

第4章 プロジェクトの妥当性の検証

第4章 プロジェクトの評価と提言

4-1 プロジェクトの妥当性

- 裨益効果

本プロジェクトが実施され、サモア国側により適切な管理運営がなされた場合、以下に示すような現状の改善と裨益効果が得られる。

1) 直接効果

① 訓練・教育が効果的に実施できる。

SPREP 加盟島嶼国に対する訓練・教育(一般研修及びコンピュータ研修)の実施は SPREP の主要な役割であるが、現在 SPREP はそのための施設を持たないことから、一般研修についてはホテル等の会場を借りたり、他の加盟国(フィジー、ニュージールランド、オーストラリア等)の施設等を利用しており、コンピュータ研修についてはサモア国立大学や民間のコンピュータ施設等を借り研修を実施している。このため研修を実施するうえで研修スケジュールの調整、環境情報の専門ソフトのインストール及びデータの保存等に制約があり支障をきたしている。本センターが建設されることにより、これら研修が円滑、かつ効果的に実施できることになる。

② 効率的な訓練・教育及びセミナー計画の立案が可能となる。

本施設が建設されることにより、全ての訓練・教育及びセミナーの本施設での開催が可能となり、講師等関係人員の移動が無くなることから、効率的な研修スケジュールの立案・実施が可能となる。

2) 間接効果

上述の直接的効果が上がることにより次の間接的効果が期待できる。

① サモア国住民の環境問題意識の向上に貢献できる。

SPREP では、サモア国における環境問題の啓蒙活動を行っており、ポスターやパンフレット、ステッカー類の作成・配布の他、サモア国の初等・中等教育機関で使用される環境教育カリキュラム及び教材の開発を行っている。これらのカリキュラムや教材を用いた授業を通じ、サモア国の環境教育授業に携わる教師への研修、またオープンラーニング教育の一環としての生徒への施設見学を通じ、住民の環境問題意識の向上に貢献することになる。

② SPREP の「アクションプラン」の推進に貢献できる。

太平洋島嶼地域での環境保護、及び改善を図る国家能力の向上への役割を担う体制が整備される。SPREP の「アクションプラン 1997/2000 年」では地域環境の保護及び改善を目的とした国家能力の向上を図るための環境教育・訓練及び環境情報システムの強化を目的の一つとして掲げており、本計画の実施はこのアクションプランの推進に貢献することになる。

③ 地域住民の環境問題意識の向上に貢献できる。

南太平洋地域の環境問題は多様化しており、問題の改善を図ることが急務とされている。これは限定された組織だけで対処できる問題ではないため、地域全体の住民の環境問題に対する意識の向上が不可欠となる。そのため地域の環境問題に対する住民への啓蒙活動、訓練・教育が重要であり、その指導的立場を担う人材の育成が急務となっている。本計画の実施は、太平洋島嶼地域における指導的立場を担う人材の育成が実現され、これら指導者による啓蒙活動、教育を通して地域住民の環境問題意識の向上に貢献することになる。

4-2 プロジェクト実施上の留意事項

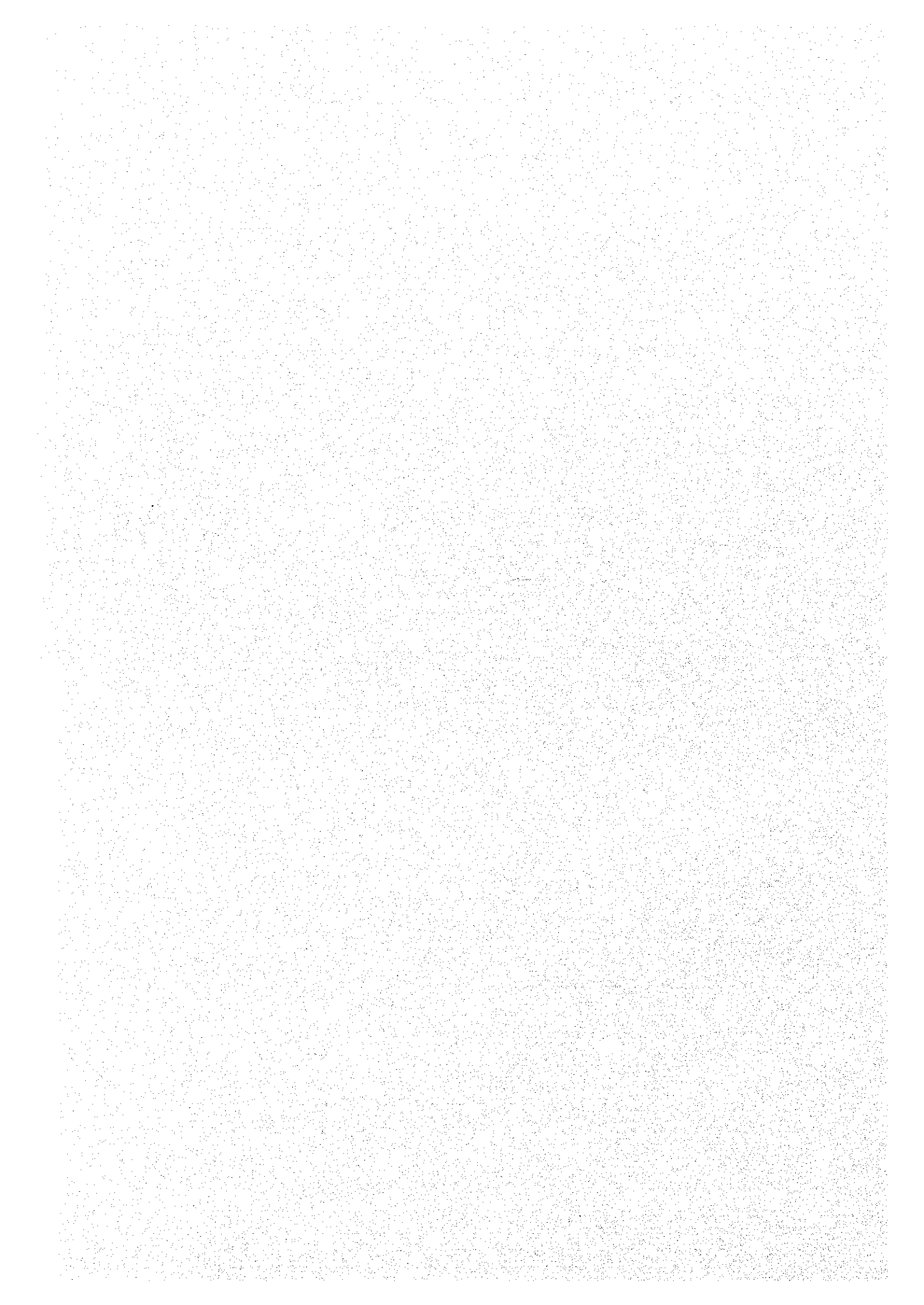
• 技術協力また他ドナーとの連携

本計画による裨益効果を高めるために、SPREP 加盟国の情報ネットワークの構築による島嶼国の環境教育・政策に関わる人材との情報の共有とインターネットを通じた環境保護に関する啓蒙や研修参加者への公募また SPREP の活動状況の公開などを行うことになっている。このように、ネットワークの構築とインターネットによる情報の共有は本プロジェクトの裨益効果の拡大を促進することが期待されている。本プロジェクトの成果を確実なものとする意味から、ネットワーク構築とインターネットの専門技術についての技術協力の要請の計画がある。これは本プロジェクトの成果の拡充に貢献できるものであり、早期の実施が望まれる。

4-3 課題・提言

本プロジェクトでは先進的な機材を協力対象に含んでいる。本プロジェクトの供与機材の内、教材作成用のコンピュータ機材、ネットワーク機器などは、将来において使用するソフトウェアの性能向上により、対応する機材仕様の高度化が要求される可能性が高い。これについても、実施機関である SPREP は高度な技術を保有しているが、予算措置や更新計画を十分に行う必要がある。

資料



1. 調査団員名、所属

(1) フェーズ I

- 基本設計現地調査(期間：1999年11月14日～同年12月4日)
 1. 高間 英俊 (総括) JICA サモア事務所長
 2. 荻野 有子 (計画管理) JICA 無償資金協力部準備室
業務第一グループ
 3. 田中 実 (業務主任/建築計画) 株式会社 山下設計
 4. 石岡 紀夫 (施設・設備計画) 株式会社 山下設計
 5. 佐藤 康二 (研修・機材計画) 株式会社 山下設計
 6. 津本 正芳 (調達計画/積算) 株式会社 山下設計

- 基本設計概要説明及び現地追加調査(期間：2000年2月20日～同年3月5日)
 1. 高間 英俊 (総括) JICA サモア事務所長
 2. 荒 仁 (計画管理) JICA 無償資金協力部
業務第一課
 3. 田中 実 (業務主任/建築計画) 株式会社 山下設計
 4. 石岡 紀夫 (施設・設備計画) 株式会社 山下設計
 5. 佐藤 康二 (研修・機材計画) 株式会社 山下設計
 6. 津本 正芳 (調達計画/積算) 株式会社 山下設計

(2) フェーズⅡ

- 基本設計成果概要説明(期間：2000年5月21日～同年6月2日)

1.	守屋 勉 (総括)	JICA サモア事務所長
2.	荒 仁 (計画管理)	JICA 無償資金協力部 業務第一課
3.	田中 実 (業務主任/建築計画)	株式会社 山下設計
4.	山下 大 (構造計画)	株式会社 山下設計
5.	石岡 紀夫 (施設・設備計画)	株式会社 山下設計
6.	津本 正芳 (調達計画/積算)	株式会社 山下設計

2. 調査日程

(1) 基本設計現地調査時(1999年11月14日～同年12月4日)

日順	日付	内容		
		総括	計画管理	コンサルタント
1	11月 14日 (日)		• 東京発 ｱﾋﾞｱ着	
2	11月 15日 (月)	• 現地 JICAにて日程等打合	• 外務省、SPREP 本部表敬、	インテグレーションレポート説明
3	11月 16日 (火)	• 国土測量環境省、大蔵省表敬	• SPREP 本部にて協議・打合せ	
4	11月 17日 (水)	• 計画敷地(新本部棟建設現場)視察・調査		
5	11月 18日 (木)	• SPREP 本部にて協議・打合せ		
6	11月 19日 (金)	• 協議議事録署名		
7	11月 20日 (土)	• ｱﾋﾞｱ発		• SPREP 本部にて協議・打合せ
8	11月 21日 (日)	• オークランド着		• 計画敷地調査
9	11月 22日 (月)	• オークランド発 ウェリントン着	• 日本大使館報告	• 現地建設事情調査
10	11月 23日 (火)	• オークランド発 ｱﾋﾞｱ着	• オークランド発 東京着	• 計画敷地測量予備地質調査立会い
11	11月 24日 (水)			• 機材ローカルエージェント調査
12	11月 25日 (木)			• 建設関連省庁と協議
13	11月 26日 (金)			
14	11月 27日 (土)			
15	11月 28日 (日)			
16	11月 29日 (月)			• 現地 JICA 事務所報告
17	11月 30日 (火)			• ｱﾋﾞｱ発
18	12月 1日 (水)			• オークランド着
19	12月 2日 (木)			• 建設市場調査
20	12月 3日 (金)			
21	12月 4日 (土)			• オークランド発 東京着

(2) 基本設計概要書説明時(2000年2月20日～同年3月5日)

日順	日付	内容		
		総括	計画管理	コンサルタント
1	2月 20日 (日)		• 東京発 ｱﾋﾞｱ着	
2	2月 21日 (月)	• 現地 JICA にて日程等打合	• 外務省、SPREP 本部表敬、基本設計概要書説明	
3	2月 22日 (火)	• SPREP 本部にて協議・打合せ		
4	2月 23日 (水)	• 計画敷地(新本部棟建設現場)視察・調査		
5	2月 24日 (木)	• SPREP 本部にて協議・打合せ		
6	2月 25日 (金)	• 協議議事録署名		
7	2月 26日 (土)		• ｱﾋﾞｱ発	• SPREP 本部にて協議・打合せ
8	2月 27日 (日)		• ｵｰｸﾗﾝﾄﾞ着	• 計画敷地調査
9	2月 28日 (月)		• ﾜﾈﾘﾝｸﾞ日本大使館報告	• 現地建設事情調査
10	2月 29日 (火)		• ｵｰｸﾗﾝﾄﾞ発 ｱﾋﾞｱ着	• ｱﾋﾞｱ発
11	3月 1日 (水)			• ｵｰｸﾗﾝﾄﾞ着
12	3月 2日 (木)			• 建設市場調査
13	3月 3日 (金)			
14	3月 4日 (土)			
15	3月 5日 (日)			• ｵｰｸﾗﾝﾄﾞ発 東京着

(3) 基本設計成果概要書説明時(2000年5月21日～同年6月2日)

日順	日付	内容		
		総括	計画管理	コンサルタント
1	5月 21日 (日)		• 東京発 ｱﾋﾞｱ着	
2	5月 22日 (月)	• 現地 JICA にて日程打合	• 外務省、大蔵省、SPREP 本部表敬、基本設計成果概要書説明	
3	5月 23日 (火)	• SPREP 本部にて協議・打合せ	• 計画敷地視察・調査	
4	5月 24日 (水)	• 国土測量環境省表敬・協議		
5	5月 25日 (木)	• 大蔵省協議		
6	5月 26日 (金)	• 協議議事録署名、SPREP 本部にて協議・打合せ		
7	5月 27日 (土)		• 荒団員 ｱﾋﾞｱ発	• 津本団員 ｱﾋﾞｱ発
8	5月 28日 (日)		• 東京着	• SPREP 本部にて協議・打合せ
9	5月 29日 (月)			• 計画敷地調査
10	5月 30日 (火)			• 現地建設事情調査
11	5月 31日 (水)			• ｱﾋﾞｱ発
12	6月 1日 (木)			
13	6月 2日 (金)			• 東京着

3. サモア国側面談者リスト

Ministry of Foreign Affairs (外務省)

Mr. Aiono Mose Pouvi Sua	Secretary
Mr. F. Vitolio Lui	Deputy Secretary

Treasury Department (大蔵省)

Ms. Hinauri Petana	Financial Secretary
Mr. Iulai Lavea	Assistant Financial Secretary
Ms. Ane L. Moananu	Chief Finance Officer

South Pacific Regional Environment Programme (SPREP)

Mr. Tamri'i Tutangata	Director
Ms. Pisaina Leilua-Lei Sam	Executive Officer Management
Ms. Neva Wendt	Head of Environmental Education, Information and Capacity-Building Division
Mr. Herve Dropsy	Information Technology Manager
Mr. Ray Wright	Head of Finance and Administration
Ms. Seema Deo	Environmental Education Officer
Mr. Fatu Tauafiafi	Information and Publication Officer
Ms. Dorothy Kamu	Personal Assistant

Ministry of Lands, Survey and Environment (国土測量環境省)

Hon. Tuala Sale Tagaloa	Minister
Mr. Tuuú Ieti Taulealo	Director
Mr. Elisaia Talouli	Assistant Director

Public Works Department (公共事業省)

Mr. Ishikuki Punivalu	Director of Works
Ms. Sofaea Alo	Acting Director
Mr. Lauvi Parataiso	Chief Building Inspector

Ministry of Health (保健省)

Mr. Frances Brebner	Director, Health Planning, Health Dept.
Mr. Sinei Fili	Senior Environment Health Officer

Custom Department (税関)

Mr. Fuimaono P. Teo

Comptroller of Customs

National University of Samoa (サモア国国立大学)

Mr. Akira Hara

Advisor to the Vice Chancellor

The University of the South Pacific (南太平洋大学)

Mr. Rudolf Bartley

Video Officer

Fire Brigade (消防局)

Mr. Falaula

General Manager

Electric Power Corporation (電力公社)

Mr. Toluono Feti

General Manager

Samoa Water Authority (サモア水道局)

Mr. Steivie F. Lcota

Head, Design Engineering

Samoa Communication Ltd. (サモア電話公社)

Mr. Taimang Jensen

Assistant Director, Telecom Commercial
Operations

Tinai, Gordon & Associates Ltd. (現地コンサルタント)

Mr. William Gordon

Director

サモア JICA 事務所

高間 英俊

所長

三村 悟

所員

4. 当該国の社会・経済事情

1998.10 1/2

国名	西サモア
	Western Samoa

一般指標					
政体	立憲君主制	*1	首都	アピア	*1
元首	Chief Susuga MALIETOA II	*1	主要都市名		*1
独立年月日	1962年1月1日	*1	経済活動可人口	千人 (年)	*4
人種(部族)構成	サモア人92.6%	*1	義務教育年数	年間 (年)	*5
			初等教育就学率	% (年)	*5
言語・公用語	サモア語、英語	*1	初等教育終了率	% (年)	*6
宗教	キリスト教99.7%	*1	識字率	98.0 % (1995 年)	*7
国連加盟	1974年12月	*2	人口密度	75.22人/Km ² (1996 年)	*1
世銀加盟	1974年06月	*3	人口増加率	2.4 % (1996 年)	*1
IMF加盟	1994年10月	*3	平均寿命	平均68.73 男66.35 女71.24	*1
面積	2.86千Km ²	*1	5歳児未満死亡率	53/1000(1996 年)	*7
人口	214.384千人(1996 年)	*1	カロリー供給量	cal/日/人(年)	*7

経済指標					
通貨単位	タラ	*1	貿易量	(1997 年)	*8
為替(1US\$)	1US\$=3.11 (1998年06月)	*8	輸入	15.0 百万ドル	*8
会計年度	1月~12月	*1	輸出	96.0 百万ドル	*8
国家予算	(年)	*9	輸入カバー率	5.7月 (1996 年)	*10
歳入	百万ドル	*9	主要輸出品目	ココナツ油、ココナツ (1993 年)	*1
歳出	百万ドル	*9	主要輸入品目	工業製品、食品、資本財 (1992 年)	*1
国際収支	7.38 百万ドル(1996年)	*9	日本への輸出	0.1 百万ドル(1997 年)	*11
ODA受取額	43.00 百万ドル(1995年)	*7	日本からの輸入	20.7 百万ドル(1997 年)	*11
国内総生産(GDP)	百万ドル(年)	*4			
一人当たりGNP	ドル (年)	*4	外貨準備総額	59.2 百万ドル(1998年5月)	*8
GDP産業別構成	農業 % (年)	*4	対外債務残高	5.0 百万ドル(1996 年)	*10
	鉱工業 % (年)		対外債務返済率	4.0 % (1996 年)	*10
	サービス業 % (年)		インフレ率	8.8 % (1992 年)	*7
産業別雇用	農業 % (年)	*7			
	鉱工業 % (年)				
	サービス業 % (年)		国家開発計画		*12
経済成長率	% (年)	*4			

気象(1961 ~ 1990年平均)		場所: Apia												(標高 2 m)	
月	1	2	3	4	5	6	7	8	9	10	11	12	平均 / 計		
最高気温	30.0	29.0	30.0	30.0	29.0	29.0	29.0	29.0	29.0	29.0	30.0	29.0	29.3 °C	*13	
最低気温	24.0	24.0	23.0	24.0	23.0	23.0	23.0	24.0	23.0	24.0	23.0	23.0	23.4 °C	*13	
平均気温	26.7	26.9	26.8	26.6	26.4	26.1	25.7	25.7	26.0	26.3	26.4	26.6	26.4 °C	*14	
降水量	455	386	358	254	160	130	81	89	132	170	267	371	2,853 mm	*13	
雨期乾期	雨	雨	雨	雨	乾	乾	乾	乾	乾	乾	雨	雨			

*1 CIA World Fact Book 1997-1998

*2 Member States of United Nations

*3 The World Bank Public Information Center, International Financial Statistics Yearbook 1998

*4 World Development Report 1997

*5 UNESCO Statistical Yearbook 1997

*6 Status and Trends 1997

*7 Human Development Report 1998

*8 International Financial Statistics August 1998

*9 International Financial Statistics Yearbook 1997

*10 Global Development Finance 1998

*11 世界の国一覽表 1998年版

*12 最新世界各国要覽 98年版

*13 The Times Book World Weather Guide, Update Edition

*14 理科年表, 国立天文台(1997)

国名	西サモア
	Western Samoa

*15

項目	年度	1993	1994	1995	1996
技術協力		2,892.93	3,087.67	3,256.28	3,461.48
無償資金協力		2,244.22	2,456.48	2,796.65	2,606.79
有償資金協力		3,939.97	4,352.21	3,878.11	3,025.02
総額		9,077.12	9,896.36	9,931.04	9,093.29

*15

項目	年度	1993	1994	1995	1996
技術協力		4.12	4.23	5.40	4.28
無償資金協力		11.66	18.50	9.22	10.02
有償資金協力		0.00	0.00	0.00	0.00
総額		15.78	22.73	14.62	14.30

*16

	贈与 (1)	有償資金協力 (2)	政府開発援助 (ODA) (1)+(2)=(3)	その他政府資金 及び 民間資金 (4)	経済協力総額 (3)+(4)
二国間援助 (主要供与国)	30.90	0.00	30.90		30.90
1. 日本	14.30	0.00	14.30		14.30
2. オーストラリア	8.40	0.00	8.40		8.40
3. ニュージーランド	6.70	0.00	6.70		6.70
4. アメリカ	1.00	0.00	1.00		1.00
多国間援助 (主要援助機関)	2.50	-0.70	1.80		1.80
1. ASDB					
2. CEC					
その他	0.00	-0.30	-0.30		-0.30
合計	33.40	-1.00	32.40		32.40

*17

技術	関係各省庁→公務員人事委員会→外務省
無償	
協力隊	

*15 Japan's ODA Annual Report 1997
 *16 Geographical Distribution of Financial Flows to
 Aid Recipients 1992-1996
 *17 国別協力情報(JICA)

5. 討議議事録
(基本設計現地調査時)

Minutes of Discussions
on
Basic Design Study
on
the Project for SPREP Training and Education Centre
in the Independent State of Samoa

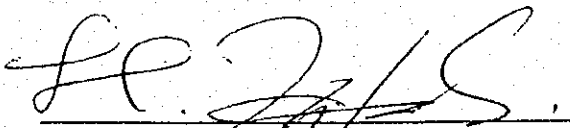
In response to a request from the Government of the Independent State of Samoa (hereinafter referred to as "Samoa"), the Government of Japan decided to conduct a Basic Design Study on the Project for South Pacific Regional Environment Programme (SPREP) Training and Education Centre (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent a Basic Design Study Team (hereinafter referred to as "the Team") to Samoa headed by Mr. Hidetoshi TAKAMA, Resident Representative, JICA Samoa Office, and is scheduled to stay in the country from 14 November to 30 November, 1999.

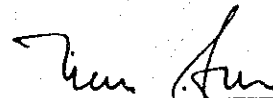
The Team held a series of discussions with the officials concerned of the Government of Samoa and SPREP, and conducted a field survey at the study area.

In the course of discussions and a field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Apia, 19 November, 1999



Mr. Hidetoshi TAKAMA
Leader
Basic Design Study Team, JICA



Mr. Aiono Mose Pouvi Sua
Secretary
Ministry of Foreign Affairs
The Independent State of Samoa



for: Mr. Tamari'i Tutangata
Director
South Pacific Regional Environment Programme
(SPREP)

ATTACHMENT

1. Objective of the Project

The objective of the Project is to provide Training and Education on Environmental Management and Conservation to the people in the South Pacific Region through improvement of the facilities of SPREP.

2. Project Site

The Project site is located in Avele, Apia as shown in ANNEX 1.

3. Responsible and Implementing Agencies

3-1. The responsible agency of the Project is the Ministry of Foreign Affairs, Government of Samoa.

The implementing agency is the South Pacific Regional Environment Programme (SPREP).

The organization charts of both agencies are shown in ANNEX 2.

3-2. The Government of Samoa would act as the agency responsible for the facilitation of the Project. SPREP will execute the necessary works as directed by the Government of Samoa.

3-3. The Government of Samoa would be responsible for monitoring the proper and effective use and maintenance of all the facilities and equipment provided in the Project through coordination with SPREP.

3-4. SPREP would act as the managing and operating body for the facilities and equipment provided under Japan's Grant Aid, while all the facilities and equipment remain the property of the Government of Samoa, in accordance with due arrangement and agreement to be set forth between the Government of Samoa and SPREP.

4. Items requested by the Government of Samoa

After discussions with the Team, the following items were finally requested by the Samoan Side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

(1) Construction of the facilities.

(2) Procurement of the Equipment for Environmental Training and Education.

Details of the items are listed in ANNEX-3.

5. Japan's Grant Aid Scheme

5-1. Government of Samoa has understood the system of the Japan's Grant Aid explained by the

Team; the main feature is described in ANNEX 4.

5-2. Government of Samoa will take necessary measures, described in ANNEX 5 and 6 for the smooth implementation of the Project, on condition that Japan's Grant Aid is extended to the Project.

6. Schedule of the Study

6-1. The consultants will conduct further studies in Samoa before 30 November, 1999.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around February, 2000.

6-3. Based on the results of discussions of the draft report, JICA will proceed to further examination of the study results in Japan until the end of April, 2000.

6-4. JICA will prepare the draft final report and dispatch a mission in order to explain its contents in May, 2000.

The tentative Schedule of the Study is shown in Annex 7.

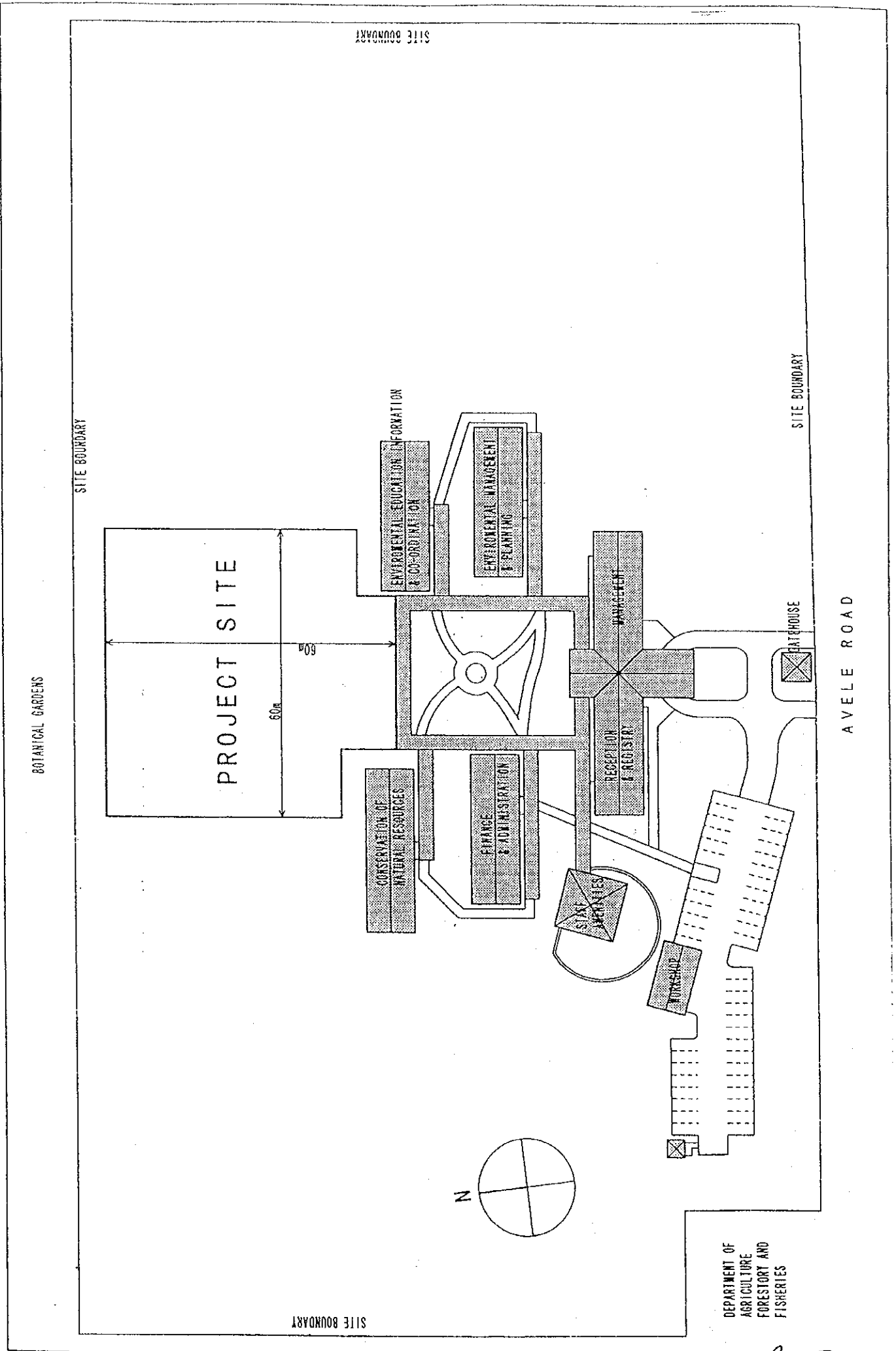
7. Other relevant items

7-1. The Team explained that the Study consisted of two phases; Phase I and II. In Phase I, JICA will prepare the draft report which includes a basic concept of the Project and its basic design. In Phase II, JICA will prepare the draft final report which includes the architectural and engineering design on the basis of the study results of Phase I. The final report will be completed by JICA through integration of the study results of both Phase I and II.

7-2. For the sake of the technology transfer on sustainable operation and maintenance, the Samoan side requested JICA technical cooperation. The Samoan side also understood that another official request on technical cooperation should be submitted through diplomatic channels such as JICA Samoa Office.

7-3. The Team has explained to the Samoan side that satellite communication component, general furniture and equipment for administration for Resource Staff Space and Workshop/Secretariat are most unlikely to be covered under the Japan's Grant Aid. Samoan side then requested the Japanese side to favourably consider the equipment and justification provided by the SPREP.

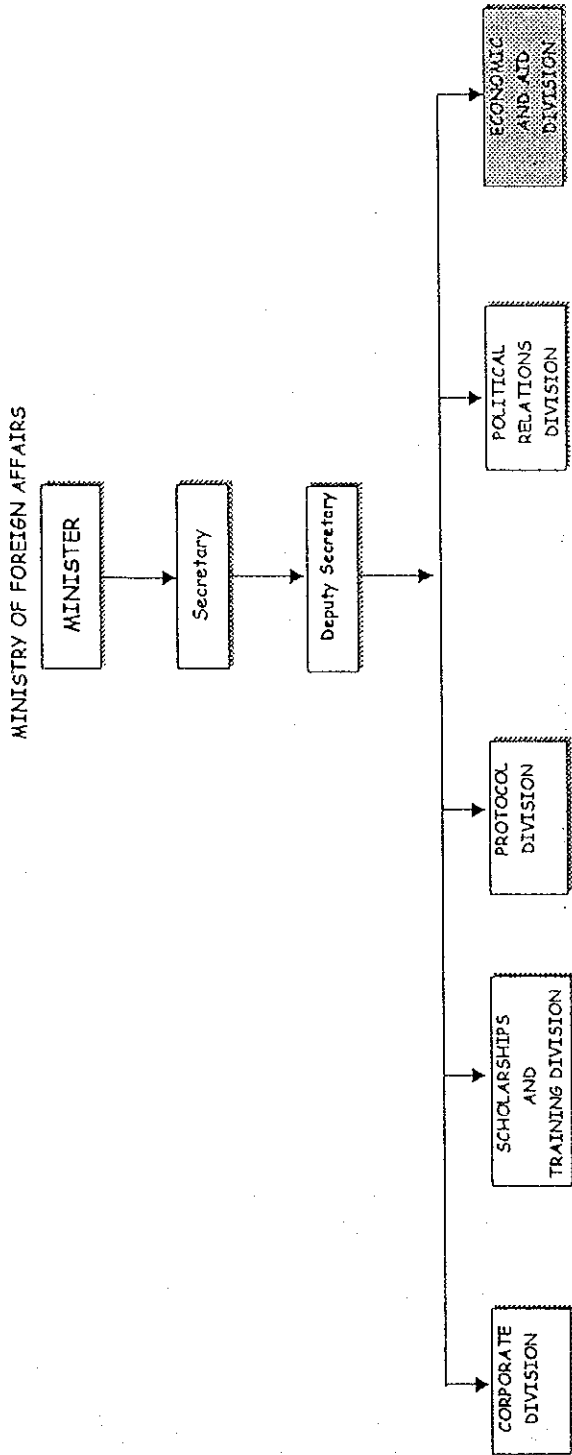
ANNEX-1 LOCATION OF THE PROJECT SITE



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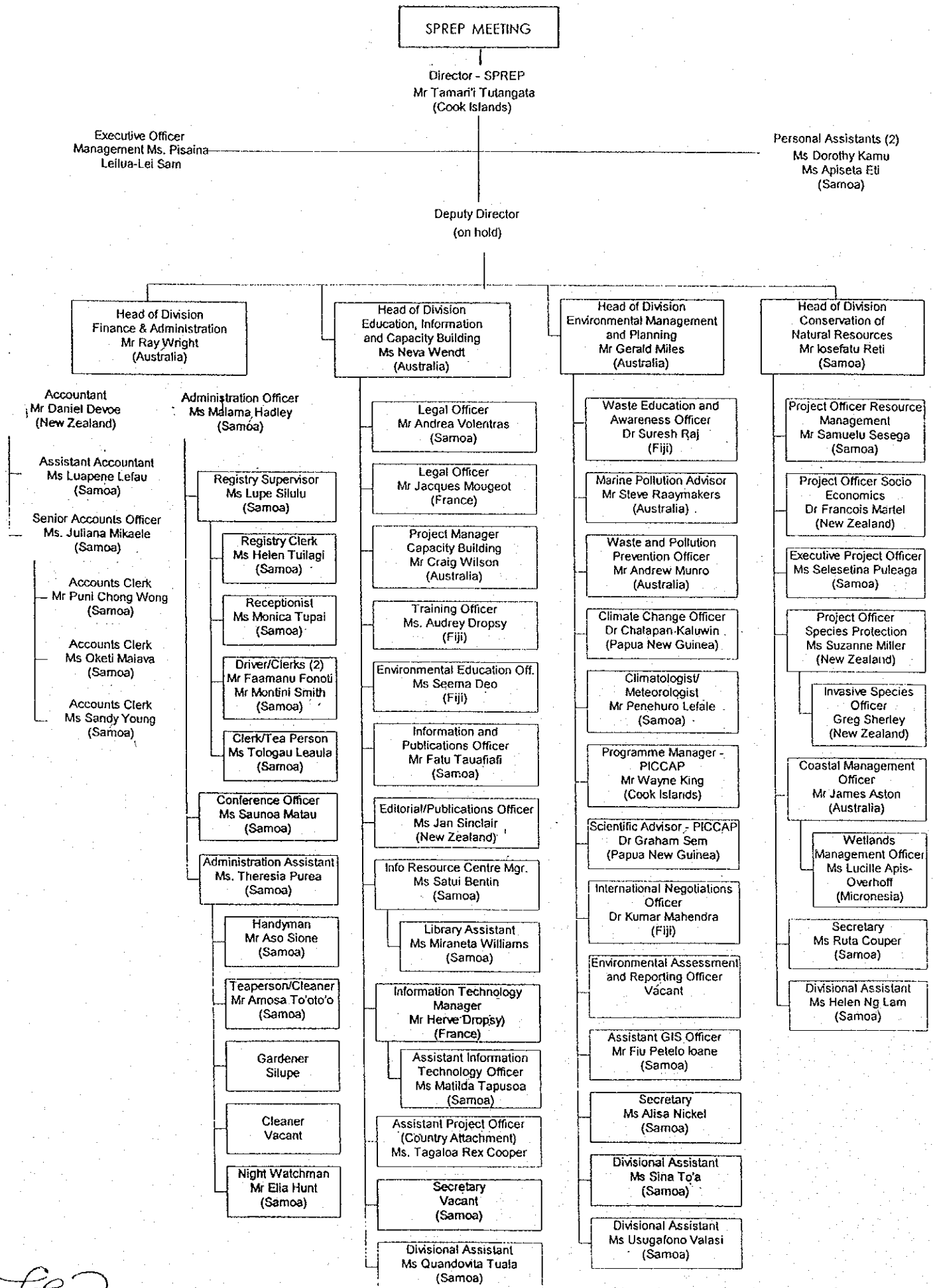
ANNEX 2 : ORGANIZATION CHART OF RESPONSIBLE AND IMPLEMENTING AGENCIES



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DRAFT SPREP ORGANISATIONAL CHART (as of 12 November 1999)



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ANNEX 3 : ITEMS REQUESTED BY SAMOAN SIDE

(1) Facilities for SPREP Training and Education Centre

Construction of environmental training and education centre including;

- 1) 1 Training Room (50 seater) collapsable into 2 small rooms (25 seater each)
- 2) 4 Small Group Discussion Rooms (10 seater each)
- 3) Workshop/Secretariat Room
- 4) Open Learning Resource Room
- 5) Multi-media Room containing a small sound-proofing booth
- 6) Fire-proof Strong Room
- 7) Computer Laboratory/Training Room
- 8) Storeroom
- 9) Resource Staff Space

(2) Equipment

equipment for;

- 1) Training Room/small rooms
- 2) Small Group Discussion Room
- 3) Video/Radio programme production
- 4) Open Learning Resource Room
- 5) Computer Laboratory/Training Room
- 6) Publication/Editorial/Public Relations
- 7) Information Technology
- 8) Satellite Communication Component
- 9) GIS/RS and Mapping
- 10) Workshop/Secretariat

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ANNEX 4: JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application (Request made by a recipient country)

Study (Basic Design Study conducted by JICA)

Appraisal & Approval

(Appraisal by the Government of Japan and Approval by Cabinet)

Determination of Implementation

(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;

b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid

- Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
 - d) preparation of a basic design of the Project;
 - e) preparation of architectural and engineering design of the Project; and
 - f) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates in the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Tender Assistance and Construction Supervision of the Project, JICA recommends the engaging of the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency of the Project.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant" means the one fiscal year in which the Cabinet approves the Project. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

6) Undertakings required to the Government of the recipient country

a) to secure a lot of land necessary for the construction of the Project and to clear the site;

b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;

c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;

d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;

e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and

g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

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7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

ANNEX 5 : NECESSARY MAJOR UNDERTAKINGS BY EACH GOVERNMENT

No	Items	To be covered by Japan's Grant Aid	To be covered by Samoan Government
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	(●)	(●)
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer		●
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and/or elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame / panel (MDF) of the building		●
	b. The MDF and the extension after the frame / panel	●	
6) Furniture and Equipment			
a. General furniture & equipment for administration		●	
b. Project equipment	●		
8	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)

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ANNEX 6 : NECESSARY MAJOR UNDERTAKINGS BY GOVERNMENT OF SAMOA

The following necessary measures should be taken by the Government of Samoa on condition that the Grant Aid by the Government of Japan is extended to the Project:

1. Following items should be secured for the Project site for construction;
 - a) to secure the land for the Project and the rights to build a building.
 - b) to clear, level and reclaim the site for the Project prior to the project implementation.
 - c) to provide proper access road to the project site.
 - d) to undertake incidental outdoor works, such as landscaping, fencing, exterior lighting, and other incidental facilities in and around the Project site, if necessary.
 - e) to provide facilities for distribution of electricity, water supply, drainage, telephone trunk line and other incidental facilities to the site.
2. To ensure prompt unloading and customs clearance of the products purchased under the Japan's Grant Aid at ports of disembarkation in Samoa;
3. To exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in Samoa with respect to the supply of the products and services under the verified contracts;
4. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into Samoa and stay therein for the performance of their work;
5. To bear commissions, namely advising commissions of an Authorization to Pay (A/P) and payment commissions, to the Japanese bank for the banking services based upon the Banking Arrangement (B/A);
6. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary;
7. To ensure that the facilities constructed and equipment purchased under the Japan's Grant Aid be maintained and used properly and effectively for the Project; and
8. To bear all the expenses, other than those covered by the Japan's Grant Aid, necessary for the Project.

The Study will be executed as follows:

	November	December	January	February	March	April	May	June	July
Preparation of the Study in Japan	☐								
Field Survey in Samoa	■								
Preparation of draft report		☐							
Explanation of draft report				■					
Design and preparation of basic study report					☐				
Explanation of basic study report							■		
Preparation and submission of final report							☐		▼

☐ : work in Japan ■ : work in Samoa ▼ : submission of final report

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(基本設計概要書説明時)

MINUTES OF DISCUSSIONS
ON
The Project for SPREP Training and Education Centre
IN
The Independent State of Samoa
(CONSULTATION ON DRAFT REPORT)

In November 1999, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the project for South Pacific Regional Environment Programme (SPREP) Training and Education Centre (hereinafter referred to as "the Project") to the Independent State of Samoa (hereinafter referred to as "Samoa"), and through discussions, site surveys, and technical examination of the results in Japan, JICA prepared the draft report of the study.

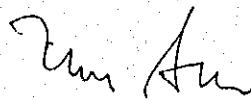
In order to explain and consult with the Samoan side on the components of the draft report, JICA sent to Samoa the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Hidetoshi TAKAMA, Resident Representative, JICA Samoa Office, from February 20 to February 29, 2000.

As a result of discussions, both sides have confirmed the main items described on the attached sheet.

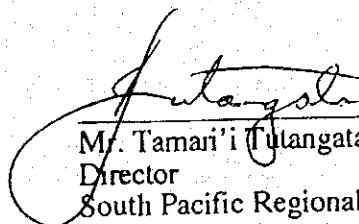
Apia, 25 February, 2000



Mr. Hidetoshi TAKAMA
Leader
Draft Report Explanation Team



Mr. Aiono Mose Pouvi Sua
Secretary
Ministry of Foreign Affairs
The Independent State of Samoa



Mr. Tamari'i Tutangata
Director
South Pacific Regional Environment Programme

ATTACHMENT

1. Components of the Draft Report

The Government of Samoa and SPREP agreed and accepted in principle the components of the draft report tabled and explained by the Team.

2. Japan's Grant Aid System

The Samoan side understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Samoa and SPREP as explained by the Team and described in Annex 4 and 5 of the Minutes of Discussions signed by both parties on November 19, 1999.

3. Schedule of the Study

- 3-1. Based on the results of Discussion of the draft report, JICA will proceed to further examine the study results in Japan until the middle of April/May, 2000.
- 3-2. JICA will prepare the draft final report and dispatch a mission in order to explain its contents in April/May, 2000

4. Other Relevant Issues

4-1 The Team handed one copy of the draft detailed specification of the equipment to Mr. Tamari'i Tutangata. Both sides agreed that this draft specification is confidential and should not be duplicated or released to any parties outside of SPREP.

4-2 SPREP is responsible for coordination among its members and donors and taking necessary measures to implement the Project smoothly.

4-3 Maintenance for the Computer Network

The Team explained the necessity of maintaining the LAN (Local Area Network) and the network server for the "SPREP Training and Education Centre". The Samoan side agreed to execute the necessary maintenance for the following.

A LAN network to be built by the Project in the "SPREP Training and Education Centre" must constitute a part of the campus-wide LAN in the whole SPREP building. The Project could cover provision of hardware and physical infrastructure only for the LAN and network server in the Centre.

Therefore the Samoan side is totally responsible for the integration of the Project LAN into the campus-wide network of SPREP. It will also take full responsibility for maintenance and operation of the said network.

4-4 Infrastructure

Both sides agreed that the following matters are required to be executed by the Samoan side prior to the start of the construction works by the Japanese side.

- 1) to modify the capacity of the septic tank to accommodate 140 persons before the completion of the new SPREP Headquarters construction.
- 2) to install a pipeline for SPREP complex use from the water main installed along Cross Island Rd. before the completion of the new SPREP Headquarters construction.
- 3) to upgrade the capacity of the transformer from 200kVA to 500kVA by September, 2000.
- 4) to clear the land for construction of the Project and to ensure availability of the land for the temporary construction of site office, workshops and material storage places by September, 2000.

The Samoan side will inform the Japanese side of the progress of these matters.

4-5 Registration

The Samoan side assured that the Government of Samoa is responsible for asset registration of the equipment granted under the Project.

(基本設計成果概要書説明時)

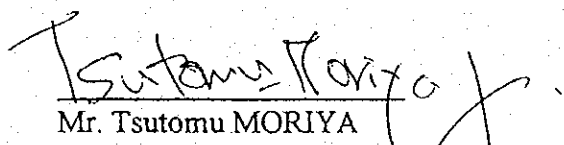
MINUTES OF DISCUSSIONS
ON
The Project for SPREP Training and Education Centre
IN
The Independent State of Samoa
(EXPLANTATION ON DRAFT REPORT)

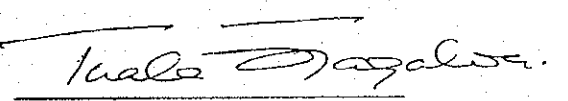
In February 2000, the Japan International Cooperation Agency (JICA) dispatched a Draft Report Explanation Team on the project for South Pacific Regional Environment Programme (SPREP) Training and Education Centre (hereinafter referred to as "the Project") to the Independent State of Samoa (hereinafter referred to as "Samoa"). JICA prepared the draft final report of the study following discussions with the Government of Samoa and SPREP (hereinafter referred to as "Samoa side"), site surveys, and technical examination of the results in Japan.

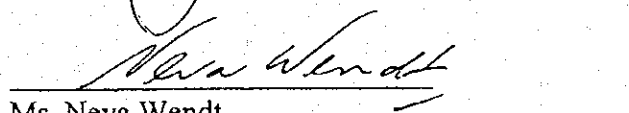
In order to explain and consult with the Samoan side on the components of the draft report, JICA sent to Samoa the Draft Report Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Tsutomu MORIYA, Resident Representative of the JICA Samoa Office, from May 22 to May 30, 2000.

As a result of discussions, both sides have confirmed the main items described in the attached sheet.

Apia, 26 May, 2000


Mr. Tsutomu MORIYA
Leader
Draft Report Explanation Team


Hon. Tuala Sale Tagaloa
Minister of Lands, Survey and Environment
The Independent State of Samoa


Ms. Neva Wendt
Officer in charge
South Pacific Regional Environment Programme

ATTACHMENT

1. Components of the Draft Report

The Government of Samoa and SPREP received and accepted in principle the components of the draft final report tabled and explained by the Team.

2. Japan's Grant Aid System

The Samoan side understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Samoa and SPREP as explained by the Team and described in Annex 1 and 2 of the Minutes.

3. Schedule of the Study

3-1 JICA will complete the final report in accordance with the confirmed items and send it to the Government of Samoa and SPREP by August, 2000.

3-2 The consultants will proceed to undertake further studies in Samoa until 30 May.

4. Other Relevant Issues

4-1 The Team handed one copy of the draft engineering design of the facility to the Director of SPREP. Both sides agreed that the draft drawings are confidential and should not be duplicated or released to any parties outside of SPREP.

4-2 The Samoan side may complete the tender documents through reviewing all documents and drawings prepared as a result of the study. The Samoan side shall be responsible for project implementation and the output of the project will be executed under contracts with Japanese firms.

4-3 The Samoan side agreed to follow the following procedures in case equipment procured under the Project needs to be abandoned. Both sides understood that any additions or upgrades to any equipment for their proper use will not be subjected for abandonment.

- (1) to submit the official request for abandonment of the equipment to the Government of Japan through the diplomatic channel.
- (2) to get approval for abandonment by the Government of Japan.
- (3) to bear the necessary costs for the abandonment.

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ANNEX 1: JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application (Request made by a recipient country)

Study (Basic Design Study conducted by JICA)

Appraisal & Approval

(Appraisal by the Government of Japan and Approval by Cabinet)

Determination of Implementation

(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
- b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
- d) preparation of a basic design of the Project; and
- e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Tender Assistance and Construction Supervision of the Project, JICA recommends the engaging of the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency of the Project.

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1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant" means the one fiscal year in which the Cabinet approves the project. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals"

means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

6) Undertakings required to the Government of the recipient country

- a) to secure a lot of land necessary for the construction of the Project and to clear the site;
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;
- c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
- d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
- e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;
- f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project including construction gates and fences in and around the sites if necessary;
and
- g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred

by the Government of the recipient country or its designated authority under the verified contracts.

- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

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ANNEX 2: NECESSARY MAJOR UNDERTAKINGS BY EACH GOVERNMENT

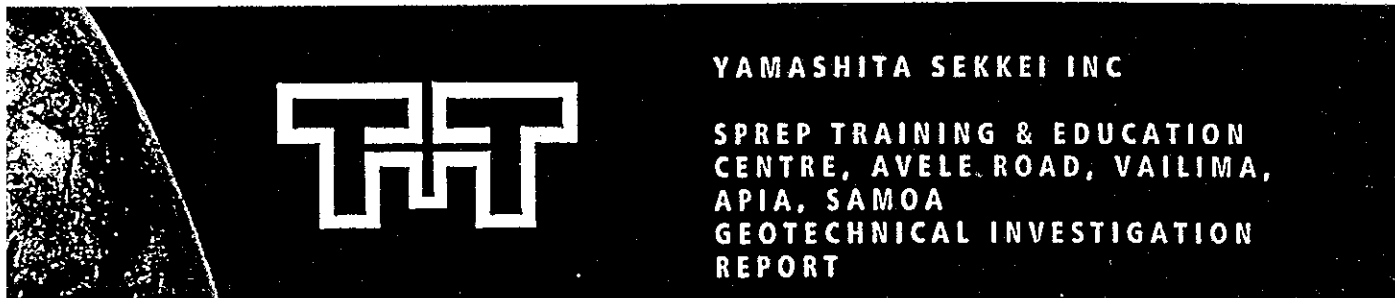
No	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	(●)	(●)
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer		●
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and/or elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame / panel (MDF) of the building		●
	b. The MDF and the extension after the frame / panel	●	
6) Furniture and Equipment			
a. General furniture & equipment for administration		●	
b. Project equipment	●		
8	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)

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6. その他のデータ

計画予定地ボーリングデータ



REFERENCE NUMBER: 750273

JANUARY 2000

REPORT PREPARED FOR:
YAMASHITA SEKKEI INC

REPORT PREPARED BY:
TONKIN & TAYLOR INTERNATIONAL LTD

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1.0 General

1.1 Introduction

Tonkin & Taylor International Ltd were engaged by Tinai Gordon & Associates on behalf of Yamashita Sekkei Inc to complete a geotechnical site investigation report for the proposed SPREP Training and Education Centre, Avele Road, Vailima, Apia, Samoa.

The investigation report included a walkover site inspection by a senior geotechnical engineer and the preparation of the geotechnical report based on data from a borehole carried out by Tinai, Gordon & Associates. Additional works included laboratory testing of samples from the borehole investigation supervised by Tinai Gordon & Associates.

1.2 Site Conditions and Proposed Development

This site is located on Avele Road, approximately 4 km south of Apia township. The topography is gently graded sloping down in a northern direction. The site had been cleared of vegetation at the time of inspection. There were no abrupt changes in grade indicating no historic land instability. The proposed training and education centre will be located due north of the existing Conservation of Natural Resources and Environmental Education Information buildings. The structure will comprise a lightweight single storey building.

1.3 Fieldwork

The scope of fieldwork included the drilling of one machine drilled borehole in the location shown on Figure 750273-01 under the supervision of Tinai, Gordon & Associates. A rotary machine drilling rig was used with a descriptive log of the hole prepared by Tinai, Gordon & Associates and later presented to Tonkin & Taylor International Ltd (T&TI). T&TI have prepared a graphic borehole log based on this information. The log is presented in Appendix B of this report.

1.4 Laboratory Testing

Nine samples were recovered from the borehole by Tinai Gordon & Associates. They were subsequently transported to our laboratory in New Zealand for testing. The tests included:

- Atterberg Limits
- Specific Gravity
- Moisture Content
- Bulk & Dry Density
- Unconfined Compression Tests.

The results of the laboratory tests are presented in Appendix C of the report.

2.0 Subsurface Ground Conditions

2.1 Geology

Published Geological Maps indicate the site is situated within the Salani Volcanic Formation. These are typically low angle basaltic lava flows, as reflected in the site topography.

2.2 Subsurface Conditions

The available borehole data shows the near surface soils to comprise a thin layer of organic topsoil overlying basalt rock fragments contained in an ash matrix comprising silts and clays extending to approximately 2.75 m below existing ground level. Jointed basalt underlies the above strata.

Standard penetration tests carried out within the ash matrix had SPT 'N' values of between 21 and >40. SPT tests undertaken in the upper layer of fractured basalt recorded rebound, i.e. $N > 100$.

No groundwater was encountered in the borehole during the investigation.

2.3 Laboratory Test Results

Results from laboratory testing are presented in Appendix C of the report. They indicate that the ash matrix forming the upper 2.75 m would be suitable for excavation and recompaction if required. Water content tests within these materials were between 45% and 60% which is typical for Ash materials. Atterberg limit tests show the plastic limit of these materials to be marginally below the respective water contents. Unconfined compression tests of the underlying basalt recorded strengths between 81.5 and 157.5 Mpa.

3.0 Engineering Considerations

Recommendations and opinion contained in this report are based on data from boreholes, laboratory results and site observations. The nature and continuity of subsoils away from the boreholes are inferred but it must be appreciated that actual conditions could vary from the assumed model.

3.1 Foundations

We consider the proposed light weight single storey structure may be founded on shallow foundations within the clay silt matrix forming the upper stratum on the site. We recommend for design purposes using an ultimate bearing capacity of 450 kPa for shallow pad and strip footings. Appropriate safety factors of 3 and 2 should be applied to determine allowable bearing pressures for comparison with working loads and Factored loads respectively, i.e. an allowable bearing capacity of 150 kPa and factored capacity of 225 kPa should be used.

We recommend that all footings be founded a minimum of 450 mm depth below ground level and below any organic soils or fill. During excavation of the footings observations and testing should be undertaken and provision made to compact the base of the footing or to excavate soft spots and either recompact excavated soils or use suitable imported hardfill. We recommend that Scala (on dynamic cone) penetrometer tests be carried out at 2 m spacings within the footings to a depth of 0.5 m to check and verify the strength of the underlying soils. Scala results of 2 to 3 blows per 50 mm penetration are required to confirm the above bearing capacities. If these results are not achieved this area of the footing should be excavated and recompacted (or replaced with hardfill) to a depth of 0.5 m.

4.0 Summary & Conclusions

Based on the results of field investigation data supplied by Tinai, Gordon & Associates, we summarise our recommendations and findings as follows:

- The near surface soils at the site comprise a thin layer of topsoil overlying basalt rock fragments contained in a clay silt matrix extending to approximately 2.75 m depth. Dense fractured basalt was encountered below this depth.
- The proposed single storey structure could be founded on shallow pad or strip footings assuming an ultimate bearing capacity of 450 kPa.
- Scala penetrometer testing of the exposed foundations during construction is recommended. If soft spots are identified provision should be made to sub-excavate the footing and recompact the excavated materials (or use imported hardfill) to form a suitable founding platform.
- For pavement design a CBR=5 could be used.

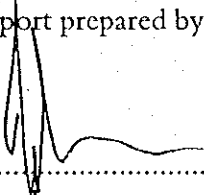
5.0 Applicability

This report has been prepared for the particular brief given to us and data or opinions contained in it may not be used in other contexts or for any other purpose without our prior review and agreement.

During excavation and construction, the site should be examined by an engineer competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is important that we be contacted if there is any variation in subsoil conditions from those described in the report.

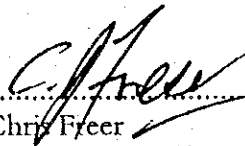
TONKIN & TAYLOR INTERNATIONAL LTD
Environmental and Engineering Consultants

Report prepared by:



John Leeves
Geotechnical Engineer

Authorised for Tonkin & Taylor International by:



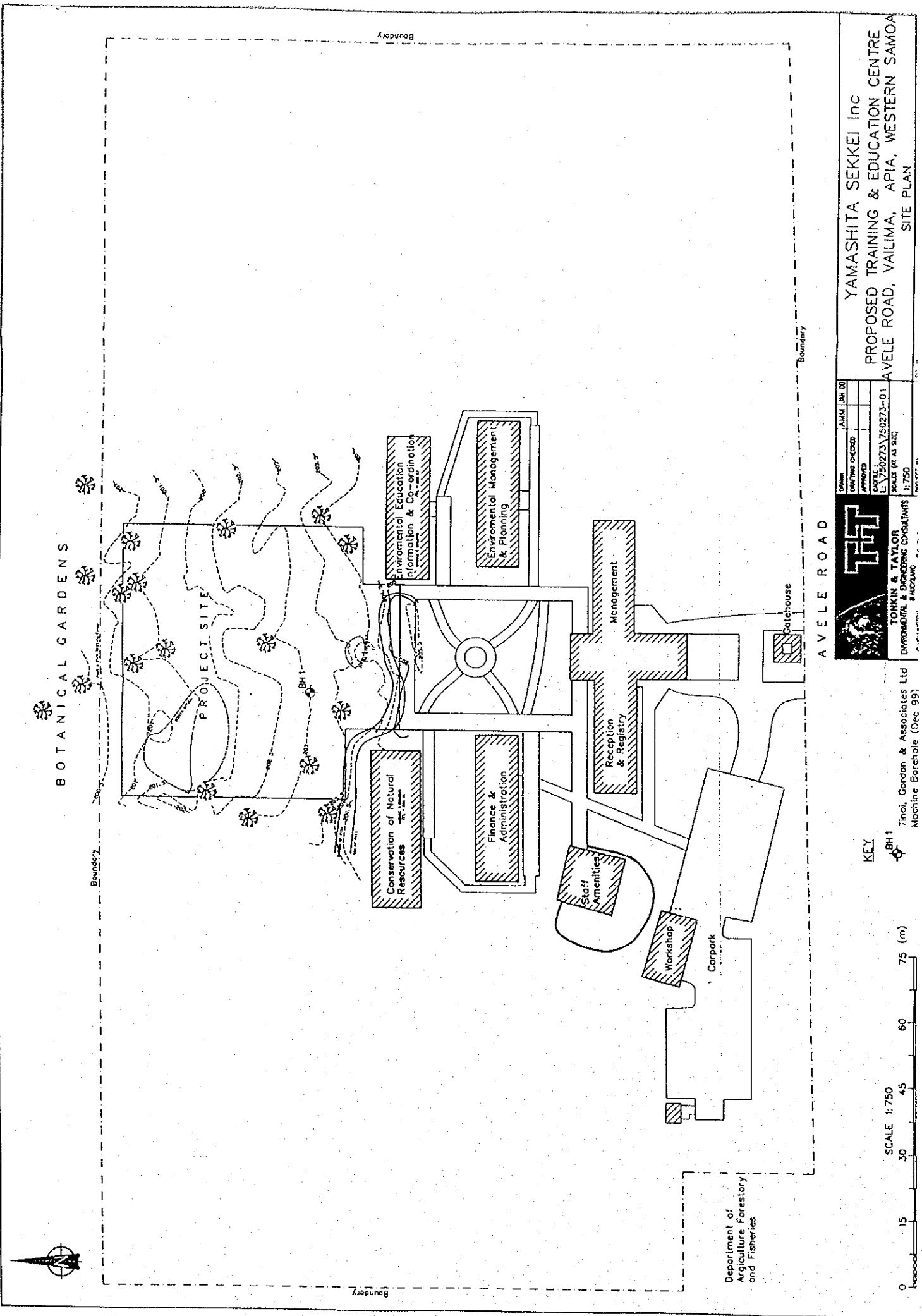
Chris Freer
Senior Geotechnical Engineer

mtt
14 January, 2000
3jrk060100.rep.doc

APPENDIX A

SITE PLAN





DATE	APPROVED	SCALE (OR AS SHD)
15/02/23	750273-01	1:750
TONKIN & TAYLOR ENVIRONMENTAL & ENGINEERING CONSULTANTS #1400040		



TONKIN & TAYLOR
 ENVIRONMENTAL & ENGINEERING CONSULTANTS
 #1400040

KEY
 BH1

YAMASHITA SEKKEI Inc
 PROPOSED TRAINING & EDUCATION CENTRE
 AVELE ROAD, VAILIMA, APIA, WESTERN SAMOA
 SITE PLAN

APPENDIX B

BOREHOLE LOG





TONKIN & TAYLOR LTD

BOREHOLE LOG

BOREHOLE No: BH1

Hole Location: Refer to site plan

SHEET 1 OF 1

PROJECT: SPREP Training & Education Centre LOCATION: Avele Rd, Vailima, Apia, Western Samoa JOB No: 750273

CO-ORDINATES mN DRILL TYPE: N/A HOLE STARTED: 07/12/99
mE HOLE FINISHED: 07/12/99

R.L. m DRILL METHOD: Trippl Tube DRILLED BY: Refer Note Below
DATUM DRILL FLUID: Water LOGGED BY: Refer Note

GEOLOGICAL ENGINEERING DESCRIPTION

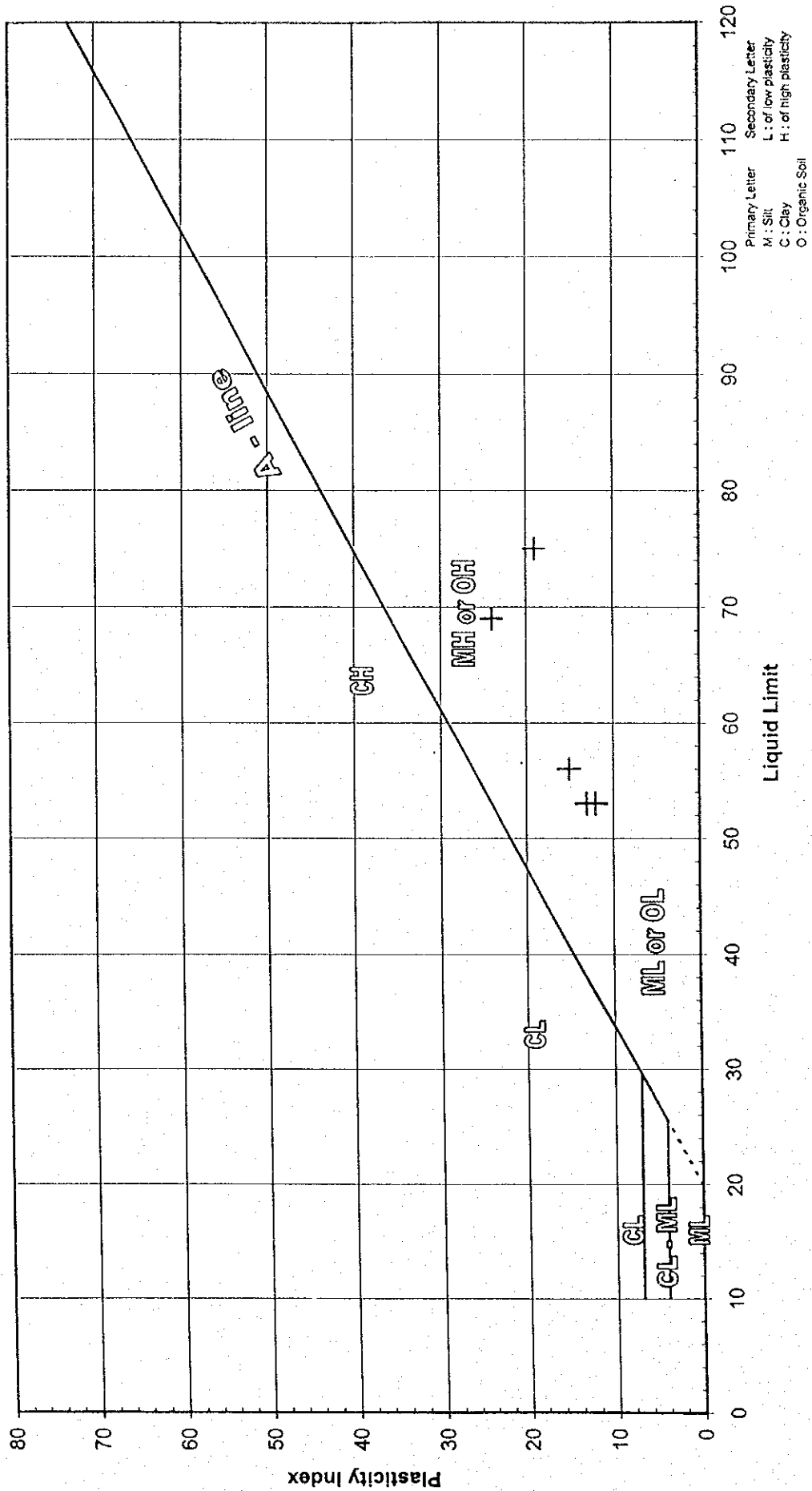
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MINERAL COMPOSITION	FLUID LOSS	WATER	CORE RECOVERY	METHOD	CASING	TESTS	SAMPLES	R.L. (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MOISTURE / WEATHERING CONDITION	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	COMPRESSIVE STRENGTH (MPa)	DEFECT SPACING (mm)	SOIL DESCRIPTION
																	SOIL type, minor components, plasticity or particle size, colour.
TOPSOIL																	TOPSOIL, organic.
VOLCANIC ASH																	<p>SILT/CLAY matrix with BASALT rock fragments (10-450mm diameter, angular to sub-angular fragments, minor weathering).</p> <p>-rocks becoming larger, 40% angular BASALT fragments (5-300mm), 60% volcanic silty CLAY.</p> <p>-rock content increases with depth, hard drilling with soft patches, 0% recovery.</p>
VOLCANIC BASALT FLOW																	<p>BASALT, dense, few vesicles, jointed typically at 50-150mm intervals.</p> <p>BASALT rock, solid drilling, jointed 30-80mm, (too hard for SPT test).</p> <p>BASALT rock, jointed 30-140mm, (top section of core crumbled).</p> <p>BASALT rock, dense, few vesicles and vugs, jointed 10-130mm, (middle and base sections of core crumbled).</p> <p>BASALT rock, dense, few vesicles and vugs, jointed, (Top portion of core crumbled).</p>
																	<p>END OF BOREHOLE AT 4.3m</p> <p>Note: Borehole log based on summary log supplied by Tinai, Gordon & Associates.</p>

APPENDIX C

LABORATORY RESULTS



SPREP TRAINING CENTRE, AVELE ROAD, APIA, WESTERN SAMOA ATTERBERG LIMIT RESULTS





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 19 MORGAN ST. NEWMARKET, AUCKLAND.
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Form No.: M2
 Form Date: April 1999
 Authorised by: S. Anderson

T&T CONTACT: CSF
 PROJECT MANAGER: CSF

JOB NAME: JICA - SPREP
 SITE: Samoa

Page of
 JOB No.: 750273
 DATE: 12/01/00

TEST RESULTS SUMMARY

BOREHOLE / TEST PIT No.		1	1	1	1	1	1	1	1				
SAMPLE No.		1	2	3	4	5	6	7	8	9			
DEPTH (m)		0.2-1.0	1.0-1.5	1.0	1.5-2.0	2.0	2.75-3.0	3.0-3.25	3.25-3.6	3.6-3.85			
WATER CONTENT (%)		45.9	50.0	46.4	45.9	59.3	2.9	2.4	2.3	2.0			
ATTERBERG LIMITS	LL (%)	69	53	56	53	75	-	-	-	-			
	PL (%)	42	40	41	41	56	-	-	-	-			
	PI (%)	24	13	15	12	19	-	-	-	-			
BULK DENSITY (t/m ³)							2.87	2.94	2.84	2.86			
DRY DENSITY (t/m ³)							2.79	2.87	2.78	2.80			
SOLID DENSITY (t/m ³)		3.10	3.19	-	3.20	-							
LABORATORY VANE (kPa)	Peak												
	Residual												
MAXIMUM DENSITY (kg/m ³)													
MINIMUM DENSITY (kg/m ³)													
ORGANIC CONTENT (%)													
ALLOPHANE CONTENT (%)													
DESCRIPTION													
GRADING - SIEVE (wet / dry)													
GRADING - HYDROMETER													
COMPACTION													
CBR													
ONE DIMENSIONAL CONSOLIDATION													
DIRECT SHEAR													
UNCONFINED COMPRESSION (MPa)							100.5	157.5	81.5	81.5			
TRIAXIAL (UU)													
TRIAXIAL (CUP / CD)													
TRIAXIAL PERMEABILITY													
PINHOLE DISPERSION	Bulk sp. gravity						2.85	2.88	2.79	2.71			
	Bulk sp. gravity (at saturation)						2.92	2.93	2.87	2.82			As per ASTM C129
	Apparent sp. gravity						3.06	3.05	3.05	3.05			
	Absorption						2.3	2.0	3.0	4.0			

File: MForm\Miscel\Miscel.wb3

Entered by: SJ

Date: 12/01/00

Checked by: JH

Date: 12/01/00



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TELEPHONE (09) 3556020 FAX (09) 3070265

Form No.:	MB
Form Date:	Dec. 1997
Authorised by:	S.M. Adams

Site: Sawdon

Job Name: SICA - SPROP

Page of

Job No.: 750273

SAMPLE DESCRIPTION

BOREHOLE / TEST PIT No.	SAMPLE No.	DEPTH (m)	DESCRIPTION (Primary constituent, secondary constituent, strength, colour, miscellaneous)
1	1	0.0 - 1.0	SILT, clayey, soft to firm, dark brown, high plasticity, dilatant, gravelly (coarse sand), some roots present.
1	2	1.0 - 1.5	SILT, clayey, soft to firm, dark brown, med. plasticity, dilatant, gravelly (coarse sand), f.
1	3	1.0	SILT, clayey, soft to firm, dark brown, med. plasticity, dilatant, gravelly (coarse sand).
1	4	1.5 - 2.0	SILT, clayey, soft to firm, dark brown, med. plasticity, dilatant, gravelly (coarse sand).
1	5	2.0	SILT, clayey, soft to firm, dark brown, high plasticity, dilatant, gravelly (coarse sand).

File: M:\org\Miscel\Miscel.wb3

Described by: ST

Date: 12/01/00

Checked by: JG

Date: 12/1/00



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19 MORGAN ST. NEWMARKET, AUCKLAND.

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Form No.:	M5
Form Date:	Dec. 1997
Authorised by:	S.A. Jones

Site: Samoa

Job Name: JICA - PREP

Page of
Job No.: 750273

SAMPLE DESCRIPTION

BOREHOLE / TEST PIT No.	SAMPLE No.	DEPTH (m)	DESCRIPTION <small>(Primary constituent, secondary constituent, strength, colour, miscellaneous)</small>
1	6	2.75 - 3.0	Rock - BASALT, grey, Very strong, Vesicular
1	7	3.0 - 3.25	Rock - BASALT, grey, Very strong, Vesicular.
1	8	3.25 - 3.6	Rock - BASALT, grey, strong, Vesicular
1	9	3.6 - 3.85	Rock - BASALT, grey, strong, Vesicular

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5) 民間保険会社(ニュージーランド) 保険販売

6)民間証券会社(ニュージーランド) 営業

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文書管理課	文書管理課長		
主管部長		主管課長	

資料リスト(収集資料)

地域	調査団名または 専門家氏名	調査名または 資料の名称	調査の種類または 指 導 科 目	基本設計調査	作成部課
国	サモア	配属機関名 株式会社 山下設計	現地調査期間 または派遣期間	平成11年12月4日(基本設計) 平成12年2月20日(概要書説明) 平成12年3月5日(成果概要書説明)	担当者氏名

番号	資料の名称	版 型	ペー ジ 数	オリジナル コピーの別	部数	発行者等	寄贈・購入 (価格)の別
1.	A Compendium of National Environment Statistic	A4	176	オリジナル	1	Department of Statistics, G.O.S.	購入
2.	Annual Statistical Abstract 1997	A4	80	オリジナル	1	Department of Statistics, G.O.S.	購入
3.	Household Income & Expenditure Survey 1997 Tabulation Report	A4	120	オリジナル	1	Department of Statistics, G.O.S.	購入
4.	Household Income & Expenditure Survey 1997 Consumer Price Index Report	A4	33	オリジナル	1	Department of Statistics, G.O.S.	購入
5.	Household Income & Expenditure Survey 1997 Unpaid Household Activities Report	A4	38	オリジナル	1	Department of Statistics, G.O.S.	購入
6.	Household Income & Expenditure Survey 1997 Food & Basic Needs Expenditure Report	A4	77	オリジナル	1	Department of Statistics, G.O.S.	購入
7.	Commentary on the National Building Code for W. Samoa	A4	40	オリジナル	1	Public Works Department, G.O.S.	購入
8.	SPREP, Annual Report 1998	A4	67	オリジナル	1	SPREP	寄贈
9.	Action Strategy for Nature Conservation in the PI Region	A4	44	オリジナル	1	SPREP	寄贈
10.	Action Strategy for Environmental Education & Training	A4	35	オリジナル	1	SPREP	寄贈
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