

資料

資料 1. 調査団員・氏名

(1) 第1次現地調査団

氏名	担当	所属・役職
三村 悟	総括	国際協力機構 東南アジア第一・大洋州部 大洋州課 課長
小城 良友	技術参与	気象庁 観測部計画課 検定管理官
田辺 修	調達監理	財団法人 日本国際協力システム 総務部人事課 副課長
田中 真美子	計画監理	国際協力機構 地球環境部水資源・防災グループ 防災第一課
野口 晋孝	業務主任／気象業務・運営維持管理計画	株式会社 国際気象コンサルタント
内田 善久	気象観測・予報機材計画	一般財団法人 日本気象協会
遠藤 肇秀	気象データ通信機材計画／機材積算	株式会社 国際気象コンサルタント
森 健二	調達・機材設置計画／設置工事積算	一般財団法人 日本気象協会

(2) 第2次現地調査団

氏名	担当	所属・役職
有田 敏行	総括	国際協力機構 東京国際センター 公共政策課 課長
田中 真美子	計画管理	国際協力機構 地球環境部水資源・防災グループ 防災第一課
野口 晋孝	業務主任／気象業務・運営維持管理計画	株式会社 国際気象コンサルタント
遠藤 肇秀	気象データ通信機材計画／機材積算	株式会社 国際気象コンサルタント

資料 2. 調査行程

(1) 第一次現地調査

調査日程	官団員				コンサルタント団員				
	三村 悟	小城 良友	田辺 修	田中 真美子	野口 晋孝	内田 善久	遠藤 肇秀	森 健二	
2009年	総括 JICA東南アジア第1・大洋州部大洋州課	技術参与 気象庁 観測部計画課	調達監理 財団法人 日本国際協力システム 総務部人事課	計画監理 JICA地球環境部 水資源・防災グループ防災第1課	業務主任/ 気象業務・運営維持管理計画	気象観測・予報機材計画	気象データ通信機材計画/ 機材積算	調達・機材設置計画/ 設置工事積算	
8月16日	日	成田→オークランド NZ090 (18:15-08:15) オークランド→アピア NZ862 (15:00-19:55)							
8月17日	月	JICA支所との協議 外務・貿易省、財務省、天然資源・環境省表敬訪問、サモア気象局表敬訪問、サモア気象局との協議						電波局との協議、サモア気象局との協議、サモア気象局本局調査	
8月18日	火	南太平洋海域環境プログラム、世界気象機関表敬訪問・協議、サモア気象局との協議			サモア気象局との協議 サモア気象局本局調査	南太平洋海域環境プログラム、世界気象機関表敬訪問・協議 サモア気象局との協議	サモア気象局との協議、資料収集、サモア気象局本局調査		
8月19日	水	サモア気象局との協議、サモア気象局本局サイト調査				サモア気象局、農水省、サモア統計局との協議		サモア気象局との協議 通信関連会社との協議	
8月20日	木	サモア気象局との協議、ファレオロ国際空港サイト調査			サモア気象局との協議 天然資源・環境省との協議	サモア気象局との協議 天然資源・環境省との協議 サモアTelとの協議	サモア気象局との協議 ファレオロ国際空港サイト調査		
8月21日	金	討議議事録署名 サモア気象局との協議、JICA支所への報告				討議議事録署名、サモア気象局との協議、サモアTelとの協議、サモア気象局本局調査			
8月22日	土	アピア→オークランド NZ861 (03:15-06:25)				ウボル島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査)			
8月23日	日	オークランド→成田 NZ099 (08:30-16:40)				ウボル島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査)			
8月24日	月				サモア気象局との協議	ウボル島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査)			
8月25日	火				サモア気象局との協議	マノノ島サイト調査、ファレオロ国際空港サイト調査、航空局との協議			
8月26日	水				サモア気象局との協議	ウボル島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査) 航空局との協議			
8月27日	木				サモア気象局との協議	ウボル島→サバイイ島移動、サバイイ島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査)			
8月28日	金				サモア気象局との協議、資料収集	サバイイ島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査)			
8月29日	土				サモア気象局との協議、資料収集	サバイイ島→ウボル島移動、ウボル島・ファレオロ国際空港サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査) 航空局との協議			
8月30日	日				サモア気象局との協議、内部打合せ、資料収集			成田→オークランド NZ090 (18:15-11:00) オークランド→アピア NZ862 (15:00-19:55)	
8月31日	月				サモア気象局本局調査 サモア気象局との協議	サモア気象局との協議 水産局との協議、港湾局との協議 サモア警察での資料収集	サモア気象局本局調査 電気会社との協議	サモア気象局本局調査 建設材料・施工調査 設置工事積算調査	
9月1日	火				サモア気象局との協議	サモア気象局との協議、携帯電話会社との協議 インターネットプロバイダー業者との協議		建設材料・施工調査 設置工事積算調査	
9月2日	水				サモア気象局との協議	サモア気象局との協議、インターネットプロバイダー業者との協議 輸送調査		建設材料・施工調査 設置工事積算調査	
9月3日	木				サモア気象局との協議	サモア気象局との協議 サモア商業銀行での資料収集	サモア気象局との協議 産業廃棄物業者との協議	建設材料・施工調査 設置工事積算調査	
9月4日	金				サモア気象局との協議 JICA支所への報告	南太平洋海域環境プログラム、世界気象機関との協議 サモア気象局との協議、JICA支所への報告		建設材料・施工調査 設置工事積算調査	
9月5日	土				ウボル島サイト調査 (リビータ候補地調査、電波干渉調査、見通し確認調査) 内部打合せ、資料収集、サモア気象局との協議				
9月6日	日				内部打合せ、資料収集		サモア気象局との協議		
9月7日	月				アピア→オークランド NZ863 (20:55-00:05)	サモア気象局との協議			
9月8日	火				オークランド→成田 NZ099 (08:30-16:40)			ウボル島→サバイイ島移動、サバイイ島サイト調査 サバイイ島→ウボル島移動	
9月9日	水					サモア気象局との協議、携帯電話会社との協議、輸送計画調査、資料収集、機材積算調査	建設材料・施工調査 建設交通社会基盤省との協議		
9月10日	木					サモア気象局との協議、輸送計画調査、資料収集、機材積算調査	計画都市管理庁との協議、消防局との協議、質問書回収、建設材料・施工調査		
9月11日	金					環境影響評価調査、サモア気象局へ報告、積算調査、資料収集			
9月12日	土					アピア→オークランド NZ861 (03:15-06:25)	サモア気象局との協議、資料収集		
9月13日	日					オークランド→成田 NZ099 (08:30-16:40)	資料収集		
9月14日	月						アピア→オークランド NZ863 (20:55-00:05)		
9月15日	火						オークランド→成田 NZ099 (08:30-16:40)		

(2) 第二次現地調査

調査日程		官 団 員		コンサルタント団員	
		有田 敏行	田中 真美子	野口 晋孝	遠藤 肇秀
		総括 JICA東京国際センター 公共政策課 課長	計画監理 JICA地球環境部 水資源・防災グループ防災第1課	業務主任/ 気象業務・運営維持管理計画	気象データ通信機材計画/ 機材積算
2009年					
12月2日	水			成田→オークランド NZ090 (18:30-09:20)	
12月3日	木			オークランド→アピア NZ264 (21:45-01:40)	
12月4日	金			JICA支所との協議、サモア気象局との協議	
12月5日	土			サルアフアタサイト調査	
12月6日	日			サルアフアタ、トギトギガサイト調査	
12月7日	月			トギトギガサイト調査、サモア気象局との協議、概略設計概要説明	
12月8日	火	成田→オークランド NZ090 (18:30-12:35) オークランド→アピア NZ262 (15:40-19:35)		電波局との協議、サモア気象局との協議、概略設計概要説明	
12月9日	水	JICA支所との協議、外務・貿易省との協議、財務省との協議、天然資源・環境省との協議、サモア気象局との協議、概略設計概要説明			
12月10日	木	サモア気象局との協議、天然資源・環境省との協議、討議議事録署名、JICA支所への報告			
12月11日	金	アピア→オークランド NZ261 (02:40-06:40)		トギトギガサイト調査、携帯通信会社との協議、防災管理事務所との協議、サモア気象局との協議	
12月12日	土	オークランド→成田 NZ099 (09:15-16:25)		サモア気象局との協議、資料収集・整理	
12月13日	日			内部打合せ アピア→オークランド NZ267 (20:35-00:35)	
12月14日	月				
12月15日	火			オークランド→成田 NZ099 (09:15-16:25)	

資料 3. 関係者(面会者)リスト

- 外務・貿易省 (Ministry of Foreign Affairs and Trade)

Mr. Sua Mose Aiono	Chief Executive Officer, CEO
Ms. Seira Fuimaono	Principal Macroeconomic Policy Officer

- 財務省 (Ministry of Finance)

Ms. Noumaa Simi	Chief Executive Officer (CEO)
Mr. Mathew Tofilau	Senior Aid Officer, Aid & Loan Division

- 天然資源・環境省 (Ministry of Natural Resources and Environment)

Dr. Tu'u'u Luafatasaga Ietitaia Setu Taule'alo	Chief Executive Officer (CEO)
Mr. Taulealeausumai Laavasa Malua	Chief Executive Officer (CEO)
Mr. Elisaia Talouli	Assistant Chief Executive Officer (ACEO)
Ms. Filisita Heather	Principal Land Registry Officer

サモア気象局 (Samoa Meteorology Division)

Mr. Ausetalia Titimaea	Assistant Chief Executive Officer, ACEO
Mr. Sagato Tuiafiso	Principal Scientific Officer, Weather Service Section
Mr. Sunny Seusen	Principal Scientific Officer, Climate Section
Mr. Anne Rassmussen	Principal Scientific Officer, Climate Change
Ms. Filomena Nelson	Principal Management Officer, National Disaster Management Officer
Mr. Paratiso Toailoa	Administration Officer
Ms. Uili Namulauulu	Meteorological Technical Officer, Maota Airport

- 農業・水産省 (Ministry of Agriculture and Fishery)

方針・計画・通信局 (Policy, Planning and Communication Division)

Mr. Frank Fong	Assistant Chief Executive Officer, ACEO
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水産局 (Fishery Division)

Mr. Ueta Jr. Faasili	Principal Fisheries Officer, Offshore Section
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- 建設・運輸・公共事業省 (Ministry of Works, Transport and Infrastructure)

海事局 (Maritime Administration)

Mr. Tapaga Collins	Principal Surveyor
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- 南太平洋地域環境プログラム (Secretariat of Pacific Regional Environment Programme: SPREP)

Mr. Kosimiki Latu	Deputy Director
Mr. Kapeni Matatia	Information Technology Manager
Mr. Dean Solofa	Pacific Islands Global Climate Observing System Officer

- サモア統計庁 (Samoa Bureau of Statistics)

- 経済統計局 (Economic Statistics Division)

Mr. Laupua Fiti	Assistant Chief Executive Officer, ACEO
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- 世界気象機関 (World Meteorological Organization: WMO)

Mr. Henry K. Taiki	Programme Officer
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- サモア航空局 (Samoa Aviation Authority: SAA)

Mr. Tafilipepe Alefosio Matulino	Deputy General Manager
Mr. Ueta Solomona Jr	Manager Aerodromes & ATS
Mr. Amosa Amosa	Chief Technical Officer
Mr. Peniamina Gagab	Manager, Works and Technical Services

- サモア警察 (Samoa Police)

Mr. Logoitino Filib	Inspector
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- オーストラリア国防省 (Department of Defence, Australia)

Commander Tony Powell, RAN	Maritime Surveillance Advisor for Samoa Police
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- ピウラキリスト神学カレッジ (Piula Theological College)

Reverend Dr. Eteuati Tuioti	Principal
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- デジセルサモア会社 (Digicel Samoa Limited)

Mr. Alex Abraham	General Manager
Mr. Toalepai Waikato F. Lefale	Special Projects Manager
Mr. Laupu'e Raymond Hughes	Information Technology Manager

- サモアテル (SamoaTel)

Mr. Ms. Fipe Tanielu-Leitupo	Accounts Director-Int'l, Interconnection, Wholesale
Mr. Tapuai Asolima Leapai	Chief Engineer

Mr. Jonathan Porter Interconnection Business Analyst

- 電力会社 (Electric Power Corporation: EPC)

Mr. Taliofila Setafano Moa Sili Chief Inspector

- コンピューターサービス会社 (Computer Services Limited: CSL)

Mr. Dave Main Operation Manager

- 山岳フレッシュ農場 (Mountain Fresh Farms Ltd.)

Mr. Edwin Tamasese Farms Ower

資料 4. 討議議事録(M/D)

MINUTES OF DISCUSSIONS
THE PREPARATORY SURVEY 2
ON THE PROGRAMME FOR
“IMPROVING THE WEATHER FORECASTING SYSTEM AND METEOROLOGICAL
WARNING FACILITIES FOR SAMOA AND METEOROLOGICAL APPLICATIONS TO
OTHER SECTORS”
IN THE INDEPENDENT STATE OF SAMOA

Based on the result of the Preparatory Survey on March – April 2009, the Government of Japan (hereinafter referred to as “GOJ”) decided to conduct a Preparatory Survey2 on the Programme for Improving the Weather Forecasting System and Meteorological Warning Facilities for Samoa and Meteorological Applications to Other Sectors (hereinafter “the Programme”) and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as “JICA”).

JICA sent to the Independent State of Samoa (hereinafter referred to as “Samoa”) the Preparatory Survey2Team (hereinafter referred to as “the Team”), which is headed by Mr.Satoru MIMURA, Director of the Pacific Division, Southeast Asia I and the Pacific Department, JICA, and is scheduled to stay in the country from August 16 to September 14.

The Team held discussions with the officials concerned of the Government of Samoa (hereinafter referred to as “GOS”) and conducted a field survey in the requested area.

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

Apia, August 21, 2009

三村 悟

Mr. Satoru MIMURA
Leader, Preparatory Survey 2 Team,
Japan International Cooperation Agency
(Japan)

Taii u

To'u'u Dr. Ietitia Taule'alo
Chief Executive Officer,
Ministry of Natural Resources and Environment
(Samoa)

ATTACHMENT

1. Title of the Programme

The Programme for “Improving the Weather Forecasting System and Meteorological Warning Facilities for Samoa and Meteorological Applications to Other Sectors” in the Independent State of Samoa

2. Objective of the Programme

The Objective of the Programme is to improve Samoa’s capability for the meteorological observation, weather forecasting and early warnings to tackle meteorological disasters and adopt Climate Change in Samoa by upgrading the weather and climate observation forecasting and information dissemination systems.

3. Proposed Sites for the Programme

The proposed sites for the Programme are shown in Annex-1.

4. Responsible Organization and Implementing Agency

The Responsible Organization: Ministry of Natural Resources and Environment (hereinafter referred to as “MNRE”).

The Implementing Agency: Meteorology Division, MNRE (hereinafter referred to as “MD”).

The Organization chart is shown in Annex-2.

5. Items Requested by the Samoan side

After discussions between the Samoan side and the Team (hereinafter referred to as “the both sides”), the items described in Annex-3 were finally requested by the Samoan side.

The both sides confirmed that the appropriateness of the requested items would be examined in accordance with the further survey and analysis in Japan and the final components of the Programme would be decided by the Japanese side.

6. Scheme of Japan’s Programme Grant Aid for Environment and Climate Change



The Samoan side understood the scheme of Japan's Programme Grant Aid for Environment and Climate Change and the necessary measures to be taken by the GOS as explained by the Team and described in Annex-4, Annex-5 and Annex-6.

7. Administration of the Programme

The both sides confirmed the administration of the Programme as shown in Annex-7.

For promoting proper and smooth execution of the Programme, the both sides confirmed that the Consultative Committee of the Programme (hereinafter referred to as "the Committee") would be established whose functions and provisional composition are described in Annex-8.

8. Schedule of the Survey

The consultants will proceed to further studies in Samoa until 14 September, 2009.

JICA will prepare the draft Preparatory Survey 2 Report and dispatch a mission in order to explain its contents to the Samoan side in the middle of December 2009.

In case that the contents of the report are accepted in principle by the GOS, JICA will complete the final report and send it to the GOS by the end of March, 2010.

9. Land for the Programme

The Samoan side agreed to secure necessary lands and make the preparation for the Programme as shown in Annex-9 by the end of November, 2009.

10. Other relevant issues

The following issues were discussed and agreed by the both sides.

10-1. Procurement Guideline

The Procurement Guidelines of Japan's Programme Grant Aid for Environment and Climate Change (Type1-E) will be applied for the procurement procedure of the Programme.

10-2. Required Procedure for the Programme implementation

The Required Procedures for the Programme implementation shown in Annex-9 shall be done by the Samoan side.



10-3. National Adaptation Programme of Action (NAPA)

The objective of the Programme is to enhance the capability of meteorological observation, forecasting and early warning system for Samoa, and to collect data for Climate Change for reduction and prevention of damages of meteorological related disasters for the implementation of NAPA.

10-4. Data Transmission System

The team will examine the feasibility of the following communication methods;

- (a) Radio (Spread spectrum) communication;
- (b) Existing telecommunication;
- (c) Mobile phone; and,
- (d) The combination of all the above.

10-5. GTS Data Transmission Route

The both sides confirmed that the GTS connection(s) can be Pago Pago, Melbourne or both. The Samoan side will determine the route(s) by the end of October, 2009.

10-6. Tax Exemption

The tax exemption including Value Added Tax (VAT), custom duty, and any other taxes and fiscal levies in Samoa which are to be arisen from the Programme activities will be ensured by MNRE /MOF.

MNRE will take any procedures necessary for tax exemption, and in case tax is not exempted, the required tax will borne by MNRE/MOF.

10-7. Cost Estimation for Operation and Maintenance

The Team explained the recurrent cost estimated for operation and maintenance for the equipment as shown in Annex-3. The Samoan side understood the required recurrent cost explained by the Team.

10-8. Technical Assistance

The Samoan side understood that the Programme Grant Aid for Environment and Climate Change can include technical assistance, such as equipment O&M training, training for meteorologists, community awareness programme and capacity development activities for the dissemination of weather information.

10-9. Operation and Maintenance of facilities and equipment

(1) The Samoan side agreed to take any necessary measures and allocate necessary budget in order to operate and maintain the equipment to be procured under the Programme.

(2) As the equipment must be monitored periodically, MD accepted to submit Annual Reports concerning condition and usage of the equipment to MNRE and JICA Samoa Office.

(3) The Samoan side should employ at least one staff for operation and maintenance by the end of 2009 and another one in 2010.

10-10. Environmental and Social Consideration



The both sides confirmed that the Samoan side is responsible to take any measure to complete Environmental Impact Assessment if necessary for implementation of the Programme.

10-11. Emergency Fund System

In order to implement replacement and renewal units/spare parts of the equipment, the Team suggested that MD should generate the emergency fund system.

10-12. Plan for the utilization of the Wind Profiler

The Samoan side will indicate clarification of the necessity of Wind Profiler to the Team by the middle of September.

END



Annex-1 Programme Sites

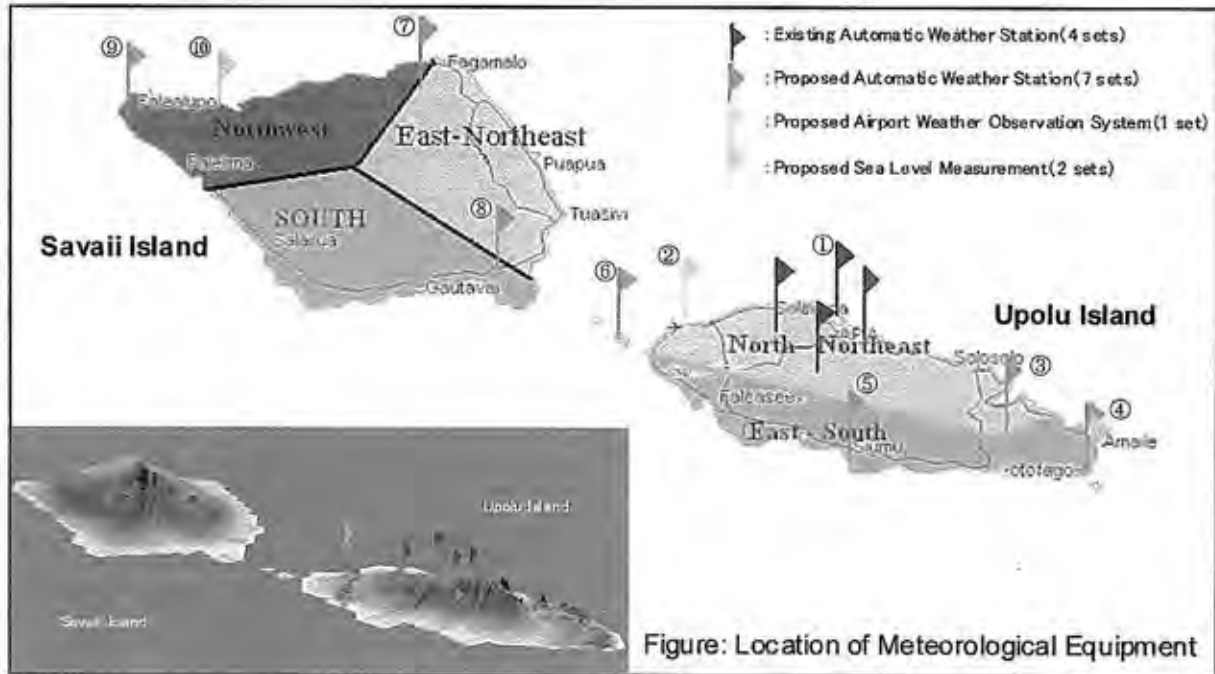


Figure: Location of Meteorological Equipment

Table: Outline of Proposed Site for Meteorological Equipment

Island	Upolu Island					Manono Island	Savaii Island			
No.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Name of the Site	Samoa Meteorological Div. Head Office (Apia)	Faleolo International Airport	Afulilo	Samatau/Lefaga (Aleipata Wharf)	Togitogiga	Manono	Avao	Maota Airport	Falealupo (Tufutafoe)	Asau MNRE Office

Organization Chart

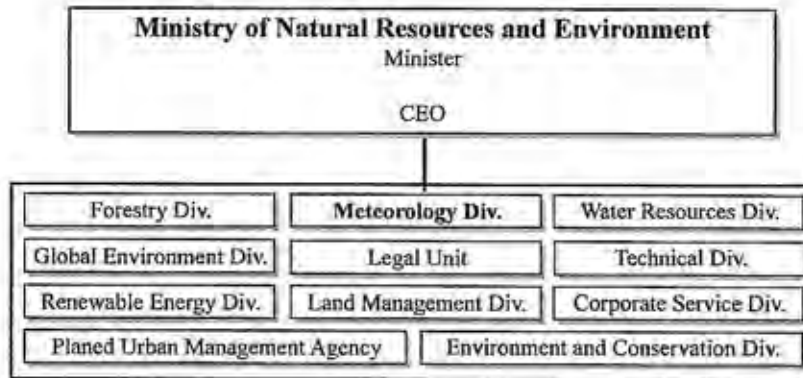


Figure: Organization Chart of Ministry of Natural Resources and Environment (MNRE)

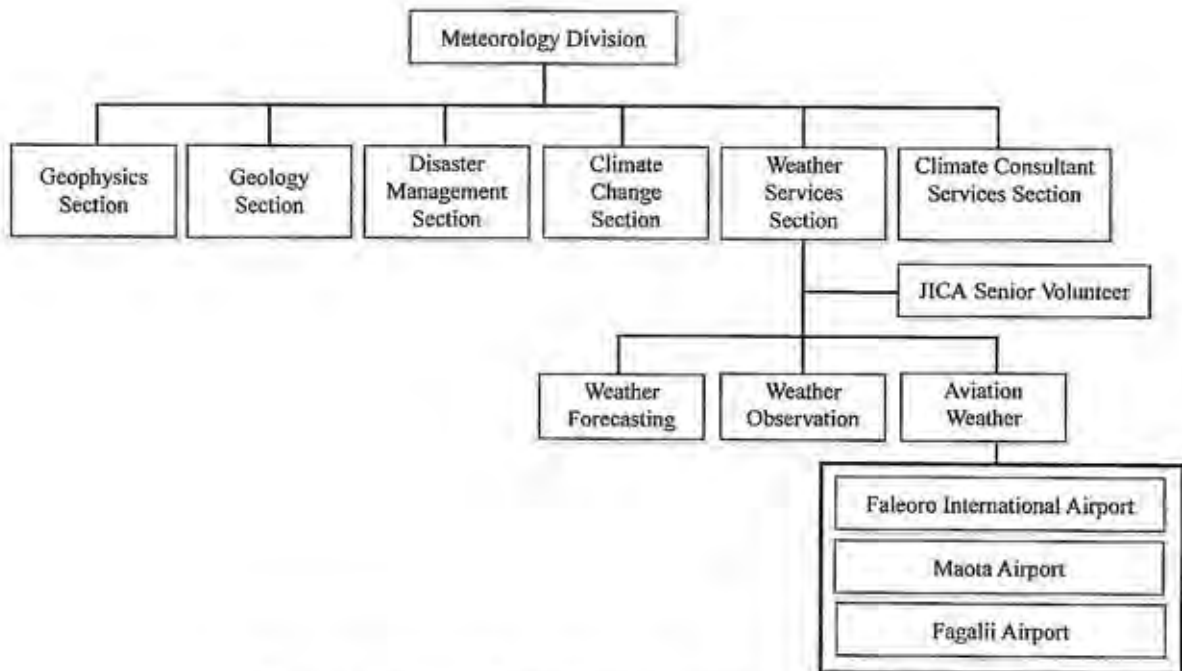


Figure: Organization Chart of Samoa Meteorology Division

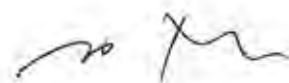
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Annex-3

Tentative List of Items Requested by the Government of Samoa

Items	Description	Places	Quantity
1	Airport Weather Observation System	Faleolo	1
2-1	Automatic Weather Station	Afulilo	1
2-2	-ditto-	Samatau / Lefaga	1
2-3	-ditto-	Togitogiga	1
2-4	-ditto-	Manono Tai	1
2-5	-ditto-	Avao	1
2-6	-ditto-	Maota Airport	1
2-7	-ditto-	Tufutafoe	1
3	Central Data Acquisition System	MD Head Office	1
4	Data Communication System	---	1
5-1	GTS Message Switch	MD Head Office	1
5-2	Meteorological Satellite Data Receiving System	MD Head Office	1
6-1	Sea Level Measurement System	Aleipata wharf	1
6-2	-ditto-	Asau MNRE Office	1
7-1	Forecast Support System	MD Head Office	1
7-2	Early Warning System	MD Head Office	1
7-3	Power Back-up System	MD Head Office	1
8	Wind Profiler	MD Head Office	1

The items shall be determined through the further survey from technical and economical perspectives by the GOJ.



**Programme Grant Aid for Environment and Climate Change
of the Government of Japan
(Provisional)**

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, the new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of GOJ, Japan International Cooperation Agency (hereinafter referred to as "JICA") has become the executing agency of Grant Aid of Japan.

The Grant Aid provides a recipient country (hereinafter referred to as "the Recipient") 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. The Grant Aid is not supplied through the donation of materials as such.

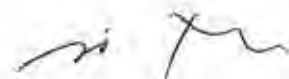
Based on the "Cool Earth Partnership" initiative of the GOJ, the Programme Grant Aid for Environment and Climate Change (hereinafter referred to as "GAEC") aims to mitigate negative effects of global warming by reducing Green House Gas emission (mitigation measure such as improvement of energy efficiency) and to adapt the supposed effects (adaptation measures such as stabilization of water supply in a region suffering less precipitation due to the climate change).

GAEC aims toward emission reduction such as achievement of energy saving (environmental-easing measures) and environmental damage control by climate change. Multiple components can be combined to effectively meet the needs. Contractors, suppliers or consultants are not confined to Japanese firms only, and construction can be done based on the local method.

1. Procedures for GAEC

GAEC is executed through the following procedures.

Application	(Request made by the Recipient)
Preparatory Survey	(Preparatory Survey for Outline Design conducted by JICA)
Appraisal & Approval	(Appraisal by GOJ and Approval by the Cabinet)
Determination of	(The Notes exchanged between the GOJ and the Recipient)
Implementation	
Grant Agreement	(Agreement concluded between JICA and the Recipient)
(hereinafter referred to as "the G/A")	



- Firstly, the application or request for a GAEC Programme submitted by the Recipient is examined by GOJ (the Ministry of Foreign Affairs) to determine whether or not it is eligible for GAEC.
- Secondly, if the request is deemed appropriate, JICA conducts the Preparatory Survey for Outline Design, using Japanese consulting firms.
- Thirdly, GOJ appraises the Programme to see whether or not it is suitable for Japan's GAEC, based on the Preparatory Survey Report for Outline Design prepared by JICA, and the results are then submitted to the Cabinet for approval.
- Fourthly, the Programme, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by GOJ and the Recipient. Simultaneously, the Grant will be made available by concluding a grant agreement between the Government of the Recipient or its designated authority and JICA (hereinafter referred to as "the G/A").

JICA is designated by GOJ as an organization responsible for the execution of the Grant.

Procurement Agent ("the Agent") is designated to conduct the procurement services of products and services (including fund management, preparing tenders, contracts and so on) for GAEC on behalf of the Recipient. The Agent is an impartial and specialized organization and shall render services according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by GOJ and agreed between the two Governments in the Agreed Minutes ("A/M").

2. Preparatory Survey for Outline Design

1) Contents of the Survey

The aim of the Preparatory Survey for Outline Design ("the Survey"), conducted by JICA on a requested Programme ("the Programme"), is to provide a basic document necessary for the appraisal of the Programme by GOJ. The contents of the Survey are as follows:

- (1) Confirmation of the background, objectives, and benefits of the Programme and also institutional capacity of agencies and communities concerned of the recipient country necessary for the Programme's implementation.
- (2) Evaluation of the appropriateness of the Programme to be implemented under the Grant Aid Scheme for Environment and Climate Change from a technical, social and economic point of view;
- (3) Confirmation of items agreed upon by both parties concerning the basic concept of the Programme.
- (4) Preparation of an outline design of the Programme.
- (5) Estimation of cost for the Programme.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Programme. The Outline Design of the Programme is confirmed considering the guidelines of Japan's Grant Aid scheme.



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

2) Selection of Consultants

For smooth implementation of the Survey, JICA uses registered consulting firms. JICA selects firms based on proposals submitted by interested firms. The firms selected carry out an Outline Design and write a report, based upon terms of reference set by JICA.

The consulting firms to work on the Programme's implementation after the Exchange of Notes could be, in principle, of any nationality as long as the Firm satisfies the conditions specified in the tender documents.

3. Implementation of GAEC after the E/N

1) Exchange of Notes (E/N) and Grant Agreement (G/A)

GAEC is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Programme, period of execution, conditions and amount of the Grant Aid, etc., are confirmed. The conclusion of the Grant Agreement (hereinafter referred to as "the G/A") between JICA and the recipient government will be followed to define the necessary engagement to implement the project such as payment conditions, responsibilities of the recipient government and procurement conditions.

2) Procedural details

Procedural details on the procurement of products and services under GAEC will be agreed upon between the Recipient and JICA at the time of the signing of the E/N and G/A.

Essential points to be agreed upon are outlined as follows:

- a) JICA is in a position to expedite the proper execution of the Programme.
- b) The products and services shall be procured and provided in accordance with "Procurement Guidelines for Environment and Climate Change of JICA."
- c) The Recipient shall conclude an employment contract with the Agent.
- d) The Agent is the representative acting in the name of the Recipient concerning all transfers of funds to the Agent.

3) Focal Points of "The Procurement Guidelines of Japan's Grant Aid for Environment and Climate Change (Type1-E)"

a) The Agent

The Agent is the organization which provides procurement services of products and services on behalf of the Recipient according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by GOJ and agreed between the two Governments in the A/M.



b) Agent Agreement

The Recipient shall conclude an Agent Agreement, within one month after the date of entry into force of the E/N and the G/A, in accordance with the A/M. The scope of the Agent's services shall be clearly specified in the Agent Agreement.

c) Approval of the Agent Agreement

The Agent Agreement, which is prepared as two identical documents, shall be submitted to JICA by the Recipient through the Agent. JICA confirms whether or not the Agent Agreement is concluded in conformity with the G/A and the Procurement Guidelines for Disaster Reconstruction Grant Aid, and approves the Agreement.

The Agent Agreement concluded between the Recipient and the Agent shall become effective after the approval by JICA in a written form.

d) Payment Methods

The Agent Agreement shall stipulate that "regarding all transfers of the fund to the Agent, the Recipient shall designate the Agent to act on behalf of the Recipient and issue a Blanket Disbursement Authorization ("the BDA") to conduct the transfer of the fund (Advances) to the Procurement Account from the Recipient Account."

The Agent Agreement shall clearly state that the payment to the Agent shall be made in Japanese yen from the Advances and that the final payment to the Agent shall be made when the total Remaining Amount becomes less than 3 % of the Grant and its accrued interest.

e) Products and Services Eligible for Procurement

Products and services to be procured shall be selected from those defined in the G/A.

f) Firms

In principle, a firm of any nationality could be contracted as long as the Firm satisfies the conditions specified in the tender documents.

The Firm, with approval by JICA, may be Japanese nationals and the products to be procured may be the products made in Japan or produced or manufactured by Japanese manufacturer(s) and/or its (their) affiliate(s) in any country.

g) Experts for Technical Assistance

Expert(s) could be deployed to carry out technical assistance. The expert(s) may be recommended by JICA when the conceptual consistency with the Studies is required. In principle, expert(s) is/are preferable to be Japanese nationals if appropriate.

h) Method of Procurement

In implementing procurement, sufficient attention shall be paid so that there is no unfairness among tenderers who are eligible for the procurement of products and services.



For this purpose, competitive tendering shall be employed in principle.

i) Tender Documents

The tender documents should contain all information necessary to enable tenderers to prepare valid offers for the products and services to be procured by GAEC.

The rights and obligations of the Recipient, the Agent and the Suppliers of the products and services should be stipulated in the tender documents to be prepared by the Agent. Besides this, the tender documents shall be prepared in consultation with the Recipient.

j) Pre-qualification Examination of Tenderers

The Agent may conduct a pre-qualification examination of tenderers in advance of the tender so that the invitation to the tender can be extended only to eligible firms. The pre-qualification examination should be performed only with respect to whether or not the prospective tenderers have the capability of accomplishing the contracts concerned without fail. In this case, the following points should be taken into consideration:

- (1) Experience and past performance in contracts of a similar kind
- (2) Property foundation or financial credibility
- (3) Existence of offices, etc. to be specified in the tender documents.

k) Tender Evaluation

The tender evaluation should be implemented on the basis of the conditions specified in the tender documents.

Those tenders which substantially conform to the technical specifications, and are responsive to other stipulations of the tender documents, shall be judged in principle on the basis of the submitted price, and the tenderer who offers the lowest price shall be designated as the successful tenderer.

The Agent shall prepare a detailed tender evaluation report clarifying the reasons for the successful tender and the disqualification and submit it to the Recipient to obtain confirmation before concluding the contract with the successful tenderer.

The Agent shall furnish JICA with a detailed evaluation report of tenders, giving the reasons for the acceptance or rejection of tenders.

l) Additional Procurement

If there is an additional procurement fund after competitive and / or selective tendering and / or direct negotiation for a contract, and the Recipient would like an additional procurement, the Agent is allowed to conduct an additional procurement, following the points mentioned below:

(1) Procurement of the same products and services

When the products and services to be additionally procured are identical with the initial tender and a competitive tendering is judged to be disadvantageous, the additional procurement can be implemented by a direct contract with the successful tenderer of the initial tender.



(2) Other procurements

When products and services other than those mentioned above in (1) are to be procured, the procurement should be implemented through a competitive tendering. In this case, the products and services for additional procurement shall be selected from among those in accordance with the G/A.

m) Conclusion of the Contracts

In order to procure products and services in accordance with the G/A, the Agent shall conclude contracts with firms selected by tendering or other methods.

n) Terms of Payment

The contract shall clearly state the terms of payment. The Agent shall make payment from the "Advances", against the submission of the necessary documents from the Firm on the basis of the conditions specified in the contract, after the obligations of the Firm have been fulfilled. When the services are the object of procurement, the Agent may pay certain portion of the contract amount in advance to the firms on the conditions that such firms submit the advance payment guarantee worth the amount of the advance payment to the Agent.

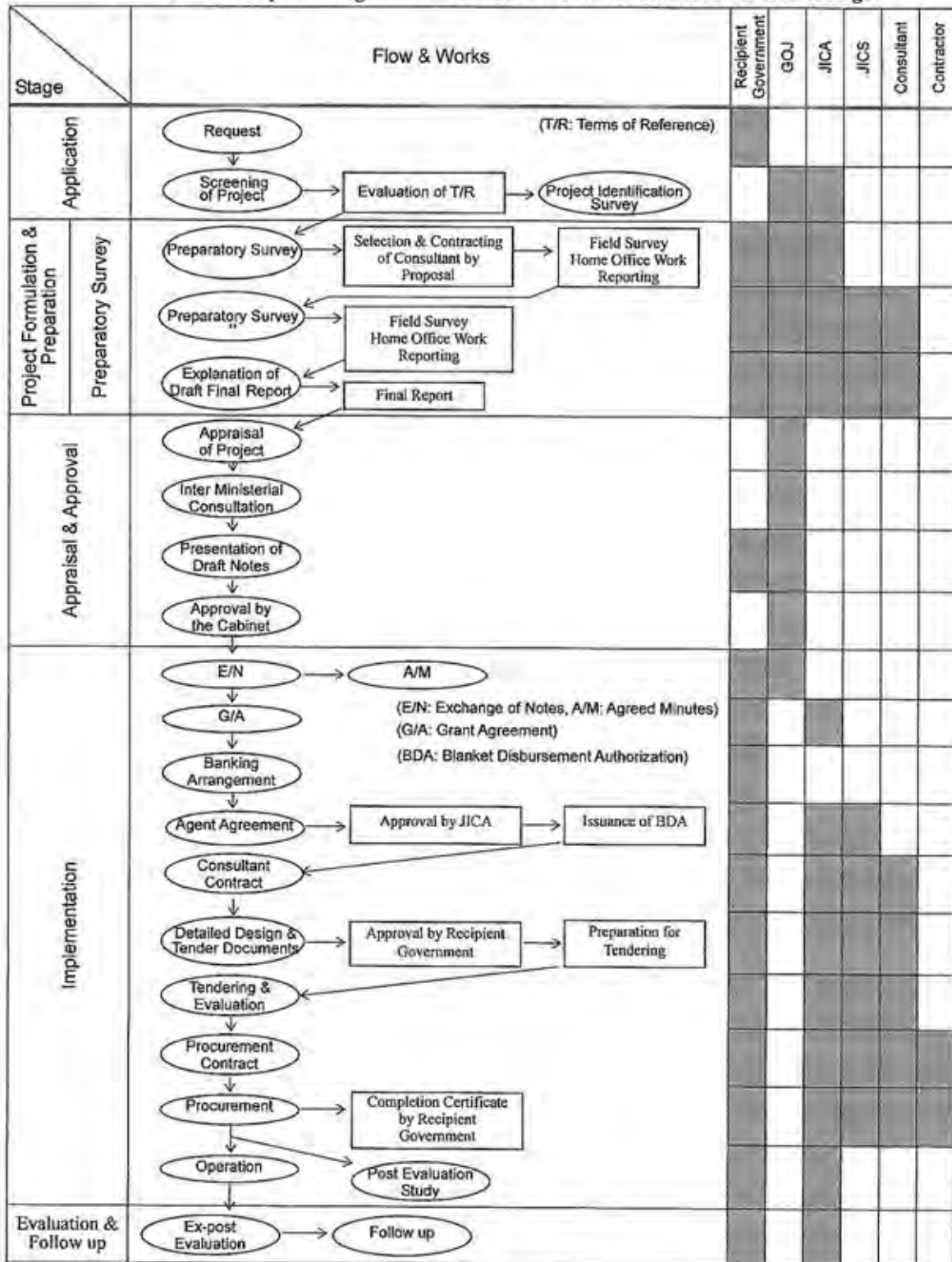
4) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid Programme, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Programme and to clear, level and reclaim the land prior to commencement of the Programme,
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) To secure buildings prior to the procurement in case the installation of the equipment,
- d) To ensure prompt unloading and customs clearance at the port of disembarkation and to assist internal transportation therein,
- e) To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the Components including the employment of the Agent,
- f) To accord all the concerned parties, whose services may be required in connection with supply of the products and services under the contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work,
- g) To ensure that the Facilities and/or the Components be maintained and used properly and effectively for the implementation of the Programme,
- h) To bear all the expenses, other than those covered by the Grant and its accrued interest, necessary for the implementation of the Programme, and
- i) To give due environmental and social consideration in the implementation of the Programme.



Flow Chart of Japan's Programme Grant Aid for Environment and Climate Change



5) Proper Use

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

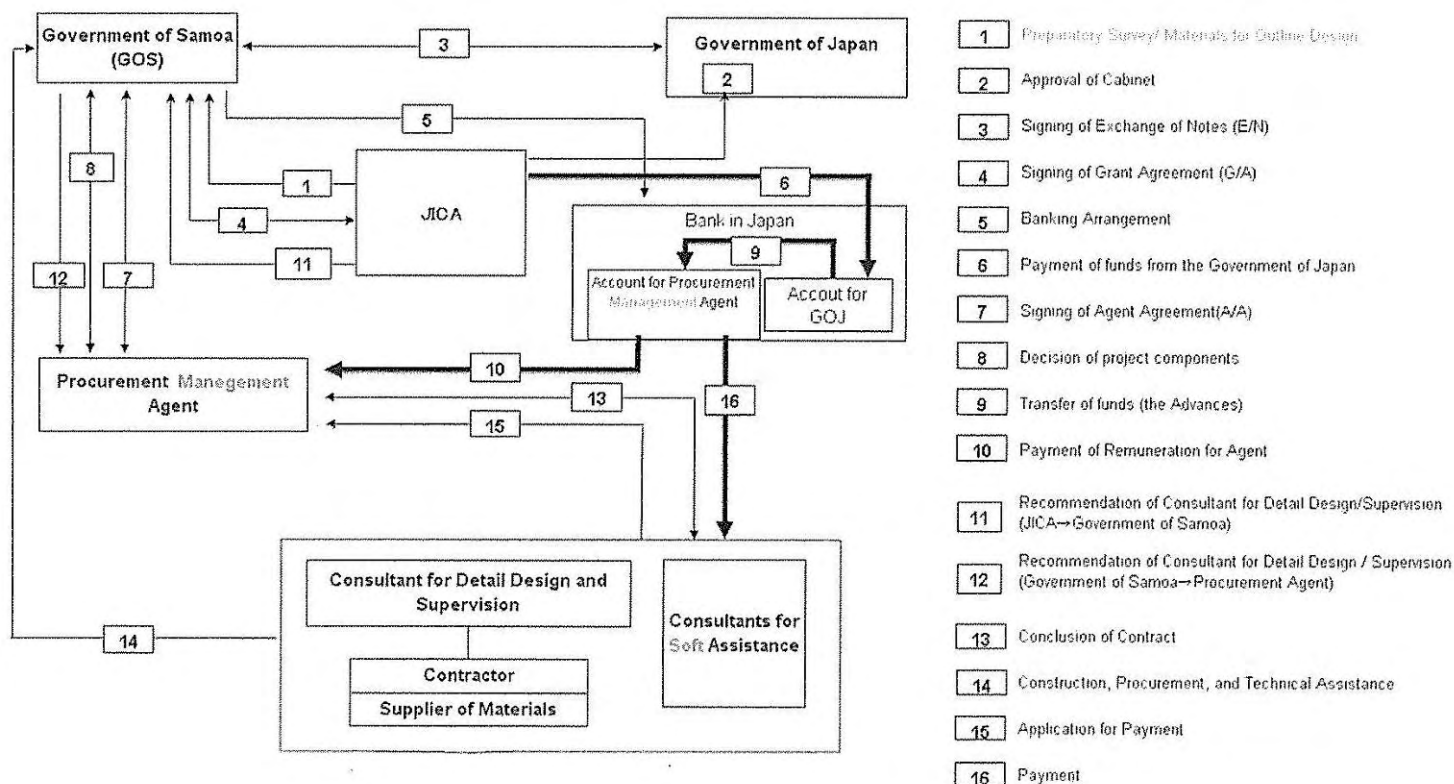
6) Re-export

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



Flow of Funds and Implementation of the Programme

→ Flow of Implementation
 → Flow of Fund



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Annex-6

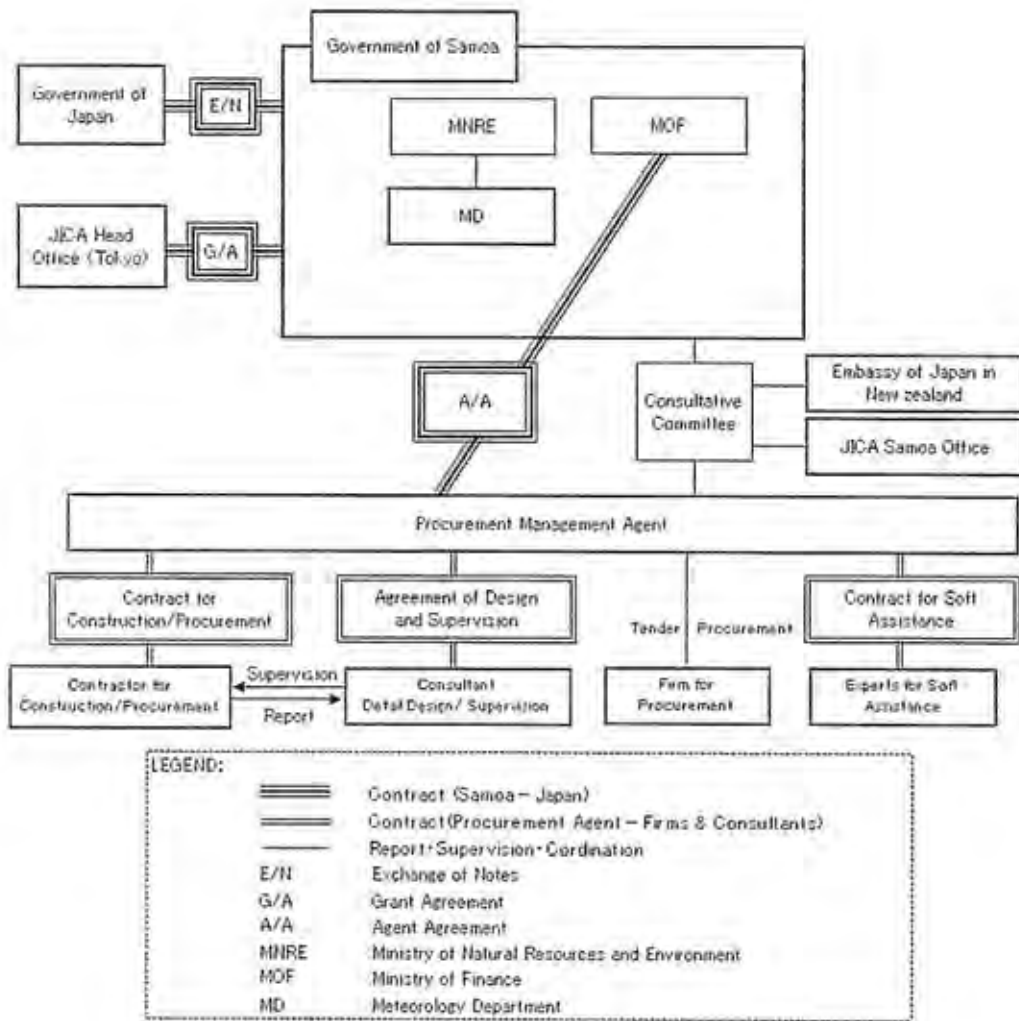
Major Undertakings to be taken by Each Government

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 provide facilities for the distribution of electricity		
	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	•	
5	To bear the following commissions to a bank of Japan for banking services based upon the B/A		
	1) Payment commission		•
6	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the Recipient	•	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site	•	
7	To accord all concerned parties, whose services may be required in connection with the supply of the products and the services under the approved contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		•
8	To exempt or bear of all concerned parties from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the approved contracts.		•
9	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		•
10	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		•

(B/A: Banking Arrangement)

Annex-7

Organization Chart for the Implementation of the Programme



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Consultative Committee

1. Functions

The Consultative Committee (hereinafter referred to as “the Committee”) will be established in order to fulfill the following functions:

- 1) to confirm as implementation schedule of the Programme for the speedy and effective utilization of the Grant and its accrued interest;
- 2) to discuss modification of the Components, taking into account of the products enumerated in the list attached to the Procurement Guidelines and/or the result of the preparatory survey for the Programme by JICA;
- 3) to discuss modification of the Programme;
- 4) to exchange views on the allocations of the Grant accrued interest as well as on potential end-users;
- 5) to identify problems which may delay the utilization of the Grant and its accrued interest, and to explore solutions to such problems;
- 6) to exchange views on publicity related on the utilization of the Grant and its accrued interest; and
- 7) to discuss any other matters that may arise from or in connection with the G/A.

The first meeting of the Committee shall be held immediately after the approval of the Agent Agreement by the JICA, which shall be concluded between MOF and the Procurement Management Agent (hereinafter referred to as “the Agent”).

The selection of the Agent will be agreed between the two governments in the Agreed Minutes attached in the Exchange of Notes.

Further meetings will be held by the request of the either the Samoan side or the Japanese side. The Agent also advise both sides on the necessity to call a meeting of the Committee.

2. Composition (Provisional)

- 1) Representative of Ministry of Foreign Affairs and Trade
- 2) Representative of Ministry of Finance
- 3) Representative of Ministry of Natural Resources and Environment
 - Representative of Meteorology Division
 - Representative of Disaster Management Office-Section
- 4) Representative of Ministry of Agriculture
- 5) Representative of Ministry of Health
- 6) Representative of Ministry of Commerce Industry and Labor
- 7) Representative of Ministry of Revenue

- 8) Representative of Fishery Division
- 9) Representative of Samoa Airport Authority
- 10) Representative of the Procurement Management Agent
- 11) Representative of JICA Samoa Office

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Site Securing Situation

Table: Site Securing Situation for Automatic Weather Station

Name of Site	UPOLU			MANONO	SAVAII		
	Afulilo	Samatau / Lefaga	Togitogiga	Manono	Avaio	Maota Airport	Falealupo/Tufutafoe
Site Securing	The SAMOATEL has generally agreed. For obtaining the permission from the SAMOATEL, the equipment specifications are required.	Under the selection	There is no problem. The selected site is the existing climate observatory.	The SAMOATEL has generally agreed. For obtaining the permission from the SAMOATEL, the equipment Specifications are required.	The Education Department has generally agreed. For obtaining the permission, further discussions with the Vaipouli College is required.	There is no problem. There is the own land of the Ministry of Natural Resources and Environment	The SAMOATEL has generally agreed. For obtaining the permission from the SAMOATEL, the equipment Specifications are required.

Table: Site Securing Situation for Sea Level Measurement System

Name of Site	UPOLU	SAVAII
	Aleipata Pier	
Site Securing	The Samoa Port Authority has generally agreed.	There is no problem. There is the own land of the Ministry of Natural Resources and Environment

Annex-10

Required Procedure of Project Implementation

Name of Procedure	Apply to	Required Period	Required Documents	Applicant
Obtaining Capital Cost of the Project	(i) Ministry of Finance	Two (2) Month	<ul style="list-style-type: none"> Approval from Cabinet Development Committee Project Document 	Ministry of Natural Resources and Environment (National Weather Service)
Obtaining Recurrent Cost of the Project	(i) Ministry of Finance (ii) Ministry of Natural Resources and Environment	Two (2) – Three (3) weeks	<ul style="list-style-type: none"> Approval from Cabinet Development Committee 	(i) Ministry of Finance (ii) Ministry of Natural Resources and Environment

The Samoan side shall be done for smooth implementation of the Programme

Annex-11

Estimated Recurrent Cost of The Programme (Draft)

Estimated Recurrent Cost

Equipment	Item	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Remarks
Wind Profiler	DC Power P Board for Power Supply Unit	1	0	0	49,200	0	0	0	0	0	0	0	
	DC Power S Board for Power Supply Unit	1	0	0	0	0	0	135,000	0	0	0	0	
	Fan for Power Trans Receiver Unit	1	0	0	0	0	0	0	15,000	0	0	0	
Compact UPS	Battery	12	0	0	264,000	0	0	264,000	0	0	264,000	0	Every 3 years
Computers (24hr. continuous operation)	Hard disk	6	0	0	180,000	0	0	180,000	0	0	180,000	0	Every 3 years
	CD for data storage (20sheets-1set)	1	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	
Computers (12hr. day operation)	Hard disk	6	0	0	0	180,000	0	0	0	180,000	0	0	Every 4 years
Printer	Printer ink cartridge	4	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
	Paper(500sheets-1 set)	2	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	
Diesel Engine Generator	Oil seal and filter	2	0	4,000	4,000	22,500	4,000	4,000	4,000	22,500	4,000	4,000	Every 1 and 4 years
	Battery for Engine start	1	0	0	0	0	0	6,000	0	0	0	0	Every 6 years
Solar Power Supply System (Obs)	Long Life Battery	16	0	0	0	0	0	0	0	0	735,600	1,471,360	10% in 9th, 20% in 10th year

Subtotal (JPY)	33,700	27,700	520,900	226,200	27,700	612,700	42,700	226,200	1,207,580	1,489,060
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Others

Cost Item	Details	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Remarks
Electricity Charge	Wind Profiler	1	887,078	887,078	887,078	887,078	887,078	887,078	887,078	887,078	887,078	887,078	50% will be borne by
	Airport Weather Observation System	1	87,459	87,459	87,459	87,459	87,459	87,459	87,459	87,459	87,459	87,459	Airport Authority
	Others	1	507,256	507,256	507,256	507,256	507,256	507,256	507,256	507,256	507,256	507,256	
Fuel cost	Fuel consumption of DEG	1	30,050	30,050	30,050	30,050	30,050	30,050	30,050	30,050	30,050	30,050	

Subtotal (JPY)	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843	1,511,843
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Total (JPY)	1,535,543	1,539,543	2,032,743	1,738,043	1,539,543	2,124,543	1,554,543	1,738,043	2,719,223	3,010,903
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Cost Distribution

	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Meteorological Division	1,048,275	1,052,275	1,545,475	1,290,775	1,052,275	1,637,275	1,067,275	1,250,775	2,231,955	2,523,635
Airport Authority	487,269	487,269	487,269	487,269	487,269	487,269	487,269	487,269	487,269	487,269

Conditions:

- Assuming all proposed equipment supplied
- Solar Generating System Supports 20% Electricity of Head Office
- Operation time of Diesel Engine Generator : 103hrs. Year x 80% (20% covered by Solar power)
- Electricity charge for Wind Profiler and AWOS is borne equally by Meteorology Division and Airport Authority

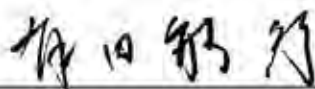
MINUTES OF DISCUSSIONS
THE PREPARATORY SURVEY 2
ON THE PROGRAMME FOR
**“IMPROVING THE WEATHER FORECASTING SYSTEM AND
METEOROLOGICAL WARNING FACILITIES FOR SAMOA AND
METEOROLOGICAL APPLICATIONS TO OTHER SECTORS”**
IN THE INDEPENDENT STATE OF SAMOA
(EXPLANATION ON DRAFT REPORT)

From August to September 2009, the Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the Preparatory Survey 2 on the Programme for Improving the Weather Forecasting System and Meteorological Warning Facilities for Samoa and Meteorological Applications to Other Sectors (hereinafter referred to as “the Programme”) to the Independent of Samoa (hereinafter referred to as “Samoa”), and through discussion, field survey and technical examination of the results in Japan, JICA prepared a draft report of the survey.

In order to explain and consult with the concerned officials of the Government of Samoa (hereinafter referred to as “the GOS”) on the components of the draft report, JICA sent the Draft Report Explanation Team (hereinafter referred to as “the Team”), which is headed by Mr. Toshiyuki ARITA, Director of the Public Policy Division, Tokyo International Center, JICA, and is scheduled to stay in Samoa from December 3 to 14, 2009.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

Apia, December 10, 2009



Mr. Toshiyuki ARITA
Leader, Draft Report Explanation Team,
Japan International Cooperation Agency
(Japan)



Mr. Taulealeausumai Laavasa Malua
Chief Executive Officer,
Ministry of Natural Resources and Environment
(Samoa)

ATTACHMENT

1. Components of the Draft Report

The Samoan side agreed and accepted in principle the components of the Draft Report explained by the Team. The components of the Programme are shown in Annex-1.

2. Technical Cooperation under the Programme

The Samoan side agreed and accepted the Technical Cooperation under the Programme explained by the Team. The courses and schedule of Technical Cooperation are shown in Annex-1.

3. Japan's Programme Grant Aid for Environment and Climate Change Scheme

The Samoan side understood the scheme of Japan's Programme Grant Aid for Environment and Climate Change and the necessary measures to be taken by the GOS as explained by the Team and described in Annex-4, Annex-5 and Annex-6 of the Minutes of Discussions signed by the both sides on 21 August, 2009 (hereinafter referred to as "the Previous M/D").

4. Schedule of the Survey

JICA will complete the final report in accordance with the confirmed items and send it to the GOS by the end of March 2010.

5. Tentative Schedule of the Programme

The Samoan side understood the tentative schedule of each implementation stage of the Programme including signing of the Exchange of Notes (E/N) and the Grant Agreement (G/A) as shown in Annex-2. The Samoan side also understood the time schedule is subject to change, depending on the signing date of the E/N and the G/A.

6. Agent Agreement (A/A)

The Samoan side understood the necessity of conclusion of the A/A immediately after the signing of the E/N and the G/A for the smooth implementation of the Programme.

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7. Confidentiality of the Programme

7.1 Detailed Specifications

The both sides confirmed all the information related to the Programme including detailed technical specifications of the equipment and other technical information shall not be released to any other party(ies) before the signing of the Contract(s) for the Programme.

7.2 Programme Cost Estimation

The Team explained to the Samoan side the estimated programme costs to be borne by the Government of Japan (hereinafter referred to as "the GOJ") and by the GOS as shown in Annex-3. Since these costs are provisional and would be further examined, they are subject to change. The both sides agreed to take necessary measures for securing the required budget in order to implement the Programme.

The Programme cost estimation as well as the Draft Report should be carefully dealt with and never be released or revealed to any third parties before all the relevant contract is concluded because the information affects the Tender process.

8. Undertakings of the Samoan side


The Team requested and the GOS agreed to the following undertakings in addition to the major undertakings described in the Previous M/D.

8.1 Land for the Programme

The Samoan side agreed to take necessary measure for securing the required lands for the Programme and complete it within 2 months after the signing of the E/N and the G/A.

8.2 Operation and Maintenance of the equipment

- (1) The Samoan side agreed to take any necessary measures and allocate necessary budget in order to operate and maintain the equipment to be procured under the Programme.
- (2) As the equipment must be monitored periodically, the Samoa Meteorology Division (hereinafter referred to as "the SMD") accepted to submit Annual Reports concerning condition and usage of the equipment to the Ministry of Natural Resources and Environment (hereinafter referred to as "the MNRE") and JICA Samoa Office.
- (3) The Samoan side should employ at least one staff for operation and maintenance by the end of 2009 and at least one or more in 2010.



8.3 Tax Exemption

The tax exemption including Value Added Tax (VAT), custom duty, and any other taxes and fiscal levies in Samoa which are to be arisen from the Programme activities will be ensured by the MNRE /Ministry of Finance (hereinafter referred to as "the MOF").

The MNRE will take any procedures necessary for tax exemption, and in case tax is not exempted, the required tax will be borne by the MNRE/the MOF.

8.4 Assigning of Counterpart Personnel

The Samoan side will assign enough personnel for operation and maintenance of the equipment to be procured under the Programme.

8.5 Allowances and other expenses

The Samoan side agreed to bear accommodation fee, daily allowance and other expenses related to the implementation of the Programme including the Technical Cooperation required for the SMD's personnel.

9. Other relevant issues

9.1 Component of the Programme

The Samoan side agreed that the components of the Programme will be determined by the GOJ based on the result of the survey.

9.2 Overlapping with other projects

The Samoan side explained that the project would not be overlapped with other projects supported by foreign and/or international donors, NGOs and Domestic official organizations.

END

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Annex-1

All the items indicated in Annex-1 shall be determined through the further survey from technical and economical perspectives by the GOJ.

Components of the Programme (Tentative)

Name of the Equipment	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	Total Quantity
Airport Weather Observation System (AWOS)							2									2
AWOS Display System							3									3
Automatic Weather System (AWS)				1	1	1		1	1				1		1	7
Calibration Instrument	1															1
Meteorological Data Communication System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Meteorological Data Management System	1															1
GTS Message Switch System	1															1
Meteorological Satellite Data Receiving System	1															1
Forecast Support System	1															1
Early Warning System	1															1
Power Back-up System	1															1
Wind Profiler System	1															1
Name of Ancillary Facility	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	Total Quantity
Power Back-up Shed	1															1
Equipment Shed	1															1
Concrete Shelter	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	17
Foundation of Wind Profiler System	1															1

Site No. of the Programme

Name of Site	Site No.	Name of Site	Site No.
The SMD Head Office	①	Maota International Airport	⑨
Mt. Vaea	②	Mt. Valusia	⑩
Mt. Fiamoe	③	Tuasivi	⑪
Togitogiga	④	Mt. Tagotala	⑫
Le Mafa	⑤	Le Piu Tai	⑬
Saluafata	⑥	Vaisala	⑭
Faleolo International Airport	⑦	Mt. Talu	⑮
Manono	⑧		

Courses of Technical Cooperation under the Programme (Tentative)

Component	Activity
Equipment Operation and Maintenance	Production of equipment manual summary
	Production of observation instruments and data communication equipment maintenance and management manual
	Production of observation and data communication equipment maintenance and management record book
	Preparation of consumables & spare parts list including technical specification and detailed procurement plan
	Practice training of countermeasures, fault finding, remedy and recovery against abnormal conditions
	Adjustment and correction of the observation instruments
	PC networking and Linux operation
Data Quality Control	Standardized drawings of the AWS and AWOS observatory
	Formulation of observation rules (observation order, time and duration, reporting time, etc.) and standardized beau fort and cloud level
	Preparation of daily observation data input sheet (Excel file)
	Establishment of automated formula for calculating station pressure, sea level pressure, relative humidity, vapor pressure and dew-point temperature
	Handling of the observed data which deviates from normal level (data error check and data entry)
	Database development and management
	Implementation of statistical processing for the climate data by Excel
	Data protection, storage, retrieval protection
	Analysis of statistical processing results
	Quality evaluation of the existing climate data
Weather Information Dissemination	Productions of newspapers, Journals and media release weather information
	Production of Television Weather and Internet products
	Renewal of Web site design
	Production of 2 types of booklets (leaflet holder type) such as "Tropical Cyclone" and "Climate Change" for promoting further understandings of pupils, students and the public
	Distribution of booklets and workshop for primary school students for year 1 to 8 to understand nature of weather & climate and the impact of climate change
	Distribution of booklets and workshop for college students for year 9 to 13 to understand nature of weather & climate and the impact of climate change
	Study for needs of weather information users
	Implementation of aviation weather services cost recovery formulation and policy
	Development and installation of product dissemination strategy
	Formulation and productions of weather and climate products
	Monitoring and assessing the quality of products
	Short term forecast with the Wind Profiler and Observed data (grid data)
Weather Forecast	Development of Point Forecast Guidance (VBA in Excel)
	Development of short term forecast with the observed data, guidance for daily forecast and weekly and extended forecast
	Development of Weekly Forecast and Extended Forecast(15days)
	Decision of the moving side with Pressure change
	Acquisition of the tropical disturbances with Satellite Picture and Wind Profiler
	Use of SATAID software for General Forecasting and Tropical cyclone forecasting.
	Watch of the relation of Easterly wave and SPCZ
	Producing of statistical analysis of low level and upper level system
	Production of forecast briefing flowchart and forecast briefing record book
	Practical training for forecast briefing

Technical Cooperation Schedule (Tentative)

Expert	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Meteorological Equipment Operation and Maintenance	□0.85					■0.6	□0.1		■0.7							■0.7				□0.1	
PC Network/WEB Design	□0.05						■0.7	□0.1		■0.7										■0.7	□0.1
Weather Data Quality Management	□0.1					■0.6			■0.7			■0.7			■0.6				■0.6		□0.1
Climate Data Statistical Analysis	□0.05														■0.6					■0.7	□0.1
Weather Product Planning	□0.1	■0.6			■0.6		■0.6			■0.7											□0.1
Weather Information Dissemination	□0.1	■0.6			■0.6		■0.1			■0.1						■0.3					□0.1
Weather Forecasting Method/Guidance	□0.1	■0.6			■0.6		■0.6	■0.1					■0.6				■0.6		■0.6		□0.1
Weather Briefing	□0.05	■0.7			■0.6		■0.1									■0.6					■0.1
Weather Information User Service	□0.05	■0.7					■0.1													■0.7	□0.1

Legend □ Activity in Japan
 ■ Activity in Samoa

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Annex-2

Tentative Schedule of the Programme

Detailed Design and Tendering Procedures		Total: 7 Months						
		1	2	3	4	5	6	7
Detailed Design		█						
Tendering Procedures						█		

Equipment Procurement, Installation and Technical Cooperation		Total: 30 Months																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Preparation and Approval of Manufacturing and Shop Drawings		█																															
Equipment Procurement & Manufacturing	Steel Pole for Meteorological Data Communication System		█																														
	Meteorological Data Communication System, Airport Weather Observation System (AWOS) & Automatic Weather System (AWS)		█																														
	AWOS Display System, Meteorological Data Management System, GTS Message Switch System, Meteorological Satellite Data Receiving System, Forecast Support System, Early Warning System, Power Back-up System & Wind Profiler System		█																														
Pre-shipment Inspection				█				█				█																					
Transportation	Marine (Equipment Procurement Country → Apia Port)				█			█				█																					
	Inland (Apia Port → Each Site)					█			█			█																					
Ancillary Facility Construction Work	Concrete Shelters		█																														
	Equipment Shed, Power Back-up Shed & Foundation for Wind Profiler System		█																														
Steel Pole Foundation Work						█																											
Equipment Installation						█																											
Equipment Adjustment																																	
Inspection and Handing Over																																	
Technical Cooperation																																	

資料 4-31

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Annex-3-1

Estimated Programme Cost

<Estimated Programme Cost to be borne by the Government of Japan>

(JP Yen)	
Items	Capital Cost
Detailed Study Supervision of the Programme Implementation Procurement of the Equipment Installation Works of the Equipment and Construction of Ancillary Facilities Technical Cooperation	754 Million

<Estimated Capital Cost to be borne by the Government of Samoa>

Estimated Capital Cost for Implementation of the Programme

(Tala)

Items	Capital Cost
Procurement of Internet VSAT Hardware	12,500
Upgrading the existing weather forecasting building in the SMD Head Office	20,000
Renovation of the existing building of the SMD in the Maota Airport	16,000
Renovation of the existing building of the SMD in the Faleolo International Airport	36,000
Frequency Application and Licence Fee for the Meteorological Data Communication System	1,100
Obtaining Building Permits for Construction of Ancillary Facilities (Power Back-up Shed, Equipment Shed and Concrete Shelters) Application for Compliancy Confirmation: 80 Tala, Development Consent: 400 Tala and Building Permit: 6,770	7,250
Installation of a step-down transformer(s) for 200kVA and a power meter	18,300
Installation of Equipment Protection Fence, W:3m x W:3m x H:2.4m (Le Mafa, Saluafata, Togotogiga, Manono, Matao International Airport, Le Piu Tai and Mt. Talu) 1,400 x 7 Programme Sites =	9,800
Cabling for 3 Phase Commercial Power Supply for the Equipment	1,200
Mowing and repairing very bumpy places of the existing access paths	
45 Tala/day x 2 laborers x 4 days for Mt. Vaea Site = 360	
45 Tala/day x 2 laborers x 2 days for Mt. Fiamoe Site = 180	
45 Tala/day x 2 laborers x 2 days for Le Mafa Site = 180	
45 Tala/day x 2 laborers x 2 day for Manono Site = 180	
45 Tala/day x 2 laborers x 2 days for Mt. Valusia Site = 180	
45 Tala/day x 2 laborers x 4 days for Mt. Tagotala Site = 360	
45 Tala/day x 2 laborers x 4 days for Le Piu Tai Site = 360	
45 Tala/day x 2 laborers x 1 day for Vaisala Site = 90	
45 Tala/day x 2 laborers x 3 days for Mt. Talu Site = 270	
Total	2,160
Clearing the sites	
45 Tala/day x 2 laborers x 1 day x 12 sites =	1,080
Total	125,390

Estimated VAT & Import Tax for the Equipment to be supplied

(Tala)

VAT & Import Tax	Total
Equipment Cost x 0.15 (15%)	1,759,000

Estimated Capital Cost for Implementation of the Programme

(Tala)

Banking Arrangement	Total
Total Programme Cost x 0.001 (0.1%)	21,500 (JP Yen 754,000)

Annex-3-2

Estimated Recurrent Cost to be borne by the Samoa Side

Estimated Recurrent Cost to be borne by the Samoa Meteorology Division

Equipment	Item	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Remarks
Wind Profiler	DC Power F Board for Power Supply Unit	1	0	0	49,200	0	0	0	0	0	0	0	
	DC Power S Board for Power Supply Unit	1	0	0	0	0	0	135,000	0	0	0	0	
	Fan for Power/Train Receiver Unit	1	0	0	0	0	15,000	0	0	0	0	15,000	
Compact UPS	Battery	6	0	0	132,000	132,000	0	132,000	132,000	0	132,000	132,000	Every 3 years
	Hard disk	6	0	0	0	90,000	90,000	0	0	90,000	90,000	0	Every 3 or 4 years
Computer (14hours operation)	CD for data storage (20kbytes/1 set)	1	2,500	2,500	2,500	90,000	2,500	2,500	2,500	2,500	2,500	2,500	
	Hard disk	6	0	0	0	0	90,000	90,000	0	0	0	90,000	Every 5 or 6 years
Printer	Printer ink cartridge	4	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
	Paper(30kbytes/1 set)	2	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	
Diesel Engine Generator	Oil and filter	2	0	4,000	4,000	22,500	4,000	4,000	4,000	22,500	4,000	4,000	Every 1 and 4 years
	Battery for Engine start	1	0	0	0	0	0	6,000	0	0	0	0	Every 6 years
Solar Power Supply System	Long Life Battery	-	0	0	0	0	0	0	0	0	0	643,750	10% in 10th year
Subtotal (JPY)			21,700	27,200	208,900	355,700	322,700	396,200	158,700	136,200	249,200	888,420	

Cost Item	Details	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Remarks
Internet Connection	VSAT	1	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	
Observation Network Frequency Fee	Observation Network	1	100	100	100	100	100	100	100	100	100	100	
Antivirus Software	Software upgrading and annual execution	2	200	200	200	200	200	200	200	200	200	200	
Electricity Charge	Equipment	1	37,168	37,168	37,168	37,168	37,168	37,168	37,168	37,168	37,168	37,168	
Fuel cost	Fuel consumption of DSG	1	930	930	930	930	930	930	930	930	930	930	
Clearing at each project sites	8 sites x 1 day x 1 labour/month x 40 Tola/day	1	3,840	3,840	3,840	3,840	3,840	3,840	3,840	3,840	3,840	3,840	
Land Renting Cost	7 project sites (Customary Lands) x 500	1	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
Building Communication Tower Renting Cost	7 existing towers x 100 Tola/month x 12 months	1	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	
Travel Expenses of EMDs personnel	Accommodation Fee and Daily Allowance	1	7,000	7,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	
Subtotal (Samoa Tab)			72,598	72,598	70,598	70,598	70,598	70,598	70,598	70,598	70,598	70,598	
Total (Samoa Tab)			73,273	73,387	76,558	80,732	76,943	81,229	75,148	74,478	77,712	95,909	
Total (JPY)			2,571,890	2,575,890	2,685,890	2,833,690	2,700,690	2,868,690	2,637,690	2,614,190	2,727,690	3,366,410	

Estimated Recurrent Cost to be borne by the Samoa Airport Authority

Cost Item	Details	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Remarks
Electricity Charge	Equipment	1	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	
Total (Samoa Tab)			3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	
Total (JPY)			137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	
Recurrent Cost (Samoa Tab)													
Samoa Meteorology Division (SMD)			73,273	73,387	76,558	80,732	76,943	81,229	75,148	74,478	77,712	95,909	
Samoa Airport Authority (SAA)			3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	
Recurrent Cost (JPY)													
Samoa Meteorology Division (SMD)			2,571,890	2,575,890	2,685,890	2,833,690	2,700,690	2,868,690	2,637,690	2,614,190	2,727,690	3,366,410	
Samoa Airport Authority (SAA)			137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	137,066	

Conditions:

- Assuming all proposed equipment supplied
- Solar Power Supply System Supports 25% Electricity of the Met Office
- Depreciation rate of Diesel Engine Generator: 185hrs./Year x 25% (25% covered by Solar power)
- Electricity charge for the Equipment to be installed in the Faleolo International Airport is borne equally by Samoa Meteorology Division and Samoa Airport Authority
- Exchange Rate : JPY25.1/Samoa Tab

資料 5. 事業事前計画表(概略設計時)

1	案件名 サモア独立国 気象観測・災害対策向上計画
2	要請の背景(協力の必要性・位置付け)
(1)	サモア独立国(以下、「サ」国)は、サバイイ島とウポル島の主要2島と7つの小島で構成されている。火山島であり、急峻な山岳が多く、人口の大部分が社会インフラの整備されている沿岸部に居住しているため、気候変動によって世界的に災害の拡大が懸念される中、サイクロンによる暴風雨、高潮及び洪水、津波等の自然災害に対する適切な災害対策の整備が喫緊の課題となっている。
(2)	南太平洋の大海に浮かぶ「サ」国は、気象災害の被害を受けやすい地形条件、大陸からの遠隔性、気象観測・予報技術の未熟さや防災体制の弱さから、気候変動に対しても極めて脆弱な環境にあり、地球温暖化に伴って起こる異常気象の影響も計り知れないものがある。
(3)	気候変動によるサイクロンの風速・降水量の増大や、気候変動による海面上昇の影響がサイクロン襲来時の高潮被害をさらに深刻化させること等も懸念されているほか、淡水資源が少ないために日照りが続くことによる干ばつにも脆弱である。また、ひとたび発災すれば、通信インフラ整備の遅れや、各大陸からの物理的な距離が障害となり、被害状況の把握や救援にも遅れが生じやすい。
(4)	1950年からの60年間に、「サ」国では12の大規模なサイクロンが襲来しており、特に被害が甚大でほぼ全島民が被災したといわれている1990年には推定被害総額120百万USドル、1991年には245百万USドル、沿岸部・護岸施設の損傷及び主要農作物が深刻な被害を受けた2004年には推定被害総額35百万USドルの被害が記録されている。
(5)	「サ」国はオーストラリアのダーウィンとタヒチの中間に位置し、エルニーニョ及びラニーニャのシーソー現象の支点にあたることから、高層観測及び地上気象観測データは、世界にとって重要なものであり、世界の気象予報の精度向上及び気候変動予測に貢献することが期待される。
(6)	地球は陸地面積が3割、海洋面積が残りの7割を占める水の惑星であるが、海洋上での常時気象観測が困難であることから海洋定点観測データは大変貴重である。「サ」国のような南太平洋に浮かぶ島において精度の高い気象観測データが取得できるということは、海洋観測ブイ同様か、それ以上の信頼性をもつデータの取得が可能となることを意味しており、気候変動の動向を把握するためにも極めて重要な海洋上での観測データは、世界にとっても極めて貴重なものとなりうる。
(7)	今後、「サ」国で観測された気象データが世界気象通信網(Global Telecommunication System: GTS)により世界へ発信され、各国気象機関や研究機関等において有用されることが重要である。更に、しかるべき時にこれらの気象データを用いて地球温暖化による気候変動に関する信頼性の高い予測を得られることは極めて重要なことである。
(8)	気象災害への脆弱性の改善にサモア気象局が貢献するためには、国が定めた「災害及び危機管理法(Disaster & Emergency Management Act)」を遵守して、サイクロン、高潮、高波、豪雨、暴風、洪水、干ばつ及び降下火山灰に関する警報を防災管理事務所、防災諮問委員会及びマスメディアに対し適宜提供することが不可欠である。サモア気象局からの情報は、各防災関連機関の初動のトリガーとなっているためサモア気象局の気象災害監視能力を向上することが強く求められている。
(9)	2008-2012年サモア国家開発戦略においてサモア気象局の機能強化が優先課題として明示されているほか、同戦略の中では、国際基準に準じた航空気象サービスの実施の必要性も強調されている。サモア気象局の主管官庁である天然資源・環境省の業務計画2006-2008においても、気象分野の機能強化が重要課題として計画されている。さらに気候変動に関しては、2008-2012年サモア国家開発戦略(SDS)において社会・経済の継続的発展のため、気候変動への適応行動計画(National Adaptation Programme of Action, Samoa: NAPA)の実施の重要性が強調されているほか、災害及び危機管理法2006(Disaster & Emergency Management Act 2006)及び気候変動法2006(Climate Change Act 2006)により自然災害の軽減、環境維持及び気候変動によるリスクの軽減に注力している。
(10)	このような状況下、自国の資金と技術不足により自力による機材調達・据付け等が困難であることか

ら、我が国の無償資金協力による実施を要請してきた。

3 プログラム全体計画概要

※無償資金協力案件を投入の1つとする相手国政府によるプログラム全体計画

(1) プログラム全体計画の目標(裨益対象の範囲及び規模)

気象観測機材の整備と気象業務の能力向上のためのソフト支援により、サモア気象局が適切な気象観測・予報及び災害警報早期発令を行うために必要となる気象観測網及び情報伝達網を構築し、サモア国内における気象災害に対する脆弱性を改善するとともに、南太平洋地域の気候変動予測に必要な観測データの蓄積を行う。

<裨益対象の範囲及び規模について>

「サ」国の全人口約 18 万人及びファレオロ国際空港を利用する 16 万人（年間）

(2) プログラム全体計画の成果

ア 航空気象観測システム、自動気象観測システム及び気象観測データ通信システムにより気象現象監視のための気象観測網が整備される。

イ 「災害及び危機管理法」に従い、気象災害関連の警報を防災管理事務所、防災諮問委員会及びマスメディアに迅速に送ることができるようになる。

(3) プログラム全体計画の主要活動

ア 以下の機材を調達、設置する。

- ・ 航空気象観測システム：2ヶ所
- ・ 航空気象データ表示システム：3ヶ所
- ・ 自動気象観測システム：7ヶ所
- ・ 自動気象観測システム校正機器：1ヶ所
- ・ 気象観測データ通信システム：15ヶ所
- ・ 気象データ管理システム：1ヶ所
- ・ GTS メッセージスイッチシステム：1ヶ所
- ・ MTSAT データ受信システム：1ヶ所
- ・ 予報業務支援システム：1ヶ所
- ・ 早期警報通信システム：1ヶ所
- ・ 電源バックアップシステム：1ヶ所
- ・ ウィンドプロファイラシステム：1ヶ所

イ 以下の施設を建設する。

- ・ 機材付帯施設：20ヶ所

ウ 気象観測・予報及び災害警報早期発令に必要なシステムの運用維持管理のための技術者を補充する。

エ 予報官、技術者への研修を継続的に実施する。

オ 気象機材・機材付帯施設の運用維持管理を行う。

(4) 投入（インプット）

ア 日本側（＝本案件）：無償資金協力 7.54 億円

イ 相手国側

（ア）プログラム実施に必要な人員

（イ）気象観測点及びデータ中継点整備用地の確保

（ウ）機材据付、機材付帯施設建設に係る負担額（0.67 億円）、その他運営・維持管理経費（0.03 億円）

(5) 実施体制

主管官庁：天然資源・環境省

実施機関：天然資源・環境省 サモア気象局

4 無償資金協力案件の内容

(1) サイト

ウポル島：サモア気象局本局、バエア山、フィアモエ山、トギトギガ、レマファ、サルアフアタ、ファレオロ国際空港

マノノ島：マノノ

サバイイ島：マオタ国際空港、バルシア山、ツアシビ、タゴタラ山、レピウタイ、バイサラ、タル山

(2) 概要

- 航空気象観測システム：2ヶ所（ファレオロ国際空港）
- 航空気象データ表示システム：3ヶ所（ファレオロ国際空港:管制塔、航空気象観測所、ブリーフィング室）
- 自動気象観測システム：7ヶ所（レマファ、サルアフアタ、トギトギガ、マノノ、レピウタイ、マオタ国際空港、タル山）
- 自動気象観測システム校正機器：1ヶ所（サモア気象局本局）
- 気象観測データ通信システム：15ヶ所（サモア気象局本局、バエア山、フィアモエ山、トギトギガ、レマファ、サルアフアタ、ファレオロ国際空港、マオタ国際空港、バルシア山、ツアシビ、タゴタラ山、レピウタイ、バイサラ、タル山、マノノ）
- 気象データ管理システム：1ヶ所（サモア気象局本局）
- GTS メッセージスイッチシステム：1ヶ所（サモア気象局本局）
- MTSAT データ受信システム：1ヶ所（サモア気象局本局）
- 予報業務支援システム：1ヶ所（サモア気象局本局）
- 早期警報通信システム：1ヶ所（サモア気象局本局）
- 電源バックアップシステム：1ヶ所（サモア気象局本局）
- ウィンドプロファイラシステム：1ヶ所（サモア気象局本局）

- パワーバックアップ棟：1ヶ所（サモア気象局本局）
- 機器棟：1ヶ所（サモア気象局本局）
- ウィンドプロファイラシステム基礎：1ヶ所（サモア気象局本局）
- コンクリートシェルター：17ヶ所（サモア気象局本局、バエア山、フィアモエ山、トギトギガ、レマファ、サルアフアタ、ファレオロ国際空港×3、マオタ国際空港、バルシア山、ツアシビ、タゴタラ山、レピウタイ、バイサラ、タル山、マノノ）

(3) 相手国側負担事項：VSAT インターネット機材の調達・設置、機材付帯施設建設用地の確保、防御フェンスの設置、電気敷設工事、気象観測業務を適切に行うために必要人員の配置。

(4) 概略事業費 8.21 億円（日本側 7.54 億円 「サ」国側負担 0.67 億円）

(5) 工期

実施設計・入札期間を含め約 37 ヶ月（予定）

(6) 貧困、ジェンダー、環境及び社会面の配慮

特になし。

5 外部要因リスク（プログラム全体計画の目標の達成に関するもの）

サモア気象局により、必要な土地、予算、人員が適時確保される。

6 過去の類似案件からの教訓の活用

特になし。

7 プログラム全体計画の事後評価に係る提案

(1) プログラム全体計画の目標達成を示す成果指標

指標	現状（ベースライン）	目標値	目標値達成予想時期
気象監視能力の向上	高層気象観測が実施できない	降水のない時：上空約3km～6km、降水時：上空約7km～9kmまでの高層の風向・風速及び上空約1.4kmまでの気温が観測可能となる	プログラム完了時
	気象業務管区1ヶ所のみで自動連続気象観測を行っている	気象業務管区5ヶ所全ての自動連続気象観測が可能となる	プログラム完了時
気象予報提供能力の向上	気象予報：2回/日（12時間毎） 沿岸予報：2回/日（12時間毎）	気象予報：4回/日（6時間毎） 沿岸予報：4回/日（6時間毎）	プログラム完了から1年後
サイクロン情報提供能力の向上	サイクロンの実況に即したサイクロン情報の提供ができない	サイクロンの進路方向情報（「サ」国の南方又は北方のどちらへ向かうのか）と、暴風域と雨量の情報提供が可能となる	プログラム完了時
航空気象予報能力の向上	飛行場予報（Terminal Aerodrome Forecast: TAF）及びサモア航空局と各航空会社への気象傾向予報（TREND）ができない	6時間毎の飛行場予報（TAF）及びサモア航空局と各航空会社への気象傾向予報の提供が可能となる	プログラム完了から2年後
	航空機のパイロットに対し、気象状況のブリーフィングができない	航空機のパイロットに対し、気象状況のブリーフィングが可能となる	プログラム完了時
気象データ通信能力の向上	世界気象通信網（GTS）データ通信機材を有していないため、自国観測データの配信ができないほか、各国の気象観測データを受信できない	世界気象機関（World Meteorological Organization: WMO）の世界気象通信網（GTS）へ自国観測データの配信が可能となり、また各国の気象観測データを受信も可能となる	プログラム完了時
災害警報提供能力の向上	災害及び危機管理法（Disaster & Emergency Management Act）に規定されている役務を遵守できない	災害及び危機管理法に従い、サイクロン、高潮、高波、豪雨、暴風、洪水、干ばつ及び降下火山灰に関する警報を、防災管理事務所、防災諮問委員会及びマスメディアに対し送ることが可能となる	プログラム完了から6ヶ月後
	天気やサイクロン警報に関する気象情報をテレビ局へ提供することができない	天気予報やサイクロン警報に関する気象情報をテレビ局へ提供可能となる	プログラム完了時
気候データベースの管理と気候変動情報配信能力の向上	気候変動情報の解析と国際的な情報配信のための、気候データベース管理能力が不足している	気候変動情報の解析や気候変化傾向、異常気象現象及び平年の気候との相違に関する年次気候変動情報の発行するための気候データベース管理が可能となる	プログラム完了から1年後
「サ」国の気候変動に影響を及ぼす大気現象に関する理解向上に必要な手段と能力の拡充	エルニーニョ南方振動の影響監視と「サ」国の気候及び他分野への影響に関する適時報告能力が不足している	エルニーニョ南方振動による気候変動の危機を事前に国民に警告するための月次報告と気候変動研究報告の発行が可能となる	プログラム完了から1年後

(2) その他の成果指標：特になし

(3) 評価のタイミング：2015年3月以降（完了後2年経過後）

資料 6. 参考資料

調査名：サモア国気象観測・災害対策向上計画準備調査（その2）

番号	名 称	形態 図書・ビデオ 地図・写真等	オリジナル /コピー	発行機関	発行年
1	1999 Census of Agriculture	図書	オリジナル	Ministry of Agriculture	1999年
2	National Adaptation Programme of Action	図書	コピー	Ministry of Natural Resources, Environment & Meteorology	2005年
3	Samoa's National Disaster Management Plan 2006-2009	図書	オリジナル	the National Disaster Council under Part III Section 9 of the Disaster & Emergency Management	2006年
4	Annual Statistical Abstract 2006	図書	オリジナル	Ministry of Finance, Statistical Department	2006年
5	Information Paper for Chief Executive Officer of the Ministry of Natural Resources Environment and Meteorology	図書	コピー	Ministry of Natural Resources, Environment & Meteorology	2007年
6	Climate Risk Profile for Samoa	図書	コピー	Meteorology Division, Ministry of Natural Resources, Environment & Meteorology	2007年
7	2009/2010 Budget Address	図書	オリジナル	Ministry of Finance, Government of Samoa	2009年
8	Disaster Alert System: Use of Mobile Technology	図書	オリジナル	Digicel	2009年
9	Climate Trends Summary	図書	コピー	Meteorology Division, Ministry of Natural Resources & Environment	2009年
10	Rainfall Outlook	図書	コピー	Meteorology Division, Ministry of Natural Resources, Environment & Meteorology	2009年
11	Strategy for the Development of Samoa 2009-2012	図書	コピー	Ministry of Finance	2009年