> • Rural Electrification - PPTA 	
C. Law, Economic Management And Public Policy	<p>Ongoing</p> <ul style="list-style-type: none"> • Strengthening Governance including the Financial Management Act – ADTA • Implementation of ICT Strategy [e-government] (AusAID) • Supporting Econ. Mgmt Development Policies - ADTA • Public Sector Banking and Cash Management - ADTA <p>Programmed</p> <ul style="list-style-type: none"> • Implementation of an Efficient Audit System - ADTA 	<ul style="list-style-type: none"> • Strengthening parliament (UNDP) • Human Rights Commission, \$0.1 m (NZAid) • Legal Aid commission (NZAid) • Public Awareness Program, \$0.3 m, (EU) • Regional support to USP (NZAid) • USP ICT 3 specialists (JICA) • Pacific Technical Advisory Facility, \$0.2 m (AusAID) • Institutional Strengthening of Fiji Inland Revenue and Customs Authority, \$0.3 m (AusAID)
D. Transportation and Communication	<p>Ongoing</p> <ul style="list-style-type: none"> • Civil Aviation and Airports Improvement Project – PPTA • FRUP III - Loan • Ports Development Project – Loan <p>Programmed</p> <ul style="list-style-type: none"> • Road Upgrading (FRUP IV) - PPTA • Urban Sector Development – PPTA 	<ul style="list-style-type: none"> • Rewa Bridge, \$7.4 m (EU) • Kinoya Sewerage Outfall Development \$2.3 m (EU) • Nawusu Bridge \$1.1 m (China) • Nadi Water Supply \$16.0 m (Japan) • Bua and Noroi Renewable Energy \$0.4 m (UN) • USP New Information Center, \$1.71 m (Japan) • Naboro Landfill Project, \$0.5 m (EU)

Sector/Thematic Area	ADB Strategy/Activities	Other Development Partners' Strategy/Activities
	<ul style="list-style-type: none"> • Rural and Outer Islands Development - PPTA • Civil Aviation and Airports Improvement Project - PPTA 	
E. Water Supply, Sanitation and Waste Management	<p>Ongoing</p> <ul style="list-style-type: none"> • Suva-Nausori Water Supply and Sanitation - Loan • Capacity Building in Water Supply & Sewerage (p/b) - ADTA 	<ul style="list-style-type: none"> • Naboro Landfill Project, \$10.8 m (EU)

ADB = Asian Development Bank, ADTA = advisory technical assistance, AusAID = Australian Agency for International Development, EU = European Union, FAO = Food and Agriculture Organization, FRUP = fourth road upgrading project, GEF = Global Environment Facility, ICT = information and communications technology, ITTO = International Tropical Timber Organization, JICA = Japan International Cooperation Agency, NZAid = New Zealand Agency for International Development, PDMC = Pacific developing member country, PPTA = project preparatory technical assistance, UN = United Nations, UNDP = United Nations Development Programme, UNEP = United Nations Environment Programme, UNICEF = United Nations Children's Fund, USP = University of the South Pacific.

(Source: ADB. 2004. ADB Country Strategy and Program Update 2005 – 2007. Republic of the Fiji Islands. ADB. Manila.)

Appendix 11: Environmental NGOs Working in Fiji

The following listing of environmental NGOs working in Fiji is obtained from sources believed to be reliable, and is provided for general reference purposes. Neither ADB nor its consultant are responsible for any errors or omissions in the list.

1. **Bird Life International**

11 Ma'afu St., G.P.O. Box 18332, Suva
 Tel: 3313 492
 Fax: 3317 198
 E-mail: Vilikesa@birdlifepacific.org.fj
 Contact: Mr. Vilikesa Masibalavu, National Project Coordinator

Focus: International conservation and protection of avifauna

2. **Foundation of the Peoples of the South Pacific International (FSPI)**

PO Box 18006, Suva
 Tel: 331 2250
 Fax: 331 2298
 E-mail: rhoro@connect.com.fj
 Contact: Mr. Rex Horoi

Focus: secretariat for regional NGO network; Fiji affiliate is Partners in Community Development Fiji (PCDF) see below

Additional Note: FSPI has been involved in the implementation of the "Coral Gardens" project, which promotes community-based conservation, management and restoration of coral reef areas in Cuvu Tikina. The project has been recognized by the International Coral Reef Action Network (ICRAN) as a global "Model Site for Coral Reef Conservation." The *Wai Bulabula* project integrates watershed management with wastewater treatment and coral ecosystem rehabilitation. The centerpiece of this pilot program, a first for the Fiji Islands and perhaps the South Pacific, is the "constructed wetlands" treatment system at Shangri-La's Fijian Resort that uses aquatic plants for biological treatment to remove additional organic contaminants after initial wastewater treatment. Additional activities have included public education on soil and water conservation and reforestation programs. Several of these initiatives are now being implemented by FSPI's Fiji affiliate, PCDF (see below).

3. **Greenpeace International**

Victoria Parade, Private Mail Bag, Suva
 Tel: 3312 861
 Fax: 3312 784
 E-mail: greenpeace@connect.com.fj
 Contact: Ms. Shirley Atatagi, Political Officer

Focus: international environmental advocacy

4. **Live and Learn Environmental Education**

2 Denison Road, Private Mail Bag, Suva

Tel: 3315 868
 Fax: 3305 868
 E-mail: livelearn@is.com.fj
 Contact: Dr. Christian Nielsen, Regional Director

Focus: environmental education and awareness

Additional Note: Live and Learn has been instrumental in funding the position of Environmental Coordinator within the Ministry of Education, and responsible for helping to develop an environmental education curriculum for schools

5. **Pacific Concerns Resource Centre (PCRC)**

83 Amy St., Private Mail Bag, Suva
 Tel: 3304 649
 Fax: 3304 755
 E-mail: nnetaf@pcrc.org.fj
 Contact: Mr. Neil Netaf, Assistant Director, Environment

Focus: persistent organic pollutants, renewable energy, nuclear non-proliferation, information dissemination

6. **Partners in Community Development Fiji (PCDF)**

8 Denison Road, P.O. Box 14447, Suva
 Tel: 3300 392/3314 160
 Fax: 304 315
 E-mail: adaurewa@pcdf.org.com.fj
 Contact: Ms. Alisi Daurewa, Executive Director

Focus: environmental projects include sustainable livelihoods, sustainable forestry, wetlands management, community-based marine management — ‘coral gardens’ project (see also detailed notes under FSPI, above); disaster preparedness and management

7. **South Pacific Action Committee for Human Ecology & Environment (SPACHEE)**

P.O. Box 3136, Lami, Suva
 Tel: 3300 690
 Fax: 3305 774
 E-mail: Mataitini_I@usp.ac.fj
 Contact: Ms. Leba Mataitini, President

Focus: sustainable livelihood and development in the environmental context

8. **WAINIMATE**

Private Mail Bag, Suva
 Contact: Ms. Litiana Kuridrani

Focus: women’s issues, health, medicinal plants

9. **Wetlands International**

P.O. Box S6, Superfresh, Tamavua
 Tel: 3212 963

E-mail: apjenkins@connect.com.fj

Contact: Mr. Aaron Jenkins, Senior Programme Officer, Oceania

Focus: international protection and preservation of wetlands flora and fauna

10. **World Conservation Society (WCS)**

11 Ma'afu Street, Suva

Tel: 3315 174

E-mail: dolson@wcs.org

Contact: Dr. David Olson, Director

Focus: international marine and terrestrial biodiversity conservation

Additional Note: WCS has been developing innovative conservation concepts in the marine environment, through a proposed large-scale heritage seascape in the Vatu-I-Ra/Lomaiviti passage between Viti Levu and Vanua Levu islands. In the terrestrial environment, WCS is developing mechanisms for forest conservation utilizing forestry certification procedures and establishing forestry conservation areas.

11. **World Wide Fund for Nature (WWF), South Pacific Program**

Ma'afu Street, Private Mail Bag, Suva

Tel: 3315 533

Fax: 3315 410

E-mail: dwithington@wwfpacific.org.fj

Contact: Mr. Dale Withington, Representative, South Pacific Region

Focus: international marine and terrestrial biodiversity conservation

Additional Note: WWF-SPP, together with University of the South Pacific (USP), FSPI, and other partners, has played a key role in implementation of the Fiji Locally Managed Marine Area (FLMMA) Network, an initiative for the establishment of marine protected areas. WWF has also conducted the Strategic Environmental Assessment (SEA) of the Fiji Tourism Development Plan, the Fiji country case study in ADB's Pacific Region Environmental Strategy (PRES), and has collaborated with ADB in the drafting of an application to the Global Environment Facility (GEF) for marine biodiversity conservation under the (former) proposed Sustainable Tourism, Biodiversity Conservation, and Outer Islands Infrastructure Development project.

Appendix 12: Current ADB Operations Summary for Fiji¹

I. ONGOING PORTFOLIO

TA	TITLE	AMOUNT (US\$)	APPROVAL
2680	Capital Market Development	600,000	11/5/96
2850	Road Sector reform and Safety Improv.	1,400,000	8/26/97
3170	Implementation of Corporatization of WSS	146,500	3/15/99
3199	Port Asset Management Improvement	250,000	5/31/99
3242	Urban Sector Strategy	670,000	8/18/99
3360	Women's Plan of Action	500,000	12/22/99
3887	Alternative Livelihood	650,000	6/24/02
3888	Implementation of Sugar Sector Restructuring	660,000	6/24/02
3960	Supporting Econ. Management	250,000	10/31/02
3961	Rural Electrification	400,000	10/30/02
4099	Civil Aviation and Airports Improvement	710,000	4/28/03
4100	Implementation of ICT Strategy	150,000	4/28/03
4157	Strengthening Public Sector Financial Governance	460,000	8/8/03
4270	Capacity Building in Water and Sewerage	783,000	12/18/03

LOAN	TITLE	AMT (US\$)	APPROVAL	EFFECTIVE	COMPLETION
1530	FRUP III	40 million	8/26/97	1/15/98	6/30/04—12/31/05
1902	Fiji Ports	16.8 million	3/5/02	9/3/02	6/30/06
2055	Suva Nausori Water Supply	47 million	12/18/03	-	6/30/09

¹ as of 10 November 2004

II. INDICATIVE PROGRAM

TA	TITLE	AMT (US\$)	YEAR
	Road Upgrading (FRUP IV)	600,000	2004 (final processing)
	Strengthening Commercial Agriculture Development	600,000	2004 (piggy-backed to ALP)
	Fisheries Sector Review	150,000	2004 (approved)
	Implementation of Environment Bill	150,000	2004 (dropped)
	Strengthening Public Sector Banking & Cash Management	145,000	2004 (approved)
	Rural and Outer Islands Development (Standby)	500,000	2004 (mission leader assigned, processing for early 2005 consideration)
	Rural and Outer Islands Development (Firm)	500,000	2005
	Urban Sector Development	500,000	2005
	Women Action Plan II	150,000	2005
	Strengthening Development Planning & Implementation	300,000	2005
	Strengthening Fiji's Stock Exchange	150,000	2005
	Implementation of An Efficient Audit System	250,000	2005
	Leadership Enhancement and Advancement Project (LEAP)	150,000	2005 (dropped; to be pursued under RETA)
	Strengthening Aviation Sector Performance (Standby)	300,000	2005
	Rural and Outer Islands Development	500,000	2006
	Implementation of Public Enterprise Reforms	300,000	2006
	Strengthening Local Government Systems	400,000	2006
	Strengthening Aviation Sector Performance	300,000	2006
	Fisheries Development	550,000	2007
	Support for Private Sector Development	450,000	2007

LOAN TITLE	AMT (US\$)	YEAR
Alternative Livelihoods and Development	25.0 million	2004
Rural Electrification (standby)	10.0 million	2004 (reformulated to Power Sector Development Program in 2005)
Power Sector Development Program	?? million	2005
Road Upgrading (FRUP IV)	26.0 million	2005
Airport Rehabilitation and Upgrading	32.0 million	2005
Urban Sector Development	22.0 million	2006
Rural and Outer Islands Development (standby)	26.0 million	2006
Rural and Outer Islands Development (firm)	26.0 million	2007

Appendix 13: Proposed Revision of Summary Statement of Strategy for Fiji CSP

(Proposed additions/modifications shown in *red italics*)

Long-Term Goal: Raise living standards, especially among the poor			
Objectives	To support increased public investments in productive physical infrastructure development in key sectors for stimulating <i>sustainable</i> economic growth and poverty reduction	To strengthen the associated policy, institutional and regulatory frameworks, set appropriate tariffs and revenue collections to instill good governance and accountability, <i>and promote mainstreaming to preserve critical environmental assets and economically-important natural resources</i>	To support increased private sector participation and competition in key sectors by creating enabling conditions for private sector, and public-private partnership <i>for sustainable</i> development
Strategic Focus	<ul style="list-style-type: none"> • Improve the quality of public infrastructure through greater private sector participation in construction, operation, and maintenance • Rehabilitate the major infrastructure system in the main and outer islands • Help raise productivity of small enterprises through improved technology, access to medium- and long-term credit, and information on markets • Improve participation of poor, female, and disadvantaged groups in economic activities 	<ul style="list-style-type: none"> • Support structural reforms • Support capacity building in central and local agencies for implementing associated policies, improve basic service delivery quality including utilities • Improve financial accountability in key ministries • <i>Promote greater environmental awareness</i> • <i>Create a well-integrated legal and institutional framework to support improved environmental governance</i> • <i>Promote mechanisms for sustainable financing for environmental management and conservation, by developing appropriate resource rents, user fees, and revenue generation through environment-friendly enterprises</i> 	<ul style="list-style-type: none"> • Support improved business environment in areas of taxation, regulations and licensing, including strengthening of financial infrastructure, etc. • Remove constraints related to land, credit, communication, and other factors • Promote public-private partnership participation for infrastructure and agricultural development • Support diversification to high value added crops/products, expanding competitive niche industries
Ongoing or Proposed Loan	<ul style="list-style-type: none"> • Third Road Upgrading (1997) • Fiji Ports Development (2002) • Suva Nausori Water Supply and Sewerage (2003) • Alternative Livelihoods (2004) • Rural Electrification (2005) • Fourth Road Upgrading (2005) • Airports Rehabilitation and Upgrading (2005) • Urban Sector Development (2006) • Rural and Outer Islands Development (2007) • <i>Urban Sector Development (2006)</i> • <i>Rural and Outer Islands Development (2007)</i> • <i>Suva Nausori Water Supply and Sewerage (2003)</i> • <i>Rural Electrification (2005)</i> 	<ul style="list-style-type: none"> • Third Road Upgrading (1997) • Fiji Ports Development (2002) • Suva-Nausori Water Supply and Sewerage (2003) • Fourth Road Upgrading (2005) • Urban Sector Development (2006) 	<ul style="list-style-type: none"> • Fiji Ports Development (2002) • Suva-Nausori Water Supply and Sewerage (2003) • Alternative Livelihoods (2004) • Airports Rehabilitation and Upgrading (2005) • Fourth Road Upgrading (2005) • Urban Sector Development (2006)

Ongoing or Proposed TAs	<ul style="list-style-type: none"> • Rural Electrification (2002)-PPTA • Civil Aviation and Airports Improvement (2003)-PPTA • Fourth Road Upgrading (2004) -PPTA • Urban Sector Development (2005)-PPTA • Rural and Outer Islands Development (2006)-PPTA • Fisheries Development (2007)-PPTA 	<ul style="list-style-type: none"> • Intermediation of Sugar Sector Rest'ing (2002) • Supporting Econ. Mgmt. and Devt Policies (2002) • Capacity Building in Water & Sewerage Service (2003) • Strengthening Public Sector Financial Governance (2003) • Public Sector Banking and Cash Management (2004) • Women's Plan of Action-Phase II (2005) • Development Planning & Implementation (2005) • Impl. of an Efficient Audit System (2005) 	<ul style="list-style-type: none"> • Urban Sector Strategy (1999) • Port Asset Management Improvement (2002) • Implementation of ICT Strategy (2003) • Strengthening Public Sector Banking and Cash Management (2004) • Commercial and Agricultural Development (2004) • Fisheries Sector Review (2004) • Strengthening Fiji's Stock Exchange (2005) • Leadership Enhancement & Advancement Project (2005)
Other Assistance (RETAs ongoing)	<ul style="list-style-type: none"> • Prep. of Nat'l Poverty Reduction Strategies in PDMCs (2002) • Strengthening Poverty Analysis and Strategies in the Pacific (2003) • Making Resource Allocation Pro-Poor and Participatory in the Pacific (2004) 	<ul style="list-style-type: none"> • Private Sector Devt Strategy for the Pacific (2002) • Pacific Financial Technical Assistance Centre (2004) • Pacific Region Environmental Strategy- Mainstreaming Environmental Considerations in Economic and Development Planning Processes-RETA • Climate Change Adaptation (CLIMAP)-RETA 	<ul style="list-style-type: none"> • Preparing a Pro-poor Subregional E-Government Project for the Pacific (2003) • Civil Society Participation in Budget Formulation in the Pacific (2003)
Target Outcomes	<ul style="list-style-type: none"> • Improved power supply in rural areas • Improved road and outer island Infrastructure • Better airports to accelerate tourism and inter-island development • Increased income and employment opportunities in agriculture, tourism, manufacturing, and ICT. • Improved environmental conditions and quality of life in urban and rural areas • Improved preparedness to adapt to climate-related environmental change 	<ul style="list-style-type: none"> • Efficient and accountable central and local agencies • Efficient civil service capable of providing quality service • Efficient water supply and sewerage agency • Corporatized and privatized government-owned enterprises • Restructured sugar industry • Improved capacity of Department of Environment, and natural resources ministries to implement environmental regulations • Maintenance of biodiversity and sustainable use of natural resources • Improved preparedness to adapt to climate-related environmental change 	<ul style="list-style-type: none"> • Poverty assessment prepared in 2003 • Increased economic activities in alternative non- sugar high-valued enterprises and livelihoods • Enhanced participation of the poor in development, thus creating employment and income • Development of sustainable tourism and other environment-friendly enterprises

**Appendix 14: Opportunities for Environmental Strengthening of
Projects Within the Existing ADB Country Program for Fiji**

Name: Capacity Building in Water and Sewerage	Type, Cost: ADTA, \$783,000
Summary of Proposed Activities: <ul style="list-style-type: none"> • Develop a trade waste management program • Review health and safety procedures of WSD/WSC • Conduct community education and awareness program • Review existing and proposed environmental legislation and regulations • Conduct tariff study • Improve capacity of PWD, WSD, DOE, MOH for relevant responsibilities in water wastewater and environmental management 	
Environmental issues identified in CSPU: <ul style="list-style-type: none"> • Classified as Environmental Category B 	Assessment: <ul style="list-style-type: none"> • no major environmental risks/concerns • significant environmental improvements expected as a result of improvements in water supply and sewerage services for Fiji's major urban center
Opportunity to Strengthen Project <ul style="list-style-type: none"> • consider climate-proofing aspects in new infrastructure development and improvement activities 	Measures to Reduce Environmental Risks: <ul style="list-style-type: none"> • while some recommendations may result from review of environmental legislation under the project, additional assistance will be required for effective strengthening and capacity building of relevant agencies relating to implementation of environmental regulations

Name: Fiji Road Upgrading Project III	Type, Cost: Project Loan, \$40 million
Summary of Proposed Activities: <ul style="list-style-type: none"> • upgrading of about 100 km of gravel roads • strengthening about 80 km of seal pavements • road safety improvements • provision of maintenance and laboratory equipment • strengthening of technical capabilities within PWD 	
Environmental issues identified in CSPU: <ul style="list-style-type: none"> • Classified as Environmental Category B 	Assessment: <ul style="list-style-type: none"> • no major environmental concern • road resurfacing has some human health benefits through reductions in roadside dust

	<ul style="list-style-type: none"> improved farm to market access can result in reduced transport time, improved freshness and quality of food, thereby yielding human health benefit
Opportunity to Strengthen Project <ul style="list-style-type: none"> consider climate-proofing aspects in any new road improvement activities 	Measures to Reduce Environmental Risks: <ul style="list-style-type: none"> none

Name: Fiji Ports	Type, Cost: Project Loan, \$16.8 million
Summary of Proposed Activities: <ul style="list-style-type: none"> arrest deterioration of ports in Lautoka and Suva strengthen portions of King's Wharf, Suva improve King's Wharf capacity increase berthage space at Lautoka port increase container storage at Lautoka port 	
Environmental issues identified in CSPU: <ul style="list-style-type: none"> Classified as Environmental Category B 	Assessment: <ul style="list-style-type: none"> Reduced adverse environmental impacts through less heavy container traffic on main road system Improvements in handling perishables in ports areas results in improved product quality delivered to consumers
Opportunity to Strengthen Project <ul style="list-style-type: none"> Consider climate-proofing aspects in any new port construction activities 	Measures to Reduce Environmental Risks: <ul style="list-style-type: none"> none

Name: Suva Nausori Water Supply	Type, Cost: Project Loan, \$47 million
Summary of Proposed Activities: <ul style="list-style-type: none"> rehabilitation and augmentation of water supply networks, water treatment and water storage facilities rehabilitation and augmentation of sewerage networks and sewerage treatment facilities development of new source for water supply establishment of stronger environmental management procedures develop proposed Water Supply Department/Water Supply Corporation, especially for management, accounting, financial operations, O&M of facilities, environmental management, and customer relations 	

<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> Assessed as Environmental Category B, with secondary classification as Environmental Protection project 	<p>Assessment:</p> <ul style="list-style-type: none"> no major environmental concern improved water supply and sanitation facilities, and improved quality of sewage effluent, are expected to produce significant benefits in human health and environmental quality
<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> Consider climate-proofing aspects in any new water and sewerage system construction activities Consider increased water storage capacity to mitigate water constraints during drought conditions 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> none

<p>Name: Fisheries Sector Review</p>	<p>Type, Cost: ADTA, \$150,000</p>
<p>Summary of Proposed Activities:</p> <ul style="list-style-type: none"> compare fisheries sector with other economic growth sectors (e.g., tourism and forestry), for decision making as to what extent this sector should be prioritized compare Fiji's fisheries sector with other countries in the region examine the legislative framework which governs Fisheries Department's mandate and activities, followed by a similar exercise on its policy framework assess Fisheries Department management structure, evaluate skills and capabilities of staff make recommendations to strengthen the effectiveness of Fisheries Department and to improve the policy framework to accelerate private sector investment propose complementary public sector investments 	
<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> 	<p>Assessment:</p> <ul style="list-style-type: none"> no major environmental concern
<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> consider environmental dimensions of the fisheries sector, including requirements for preservation of pelagic fisheries stocks evaluate appropriateness of licensing arrangements for FFVs determine where other conservation measures such as marine protected areas may be needed, and how these should be implemented look at potential impacts of climate change on fisheries activities 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> none

<p>Name: Rural and Outer Islands Development</p>	<p>Type, Cost: PPTA, US\$0.5 million</p>
<p>Summary of Proposed Activities:</p> <ul style="list-style-type: none"> poverty reduction and community-based income generation linked to sustainable tourism small scale ecotourism private sector development priority infrastructure in relevant areas, including upgrading of roads, bridges, wharves, jetties, airports, and storage facilities environmental protection—EIA, biodiversity conservation, protected area management, and cultural heritage preservation 	
<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> Classified as Environmental Category B 	<p>Assessment:</p> <ul style="list-style-type: none"> no major environmental concern environmental benefits expected through improvement of environmental sustainability of tourism-related livelihoods
<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> seek GEF grant funding to support marine biodiversity conservation and link to sustainable ecotourism place emphasis on infrastructure developments that support environmental sustainability (e.g., develop water and wastewater systems with adequate capacity to handle tourism demand) conduct carrying capacity studies for tourism development 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> comply with EIA process in planning and implementing infrastructure improvements

Name: Women Action Plan II	Type, Cost: ADTA, US150,000
Summary of Proposed Activities: <ul style="list-style-type: none"> • promote gender equity through developing and strengthening government processes, programs and activities to be gender-responsive • assist government with implementation of Women’s Action Plan • mainstream gender concerns into sectoral policies and programs • implement gender audit recommendations of WAP I 	
Environmental issues identified in CSPU: <ul style="list-style-type: none"> • unclassified 	Assessment: <ul style="list-style-type: none"> • no major environmental concern
Opportunity to Strengthen Project <ul style="list-style-type: none"> • identify areas of possibly synergy between environment and gender issues; utilize women as “entry point” to promote greater environmental awareness 	Measures to Reduce Environmental Risks: <ul style="list-style-type: none"> • none

Name: Alternative Livelihoods and Development	Type, Cost: Project Loan, US\$25 million
Summary of Proposed Activities: <ul style="list-style-type: none"> • strengthen capacities of beneficiaries to secure alternative livelihoods in diversified agriculture, off-farm employment, micro-enterprises • improve access to financial services • develop and strengthen public-private partnerships • provide critical farm access infrastructure 	
Environmental issues identified in CSPU: <ul style="list-style-type: none"> • Classified as Environmental Category B 	Assessment: <ul style="list-style-type: none"> • no major environmental concern • creation of sustainable alternative livelihoods should minimize adverse impacts of existing damaging agricultural practices
Opportunity to Strengthen Project <ul style="list-style-type: none"> • consider not only development of alternative livelihoods outside of, but also within the sugarcane industry, through diversification of sugarcane-based products and activities 	Measures to Reduce Environmental Risks: <ul style="list-style-type: none"> • none

<p>Name: Power Sector Development Program</p>	<p>Type, Cost: Sector Loan, amount to be determined</p>
<p>Summary of Proposed Activities: (to be confirmed)</p> <ul style="list-style-type: none"> • develop power sector master plan • conduct pre-feasibility study for geothermal power generation • construct base load and peak load power stations • renovate, upgrade and extend urban and rural grids • extend home solar system distribution and other off-grid rural electrification 	
<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> • unclassified 	<p>Assessment:</p> <ul style="list-style-type: none"> • project places appropriate emphasis on renewable sources of energy, which would have significant benefits in terms of environmental preservation and energy security
<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> • consider climate-proofing aspects in project design 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> • none

<p>Name: Road Upgrading (FRUP IV)</p>	<p>Type, Cost: PPTA, US\$600,000; Sector Loan, US\$26 million</p>
<p>Summary of Proposed Activities:</p> <ul style="list-style-type: none"> • prepare feasibility study for the sector investment program • upgrade approx. 100 km total of sections of priority national and rural roads on Viti Levu, Vanua Levu, and Taveuni • create appropriate institutional arrangements for sustainable management of road subsector • advise government on appropriate policy environment for public-private partnerships 	
<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> • unclassified 	<p>Assessment:</p> <ul style="list-style-type: none"> • no major environmental concern • road resurfacing has some human health benefits through reductions in roadside dust • improved farm to market access can result in improved freshness and quality of food, thereby yielding human health benefit

<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> incorporate climate adaptation considerations (climate-proofing) in road planning and design design improvements to maximize other environmental benefits (e.g., reductions in atmospheric dust, improved traffic flow to minimize emissions, etc.) 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> none
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<p>Name: Urban Sector Development</p>	<p>Type, Cost: PPTA, US\$670,000</p>
<p>Summary of Proposed Activities:</p> <ul style="list-style-type: none"> review urbanization trends, especially economic, employment, and demographic patterns assess institutional capacities for improved service delivery in urban areas evaluate low-income settlement and housing programs review land ownership and tenure in urban areas make recommendations for financing and management of urban infrastructure and services 	
<p>Environmental issues identified in CSPU:</p> <ul style="list-style-type: none"> Classified as Environmental Category B 	<p>Assessment:</p> <ul style="list-style-type: none">
<p>Opportunity to Strengthen Project</p> <ul style="list-style-type: none"> as urban areas have the greatest population concentrations, they also produce the most solid waste and wastewater discharges per capita, and are the areas where the environment is most obviously affected in terms of air quality, water quality, loss of natural ecological values, and aesthetics—the analysis should be broadened to include more detailed consideration of the environmental impacts of urbanization and how to effectively address them 	<p>Measures to Reduce Environmental Risks:</p> <ul style="list-style-type: none"> none

**Appendix 15: Concept Papers: Potential New Projects
for Inclusion in ADB's Country Program for Fiji**

15-A: Environmental Institutions, Capacity Building, and Management Concept Paper										
<p>1. Type/modality of assistance</p> <p><input type="checkbox"/> Lending</p> <ul style="list-style-type: none"> <input type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <p><input checked="" type="checkbox"/> Non-lending</p> <ul style="list-style-type: none"> <input type="checkbox"/> Project preparatory <input checked="" type="checkbox"/> Other than project preparatory <input type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 										
<p>2 Assistance Focus</p> <p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table border="0"> <tr> <td><input type="checkbox"/> Economic growth</td> <td><input type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input checked="" type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input type="checkbox"/> Regional cooperation</td> <td><input type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>	<input type="checkbox"/> Economic growth	<input type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection	<input type="checkbox"/> Other	
<input type="checkbox"/> Economic growth	<input type="checkbox"/> Human									
<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance									
<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development									
<input type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection									
<input type="checkbox"/> Other										
<p>3. Coverage</p> <p><input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional</p>										
<p>4. Responsible division/Department: PARD</p>										
<p>5. Responsible ADB officer: to be determined</p>										

6. Description of assistance

(a) Background/linkage to country/ regional strategy:

Despite the identification of environment as one of three key sector focal areas in the CSP/CSPU, no stand-alone environmental projects are included in ADB's country program for Fiji at present. Furthermore, an urgent need for environmental institutional strengthening within the country has been identified. Therefore, it is proposed that a project be developed for improving institutional capacity for environmental management. The ADB has in the past contributed to supporting the Government of Fiji in strengthening its capabilities and capacities for environmental management and mainstreaming. Given an expected need for greater capacity to administer, execute and enforce new environmental legislation, it is appropriate that ADB continue to provide assistance in this area.

(b) Goal and purpose

The goal of the project would be to strengthen capabilities and capacity within Fiji's environmental institutions for improved environmental management. The purpose is to develop stronger institutional and legal frameworks, and to equip personnel with the necessary knowledge and skills to achieve that goal.

Fiji's rich natural endowments, especially its forestry and agricultural resources, oceanic fish stocks and coastal resources, and attractions for nature-based recreation and tourism, collectively form the foundation for most of the country's economic activity and growth and development potential. Protection of these resources is therefore critical to ensuring sustainability. The passage of the Environment Management Bill into law, expected in 2005, will create the initial framework for necessary protective measures. However, additional strengthening of institutions will be needed to ensure effective implementation of the law. The project will help to facilitate the following actions/interventions:

- support of the Environment Management Bill, once passed into law, through the drafting of associated enabling regulations. This would include, for example, regulations to require establishment of Environmental Management Units within all relevant line ministries to coordinate with the Department of Environment; authorization of agencies and personnel to issue licenses and undertake environmental enforcement measures; and regulations to enable the Environmental Impact Assessment (EIA) process as a mechanism for ensuring sustainability of future development projects.
- training and other capacity-building activities for staff of the Department of Environment, as well as key staff within other relevant agencies and ministries. Training would include coverage of legal areas to ensure clear understanding of lines of authority and responsibility within various agencies; compliance issues; and technical subjects such as environmental baseline surveying, monitoring, and testing methods. Phasing-in of new hires, from trainee to full-time permanent status, would also be undertaken.
- a broad-reaching environmental awareness and education campaign, targeting a wide spectrum of stakeholders. This effort would utilize a two-pronged approach,

through both non-formal (community-based) and formal (school-based) channels. The community-based campaign would focus on reaching a large population of stakeholders, many of whom are the direct users and consumers of resources. This campaign would seek to promote environment-friendly practices (e.g., agroforestry, sustainable agriculture), and would discourage damaging practices (e.g., overharvesting, dynamite fishing, illegal logging). In the school-based campaign, a curriculum would be developed to promote a strong environmental ethic among schoolchildren. School based activities would also include such elements as special events and environmental scholarship programs.

- continuing policy and institutional analysis aimed at further strengthening of institutional and legal structures for improved environmental management in the country. Weaknesses in the environmental management law could be addressed through amendment or other legal instruments. The possibility of institutionally elevating or segregating the Department of Environment, presently within a ministry having very diverse responsibilities, would be evaluated. An “environmental roadmap” would be developed to monitor progress in mainstreaming environmental considerations into national economic planning and policy-making.

(c) Expected results and deliverables

1. series of enabling regulations for Environment Management Law drafted and adopted
2. all DOE staff, and selected staff from other relevant agencies, receive training pertaining to the new environmental law, that reflects the legal ramifications for new responsibilities and authority
3. new staff (number to be determined) are added to DOE roster; trainee positions converted to full time professional staff positions over 5-year period
4. nationwide awareness campaign conducted, school curriculum for environment developed
5. Institutional/policy study completed, incorporating development of an “environmental roadmap”
6. Performance of DOE and other agencies in carrying out responsibilities under the EML is monitored and evaluated

(d) Social or environmental issues or concerns

The proposed project, being specifically an intervention designed to strengthen environmental institutions, would be very beneficial environmentally, and would help to engender long-term improvements in environmental management, environmental awareness, and political will. Social risks are judged to be minimal, though some social conflicts could arise with groups who are engaged in illegal or environmentally

damaging practices, who might be forced to modify these activities.

(e) Plans for disseminating results/deliverables:

To be determined

7. Proposed executing/implementing agencies

Department of Environment, Ministry of Education, Environmental Management Units within other ministries

8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance

based on consultations made during CEA; continuing dialogue with DOE and other key agencies will be required

9. Timetable for assistance design, processing and implementation

10. Financing Plan

- For lending

Ordinary capital resources:

- Asian Development Fund:
 Other-:

If cofinancing is required indicate sources, and amount sought:

If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):

- For Nonlending
- No resources required, other than ADB staff
 ADB's administrative budget: \$
 Grant TA funds: \$1 million
 Other

If cofinancing is required indicate sources, and amount sought:

If known, provide cost estimates and financing arrangements (e.g., total cost, ADB financing, other financing, and government financing):



15-B: Integrated Land Management Concept Paper											
1. Type/modality of assistance											
<input checked="" type="checkbox"/> Lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project preparatory <input type="checkbox"/> Other than project preparatory <input type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 											
2 Assistance Focus											
<p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>forestry, agriculture, land use planning</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input checked="" type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Economic growth</td> <td><input checked="" type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input checked="" type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input type="checkbox"/> Regional cooperation</td> <td><input checked="" type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input type="checkbox"/> Regional cooperation	<input checked="" type="checkbox"/> Social protection	<input type="checkbox"/> Other	
<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human										
<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance										
<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development										
<input type="checkbox"/> Regional cooperation	<input checked="" type="checkbox"/> Social protection										
<input type="checkbox"/> Other											
3. Coverage											
<input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional											
4. Responsible division/Department: PARD											
5. Responsible ADB officer: to be determined											
6. Description of assistance											
(a) Background/linkage to country/ regional strategy:											
<p>Fiji's land-based natural resources are under significant threat due to varied pressures and inappropriate uses. Collectively, these actions have caused unnecessary and</p>											

avoidable adverse environmental impacts to the environment, representing not only the loss of forest area in upper watersheds, but also soil loss and erosion, which are causing problems in downstream ecosystems. These losses potentially have much wider-reaching impacts, including land degradation, lost capacity for carbon sequestration, and loss of globally-important biodiversity.

(b) Goal and purpose

The goal of the project is to preserve and protect important ecological values and to enable development to proceed in a sustainable manner. The purpose is curtail inappropriate or damaging land use practices, and to replace these with sustainable ones.

To be dealt with effectively, land management problems in Fiji need to be addressed in an integrated way. Therefore, an Integrated Land Management Project is proposed. The main components of such a project would be:

- land use studies in the most important and sensitive watershed areas, including upper watersheds and downstream areas that are affected. Reference should be made to past studies (e.g., Rewa/Ba Watershed Management Study, Forestry Sector Study, Integrated Catchment Management, Soil Resource studies), but evaluating critically why many land-use problems have persisted over many years.
- development of community-based land-use mapping and integrated watershed management plans. This approach will require training and awareness-building among community participants. Local stakeholders will play a key role in identifying main issues and problems, mapping land use patterns, and suggesting potential solutions for problems or conflicts. Stakeholders from downstream communities will contribute their insights, especially for identifying impacts that are resulting in these areas due to damaging or inappropriate upstream activities.
- protection of the most sensitive ecosystems and watershed areas. Within the selected project area(s), sites will be identified that are of key ecological and environmental significance, especially for such functions as rainwater capture, groundwater retention, prevention of soil erosion, and maintenance of unique biodiversity resources. Partnerships for management will be organized, giving a major role to local indigenous landowners for on-the-ground management, but also including government agency representatives who will help to formalize protection of designated reserve areas, will act as technical advisors, and will monitor community-based management activities.
- identification of additional targeted on-the-ground interventions to be implemented to improve sustainable land management practices and develop sustainable livelihoods, especially in agriculture and forestry (e.g., promotion of environment-friendly practices including agroforestry, utilization of non-timber forest products, appropriate sloping agricultural land technology, implementation of certification programs, and value-adding [among others]). Technical training and market guidance would be required to provide community stakeholders with the skills and knowledge needed to ensure the long-term viability of these

livelihood activities.
<p>(c) Expected results and deliverables</p> <ol style="list-style-type: none"> 1. comprehensive watershed land use study 2. conduct of community awareness campaign and training 3. community-based maps and land use plans for each watershed covered under the project; land use plans formally adopted 4. establishment of a network of formally-declared and well-managed watershed parks and preserves 5. establishment of a range of innovative livelihoods for communities in agricultural and forest land areas 6. establishment of a functional certification program for forestry products 7. tangible improvements made in ongoing agricultural and forestry activities
<p>(d) Social or environmental issues or concerns</p> <p>The proposed project would be environmentally very beneficial as it would promote environmental friendly activities; curtail environmentally-damaging activities; and establish protection areas in critical watersheds. The project would produce significant social benefits in terms of a range of new sustainable livelihood opportunities.</p>
<p>(e) Plans for disseminating results/deliverables:</p> <p>To be determined</p>
<p>7. Proposed executing/implementing agencies</p> <p>Ministry of Lands and Mineral Resources, Ministry of Fisheries and Forests, Ministry of Agriculture, Sugar and Land Resettlement, Department of Environment</p>
<p>8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance</p> <p>National Governments, Local Community groups representing beneficiaries, NGOs specializing in forestry, agriculture, and ecosystem-related projects</p>
<p>9. Timetable for assistance design, processing and implementation</p>
<p>10. Financing Plan</p> <p><input checked="" type="checkbox"/> For lending</p> <p>Ordinary capital resources:</p> <p><input checked="" type="checkbox"/> Asian Development Fund: \$35M</p>

Other-:

If cofinancing is required indicate sources, and amount sought:

If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):

For Nonlending

No resources required, other than ADB staff

ADB's administrative budget: \$

Grant TA funds: 1 million

Other: US\$10 million

If cofinancing is required indicate sources, and amount sought:

GEF grant funding for sustainable land management (OP #15)—funds of US\$ 10 million to be sought

If known, provide cost estimates and financing arrangements (e.g., total cost, ADB financing, other financing, and government financing):

15-C: Environmental Data Center Concept Paper											
1. Type/modality of assistance											
<input checked="" type="checkbox"/> Lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project preparatory <input type="checkbox"/> Other than project preparatory <input type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 											
2 Assistance Focus											
<p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input checked="" type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input checked="" type="checkbox"/> Economic growth</td> <td style="width: 50%;"><input type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input checked="" type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input checked="" type="checkbox"/> Regional cooperation</td> <td><input type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Economic growth	<input type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input checked="" type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection	<input type="checkbox"/> Other	
<input checked="" type="checkbox"/> Economic growth	<input type="checkbox"/> Human										
<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance										
<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development										
<input checked="" type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection										
<input type="checkbox"/> Other											
3. Coverage											
<input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional											
4. Responsible division/Department: PARD											
5. Responsible ADB officer: to be determined											

6. Description of assistance**(a) Background/linkage to country/ regional strategy:**

During the course of the Country Environmental Analysis, significant deficiencies in availability of data for decision-making in the natural resources and environmental sectors were consistently and repeatedly noted. Available data are often inaccurate, incomplete, or out of date, and it is typically difficult to draw meaningful data comparisons over time, due to inherent inconsistencies. Planning, policy formulation and decision-making based on flawed data can potentially lead to adverse environmental consequences. To address this problem, it is proposed that a national Environmental Data Center be established.

(b) Goal and purpose

The goal of the project is to improve the quality and accessibility of data needed for natural resources- and environment-related policy formulation and decision-making. The purpose of the project is to establish an Environmental Data Center that would be a repository and clearinghouse for such information. The principal objectives of the project would be to:

- establish an Environmental Data Center that would serve as a clearinghouse for collection, storage, interpretation, dissemination, and exchange of data for the natural resources and environmental sectors. The center would have the human and capital resources needed to effectively collect, store, manage, interpret, and disseminate information needed for environmental decision-making. The Center would consist of new physical facilities dedicated for this purpose, which would house offices for staff, a library and research center, and computers and other equipment needed for data management. To facilitate greater accessibility to information for government environmental professionals, and to accommodate the expected growing need for office space, the Center could be planned so as to also house the offices of Department of Environment staff.
- Develop an environmental learning and awareness center for public education in the environmental sciences. This facility would include library, media center, museum, and would also host an environmental website. Learning center staff would continuously develop new programs aimed at improving public awareness and understanding of key environmental issues and environmental management principles. Outreach activities would be conducted from the Center, to bring special programs to communities throughout the country.
- Form a coordinating body to harmonize and standardize the types of data gathered for environmental decision-making. The standardization process would be developed through consultation with knowledgeable scientists and researchers. Data would be standardized to facilitate comparability in long-term time series for monitoring purposes, and also to ensure ease of exchange of information with other regional databases and information centers.
- establish an advisory body which would provide guidance based on sound environmental information, to government officials charged with decision-making, planning, and policy formulation.

(c) Expected results and deliverables

1. Construction of new facilities for an Environmental Data Center, consisting of offices and library; furnishing of facilities, including data storage and processing equipment
2. establishment of environmental learning center for public education and awareness, including development of awareness and outreach programming
3. standardization of data for long-term monitoring purposes, and to facilitate information exchange with other centers

4. data advisory body set up to guide decision-makers
<p>(d) Social or environmental issues or concerns</p> <p>The proposed project would yield tangible environmental benefits. Because planning and policy making decisions would be based on more reliable data, better decisions would be expected, resulting in fewer adverse environmental impacts. Social benefits are also expected, as general public awareness of environmental issues would be improved.</p>
<p>(e) Plans for disseminating results/deliverables:</p> <p>To be determined</p>
<p>7. Proposed executing/implementing agencies</p> <p>DOE</p>
<p>8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance</p> <p>DOE, Ministry of Finance and National Planning, Ministry of Education</p>
<p>9. Timetable for assistance design, processing and implementation</p>
<p>10. Financing Plan</p> <p><input checked="" type="checkbox"/> For lending</p> <p>Ordinary capital resources:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Asian Development Fund: \$25M <input type="checkbox"/> Other-: <p>If cofinancing is required indicate sources, and amount sought:</p> <p>If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):</p> <p><input checked="" type="checkbox"/> For Nonlending</p> <ul style="list-style-type: none"> <input type="checkbox"/> No resources required, other than ADB staff <input type="checkbox"/> ADB's administrative budget: \$ <input checked="" type="checkbox"/> Grant TA funds: 1 million <input type="checkbox"/> Other: <p>If cofinancing is required indicate sources, and amount sought:</p> <p>If known, provide cost estimates and financing arrangements (e.g., total cost, ADB financing, other financing, and government financing):</p>

15-D: Sustainable Ecotourism and Biodiversity Conservation Concept Paper											
1. Type/modality of assistance											
<input checked="" type="checkbox"/> Lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-lending <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project preparatory <input type="checkbox"/> Other than project preparatory <input type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 											
2 Assistance Focus											
<p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>tourism, infrastructure</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input checked="" type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Economic growth</td> <td><input checked="" type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input checked="" type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input type="checkbox"/> Regional cooperation</td> <td><input type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection	<input type="checkbox"/> Other	
<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human										
<input type="checkbox"/> Gender and development	<input checked="" type="checkbox"/> Good governance										
<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development										
<input type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection										
<input type="checkbox"/> Other											
3. Coverage											
<input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional											
4. Responsible division/Department: PARD											
5. Responsible ADB officer: to be determined											

6. Description of assistance

(a) Background/linkage to country/ regional strategy:

With several very large tourism developments already built, in progress or planned for the main tourism center of Nadi (including Denarau and a new large-scale cultural center), there is concern that the infrastructure in the Nadi area will soon reach full capacity, and will not be able to support any further expansion. The government has projected a doubling of tourist visitor arrivals, from around 400,000 at present to 1,000,000 within a decade. So the question arises: what areas are to be developed to accommodate the projected expansion, and how should such development proceed? At the same time, development in outer islands and rural communities in general has lagged behind the more urban areas. There is a need to offer greater and more diverse economic opportunities to these communities. One option for sustainable development in these areas is in ecotourism and related livelihood activities. A project to develop such livelihoods would be consistent with ADB's country and regional policies, which place importance on sustainability and on private sector development.

b) Goal and purpose

The goal of the project is to ensure long-term growth with sustainability and maintenance of environmental quality in the tourism sector. The purpose of the project is to assess existing conditions, make recommendations for sustainable growth, and integrate tourism development with biodiversity conservation objectives.

Most tourism activities in Fiji depend upon the islands' natural beauty, and this is especially evident in the marine and coastal environment. Because of the linkages between dive tourism and the maintenance of the health of coral reefs, it is appropriate to connect these two elements in a project that promotes sustainable ecotourism for economic development, through the conservation of the unique coral reef biodiversity resources that are found in Fiji. It is suggested to reinstate the previous proposal for Sustainable Tourism and Biodiversity Conservation, and either link it to, or incorporate it with, the current Rural and Outer Islands Development Project. Based on the CEA consultations, there is keen interest among most stakeholders in the tourism sector to firmly establish this linkage. Important features that may be appropriate for inclusion into the project design are as follows:

- a detailed assessment of tourism carrying capacity in the Nadi tourism zone will be conducted. The carrying capacity assessment will look especially at infrastructure loading (for roads, water, sewerage, power), and potential for adverse impacts upon the coastal environment with increased numbers of visitors.
- rural and outer island areas will be evaluated to identify those that offer the greatest possibility for expansion of tourism. The areas to be considered should include not only outer islands sites per se, but also rural areas on the main islands of Vanua Levu and Taveuni.
- potential impacts to coastal areas that may result from land-based activities will be evaluated. Thus it will be important to consider activities that take place in upper watershed areas, and to determine their impacts in the coastal zone. Linkages should be established for an integrated land use management system

that includes both upper watershed areas, and the coastal areas that lie downstream.

- infrastructure systems will be designed and constructed for support of further tourism development. Depending on the outcome of the preparatory analysis, infrastructure improvements may include: (i) extension and upgrading of existing infrastructure in the Nadi area, and development of new support infrastructure in rural outer islands areas. Infrastructure to be developed will be limited to “environmental” infrastructure such as water, sanitation, and solid waste management systems. Such infrastructure, in addition to providing much needed services for tourism development, can also be justified on the basis of furthering biodiversity conservation objectives, since it can help to maintain good water quality, ecosystem balance, and aesthetic values in nearshore environments.
- Livelihood development activities will be conducted. These may include training and skills development for stakeholders in the tourism industry who will offer new tourism and ecotourism activities. A credit facility will be established to provide small-scale credit for start-up of new sustainable tourism enterprises.
- Biodiversity conservation activities will be undertaken. These will include baseline surveys and follow-up monitoring of coral reef areas; the establishment of a network of marine protected areas; initiation of education programs aimed especially at tourist visitors, scuba divers, and local residents; carrying capacity studies specifically for dive tourism and ocean recreational activities; and strengthened enforcement to curtail illegal and damaging fishing and other practices in the coastal environment. An application will be made to GEF for grant financing to support marine biodiversity conservation (under GEF OP#2) as part of the project. The overall goals of the project for alleviating poverty, creating sustainable employment opportunities for disadvantaged rural communities, replacing environmentally-damaging practices with environment-friendly ones, would be consistent with, complementary to, and supportive of the biodiversity conservation objective.

(c) Expected results and deliverables

1. Production of a carrying capacity assessment for the Nadi area
2. production of a tourism development assessment for rural and outer island areas
3. environmental improvements and increased carrying capacity through the upgrading or installation of state-of-the-art environmental infrastructure systems
4. Poverty reduction for rural communities through the introduction of sustainable tourism livelihoods
5. establishment of marine protected areas as part of an integrated program of marine biodiversity conservation that is tied to sustainable tourism development. A portion of revenues generated through tourism activities would be utilized to cover the costs of long-term environmental and marine biodiversity management and preservation.

(d) Social or environmental issues or concerns

The proposed project would yield significant environmental and social benefits through promotion of biodiversity protection, and development of new sustainable livelihood activities. However, steps would need to be taken to ensure that potential user conflicts in targeted coastal areas (e.g., between tourism operators and fishermen) would be minimized.

(e) Plans for disseminating results/deliverables:

To be determined

7. Proposed executing/implementing agencies

Ministry of Tourism, Department of Public Works, private sector, district and village bodies, community based organizations of the area

8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance

National Government agencies, concerned stakeholders in from the private sector, Local Community groups representing beneficiaries, NGOs specializing in ecotourism and ecosystem management

9. Timetable for assistance design, processing and implementation**10. Financing Plan**

For lending

Ordinary capital resources:

- Asian Development Fund: \$45M
- Other-:

If cofinancing is required indicate sources, and amount sought:

If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):

For Nonlending

- No resources required, other than ADB staff
- ADB's administrative budget: \$
- Grant TA funds: 1 million
- Other: US\$10 million

If cofinancing is required indicate sources, and amount sought:

GEF grant funding for marine biodiversity conservation (OP #2)—funds of US\$10 million to be sought

If known, provide cost estimates and financing arrangements (e.g., total cost, ADB

financing, other financing, and government financing):financing, other financing, and government financing):

15-E: Support for Fiji's Sugar Industry through the Clean Development Mechanism (CDM) Concept Paper											
1. Type/modality of assistance											
<input type="checkbox"/> Lending <ul style="list-style-type: none"> <input type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-lending <ul style="list-style-type: none"> <input type="checkbox"/> Project preparatory <input checked="" type="checkbox"/> Other than project preparatory <input checked="" type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 											
2 Assistance Focus											
<p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>agriculture</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input checked="" type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Economic growth</td> <td><input checked="" type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input type="checkbox"/> Regional cooperation</td> <td><input checked="" type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input type="checkbox"/> Regional cooperation	<input checked="" type="checkbox"/> Social protection	<input type="checkbox"/> Other	
<input checked="" type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human										
<input type="checkbox"/> Gender and development	<input type="checkbox"/> Good governance										
<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development										
<input type="checkbox"/> Regional cooperation	<input checked="" type="checkbox"/> Social protection										
<input type="checkbox"/> Other											
3. Coverage											
<input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional											
4. Responsible division/Department: PARD											
5. Responsible ADB officer: to be determined											
6. Description of assistance											
(a) Background/linkage to country/ regional strategy:											
<p>Fiji's sugar industry is in crisis, due primarily to imminent declines in sugar prices with the scheduled removal of EU price supports in 2008, and continuing displacement of large numbers of long-time sugarcane workers due to expiry of land leases under the</p>											

ALTA. The Clean Development Mechanism (CDM), an internationally-supported market-based financing mechanism, could be utilized to help promote diversification within the sugarcane-growing industry, bringing about significant environmental improvements, and generally revitalizing the industry.

Such a project would be consistent with country and regional strategies. The project would promote improvements in the quality of life of sugarcane workers, a group who have been marginalized and facing loss of livelihood and increasing poverty. In keeping with one of the key thrusts of the Pacific regional strategy, the project would also promote new opportunities for the private sector to become involved in development of new products and industries.

(b) Goal and purpose

The goal of the project would be to revitalize the sugar industry in Fiji, to alleviate poverty among sugar workers and prevent livelihood displacement. The purpose of the project is to investigate and develop alternative sugarcane products that use cane as the raw material, and build new industries and markets around these. Financing through the CDM could potentially contribute to seed funding for pilot testing of new activities.

An important overall guiding principle in looking at proposals for revitalization of the sugar industry is to consider diversification from sugar, but not from sugar cane—in other words, continue producing the cane crop, but use it for products other than sugar. The advantages of this approach are that (i) there is an existing knowledgeable and skilled workforce who would not need new training that would be required for growing new crops; (ii) the technology and facilities for cultivation would be the same (e.g., no need for providing irrigation etc.); and (iii) potentially cane of inferior quality (inferior for sugar production purposes) might be acceptable to use for other products. This means that sugarcane could possibly be grown profitably in areas that are marginal for growing cane for sugar production (e.g., Suva environs—the mill in Nausori was closed due to the fact that cane was inferior for sugar production, due to higher rainfall).

An initial feasibility study would investigate opportunities for several diverse activities within the sugar industry, to ascertain their eligibility for CDM financing, among them: (i) replacement of fossil fuel with biomass (i.e., bagasse, the cane by-product from the sugar harvest) for energy production; (ii) sale of excess energy from sugar mills to the electricity grid; (iii) production of ethanol from sugarcane as an alternative fuel source; and (iv) expansion of sugarcane-growing lands to increase absorption of atmospheric carbon. Following the initial feasibility study, pilot projects would be developed in cooperation with the Fiji Sugar Corporation and private sector, to test the most promising of these opportunities.

The potential eligibility for CDM financing could be based on one or more of the following factors:

- Because sugar is a so-called C4 plant, its photosynthetic processes result in rapid uptake of atmospheric carbon (carbon dioxide or CO₂). As a result sugar potentially could act as an effective carbon sink, helping to sequester carbon and reduce the amount of greenhouse gas (GHG) in the atmosphere. Because of relatively short duration of crop turnover, the permanence of the sequestration needs to be further investigated (e.g., once sugarcane is cut and processed, and residual cane is re-

tilled into fields, is the majority of carbon quickly released to the atmosphere, or is it retained as organic matter in soil?). Assuming that carbon retention could be demonstrated, there may be potential for revenue generation through carbon trading as provided for under the CDM

- Additional credits for carbon trading under the CDM could be earned through development of commercial operations for producing fuel ethanol from cane, which would serve as a substitute for traditional fossil fuels. This is already commercially viable in other countries (e.g., Brazil) where sugar is considered a by-product of ethanol production. Ethanol is a clean and renewable fuel and thus ethanol fuel production may be eligible for consideration for credit under the CDM.
- At present, sugar mills burn bagasse to run their own generators, with some excess electricity being generated. It is estimated that each of the four sugar mills in Fiji could potentially generate up to 5 MW of electricity, which could be sold to the main power grid. This has further implications for possible reduction of emissions and benefits under the CDM. The impacts of burning bagasse, in terms of production of GHGs, needs to be examined and a balance sheet set up to determine the net loss or gain in carbon dioxide emissions. Similarly, if ethanol production was taken up, generators could be run on the ethanol residue, and similar calculations would need to be made.

Once the feasibility of these various concepts is evaluated, and eligibility for CDM financing is determined, pilot projects to further test the most promising concepts could be initiated.

(c) Expected results and deliverables

1. Eligibility study conducted
2. pilot projects designed and initiated
3. long-term reduction in GHGs
4. improvement of social and economic conditions for marginalized workers in the sugarcane industry

(d) Social or environmental issues or concerns

The proposed project would produce significant social and environmental benefits if alternative products from sugarcane could be successfully developed. This result would lead to reductions in loss of livelihood among sugarcane workers, thus decreasing pressure to practice inappropriate cultivation methods on marginal steep-slope lands, and reducing soil loss, erosion, and runoff. Increasing the total area of land under sugarcane cultivation could result in increased absorption and sequestration of GHGs. Production of fuel ethanol, and direct burning of bagasse, are two possible ways in which use of traditional fossil fuels could be reduced.

<p>(e) Plans for disseminating results/deliverables:</p> <p>To be determined</p>
<p>7. Proposed executing/implementing agencies</p> <p>Ministry of Agriculture, Fiji Sugar Corporation, private sector</p>
<p>8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance</p> <p>National Government agencies, private sector, Local Community groups representing beneficiaries, NGOs</p>
<p>9. Timetable for assistance design, processing and implementation</p> <p>to be determined</p>
<p>10. Financing Plan</p> <p><input type="checkbox"/> For lending</p> <p>Ordinary capital resources:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Asian Development Fund: <input type="checkbox"/> Other-: <p>If cofinancing is required indicate sources, and amount sought:</p> <p>If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):</p> <p><input checked="" type="checkbox"/> For Nonlending</p> <ul style="list-style-type: none"> <input type="checkbox"/> No resources required, other than ADB staff <input type="checkbox"/> ADB's administrative budget: \$ <input checked="" type="checkbox"/> Grant TA funds: 1 million <input checked="" type="checkbox"/> Other: to be determined <p>If cofinancing is required indicate sources, and amount sought:</p> <p>CDM support to be sought for pilot-testing of alternative technologies to lead to reduced GHG production and increased carbon sequestration—amount of funding to be determined</p> <p>If known, provide cost estimates and financing arrangements (e.g., total cost, ADB financing, other financing, and government financing):</p>

15-F: Mainstreaming Climate Change into Planning and Economic Development Concept Paper											
1. Type/modality of assistance											
<input type="checkbox"/> Lending <ul style="list-style-type: none"> <input type="checkbox"/> Project loan <input type="checkbox"/> Program loan <input type="checkbox"/> Sector loan <input type="checkbox"/> Sector development program loan <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-lending <ul style="list-style-type: none"> <input type="checkbox"/> Project preparatory <input checked="" type="checkbox"/> Other than project preparatory <input type="checkbox"/> Economic, thematic and sectoral work <input type="checkbox"/> Other 											
2 Assistance Focus											
<p>a. If assistance focuses on a particular sector or sub-sector specify the sector:</p> <p>b. For project preparatory and lending, classification:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Core poverty interventions <input type="checkbox"/> Poverty intervention <p>c. Key thematic area</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Economic growth</td> <td style="width: 50%;"><input checked="" type="checkbox"/> Human</td> </tr> <tr> <td><input type="checkbox"/> Gender and development</td> <td><input type="checkbox"/> Good governance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Environmental protection</td> <td><input type="checkbox"/> Private sector development</td> </tr> <tr> <td><input checked="" type="checkbox"/> Regional cooperation</td> <td><input type="checkbox"/> Social protection</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td></td> </tr> </table>		<input type="checkbox"/> Economic growth	<input checked="" type="checkbox"/> Human	<input type="checkbox"/> Gender and development	<input type="checkbox"/> Good governance	<input checked="" type="checkbox"/> Environmental protection	<input type="checkbox"/> Private sector development	<input checked="" type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection	<input type="checkbox"/> Other	
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<input checked="" type="checkbox"/> Regional cooperation	<input type="checkbox"/> Social protection										
<input type="checkbox"/> Other											
3. Coverage											
<input checked="" type="checkbox"/> Country <input type="checkbox"/> Sub-regional <input type="checkbox"/> Interregional											
4. Responsible division/Department: PARD											
5. Responsible ADB officer: to be determined											
6. Description of assistance											
(a) Background/linkage to country/ regional strategy:											
<p>In keeping with ADB's PRES, which identifies climate change as one of the key environmental issues of concern for PDMCs, ADB has undertaken a regional climate adaptation analysis. Following on the initial work undertaken as part of this regional CLIMAP study, a more in-depth project to develop a framework for Fiji's climate</p>											

adaptation and mitigation activities will be conducted.

(b) Goal and purpose

The goal of the project would be to strengthen mainstreaming of climate change considerations into Fiji's national development planning framework. The purpose of the project would be to assess current areas of weakness, and make specific recommendations for climate adaptation and mitigation.

While drafting of a national climate change policy is in process, climate change has not yet been adequately taken up as a key element of Fiji's national planning framework. In order to facilitate mainstreaming of climate change issues into national economic development, planning, and policy-making, this project would:

- draft appropriate sections for the national Strategic Development Plan and other government planning and policy documents, highlighting climate change as a significant cross-cutting issue.
- maintain and regularly update data relevant to monitoring and mitigating climate change.

For adaptation measures, the project would:

- take steps to develop capabilities for climate change forecasting and early warning. This would most probably be carried out more efficiently and cost-effectively on a regional basis.
- evaluate the vulnerabilities of existing and future proposed infrastructure to climate-related impacts, and propose any necessary design modifications to climate-proof these facilities. For example, locations and elevations of existing roads, utilities structures, especially in coastal areas, should be evaluated for vulnerability to sea-level rise, tsunami waves, and storm surge.
- evaluate productive sectors such as fisheries, forestry, and agriculture, as well as tourism, and make recommendations for adaptive steps to be taken to minimize climate-related risks and vulnerabilities. In the agricultural sector, for instance, farmland and crops would be evaluated as to their resiliency to drought and flooding; in fisheries, impacts of changing weather patterns on migratory fish stocks would be evaluated; and in the tourism sector, impacts of climate change on coastal infrastructure would be examined.
- maintain or improve natural features of ecosystems that provide resiliency to climate-related impacts (e.g., maintaining coral reefs and mangroves are natural buffers for absorbing the energy of storm waves, minimizing flooding, and other coastal impacts).
- advocate for appropriate budget support by government to implement the needed adaptive modifications.

For climate change mitigation, the project would also seek to:

<ul style="list-style-type: none"> • support reduction of vehicle and factory emissions, and develop alternative fuels, in order to reduce the production of GHGs • promote reforestation and other activities that improve capacity for absorption of atmospheric carbon.
<p>(c) Expected results and deliverables</p> <ol style="list-style-type: none"> 1. Goals and objectives for climate change adaptation and mitigation clearly articulated within national planning and policy documents. 2. comprehensive assessment completed of climate change vulnerabilities, with recommendations for adaptation and mitigation measures 3. steps taken toward approving budget support for necessary climate change-related interventions.
<p>(d) Social or environmental issues or concerns</p> <p>The proposed project would lead to significant socioeconomic benefits in terms of helping to protect human life and valuable infrastructure. The project would also help to support such environmental improvements as reduced GHG emissions, increased carbon storage capacity, and protection of coastal environments.</p>
<p>(e) Plans for disseminating results/deliverables:</p> <p>To be determined</p>
<p>7. Proposed executing/implementing agencies</p> <p>DOE, NDMO</p>
<p>8. Natural/extent of government beneficiary involvement in identifying or conceptualizing the assistance</p> <p>National Government agencies, private sector stakeholders, Local Community groups especially from coastal areas, NGOs</p>
<p>9. Timetable for assistance design, processing and implementation</p> <p>to be determined</p>
<p>10. Financing Plan</p> <p><input type="checkbox"/> For lending</p> <p>Ordinary capital resources:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Asian Development Fund: <input type="checkbox"/> Other-: <p>If cofinancing is required indicate sources, and amount sought:</p>

If known, provide cost estimates and financing arrangements, (e.g., total cost, ADB financing, other financing, and government financing):

For Nonlending

- No resources required, other than ADB staff
- ADB's administrative budget: \$
- Grant TA funds: 1 million
- Other:

If cofinancing is required indicate sources, and amount sought:

If known, provide cost estimates and financing arrangements (e.g., total cost, ADB financing, other financing, and government financing): financing, other financing, and government financing):