

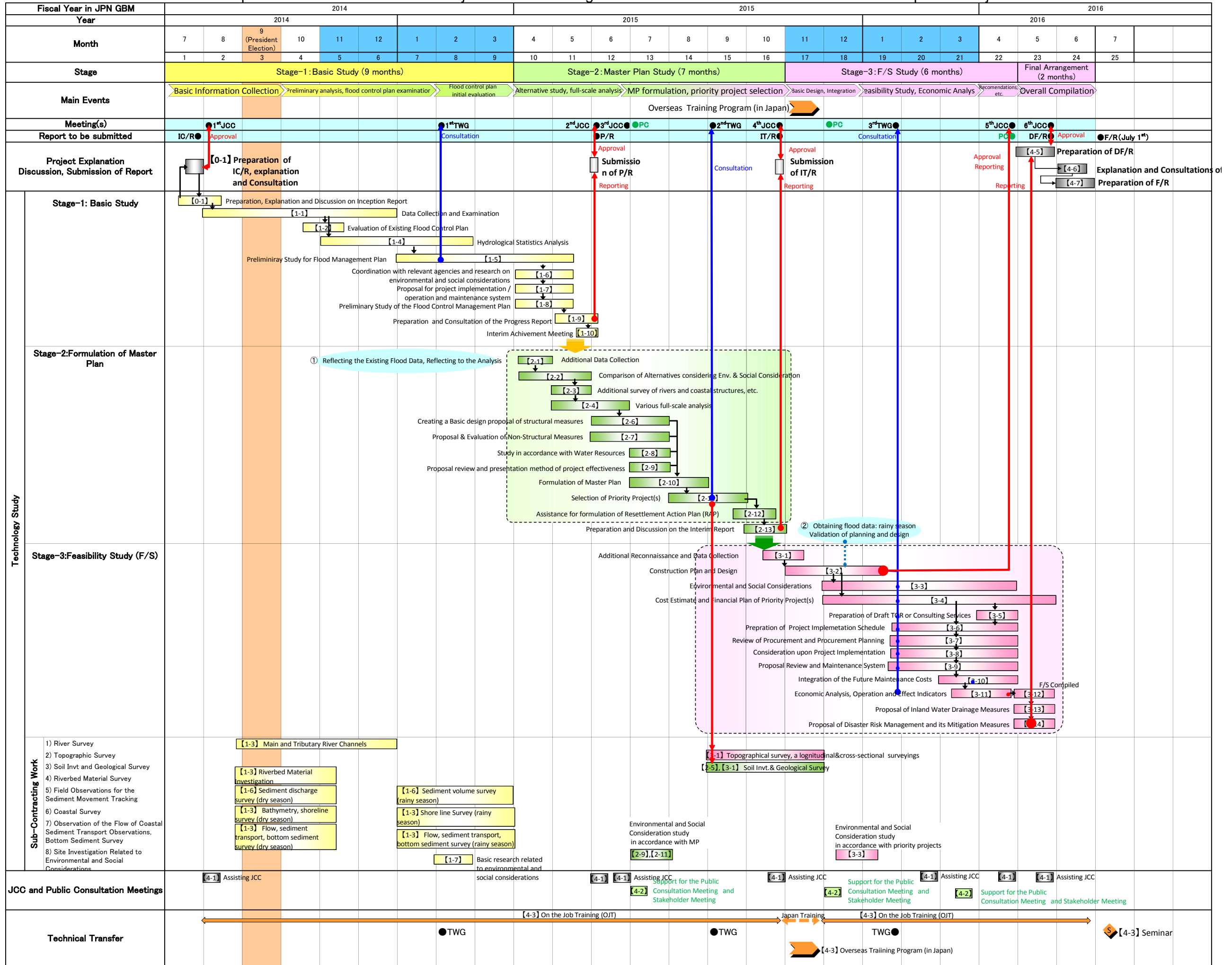
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Appendix-1

Implementation Schedule of the Study

Implementation Schedule of the Project for the Planning of Nadi River Flood Control Structures in the Republic of Fiji



Remarks: JCC: Joint Coordination Committee, TWG: Technical Working Group (Technical Work Group), Submission of a Report: IC/R: Inception Report, P/R: Progress Report, IT/R: Interim Report, DF/R: Draft/Final Report, F/R: Final Report

Appendix-2

Staffing Plan

Staffing Plan

The Project for the Planning of the Nadi River Flood Control Structures in the Rep

Name (Assigned field)	Trip	2014												2015												2016												Total (days)	MM			
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Fiji	Japan									
Yoshio NAKAGAWA Team Leader/ Flood Management	Plan																																					102	3.40			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												8/27-8/28 (2)												100	3.33			
Takashi TOYODA Deputy Team Leader/ Flood Management	Plan																																					284	9.47			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												8/27-8/28 (2)												274	9.13			
Hajime TANAKA Water Resource Management	Plan																																					60	2.00			
	Actual													10/28-11/4 (6)												6/14-6/23 (10)												60	2.00			
Tamotsu SHIBATSUZI Seacoast Management	Plan																																					71	2.37			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/21-6/20 (2)												71	2.37			
Tomoyuki SUZUKI Sediment Management	Plan																																					61	2.03			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												61	2.03			
Makoto YONEKURA Hydrological Analysis/ Runoff Analysis	Plan																																					119	3.97			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												119	3.97			
Masahiro KITANO Flood Control Planning/River Planning	Plan																																					43	1.43			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												43	1.43			
Masaharu MIZOGUCHI River Structures/ Construction Planning/ Cost Estimation	Plan																																					73	2.43			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/21-6/20 (2)												72	2.40			
Hiroshi NAKATA Facility Design/ Construction Planning/ Cost Estimation	Plan																																					75	2.50			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/21-6/20 (2)												75	2.50			
Tomoko MIZUYORI Institutional, Legal System Analysis	Plan																																					60	2.00			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												60	2.00			
Akira WATANABE Non-Structural Measures (Predecessor)	Plan																																					20	0.67			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												20	0.67			
Tomohiro UMEKI Non-Structural Measures (Successor)	Plan																																					60	2.00			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												60	2.00			
Hajime WATANABE Environmental and Social Considerations	Plan																																					148	4.93			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												142	4.73			
Yoshiyuki CHOSO Economic Analysis/ Financial Analysis	Plan																																					74	2.47			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												74	2.47			
Takeshi WATANABE Project Implementation Planning	Plan																																					106	3.53			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												76	2.53			
Tomomitsu UMEKI Operational coordination/ Flood Control Planning, River Planning Assistance (Predecessor)	Plan																																					69	2.30			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												69	2.30			
Operational coordination/ Flood Control Planning, River Planning Assistance (Successor)	Plan																																					45	1.50			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												49	1.63			
Miyuki TAKAHASHI Facility Design/ Construction Planning/ Cost Estimation	Plan																																									
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)																
Hiroshi NAKATA Facility Design/ Construction Planning/ Cost Estimation (Own Expense)	Plan																																									
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)																
		Sub Total																																				Plan	1,470	49.00		
		Sub Total (Fiji)																																				Actual	1,425	47.50		
Yoshio NAKAGAWA Team Leader/ Flood Management	Plan																																					15	0.75	0.75		
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												15	0.75			
Takashi TOYODA Deputy Team Leader/ Flood Management	Plan																																					31	1.55			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												51	2.55			
Tamotsu SHIBATSUZI Seacoast Management	Plan																																					4	0.20			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												4	0.20			
Tomoyuki SUZUKI Sediment Management	Plan																																					4	0.20			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												4	0.20			
Makoto YONEKURA Hydrological Analysis/ Runoff Analysis	Plan																																					16	0.80			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												16	0.80			
Masahiro KITANO Flood Control Planning/River Planning	Plan																																					18	0.90			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												18	0.90			
Hajime WATANABE Environmental and Social Considerations	Plan																																					10	0.50			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												10	0.50			
Tomomitsu UMEKI Operational coordination/ Flood Control Planning, River Planning Assistance (Successor)	Plan																																					20	1.00			
	Actual	8/21-8/25 (5)												8/19-8/25 (7)												6/14-6/23 (10)												30	1.50			
		Sub Total																																				Plan	118	5.90		
		Sub Total (Japan)																																				Actual	148	7.40		
Reporting		Δ ICR												Δ F/R												Δ ITR												DF/R Δ Seminar Δ F/R				
		:Actual												:Plan												:Own Expense																
																																						Total	Plan	54.90		
																																						Actual	54.90			

Appendix-3

TOR of JCC and JCC Member List

Terms of Reference (TOR)
Joint Coordination Committee (JCC)

The Government of Fiji has accepted Technical Assistance for the implementation of the Project for the Planning of the Nadi River Flood Control Structures in The Republic of Fiji. The Ministry of Agriculture is the Implementing Agency. The Joint Coordination Committee (hereinafter referred to as “JCC”) is established in order to facilitate inter-organizational coordination, deliberate and make decisions on the project findings and results.

1. Role of the Joint Coordination Committee [JCC]

The role of the Joint Coordination Committee is as follows;

- Provides direction, guidance and decision making to support the successful delivery of the project
- Assist with resolving strategic level issues and risks.
- Use influence and authority to assist the project in achieving its outcomes.
- To make decisions on formal acceptance of the project deliverables
- Provide update to Cabinet on the progress of the Project through the Implementing Agency

2. Responsibilities of Joint Coordination Committee Members

- Understand the goals, objectives, and desired outcomes of the project.
- Understand and represent the interests of project stakeholders.
- Take a genuine interest in the project’s outcomes and overall success.

3. Membership of the Joint Coordination Committee

- The membership of the JCC shall comprise of key government agencies and stakeholders based on their specialist knowledge, ability to represent the interests of stakeholders, and ability to assess the strategic implications and outcomes of initiatives being pursued through the project results and outputs.
- Officers holding the positions of Permanent Secretary, Director and Principal Officer level, Chief Executive Officer or equivalent is desirable. Participation of substitutions appointed by the members is also acceptable.

4. Frequency of Meetings

- The JCC will be held at the beginning of the project, at the end of each stage of the project deliverables and whenever it deems necessary to address emerging issues.

List of Members of Joint Coordination Committee (JCC)

1. Fiji side

- Permanent Secretary for Foreign Affairs and International Co-operation
- Permanent Secretary for Agriculture
- Permanent Secretary for Fisheries and Forests
- Permanent Secretary for Works, Transport and Public Utilities
- Permanent Secretary for Local Government, Urban Development, Housing and Environment
- Permanent Secretary for Lands and Mineral Resources
- Permanent Secretary for Rural and Maritime Safety and Natural Disaster Management
- Permanent Secretary for Finance
- Permanent Secretary for Strategic Planning, National Development and Statistics
- Permanent Secretary for iTaukei Affairs
- Commissioner Western Office
- General Manager, iTaukei Land Trust Board (TLTB)
- Chief Executive Officer, Water Authority of Fiji (WAF)
- Director, Fiji Meteorological Services (FMS)
- Chief Executive Officer, Fiji Road Authority
- Special Administrator Nadi Town Council
- Nadi Chamber of Commerce

2. Japanese side

- JICA Fiji Office
- JICA Study Team of the Project
- Other Personnel concerned to be proposed by JICA

3. Regional Organization

- Director SPC/SOPAC

Appendix-4

TOR of TWG and TWG Member List

Terms of Reference (TOR)

Technical Working Group (TWG)

The Technical Working Group was formed by the Joint Coordination Committee for the implementation of the Project for the Planning of the Nadi River Flood Control Structures in The Republic of Fiji. The Ministry of Agriculture is the Implementing Agency. The Technical Working Group (hereinafter referred to as “TWG”) is established in order to facilitate inter-organizational coordination, to address technical issues to support decisions on the project findings and results.

1. Purpose

The purpose of the Technical Working Group is to coordinate the analysis of technical factors related to the project outputs and deliverables. The working group's input on technical issues will contribute to the key consideration and decision to be made in the Joint Coordination Committee's overall assessment of the findings and results of the Project.

2. Role

The role of the Technical Working Group is as follows;

- Review and provide input and feedback on technical reports and other documents provided to the Working Group
- Assist with resolving technical issues and risks.
- To analyze and make decisions on the project findings and results
- Use influence and authority to assist the project in achieving its outcomes.
- Report on the project findings and results to their respective agencies and stakeholders

3. Responsibilities of Members

- Understand the goals, objectives, and desired outcomes of the project.
- Take a genuine interest in the project's outcomes and overall success.
- Commit to work with the JICA Study Team and able to assure continuous collaboration

4. Membership of the Technical Working Group

- The membership of the TWG shall comprise of senior technical official and experts in key government agencies and stakeholders based on their specialist knowledge, and ability to assess the technical issues to support outcomes of the initiatives being pursued through the project results and outputs.
- Technical Officers holding the positions of Principal, Senior Officer level, or equivalent is desirable. Participation of substitutions appointed by the members is also acceptable.
- The composition of the working group may vary over time based on the issues being examined. Experts may be invited to participate as an on-going basis on the working group or contribute on an ad hoc basis.

5. Frequency of Meetings

The TWG will be held when technical discussion is required at each stage (1 or 2 times at each stage) and whenever it deems it necessary to address emerging technical issues.

List of Members of Technical Working Group (TWG)

1. Fiji Side

- Ministry of Agriculture (MOA)
 - Land and Water Resources Management (LWRM) Division
 - Land Resource Planning and Development (LRPD) Division
- Ministry of Fisheries & Forests (MOFF)
 - Dept. of Fisheries (DOF)
 - Dept. of Forests (DOF)
- Ministry of Works, Transport and Public Utilities (MWTPU)
 - Dept. of Works (DOW)
 - Water Authority of Fiji (WAF)
 - Fiji Meteorological Services (FMS)
- Ministry of Lands and Mineral Resources (MLMR)
 - Dept. of Lands (DOL)
- Ministry of Local Government, Urban Development, Housing and Environment (MLGUDHE)
 - Dept. of Environment (DOE)
 - Dept. of Local Government
- Ministry of Rural and Maritime Safety and Natural Disaster Management (MRMSNDM)
 - Commissioner Western Office (CWO)
 - National Disaster Management Office (NDMO)
- Ministry of iTaukei Affairs
- iTaukei Land Trust Board (TLTB)
- Ministry of Sugar
- Airport Fiji Limited

2. Japanese Side

- JICA Fiji Office
- JICA Study Team of the Project
- Other Personnel concerned to be proposed by JICA

3. Regional Organization

- SPC/SOPAC

Appendix-5

MM of JCC

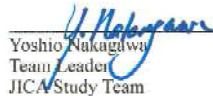
MINUTES OF MEETING
OF
FIRST JOINT COORDINATION COMMITTEE
FOR

THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI

Suva, 2 September 2014



Ropate Ligairi
Chairman
Joint Coordination Committee



Yoshio Nakagawa
Team Leader
JICA Study Team

Based on the Minutes of Meeting and Record of Discussion (hereinafter referred to as "M/M" and "R/D" respectively) signed between the Ministry of Agriculture of the Republic of Fiji (hereinafter referred to as "MOA") and Japan International Cooperation Agency (hereinafter referred to as "JICA") concerning the Project for the Planning of the Nadi River Flood Control Structures (hereinafter referred to as "the Project") dated on February 7, 2014 and March 31, 2014 respectively, JICA dispatched a study team (hereinafter referred to as "the JICA Study Team") headed by Mr. Yoshio Nakagawa for the study of the Project.

The JICA Study Team submitted a draft of Inception Report to MOA on August 15, 2014 and had a series of discussions on its contents with MOA which was adopted and signed on 22nd August, 2014. The Joint Coordination Committee (hereinafter referred to as "JCC") as stipulated to be established in M/M and R/D in order to facilitate inter-organizational coordination was established. On 2nd September, 2014 JCC and the JICA Study Team held meeting on the Inception Report and other related important matter. The list of attendance of this meeting is attached as Appendix-1. The main items that were discussed and understood between JCC and the JICA Study Team are summarized as follows:

1. Terms of Reference of the Joint Coordination Committee and Technical Working Group
(Refer to Appendix-2)
2. Inception Report
- 2.1 Basic Concepts and Policies for the Project Implementation
Three basic concepts, five basic technical policies and three basic management policies of the Project implementation are set as follows:
Three basic concepts:
 - 1) Formulating the Resilient Flood Control Plan
 - 2) Capacity Building leading to Improvement of Capability on Disaster Management
 - 3) Introducing Japanese Technology, Experiences and Knowledge to FijiFive basic technical policies:
 - 1) Formulation of Comprehensive Flood Control Master Plan based on the Integrated Flood Management Concepts
 - 2) Comprehensive Sediment Management throughout the Basin
 - 3) Selection of Priority Projects with Effective and Realistic Plan
 - 4) Environmentally and Socially Feasible Planning
 - 5) Introduction of New Technology, Experience and Knowledge of JapanThree basic management policies:
 - 1) Smooth Project Implementation & Support for Future Project Formulation
 - 2) Closer Collaboration with C/P Organizations and JICA
 - 3) Technical Transfer to Contribute to River Management Capacity Development in the Government of Fiji and Pacific Region

2.2 Study Stages and Completion Period

The Study process is divided into 3 stages as shown below and will end in July 2016.

Stage-1: Basic study, such as data and information collection, field investigations, preliminary analyses

Stage-2: Planning of flood control master plan in the Nadi River basin

Stage-3: Feasibility study for the selected priority project

2.3 Final Determination of Flood Control Structures

Not only the diversion channel but also various types of flood control structures are to be examined by the JICA Study Team. The priority project is to be determined by discussion among MOA, the JICA Study Team and JICA through obtaining the consensus of JCC.

2.4 Hydraulic Analysis Model

Jyecs-flow-DR and Jyecs-flow-2D models which the JICA Study Team explained and proposed are to be applied to the runoff and inundation analyses of the Project.

2.5 Comprehensive Sediment Management of the Basin and the Seashore

The comprehensive management of the basin and the seashore is to be studied analysing sediment problems in the basin and the seashore by the one-dimensional riverbed variation model and the bathymetric change model.

2.6 PDM (Project Design Matrix)

The contents of PDM and its role for the Project management tool are well understood. The indicators and assumptions of the matrix will be changed, if necessary, with discussion among MOA, the JICA Study Team and JICA through obtaining the consensus of JCC.

2.7 Land Acquisition and Compensation

The land acquisition and compensation are one of important factors to determine the location of flood control structures. The information of difficulty/easiness to solve the above matters is to be delivered to the JICA Study Team from time to time by MOA and JCC members.

2.8 Data and Information Request

The JICA Study Team requested the data and the information as attached Annex-3 of Inception Report. MOA agreed to facilitate to obtain them as much as possible within two weeks time and assist the JICA Study Team to obtain them from JCC members.

2.9 Cooperation and Coordination among Members

For the successful implementation of the Project, the cooperation and coordination are quite important among stakeholders of the Project, MOA, JICA Study Team and JCC Members.

2.10 Counterpart Members of MOA

According to R/D, the following members are nominated.

Project Director: Permanent Secretary for Agriculture

Project Manager: Director of LWRM

Counterpart Personnel:

Principal Agriculture Officer [W], Mr. Vinesh Kumar

Principal Engineer (Civil-River Engineer), LWRM. Mr. Khin Maung Cho

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Environmental Officer, LWRM: Ms. Josivini Sausauwai

2.11 Joint Coordination Committee and Technical Working Group

In addition to the above counterpart personnel of MOA the following counterpart members are to be nominated.

(1) Joint Coordination Committee (JCC)

JCC is established in order to facilitate inter-organizational coordination, deliberate and make decisions on the Project findings and results. High officer such as permanent secretary, director, CEO or equivalent is desirable for member of JCC. Participation of substitutes appointed by the members is also acceptable. The organization of members is altered from Department/Division level stipulated in R/D to Ministry level. JCC will be held at the beginning of the Project, the end of each stage and whenever it deems it necessary.

The list of members of JCC is shown in the Appendix-3

(2) Technical Working Group (TWG)

Technical Working Group (hereinafter refer to as "TWG") is established in order to discuss the technical contents in detail for understanding of the technical issues. Working-level officers such as principle engineer, senior engineer or equivalent is desirable to be a member of TWG.

TWG will be held when technical discussion is required at each stage (1 or 2 times at each stage) and whenever it deems it necessary. The discussed matter in TWG should be reported to the superior of each member.

The list of confirmed members of TWG is shown in the Appendix-4.

2.12 Technical Transfer

The JICA Study Team and the Counterparts jointly conduct the project activities and hold TWG meetings as an On the Job Training. JICA will also provide technical training in Japan to increase knowledge of river management.

The seminar/workshop for flood control will be held in Fiji introducing Japanese experience and knowledge by Japanese side. Moreover, in order to extend counterpart's knowledge, the lessons learnt through this project and technical training in Japan shall be introduced by Fiji counterpart side.

2.13 Report Submission

The reports and date of submission shall be as follows:

Inception Report	Half a month after commencement of the Study
Progress Report	End of March, 2015 (End of Stage-1)
Interim Report	End of October, 2015 (End of Stage-2)
Draft Final Report	End of April, 2016 (End of Stage-3)
Final Report	July 1, 2016

3. Summary of the Detailed Planning Survey

In response to the request by the Government of the Republic of Fiji, the Detailed Planning Survey of the Project was carried out in order to clarify the framework of the technical cooperation for the

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Project from January to February 2014.

The JICA Study Team explained the summary of the Detailed Planning Survey results at the meeting. The explanation was focused on the key points of technical issues such as preliminary analysis of rainfall and preliminary study of flood control measures and so on. The Members of JCC well understood the results of the Detailed Planning Survey.

4. Result of Discussion

1) Joint Coordination Committee

The membership to include the following;

- Regional Organization - SPC/SOPAC
- Permanent Secretary for iTaukei Affairs

Under TOR Item 2 role to include the following;

- Update Cabinet on progress of the project through the Implementing Agency

2) Technical Working Group to include the following;

- Ministry of iTaukei Affairs
- Ministry of Sugar

3) Inception Report

The following discussion is made by participants as their comments in the meeting.

- Consideration be given to be inclusive and engage NGO's as well during the public consultations
- Question from SPC/SOPAC on non-structural measures, the assigned expert will explain once she begins work on the project
- Question from SPC/SOPAC on climate change consideration in the study, the JICA Study Team explained that climate change itself will not be examined in the study, however the influence of climate change will be considered for the proposed flood control plan
- Nadi Chamber of Commerce enquired on general timeframe for construction after the study period. Informed that this will depend on the decision by the Government of Fiji on the proposed feasibility solution
- The JICA Study Team to consider any existing tourism developments in the Study

4) Media

- The Implementing Agency, Ministry of Agriculture to be the focal point and agency to address all media issues.

5) Concluding Remarks

- Appreciation from the JCC Chairman and Deputy Resident Representative of Japan International Cooperation Agency, Fiji Office for the support given through the positive participation of all agencies for their continuous support to the Study Team.

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture	
Ropate Ligairi	Permanent Secretary
Jonisio R. Mara	Deputy Secretary of Cooperate Services
Colin Simmons	Director of Land & Water Resource Management
Vinesh Kumar	Senior Agriculture Officer
Ministry of Fisheries and Forests	
Inoke Wainiqolo	Permanent Secretary
Eliki Senivasa	Deputy Conservator Forest (Services)
George Madden	Acting Director Fisheries
Ministry of Works, Transport and Public Utilities	
Tikiko Maiwiriri	Senior Mechanical Engineer
Jale Uluilakeba	Senior Technical Officer of Fiji Meteorological Service
Ministry of Foreign Affairs and International Co-operation	
Aliri Radevo	Acting Senior Administration Officer
Vakaoca Kedravate	Economics Officer
Ministry of Local Government, Urban Development, Housing and Environment	
Talei Rokotuibau	Director Town & Country Planning
Aisake Raratabu	Technical Officer
Iliana Masesai	Principal Administration Officer
Ministry of Lands and Mineral Resource Lands Department	
Sanjesh Kumar	Principal Lands Officer
Ministry of Rural and Maritime Safety and Natural Disaster Management	
Filipe Alifereti	Permanent Secretary
Luke Moroivalu	Commissioner Western
Sunia Ratulevu	Principal Disaster Management Officer (Risk Management & Research, NDMO)
Ministry of Strategic Planning, National Development and Statistics	
Ovini Ralulu	Acting Chief Economic Planning Officer
Ministry of Finance	
Ison Talemaibua	Principal Economics Planning Officer
iTaukei Land Trust Board	
Erna Natadra	Regional Manager South
Water Authority of Fiji	
Jone Tubui	Team Leader of Water Resource
Fiji Road Authority	
Dale Nicholles	Manager, Maintenance Works
Nadi Chamber of Commerce	
Babu Singh	Board Member
Japan Side	
JICA Fiji Office	
Ichiro Mimura	Deputy Resident Representative
Shigeki Ishigaki	Project Formulation Advisor
Nila Prasad	Program Officer
Japan Embassy	
Yukitsune Kokuba	2nd Secretary
JICA Study Team	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Takashi Watanabe	Project Implementation Planning
Tomohiro Umeki	Operational coordination / Flood Control Planning, River Planning Assistance
Regional Organization	
SPC/SOPAC	
Kifle Kahsai	Chief Geoscientist
Shohei Matsuura	JICA Expert

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**Terms of Reference (TOR)
Joint Coordination Committee (JCC)**

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1. Role of the Joint Coordination Committee [JCC]

The role of the Joint Coordination Committee is as follows;

- Provides direction, guidance and decision making to support the successful delivery of the project
- Assist with resolving strategic level issues and risks.
- Use influence and authority to assist the project in achieving its outcomes.
- To make decisions on formal acceptance of the project deliverables
- Provide update to Cabinet on the progress of the Project through the Implementing Agency

2. Responsibilities of Joint Coordination Committee Members

- Understand the goals, objectives, and desired outcomes of the project.
- Understand and represent the interests of project stakeholders.
- Take a genuine interest in the project's outcomes and overall success.

3. Membership of the Joint Coordination Committee

- The membership of the JCC shall comprise of key government agencies and stakeholders based on their specialist knowledge, ability to represent the interests of stakeholders, and ability to assess the strategic implications and outcomes of initiatives being pursued through the project results and outputs.
- Officers holding the positions of Permanent Secretary, Director and Principal Officer level, Chief Executive Officer or equivalent is desirable. Participation of substitutions appointed by the members is also acceptable.

4. Frequency of Meetings

- The JCC will be held at the beginning of the project, at the end of each stage of the project deliverables and whenever it deems necessary to address emerging issues.

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**Terms of Reference (TOR)
Technical Working Group (TWG)**

The Technical Working Group was formed by the Joint Coordination Committee for the implementation of the Project for the Planning of the Nadi River Flood Control Structures in The Republic of Fiji. The Ministry of Agriculture is the Implementing Agency. The Technical Working Group (hereinafter referred to as "TWG") is established in order to facilitate inter-organizational coordination, to address technical issues to support decisions on the project findings and results.

1. Purpose

The purpose of the Technical Working Group is to coordinate the analysis of technical factors related to the project outputs and deliverables. The working group's input on technical issues will contribute to the key consideration and decision to be made in the Joint Coordination Committee's overall assessment of the findings and results of the Project.

2. Role

The role of the Technical Working Group is as follows;

- Review and provide input and feedback on technical reports and other documents provided to the Working Group
- Assist with resolving technical issues and risks.
- To analyze and make decisions on the project findings and results
- Use influence and authority to assist the project in achieving its outcomes.
- Report on the project findings and results to their respective agencies and stakeholders

3. Responsibilities of Members

- Understand the goals, objectives, and desired outcomes of the project.
- Take a genuine interest in the project's outcomes and overall success.
- Commit to work with the JICA Study Team and able to assure continuous collaboration

4. Membership of the Technical Working Group

- The membership of the TWG shall comprise of senior technical official and experts in key government agencies and stakeholders based on their specialist knowledge, and ability to assess the technical issues to support outcomes of the initiatives being pursued through the project results and outputs.
- Technical Officers holding the positions of Principal, Senior Officer level, or equivalent is desirable. Participation of substitutions appointed by the members is also acceptable.
- The composition of the working group may vary over time based on the issues being examined. Experts may be invited to participate as an on-going basis on the working group or contribute on an ad hoc basis.

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5. Frequency of Meetings

The TWG will be held when technical discussion is required at each stage (1 or 2 times at each stage) and whenever it deems it necessary to address emerging technical issues.

List of Members of Joint Coordination Committee (JCC)

1. Fiji side

- Permanent Secretary for Foreign Affairs and International Co-operation
- Permanent Secretary for Agriculture
- Permanent Secretary for Fisheries and Forests
- Permanent Secretary for Works, Transport and Public Utilities
- Permanent Secretary for Local Government, Urban Development, Housing and Environment
- Permanent Secretary for Lands and Mineral Resources
- Permanent Secretary for Rural and Maritime Safety and Natural Disaster Management
- Permanent Secretary for Finance
- Permanent Secretary for Strategic Planning, National Development and Statistics
- Permanent Secretary for iTaukei Affairs
- Commissioner Western Office
- General Manager, iTaukei Land Trust Board (TLTB)
- Chief Executive Officer, Water Authority of Fiji (WAF)
- Director, Fiji Meteorological Services (FMS)
- Chief Executive Officer, Fiji Road Authority
- Special Administrator Nadi Town Council
- Nadi Chamber of Commerce

2. Japanese side

- JICA Fiji Office
- JICA Study Team of the Project
- Other Personnel concerned to be proposed by JICA

3. Regional Organization

- Director SPC/SOPAC

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List of Members of Technical Working Group (TWG)

1. Fiji Side

- Ministry of Agriculture (MOA)
 - Land and Water Resources Management (LWRM) Division
 - Land Resource Planning and Development (LRPD) Division
- Ministry of Fisheries & Forests (MOFF)
 - Dept. of Fisheries (DOF)
 - Dept. of Forests (DOF)
- Ministry of Works, Transport and Public Utilities (MWTPU)
 - Dept. of Works (DOW)
 - Water Authority of Fiji (WAF)
 - Fiji Meteorological Services (FMS)
- Ministry of Lands and Mineral Resources (MLMR)
 - Dept. of Lands (DOL)
- Ministry of Local Government, Urban Development, Housing and Environment (MLGUDHE)
 - Dept. of Environment (DOE)
 - Dept. of Local Government
- Ministry of Rural and Maritime Safety and Natural Disaster Management (MRMSNDM)
 - Commissioner Western Office (CWO)
 - National Disaster Management Office (NDMO)
- Ministry of iTaukei Affairs
- iTaukei Land Trust Board (TLTB)
- Ministry of Sugar
- Airport Fiji Limited

2. Japanese Side

- JICA Fiji Office
- JICA Study Team of the Project
- Other Personnel concerned to be proposed by JICA


3. Regional Organization

- SPC/SOPAC

**MINUTES OF MEETING
OF
SECOND JOINT COORDINATION COMMITTEE
FOR
THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI**

Suva, 3 June 2015


Uraia Waibuta
Chairman
Joint Coordination Committee
PERMANENT SECRETARY FOR AGRICULTURE


Yoshio Nakagawa
Team Leader
JICA Study Team

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Session 3

Today's Points in Session 3

Outline of the result of Preliminary Study for Flood Control Plan

1. Flow of Flood Control Planning
 2. What's happen in the past and How is the scale?
 3. What's Situation? – Flow Capacity of Nadi River-
 4. What's for?
 5. How Control?
 6. Flood Control Structural Measures for Master Plan (M/P)
 7. Recommendations for Master Plan (M/P)
 8. Recommendations for Priority Project
 9. Summary, Judgement
2. The contents of the Draft of the Progress Report is acceptable, although after the detail review of the report by JCC, the report shall be finalized by the JICA Study Team considering the questions, comments and revisions presented by JCC.
 3. The target of the flood control master plan is to be March 2012 flood which is the historical maximum flood judged by the past rainfall data analysis in the Nadi basin, and which has the occurrence probability of once in 50 years.
 4. The important protected areas from flood damage are to be Nadi town and, Nadi airport and Queens's road (refer to P-2 of the document of Session 3, the places enclosed in yellow line).
 5. The flood control structures are planned for 3 (three) stretches of the Nadi river, which are the downstream (Estuary ~ 5.75km), the middle stream (5.75km ~ Back Road Bridge) and the upstream (from Back Road Bridge to the upstream). The 3 (three) stretches are divided by 2 points in the Nadi River just downstream of the Nawaka River confluence and Back Road Bridge. This method is reasonable and acceptable. Because the middle stretch is the most important for the flood control plan in the Nadi basin, the priority project is to be selected in the middle stretch.
 6. For the main flood control structures, 4(four) types of structures such as River Improvement, Diversion Channel, Retarding Basin, Dam are examined. For the master plan, 3(three) types of solution in the downstream stretch, 3(three) types of solution in the middle stretch and 4(four) types of solution in the upstream stretch are separately examined, and the following 2(two) alternatives are finally recommended by the JICA Study Team as the Master Plan.
 - A. Combination-1 (downstream +middle stream+ upstream stretch)
 - C-1: Retarding Basin (D-2) + River Improvement (M-1) + Dam (U-2)
 - B. Combination-2
 - C-2: Retarding Basin (D-2) +Diversion Route-2(M-3) + Dam (U-2)

7. For the Priority Project the following 2(two) alternatives are recommended based on the Master Plan Proposal outlined in paragraph 5.

M-1 River Improvement

M-3 Diversion Channel (Route-2)

For M-1 of Priority Project, the Nadi Town Bridge shall be rebuilt due to widening of the present river.

8. Since the upstream Dam (U-1) and the downstream Retarding Basin (D-2) of the Master Plan are not implemented yet, even when the Priority Project in the middle stream M-1 or M-3 is completed, the inundated area will be left to some extent in the middle stream, and a part of Nadi town. The reasons are that the uncontrolled flood water flow into the middle stream without Dam (U-1) of Master Plan, and that water from the Nawaka River is not drained to the sea without Retarding Basin (D-2) of Master Plan.

To prevent these inundation in these areas, the following 5 (five) locations of small scale dike should be included in the Priority Project.

- 1) Surrounding dike around retarding basin,
 - 2) Curved dike along the Back Road side (for 1) and 2), refer to P-13 of the document of Session 3, lowest right),
 - 3) Protection dike for a part of Nadi town (refer to P-13 of the document of Session 3, middle right),
 - 4) West side dike along Queen's Road,
 - 5) Ring dike protecting Moala village (for 4) and 5), refer to P-13 of the document of Session 3, lowest left side in the lower part).
9. The Priority Project cannot prevent inundation for any floods over the target flood, which is the historical maximum flood, in March 2012 (occurrence probability of approximately 1 / 50) and inland flood outside the flood structures. The inland flood will occur by rainfall during flooding. To cope with the inland flood, the establishment of drainage system, and installation of pumping facilities and sluice gates are necessary, of which the JICA Study Team will propose the issues in implementation of countermeasures for inland flood.
 10. The result of preliminary study of future coastal line changes without flood control structures was reported by the JICA Study Team. Even though, there will be future coastal line changes with proposed flood control structures, this will be examined in the stage-2, since there is a possibility of coastal change by implementation of Priority Project.
 11. JICA generally categorizes projects from the view point of the environmental assessment into Category A to C. This Project belongs to the Category A according to the study results such as inhabitants

influenced by this Project and scale of project. The Project is categorized as Category A, and the full scale of EIA is required in accordance with the JICA Guidelines for Environmental and Social Considerations April 2010.

12. Cut-Off Date is important day for project implementation. After the declaration of Cut-Off Date, no one can be eligible for any compensation or assistance of resettlement.
13. For the construction of the Priority Project, the land acquisition is required. The land of construction site is divided into three categories such as River and water area, Native Land and Free Hold Land, among which the latter two categories are subject to land acquisition.
14. In order to keep to the Study schedule, topographical survey and geotechnical survey for priority project shall be implemented as soon as possible. In addition, in order to get advice from the Advisory Committee for Environmental and Social Considerations in Japan on time, the selection of Priority Project should be conducted as soon as possible. Therefore, the selection of Priority Project should be made within two weeks after 2nd JCC meeting held on June 3, 2015.
15. The 1st Public consultation and stake holders meeting of this Project should be held in the middle of June, 2015 in order to get advice from the Advisory Committee. The example of agenda and proceedings of meeting are recommended by the JICA Study Team.
16. The JICA Study Team requested the data and the information as shown in Session 2, P-39.
17. The Study schedule is behind about 2(two) months from the original schedule in which the presentation of the Progress Report and the holding of 2nd JCC were scheduled at the end of March 2015 since the data collection and river survey delayed and a part of preliminary flood control planning in Stage-2 was implemented in advance. However the submission of the Interim Report (IT/R) in Stage-2 and the completion of the whole Study shall not be delayed.
18. JCC tried to determine the final solution from the 2 (two) alternatives through discussion among members; however the conclusion could not be achieved. In conclusion, the members agreed to report the contents of meeting to each Ministry and/or Agencies. An additional meeting of 2nd JCC on this matter will be held within 2 (two) weeks in which the final decision shall be made.

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture	
Urala Waibuta	Acting Permanent Secretary
Colin Simmons	Director of Land & Water Resource Management
Mahendra Kumar	Principal Agriculture Officer
Reama Naco	Principal Information Officer
Joseva Raibevu	Senior Information Assistant
Umendra Pratap	Assistant Information Officer
Ministry of Fisheries and Forests	
Samaila Naqali	Deputy Secretary
Ministry of Works, Transport and Public Utilities	
Terry Atafilo	Senior Scientific Officer, Fiji Meteorological Service
Ministry of Foreign Affairs and International Co-operation	
Sisalo Otealagi	Director
Apolosi Lewaqai	Principal Administration Secretary
Ministry of Local Government, Urban Development, Housing and Environment	
Ravindra Prasad	Principal Town Planning, Department of Town and Country Planning
Vilame Momoivalu	Executive Officer – EIA, Department of Environment
Ministry of Lands and Mineral Resource Lands Department	
Sanjesh Kumar	Principal Lands Officer
Thomas	Senior Surveyor
Ministry of Rural and Maritime Safety and Natural Disaster Management	
Nicholas Ting	Administrative Officer
Ministry of Finance	
Martin Nahola	Senior Economic Planning Officer
iTaukei Land Trust Board	
Erna Natadra	Regional Manager South
Water Authority of Fiji	
Jone Tubui	Team Leader of Water Resource
Fiji Road Authority	
Dale Nicholls	Manager, Maintenance Works
Nadi Town Council	
Robin K Ali	Senior Administrator
Kunal Pillay	Assistant Engineer
Nadi Chamber of Commerce	
Babu Singh	
Japan Side	
JICA Headquarter	
Masahiro Yamaguchi	Assistant Director
Yoichi Inoue	Deputy Director
JICA Fiji Office	
Hiroyuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Nila Prasad	Program Officer
Japan Embassy	
Yukitsune Kokuba	2nd Secretary
JICA Study Team	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Non-Structural Measures
Observer	
SPC/SOPAC	
Litea Biukoto	Senior Advisor Risk Reduction
Shohei Matsuura	JICA Expert
Others	
NIWA	
Doug Ramsay	Manager Pacific


Reference Documents

References


- 1) Minutes of Meeting of 1st TWG Meeting
- 2) Background and Progress of the Study
- 3) Today's Points in Session 3
- 4) Outline of the Result of Preliminary Study for Flood Control Plan

**MINUTES OF MEETING
OF
THIRD JOINT COORDINATION COMMITTEE
FOR
THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI**

Suva, 30 June 2015



Uraia Waibuta
Chairman
Joint Coordination Committee



Yoshio Nakagawa
Team Leader
JICA Study Team

JCB

Chairman of the 3rd JCC Meeting: Mr. Colin Simmons

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture	
Colin Simmons	Director of Land & Water Resource Management
Mahendra Kumar	Principal Agriculture Officer
Vinesh Kumar	Principal Agriculture Officer West
Epineri C.	Technical Officer
Josevata Raibevu	Senior Information Assistant
Umendra Pratap	Assistant Information Officer
Office of Prime Minister	
Filipe Bainimoli	Director
Ministry of Infrastructure and Transport	
Manasa Lesuma	Deputy Secretary
Ministry of Foreign Affairs and International Co-operation	
Apolosi Lewaqai	Principal Administration Secretary
Vinai D	Project Officer
Ministry of Local Government, Urban Development, Housing and Environment	
Ravindra Prasad	Principal Town Planning, Department of Town and Country Planning
Viliame Momoivalu	Executive Officer – EIA, Department of Environment
Livai Madore	Technical Officer – EIA, Department of Environment
Ministry of Lands and Mineral Resource Lands Department	
Irene Nayacakalou	Principal Valuer
Meizyanne Hicks	Principal Administration Officer
Ministry of Rural and Maritime Safety and Natural Disaster Management	
Sunia Ratulevu	Principal Officer, NDMO
Kaie Wawasa	Executive Officer Planning, CWD
Ministry of Finance	
Ovini Ralulu	Principal Economics Planning Officer
iTaukei Land Trust Board	
Kolinio M	Senior Estate Officer Southwest
Water Authority of Fiji	
Jone Tubui	Team Leader of Water Resource
Fiji Road Authority	
Dale Nicholls	Manager, Maintenance Works
Nadi Town Council	
Meli N	
Hazcen S. Ali	
Nadi Chamber of Commerce	
Babu Singh	
Japan Side	
JICA Fiji Office	
Hiroyuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Nila Prasad	Program Officer
Japan Embassy	
Shinobu Nakai	1st Secretary
JICA Study Team	
Takashi Toyoda	Deputy Team Leader / Flood Management
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Non-Structural Measures

Apologies

Chairman Mr Uraia Waibuta Acting Permanent Secretary for Agriculture

The Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched a study team (hereinafter referred to as “the JICA Study Team”) concerning the Project for the Planning of the Nadi River Flood Control Structures (hereinafter referred to as “the Project”) in August 2014. Since then the JICA Study Team has implemented the study activities of the Stage-1 which is the first stage of the 3-stages of the Project and in which the basic studies such as data and information collection, field investigations, and preliminary analyses and preliminary flood control planning were carried out.

The 2nd Joint Coordination Committee (hereinafter referred to as “JCC”) was presented with the outline of the Master Plan and the two options for the selection of the priority project in the meeting held on 3rd June 2015. The JCC could not arrive at a decision on the selection of the priority project and agreed that this should be referred back to the agencies for further consultation. The 3rd JCC was held on 30 June 2015 to present the findings of the consultations and obtain consensus on the selection of the priority project. The material distributed with explanatory notes is shown in Reference 1. The main items discussed and understood among the JCC members and the JICA Study Team are summarized below:

1. The contents of the Outline of the Flood Control Master Plan and comparison of M-1 (river widening) and M-3 (diversion) for Priority Project were explained by the JICA Study team and confirmed by JCC. The comparison table is shown in Table 1.

Table 1 Preliminary Study of the Comparison of Priority Project

Aspect	M-1 (River Widening)	M-3 (Diverson)	
Main Items	<ul style="list-style-type: none"> River Channel Widening (L=Approx.13km) 	<ul style="list-style-type: none"> Diversion Channel (L=Approx.4km) River Channel Widening (L=Approx.6.5km) River Channel Normalization (L=Approx.6.5km) 	
Affect to Existing Public Facilities	<ul style="list-style-type: none"> Rebuilding of bridge(2): Nadi Town Bridge (Namotomoto Bridge) (L=Approx.140m) Old Queens Road Bridge (L=Approx.140m) 	<ul style="list-style-type: none"> Rebuilding of bridge(1): Old Queens Road Bridge (L=Approx.140m) New Construction of bridge(2) over diversion: Queens Road (L=Approx.80m) Bypass Road (under construction) (L=Approx.80m) 	
Flood Control safety degree (Effectiveness)	Reduced Inundated Area in Important Protected Area by Priority Project	Good	Good
	Reduced Inundated Area in a whole river basin by Priority Project	A = 330ha → 0ha	A = 330ha → 0ha
		Good	Good
		5,129ha → 3,158ha (-38%)	5,129ha → 3,006ha (-41%)
Construction Period	4-5years	3-4 years	

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Sustainability (O&M in the future)		Medium	Medium
		Necessity of Maintenance Dredging for Nadi River	Necessity of Maintenance Dredging for Nadi River and Diversion
Social Impact	Land Acquisition	Native Land: 79ha Free Hold Land: 39ha Total: 118ha	Native Land: 60ha Free Hold Land: 62ha Total: 122ha
	Number of House Relocations	28 houses	40 houses
Environmental Impact (Shoreline)		Although influence of river widening is considered, it is assumed that shoreline at Nadi river mouth will not be changed so much from current profile.	Outflow discharge with sediment from diversion channel and Nadi river will be affected to future shoreline after large flood occurrences. The numerical analysis will be conducted and the result will be expressed in next stage.
Cost Ratio (Based on rough cost estimate)		1.00	0.98 (in case that cost of M-1 is 1.00)

2. The Ministry of Agriculture (hereinafter referred to as "MOA") and the JICA Study team visited and provided additional explanation to the following agencies after the 2nd JCC meeting to obtain their opinions.

- Ministry of Foreign Affairs and International Co-operation
- Ministry of Works, Transport and Public Utilities
- Ministry of Local Government, Urban Development, Housing and Environment
- Ministry of Lands and Mineral Resources
- Ministry of Rural and Maritime Safety and Natural Disaster Management
- Ministry of Finance
- Ministry of Strategic Planning, National Development and Statistics
- Commissioner Western Division
- iTaukei Land Trust Board (TLTB)
- Water Authority of Fiji (WAF)
- Fiji Meteorological Services (FMS)
- Fiji Road Authority
- Nadi Town Council
- Nadi Chamber of Commerce

3. The summary of the opinions of these agencies and the Public Consultation Meeting held on June 17 in Nadi were presented by the JICA Study team. Those are shown in Table 2 and Table 3.

Table 2 Summary of the opinions of Agency Consultation

Aspect	M-1 (River Widening)	M-3 (Diversion)
Positive opinion	<p><u><Social and Environmental Impact></u></p> <ul style="list-style-type: none"> ● The social and environmental impact is less than the Diversion. ● Only Moala Village will be impacted with the river widening project. To lessen this impact on Moala Village, retaining wall (actually ring dike) will be built. ● Number of House Relocations is less. ● All projects will be approved after consideration has been made on the social and environmental impacts. (Government Policy for all capital projects) ● River widening is more natural than the Diversion. <p><u><Development, Tourism and Town Planning></u></p> <ul style="list-style-type: none"> ● It will create new values to river bank properties and promote new developments, residential & commercial ● It will open up opportunities to create new tourism, recreational and beautification concepts to Nadi Town & communities ● It will enhance Nadi Town's visions of creating a "New City" with the new river and bridge as its development features. <p><u><Residents Opinion, Consensus></u></p> <ul style="list-style-type: none"> ● River Widening seems to be easy to be accepted by the people along the river because they are damaged by flood 	<p><u><Flood Flows></u></p> <ul style="list-style-type: none"> ● Flood is diverted fast to sea before flowing into central area of Nadi Town without much interruption. <p><u><Nature restoration></u></p> <ul style="list-style-type: none"> ● If the old river channel route that is dried up near McDonald's is used, it will return back to its past natural situation. <p><u><Construction Period></u></p> <ul style="list-style-type: none"> ● Diversion Channel construction period shorter than river widening.

	<p>many times.</p> <ul style="list-style-type: none"> ● It keeps the general population demographics in existing communities. <p><Flood Flows></p> <ul style="list-style-type: none"> ● It will ease current erratic flow of river <p><Construction, Disposal></p> <ul style="list-style-type: none"> ● The fill material gained from the river excavations can be used to enhance current low ground in villages & communities to be utilized as farmland or new development. 	
Negative opinion and Concerned Issues	<p><Impact to Down Stream, Measures in Downstream></p> <ul style="list-style-type: none"> ● Widening does not reach up to the sea. Therefore, there is risk that flood will accumulate at the end point of widening, near Moala Village and spread around town, in particular to Moala Village and surrounding flat lands. ● Current river mouth is narrow 	<p><Social and Environmental Impact></p> <ul style="list-style-type: none"> ● With the diversion project, new route/channel has to be created which will have greater social and environmental impacts. ● 40houses will be relocated and other problems like traffic congestion will occur due to the construction of the new diversion channel in the area. ● Seacoast line will be changed at Nadi Bay and River mouth. In addition, potential for development utilization will be drastically changed at Nadi Bay. <p><Risk in the future></p> <ul style="list-style-type: none"> ● If an overflow occurs over the diversion channel from a flood greater than its capacity, this will cause more disaster. In addition, there is a possibility that the airport will be inundated. ● There is a risk for children to drown when flood flows in diversion channel suddenly like flash flood.

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		<p><Development, Tourism and Town Planning></p> <ul style="list-style-type: none"> ● The construction of new diversion channel will have an effect on the current hotel developments in the area. ● Value of assets near Diversion will be decreased. ● Extensive negotiation with current developments will be required. <p><Utilization and Landscape></p> <ul style="list-style-type: none"> ● Nadi Bay is good public beach and sea water is clean because mud rarely flows into the bay. ● The discharge of flood water & debris into Wailoaloa will further damage the ecosystems and the name Wailoaloa (Black Water) will be a negative reality, as visitors fly into Nadi and view this reverse of nature. From natural blue water to black. ● Diversion channel is artificial and create a "major" scar in the natural landscape. ● As the channel will be empty most of the time, high risk of its use as a dumping ground for garbage. ● The whole of the Wailoaloa Bay Tourism activity and potentials to be as dynamic as Denarau will be affected. <p><Environment></p> <ul style="list-style-type: none"> ● As Salt water will enter from the sea side exit point, this water will permeate into the soils and change/harm the
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		<p>groundwater dynamics, flora and fauna.</p> <p><Construction></p> <ul style="list-style-type: none"> ● New bridges will need to be built at a high cost.
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Table 3 Summary of the opinions of public consultation

Participant's views	Issues	River Widening	River Diversion
1	More information on rainfall and issues of flooding in Nadi is required. Need to address drainage issue with all the developments occurring was mentioned.	Information such as inundation of river and rise in sea level during cyclone are needed to be provided.	
2	Decision would be made considering the public consultation, not as a formality. Asking for some case scenarios of flood countermeasures in other countries which JICA Study Team was involved.		
3	Solution should address to improve flow out to sea.	River widening should be extended to the river mouth.	Possible solution is to divert flood all the way to sea.
4	Development Potential	It will create opportunities for recreation and tourism development as in China for similar works.	Chinese Hotel investor do not support because the acquired land will be affected. It will cause environment impacts of construction and debris into Wailoaloa beach during flood.
5	Information on reason and cause of flooding are required. People should be aware that the Nawaka River also contributes to flooding.	(No comment)	It has low priority because flood damage is also caused by the Nawaka River.
6	Proposal of shorten the Nadi River from below Nadi Bridge to Moala Village.	To consider widen and shorten river length out to sea.	(No comment)

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7	Which option is more effective?	Effectiveness and construction cost are almost the same.	
8	Question about risks of extraordinary flood	Support of river widening and shortening because damage by extraordinary flood seems to be smaller than diversion plan.	There is no guarantee for future larger floods than target scale. Diversion will probably cause problems in areas where no flooding larger than widening plan when extraordinary flood occurs.
9	Mataqali Land	(No comment)	Mataqali Land representative supports this plan because Mataqali land will not be affected.
10	Developments, Cost factor and land acquisition should be considered. Any options cannot avoid all floods or disaster.	Support of widening with bank protection and dykes. It has potential use for recreation and tourism developments.	It will be more expensive.
11	Drainage system of Denerau Road is not good enough. People purchasing land are raising its level which is contributing to the change in drainage patterns.	(No comment)	It has negative impact on tourism development in the Wailoaloa area. Silting coming from the diversion will affect the Denarau Marina. Salinity intrusion and effect on groundwater should be taken into consideration.
12	There is a possibility to use material to raise banks and create lakes for storage of the flood waters	Support of shortening and widening river to the mouth.	(No comment)
13	Consultation will provide support to the Study Team and the proposed options. Plea to land owners for collective understanding and not self-interests.	It will support the goal to develop Nadi City. It will also provide recreational and development potential, land value improvement raise status and value.	It will be a scar on the landscape and will be dry most of the time and only in use when a flood occurs. It will also cause seawater intrusion and have an effect

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	Both options will have same cost and effectiveness.		on groundwater.
14	Interested in the new Nadi Bridge which will be rebuild.	Support of widening and also considering relocation of the Nadi Bridge.	
15	Dykes near the Namulomulo Bridge are worn out and other side is covered with sand. Pollution and blockage of creek with rubbish should be considered.	(No comment)	(No comment)

4. The following agencies that had not provided their opinions were invited to do so as described below.

- Ministry of Lands and Mineral Resources: They agree with M-1 (river widening).
- Ministry of Infrastructure and Transport: They support M-1 (river widening). Utility services will be affected by the river diversion.
- Department of Town and Country planning: They support M-1 (river widening).
- TLTB: will facilitate the land issues for either M-1 or M-3
- NDMO: Support M-1 (river widening).
- FRA: River widening provides opportunities for easing traffic congestion in Nadi with the rebuilding or relocation of the bridge.
- Department of Environment: Agree with M-1.
- Ministry of Foreign Affairs and International Co-operation: Agree on M-1.
- Ministry of Finance: Commented that the option should support development goals and be sustainable due to disaster and rehabilitation costs that follow after flooding.

5. The JCC in considering these issues agreed that the consensus among JCC members was the selection of M-1 (river widening) as the priority project. The summary of the decision is shown in Table 4.

Table 4 Summary of opinions on the selection of the priority project

	JCC Member	Support
1	Permanent Secretary for Foreign Affairs and International Co-operation	M-1: Widening
2	Permanent Secretary for Agriculture	M-1: Widening
3	Permanent Secretary for Fisheries and Forests	-
4	Permanent Secretary for Works, Transport and Public Utilities	M-1: Widening
5	Permanent Secretary of Local Government, Urban Development, Housing and Environment	M-1: Widening
6	Permanent Secretary of Lands and Mineral Resources	M-1: Widening
7	Permanent Secretary of Rural and Maritime Safety and Natural Disaster	M-1: Widening

	Management	
8	The Commissioner Western Office	M-1: Widening
9	Permanent Secretary of Finance	M-1: Widening
10	Permanent Secretary Strategic Planning, National Development and Statistics	
11	Permanent Secretary for iTaukei Affairs	-
12	The General Manager iTaukei Land Trust Board (TLTB)	Neutral
13	The Chief Executive Officer, Water Authority of Fiji (WAF)	M-1: Widening
14	The Director, Fiji Meteorological Services (FMS)	-
15	The Chief Executive Officer, Fiji Road Authority	Neutral
16	The Special Administrator Nadi Town Council	M-1: Widening
17	The Nadi Chamber of Commerce	M-1: Widening

6. The JICA Study team further advised and provided the JCC with the following explanation for the priority project

- The flood control measures downstream of the Nadi River and the utilization of low-lying land as a natural retarding basin and ring dike surrounding the Moala Village are proposed as a part of the priority project to avoid inundation in the village even after the implementation of the priority project.

7. The JICA Study team explained that the detailed alignment of the river widening will be examined in the next stage. The Nadi Town Council and Nadi Chamber of Commerce desire to widen the Nadi River up to the river mouth, which will be considered and described in the Master Plan. This will be discussed with the relevant organizations regarding the detailed alignment and form of the widened river channel.

8. The draft contents of the 1st public consultations and stakeholder meeting was explained by the JICA Study team. The issue of the Cut-Off Date was discussed and confirmed that this will be determined by the Government of Fiji after the completion of the Study for the Project for the Planning of the Nadi River Flood Control Structures, when a decision is made for implementation of the project.

9. The decision of the JCC and outline of the project details will be explained at the 1st public consultation meeting which will be held on 2 July in Nadi Town.

10. The following advice was also made by the JCC members :

- The notice for public consultation should be given wide circulation to land and resource owners for their attendance at the consultation meeting.

→ MOA answered that the public notice will be issued by 30 June, 2015.

The followings to take into consideration during the feasibility and Implementation phase of the project as described below.

- River improvement is considered as development. Therefore, the plan and applications will be

submitted to the relevant authorities, such as Nadi Town Council and Nadi Rural Local Authority.

- Areas affected within the Nadi town boundary require discussion with relevant authorities. Outside of the town boundary, an application for development should be submitted to Nadi Rural Local Authority and the Director of Town and Country Planning.
- Since M-1 (river widening) includes Native Land, proper consultation is required for acquisition, relocation or compensation.
- For environment issues, consultation with land owners and approving authorities such as Ministry of Lands are required.

11. Data and information required for next stage was announced and the request made by MOA and the JICA Study team for the full support of the JCC members for the Feasibility Phase of the Project.

12. The JICA Resident Representative, Mr. Hiroyuki Sawada expressed his appreciation for the consensus and decision made by the JCC Meeting.



Reference Documents

References

Reference 1: Distributed materials at the 3rd JCC Meeting



MINUTES OF MEETING
OF
FOURTH JOINT COORDINATION COMMITTEE

FOR
THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI

Suva, 2 November 2015


Uraia Waibuta
Chairman
Joint Coordination Committee


Yoshio Nakagawa
Team Leader
JICA Study Team

Chairman of the 4th JCC Meeting: Mr. Uraia Waibuta

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture	
Uraia Waibuta	Acting Permanent Secretary
Colin Simmons	Director of Land & Water Resource Management
Mahendra Kumar	Principal Agriculture Officer
Reana Naco	Principal Information Officer
Matila Cawaru	Clerical Officer
Ana Bukarau	Recorder
Ministry of Fisheries and Forests	
Eroni Talemaikanacea	Fishery Officer Western
Ministry of Infrastructure and Transport	
Terry Atalifo	Principal Scientific Officer, FMS
Ministry of Rural and Maritime Safety and Natural Disaster Management	
Kaic Wawasa	Executive Officer Planning, CWD
Ministry of Finance	
Robert Sovatabua	Acting Senior Economics Planning Officer
Martin Nabola	Senior Economics Planning Officer
Epeli Waqavonovono	Economics Planning Officer
iTaukei Land Trust Board	
Marama Sukani	Regional Officer
Water Authority of Fiji	
Jone Feresi	
Miteshwar Chand	
Fiji Road Authority	
Ian Hunters	Coastal Work Manager
Nadi Town Council	
Robin K. Ali	Special Administrator
Hazeen S. Ali	Manager Engineering
Meli Naca	Building & Planning
Nadi Chamber of Commerce	
Babu Singh	Board Member
Japan Side	
JICA Fiji Office	
Hiroyuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Nila Prasad	Program Officer
Japan Embassy	
Yukitsune Kokuba	2nd Secretary
JICA Study Team	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Masahiro Kitano	Flood Control Planning / River Planning
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Non-Structural Measures
Yu Kaneko	Operational coordination / Flood Control Planning, River Planning Assistance
Regional Organization	
SPC/SOPAC	
Marc Wilson	Director R2R



Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a study team (hereinafter referred to as "the JICA Study Team") concerning the Project for the Planning of the Nadi River Flood Control Structures (hereinafter referred to as "the Project") in August 2014. Since then JICA Study Team has implemented the study activities of the Stage-1 and Stage-2 which are the first and second stage of the 3-stages of the Project and in which the basic studies and the master plan studies were carried out.

The JICA Study Team compiled the study results during the Stage-2 in the Draft of Interim Report and submitted it to the Ministry of Agriculture (hereinafter referred to as "MOA") on 30 October 2015.

On 2 November 2015, The Joint Coordination Committee (hereinafter referred to as "JCC") and the JICA Study Team held meeting on the Interim Report and other related important matters based on the distributed explanation materials of the Interim Report. The list of attendance of this meeting is described in the previous page. And the explanation materials are also attached as the references.

The main items that were discussed and understood upon between JCC and the JICA Study Team are summarized as follows:

1. The JICA Study Team explained the following matters in the 3 (three) sessions of the distributed materials to JCC members.

Session 1: Progress of the Study and Outline of Interim Report

1. Outline of the Study and Schedule
2. Progress of the Study and Outline of the Interim Report
3. Prospective of the Next Stage
4. Additional Data and Information Request for the Study
5. Public Consultations and Stake holders Meeting

Session 2: Outline of Master Plan and Priority Project

1. Master Plan
2. Priority Project
 - 2.1 Detailed Review of Priority Project
 - 2.2 Effect of Surrounding Dike
 - 2.3 Mitigation Measures for Negative Impact
3. Summary

Session 3: Issues toward Implementation of the Project

1. Process to the Implementation of the Project
2. General Process and Timeline of Loan Project
3. Proposal of a Task Force for Preparation of the Project

2. Session 1: Progress of the Study and Outline of Interim Report

- 2-1. The JICA Study Team presented and explained the progress and the contents of the Draft of Interim Report. The chapters composed of the Interim Report were explained.
- 2-2. This Draft Interim Report was accepted by the JCC, though after detail review of the report by the JCC members, the report shall be finalized by the JICA Study Team considering the questions, comments and revisions presented by the JCC.
- 2-3. The meeting was informed of the Non-Structural Measures and the issues for better understanding of disaster risk and avoidance, evaluation of pre-disaster activities, existing measures and feedback. The proposed Non-structural Measures in the Master Plan including that of the Priority Project shown in Session 1, P-8 is acceptable.
- 2-4. In the prospective schedule of the Study, the Feasibility Study for the Priority Project shall be conducted in stage-3, and the outline of the result shall be confirmed on February 2016 at the 5th JCC. Draft Final Report shall be submitted in April 2016.
After the 4th JCC meeting, the 2nd Public Consultation and Stake holders meeting will be held at the end of November 2015 or at latest at the beginning of December 2015.
- 2-5. The JICA Study Team requests the data and the information as shown in Session 1, P-19 and they will be supplied by the related agencies.
- 2-6. In the 2nd Public Consultation and Stake holders meeting, the items such as "Outline of components of M/P and Priority Project", "Scheme of Environmental and Social Considerations (EIA and Resettlement Action Plan)" shall be explained (refer to Session 1, P-20,21).

3. Session 2: Outline of Master Plan and Priority Project

- 3-1. The JICA Study Team informed the JCC of the comprehensive approach for the Flood Control Master Plan and the components of the Master Plan and the Priority Project determined are shown below (refer to Session 2, P-8).

Stage		Structural Measures
Structural Measures	Short Term (Priority Project)	i) River Widening in middle stream ¹⁾ ii) Retarding Basins in up stream iii) Countermeasures for negative impact - Ring Dike - Surrounding Dike - Smoothing of alignment (Shortcut) of the Nawaka River and the Malakua River
	Middle Term	iv) Retarding Basin and River Improvement in downstream ²⁾ v) River Improvement and Retarding Basins in tributaries ³⁾ vi) Dam and river improvement in upstream

1) Rebuilding of 2 (two) bridges are included in this component.

2) Dike along the Queen's Road is included in this component.

3) Rebuilding of 4 (four) bridges in tributaries are included in this component.

3-2. The JICA Study Team updated the JCC on the decision made at the 3rd JCC Meeting for the selection of the river widening, and countermeasures for the retarding basin, dike around Nadi Town and Moala Villages for the Priority Project. Following further detailed investigations, the JICA Study Team explained the need to review the countermeasure components of the Priority Project as described in detail below.

- Due to the construction of the surrounding dike for Nadi town, the negative impact of increase in inundation depth will occur mainly at left bank side at Nawaka and Malakua Rivers since the surrounding dike prevents the flow of the flood water from the both tributaries. The proposed reviewed alignment of the surrounding dike along the Nawaka River and its negative impact of the increase in the depth of inundation were explained by the JICA Study Team (refer to Session 2, P-13 to 21). The JICA Study Team explained that without the surrounding dike the Important Protected Area affected will be inundated, with the surrounding dike the inundation depth increase varies from 0.05m to 0.43m and will affect 188 homes.
- Cancellation of dike along the Queen's road was explained by the JICA Study Team (refer to Session 2, P-12). Since the negative impact does not occur in the area the dike is intended to protect this will not be required. This is described on the distributed explanation materials (refer to Session 2, P-12)

3-3. The following mitigation measures were proposed for the negative impact against the increase in inundation depth were explained by the JICA Study Team (refer to Session 2, P-22 to 24).

1) A group of 7 (seven) retarding basins (Approximately 185ha in total area); and

2) Smoothing of alignment (shortcut) of the Nawaka River and Malakua River (Approximately 500m in length and 30m in width), were compared.

The smoothing of alignment was found to be the better solution.

3-4. The JCC members agreed with the following components for the Priority Project.

- Reviewed alignment of surrounding dike along the Nawaka River
- Smoothing of alignment (Shortcut) of the Nawaka River and the Malakua River

The Ministry of Agriculture will inform Cabinet of the reviewed components of the Priority Project, in a Cabinet Paper.

3-5. River improvement and a group of retarding basins are accepted as the components of the Master Plan for the Nawaka River and the Malakua River.

3-6. Feasibility Study for the Priority Project will be able to commence immediately.

4. Session 3: Issues toward Implementation of the Project

4-1 As to the implementation and O&M of the Project, the approval of the project implementation and declaration of cut-off date shall be considered as early as possible by Fiji Government so that the JICA Study Team will effectively assist the Government on the implementation of EIA and development of Resettlement Action Plan in this study period.

4-2. Institutional arrangement for project implementation, which Fiji government has a responsibility, shall be conducted in line with implementation of Environment and Social Consideration Study and development of the Resettlement Action Plan, which are implemented by the JICA Study Team in the Project. A task force and a framework for project implementation were proposed. This will consist of key government agencies.

4-3. The following procedures, negotiations, surveys and so on are required to be considered by the Fiji Government before the implementation of the Project.

- EIA for implementation incl. disclosure process after the declaration of cut-off date
- Negotiations with residents for Land Acquisition, Lease, Compensations, House, Relocations, etc.
- Surveys and documentation for Boundary Settings, Fishing Rights, Business (Tenants), Merchantable Trees, etc.
- Loan agreement (Funding Agreement) for the Project, etc.

Reference Documents

Reference

Reference: Distributed materials at the 4th JCC Meeting

Session 1: Progress of the Study and Outline of Interim Report

Session 2: Outline of Master Plan and Priority Project


Session 3: Issues toward Implementation of the Project

**MINUTES OF MEETING
OF
FIFTH JOINT COORDINATION COMMITTEE
ON
THE FEASIBILITY STUDY
FOR
THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI**

Suva, 26 April 2016



Jitendra Singh
Chairman
Joint Coordination Committee



Yoshio Nakagawa
Team Leader
JICA Study Team

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture	
Jitendra Singh	Permanent Secretary
Colin Simmons	Director of Land & Water Resource Management
Khin Maung Cho	Principal Engineer of LWRM
Vinesh Kumar	Principal Agricultural Officer West
Binesh Prasad	Senior Agricultural Officer West
Ministry of Infrastructure and Transport	
Puamau Sowane	Deputy Secretary Infrastructure
Susana Pulmi	Director Water, Sewerage and Energy
Ministry of Lands	
Meizyenne Hicks	Senior Technical Officer
Ministry of Fisheries and Forests	
Lasarusu Turaga	Senior Forestry Officer
Ministry of Finance	
K. Prasad	Deputy Secretary
Epele Waqavonovono	Senior Economic Planning Officer
Isoa Talemanibus	Principal Economic Planning Officer Budget
Ledua Vakaloloma	Senior Economic Planning Officer Budget
Office of Prime Minister	
Edward Tuidau	Deputy Secretary, Dev. Cooperation Facilitation Office
Ministry of Foreign Affairs	
Vakacca Kedrayate	Oceania Asia & Russia (OAR) Bureau
Ministry of Local Government	
Nilesh Naidu	Senior Administration Officer
Mere Rayawa	Senior Economic Planning Officer (Housing)
Taukei Land Trust Board	
Epele Nadraiqere	Senior Land Use Planner
Fiji Roads Authority	
Ian Hunter	Capital Works Manager
Nadi Town Council	
Robin Ali	Special Administrator
Meli Naevo	Building & Planning
Nadi Chamber of Commerce	
Babu Singh	Board Member
Water Authority of Fiji	
Jone Peresi	Acting General Manager Construction
Japan Side	
JICA Fiji Office	
Hiroyuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Niho Prasad	Program Officer
JICA Headquarter	
Masayoshi Ono	Southeast Asian and Pacific Department, Country Officer
Japan Embassy	
Yukitsune Kokubu	Second Secretary
Tomonoki Miyamoto	Second Secretary
JICA Study Team	
Yosho Nakagawa	Team Leader
Takasi Toyoda	Deputy Team Leader
Metuisela Mua	Local Staff
Ameima Ratubuli	Local Staff
Regional Organization	
SFC/SOPAC	
Rajendra Prasad	Geo Science Division

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a study team (hereinafter referred to as "the JICA Study Team") concerning the Project for the Planning of the Nadi River Flood Control Structures (hereinafter referred to as "the Project") in August 2014. Since then the JICA Study Team has implemented the study activities of Stage-1, Stage-2 and Stage-3 which are the 3-stages of the Project in which the basic study, the master plan study and the feasibility study were carried out respectively.

The JICA Study Team compiled the feasibility study results during the Stage-3 and submitted the explanation materials to the Ministry of Agriculture (hereinafter referred to as "MOA") on 25 April 2016. On 26 April 2016, The Joint Coordination Committee (hereinafter referred to as "JCC") was held and the JICA Study Team has presented the results of the Feasibility Study and other related important matters based on the distributed explanation materials. Attached are as the references.

The main items that were discussed and understood upon between the JCC and the JICA Study Team are summarized as follows:

1. The JICA Study Team explained the following matters in the 3 (three) sessions of the distributed materials to JCC members.

Session 1: Progress of the Study and Outline of the Feasibility Study

1. Outline of the Study and Schedule
2. Progress of the Study and Outline of the Feasibility Study
3. Prospective of the Next Stage
4. Public Consultation and Stake Holders Meeting
5. Introduction of Seminar

Session 2: Result of Feasibility Study of Priority Project

1. Component of Priority Project
2. Outline of Design of Priority Project
 - ① River Widening
 - ② Retarding Basin A, B
 - ③ Surrounding Dike
 - ④ Ring Dike
 - ⑤ Shortcut of tributaries
 - ⑥ Nadi Town Bridge
 - ⑦ Old Queens Road Bridge
3. Feasibility (Tentative)

Session 3: Issues toward Implementation of the Project

1. Project Implementation
 - 1.1 Project Implementation Schedule

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2-3. In the 3rd Public Consultation and Stake holders meeting, the Study Team explained the objective is to promote understanding and cooperation among the local residents and related agencies and

2-2. In the prospective schedule of the Study, the Feasibility Study for the Priority Project shall be completed until the end of May 2016 and the Draft Final Report shall be submitted to the 6th JCC at the end of May 2016. The Final Report shall be submitted to MOA at the beginning of July 2016. After the 5th JCC meeting, the 3rd Public Consultation and Stake holders meeting will be held on either 3rd or 4th May 2016.

The JICA Study Team explained during the feasibility study, additional survey and geotechnical investigation survey were done, the environmental and social survey on-going, and the design of the Priority Project was done. The cost estimation and confirmation of economic evaluation in progress and will be finalized once the land acquisition is completed by Ministry of Lands. The JCC noted and accepted the progress of the Feasibility Study. The JICA Study Team informed the JCC that it had undertaken further consultations and briefing with the Prime Minister's Office, Foreign Affairs, Ministry of Finance and the Minister for Agriculture, Rural and Maritime and National Disaster Management.

- The JICA Study Team presented and explained the completed items of the above and the progress of the remaining items.
- The JICA Study Team explained that during the feasibility study, additional survey and geotechnical investigation survey were done, the environmental and social survey on-going, and the design of the Priority Project was done. The cost estimation and confirmation of economic evaluation in progress and will be finalized once the land acquisition is completed by Ministry of Lands. The JCC noted and accepted the progress of the Feasibility Study.
- The JICA Study Team informed the JCC that it had undertaken further consultations and briefing with the Prime Minister's Office, Foreign Affairs, Ministry of Finance and the Minister for Agriculture, Rural and Maritime and National Disaster Management.

2. Session 1: Progress of the Study and Outline of the Feasibility Study

- 1.2 Proposed Project Implementation Structure
- 2. Social and Environmental Study Results by JICA Study
 - 2.1 Outline of result of JICA EIA study
 - 2.2 Required following EIA process by Fiji side

2-1. The contents of the Feasibility Study are as follows:

organizations of the necessity of the Project and to collect opinions for the Project.
 ✓ The outline of the design of the Priority Project, Scheme of Environmental and Social Considerations (EIA, RAP: Resettlement Action Plan), Contents of the Social Survey by the JICA Study and general schedule of next process shall be explained.

2-4. The JICA Study Team presented the proposed seminar on related issues to the flood control projects in Fiji and Japan. The objective is to introduce Japanese Technology and lessons learnt for water related disaster, to present the outline of the Study and issues towards promoting project implementation. The seminar will be held after the 6th JCC meeting during the week of 11th day of July 2016. The seminar will comprise of presentations from Fiji Agencies, the JICA Study Team and Japanese experienced administrative officer and professor. The tentative topics would consist of the following issues:

	No	Topic	Presenter
Fiji Side	1	Current Status and Issues of water-related disasters and disaster prevention measures in Fiji	NDMO
	2	Current Status and Issues of flood control measures, introducing flood control projects (early warning systems, community disaster prevention)	MOA
	3	Achievements of training in Japan and Flood Control Management of Nadi River Basin in the future.	MOA
Japan Side	1	Outline of the Study Result	JICA STUDY TEAM
	2	History of water-related disaster prevention "Bosai" in Japan	Experienced administrative officer
	3	River Planning and Engineering	Associate Professor
	4	Implementation of river management and flood control projects in Japan	Experienced administrative officer
	5	Responding to flood disaster in Japan	Experienced administrative officer

2-5. The JICA Study Team explained the outline of the situation of the Tropical Cyclone Winston and Zena. The issue highlighted was the cause of inundation in Nadi Town from the Nawaka River and the comparison of the rainfall with the 2012 flood. The height of the river levels at the Nadi Bridge for the 2012 flood, the design high water level after the widening of the river and the current level caused by Tropical Zena was indicated.

Mr Rajendra Prasad from SPC commended the JICA Study Team on the presentation of the progress and expressed his appreciation for the works done. The representative from iTLTB Mr Epeli Nadraiqere enquired on whether the design high water level was a result of only the river widening. The JICA Study Team explained that it is the result of the implementation of the Priority Project.

3. Session 2: Result of Feasibility Study of Priority Project

3-1. The components of the Priority Project agreed to at the previous JCC meeting shown below was presented.

- ① River Widening
- ② Retarding Basin A, B
- ③ Surrounding dike
- ④ Ring Dike
- ⑤ Shortcut of tributaries
- ⑥ Rebuilding of Bridge (Nadi Town (Namotomoto) Bridge)
- ⑦ Rebuilding of Bridge (Old Queens Road Bridge)

3-2. The outline of the design features of the Priority Project described above was explained by the JICA Study Team and was accepted by JCC. All components are important and required in order to eliminate the inundation in the Important Protected Area as the Priority Project. The effectiveness of the widening of the Nadi River was presented as an example in reducing the inundation area and water level within the priority project area.

3-3. The economic evaluation, the economic evaluation indexes, premises of evaluation, consideration of flood control benefit and project cost evaluation were explained and accepted by JCC. The components of the cost estimated in the economic evaluation such as base cost (construction and engineering cost), contingency cost, land acquisition and compensation cost, project administration cost, O&M cost was explained and accepted by JCC.

Mr Rajendra Prasad from SPC raised the issue of sustainability in regards to sedimentation and maintaining the river levels and inflow levels into the retarding basins. The JICA Study team explained that a sedimentation study was undertaken. However, sedimentation is natural phenomenon, therefore maintenance work such as dredging will be required depending on situation of sedimentation. Mr Vinesh Kumar of the Ministry of Agriculture commented that the LWRM Division has a program of constructing retention dams which also serve as sediment trap, and there are also plans for reforestation in the Nadi Catchment.

Mr Epeli from iTLTB enquired whether there would be a change in the landuse in the retarding basin as the area is mainly sugar which would be flooded. The JICA Study Team explained that the inflow level into the retarding basin is set for approximately 1:10 year flood return period. The frequency of inundation would be reduced and damages would be reduced.

The Finance representative Mr Epeli Waqavonovono enquired on the impact of the retarding basin in the Namaka and Martintar areas near the Nadi International airport. The JICA Study team explained that any inundation would not be caused from the river flooding in the Important Protected Area after the Priority Project or from the floods less than the design targeted flood, but from rainfall and drainage issues in these areas.

Mr Jone Feresi representative of Water Authority of Fiji raised the issue of the impact of the project on

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areas outside the Priority Project area. The Study Team explained that the 2012 flood which has a return period of 1:50 year flood is the design target. The Master Plan has measures proposed to address this. Ring Dike and Short cut of Tributaries are some of the counter measures to mitigate the negative impact by river widening and surrounding dike. Non-structural measures such as early warning system, flood hazard maps and disaster response to support the Priority Project is also recommended for implementation.

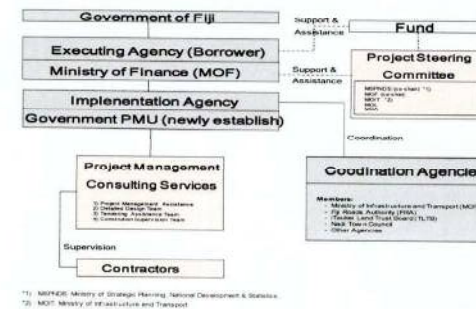
4. Session 3: Issues toward Implementation of the Project

4-1. The tentative implementation schedule of the Priority Project was presented by JICA Study Team as an example.

The following issues were explained:

- Institution Arrangement for project preparation
- Loan Agreement Process (Project Preparation, Application, Fact Finding, Appraisal, Pledge, Loan Agreement (L/A), Loan Effective)
- Selection of Consultant for Detailed Design and Construction Supervision
- Detailed Design
- EIA incl. disclosure process, Public Consultations and declaration of implementation like moratorium
- Surveys and documentation for Boundary Settings, Fishing Rights, Business (Tenants), Merchantable Trees, etc.
- Negotiations with residents for Land Acquisition, Lease, Compensations, House Relocations, etc.
- Selection of Contractor, etc.

4-2 The tentative project implementation structure for the Priority Project was presented by JICA Study Team as shown below as an example, its establishment recommended as soon as possible for the early commencement of the Priority Project.



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4-3. The outline of the assessment of environmental and social impacts caused by the Priority Project such as pollution, natural conditions and social conditions and preparation of resettlement action Plan (RAP) was explained by JICA Study Team. The results of the assessment indicate that the change of natural & social conditions is relatively small, and the number of relocation limited to 17 houses in the Feasibility Study. This was noted and accepted by the JCC.

4-4. The required EIA process to be followed by Fiji side was explained by JICA Study Team together with the JICA EIA study results which was accepted by JCC. The EIA by Fiji is the process that is required as soon as possible for the early commencement of the Priority Project.

5. Concluding Remarks

The Permanent Secretary for Agriculture thanked the JCC members for their participation. The project requires stakeholder accountability for their constructive contribution before and not after the completion of the study. There are positive and negative issues and social costs to deliberate upon, however the objective is to remain focused on the bigger picture for flood mitigation and control.

Reference Documents

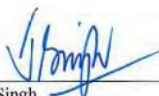
Reference

- Reference: Distributed materials at the 5th JCC Meeting
- Session 1: Progress of the Study and Outline of Feasibility Study
- Session 2: Result of Feasibility Study of Priority Project
- Session 3: Issues toward Implementation of the Project

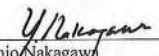
MINUTES OF MEETING
OF
SIXTH JOINT COORDINATION COMMITTEE
ON
THE DRAFT FINAL REPORT
FOR

THE PROJECT FOR THE PLANNING OF THE NADI RIVER
FLOOD CONTROL STRUCTURES
IN
THE REPUBLIC OF FIJI

Suva, June 6, 2016



Jitendra Singh
Chairman
Joint Coordination Committee



Yoshio Nakagawa
Team Leader
JICA Study Team

List of Attendance

Name	Position
Fiji Side	
Ministry of Agriculture, Rural and Maritime Development and National Disaster Management	
Jitendra Singh	Chairman, Permanent Secretary for Ministry of Agriculture
Colin Simmons	Director of Land & Water Resource Management
Khin Maung Cho	Principal Engineer of LWRM
Mahendra Kumar	Principal Agricultural of LWRM
Timoci Ratudradra	Information Officer
Ministry of Local Government, Housing, Environment, Infrastructure & Transport	
Puamau Sowane	Deputy Secretary Infrastructure
George Tavo	Divisional Engineer (Western)
Vilame Vercivalu	Principal Scientific Officer, Fiji Meteorological Service
Livai Nadore	EIA Officer, Environment
Attorney-General and Minister for Finance, Public Enterprises, Public Service & Communications	
Makereta Korote	Permanent Secretary for Ministry of Finance
Krishna Prasad	Deputy Secretary (Strategic Planning)
Epeli Waqavonovono	Senior Economic Planning Officer
Kamal Gounder	Principal Economic Planning Officer (Strategic Planning)
Office of Prime Minister	
Sharon Lakhan	Administration Officer
Ministry of Foreign Affairs	
Vakaoa Kedrayate	Oceania Asia & Russia (OAR) Bureau
iTaukei Land Trust Board	
Epeli Nadraiqere	Senior Land Use Planner
Fiji Roads Authority	
Ian Hunter	Capital Works Manager
Nadi Town Council	
Robin Ali	Special Administrator
Water Authority of Fiji	
Jone Feresi	Acting General Manager Construction
Japan Side	
JICA Fiji Office	
Hiroyuki Sawada	Resident Representative
Shinya Tamio	Deputy Resident Representative
Shunichiro Ikeda	Assistant Resident Representative
Nila Prasad	Program Officer
Japan Embassy	
Tsuguyoshi Hada	Councillor/Deputy Head of Mission
Tomoaki Miyamoto	First Secretary Head of Economic Cooperation
Yukitsune Kokuba	Second Secretary
Peni Saurara	Economic Research
JICA Study Team	
Yoshio Nakagawa	Team Leader
Takasi Toyoda	Deputy Team Leader
Yu Kaneko	Operational coordination/Flood Control Planning, River Planning Assistance
Ashok Kumar	Local Staff
Mtuisela Mua	Local Staff
Amelima Ratubuli	Local Staff
Regional Organization	
SPC/SOPAC	
Rajendra Prasad	Consultant (DRP), South Pacific Commission

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The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a study team (hereinafter referred to as "the JICA Study Team") concerning the Project for the Planning of the Nadi River Flood Control Structures (hereinafter referred to as "the Project") in August 2014. Since then the JICA Study Team has implemented the study activities of Stage-1, Stage-2 and Stage-3 which are the 3-stages of the Project in which the basic study, the master plan study and the feasibility study were carried out respectively.

The JICA Study Team prepared the Draft Final Report and submitted the Report and explanation materials to the Ministry of Agriculture (hereinafter referred to as "MOA") on June 2, 2016.

On June 6, 2016, The Joint Coordination Committee (hereinafter referred to as "JCC") was held and the JICA Study Team presented the results of the Study, the contents of the Draft Final Report and other related important matters based on the distributed explanation materials. These are attached as the references.

The main items that were discussed and understood between the JCC and the JICA Study Team are summarized as follows:

1. The JICA Study Team explained the following matters in the two (2) sessions presented to the JCC members.

Session 1: Briefing of the Study and of Draft Final Report

1. Outline of the Study and Schedule
2. Briefing of Draft Final Report (DFR)
3. Issues toward Implementation
4. Introduction of Seminar
5. Conclusion and Recommendation

Session 2: Summary of the Result of the Study

1. Component of the Master Plan
2. Component of the Priority Project
3. Construction Plan and Construction Schedule
4. Feasibility

2. Session 1: Briefing of the Study and of Draft Final Report

2-1. The components of the Draft Final Report are as follows;

- (1) Summary Report
- (2) Main Report I: Master Plan Study
 - Chapter 1 Introduction
 - Chapter 2 Basic Data Collection of Basin and Flood Control Plans and Countermeasures
 - Chapter 3 Field Investigations
 - Chapter 4 Summary of Present Conditions and Issues of Flood Control and Basin Management in Nadi River

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- Chapter 5 Hydrological Analysis of Flood Control
- Chapter 6 Consideration for Flood Control Measures
- Chapter 7 Flood Control Plan and Channel Improvement Plan
- Chapter 8 Preliminary Design of Flood Control Structures
- Chapter 9 Comprehensive Sediment Management
- Chapter 10 Sea coast
- Chapter 11 Non-Structural Measure
- Chapter 12 Environmental and Social Considerations
- Chapter 13 Project Implementation Plan
- Chapter 14 Master Plan for Flood Control
- Chapter 15 Draft Priority Project
- Chapter 16 Major Meetings in Fiji
- (3) Main Report II: Feasibility Study
 - Chapter 17 Additional Field Investigations
 - Chapter 18 Components of the Priority Project
 - Chapter 19 Preliminary Design and Construction Plan
 - Chapter 20 Project Cost Estimation
 - Chapter 21 Project Implementation Plan
 - Chapter 22 Economic feasibility of the projects
 - Chapter 23 Environmental and Social Consideration
 - Chapter 24 Project Evaluation and Recommendations
- (4) Data Book
 - 1) Observation Data (Rainfall, Water Level, Seacoast)
 - 2) Investigation Data (Boring, Soil Test, Sediment, Seacoast, Water Level)
 - 3) Survey Data
 - 4) Environmental and Social Survey Data
 - 5) Drawings
 - 6) Quantity Calculation

The components of the Draft Final Report described above was explained by the JICA Study Team and accepted by JCC.

2-2. Some of the required steps such as EIA process and land acquisition and present issues for implementation of the Priority Project was explained by the JICA Study Team.

2-3. The tentative general implementation schedule of the Priority Project was presented by the JICA Study Team.

2-4. The social and environmental study such as pollution, natural and social conditions carried out by the

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JICA Study Team was explained with the conclusion that no significant impact will be expected by the Project. However the monitoring of social and environment impact before, during and after construction should be carefully implemented and mitigation works will be examined if necessary, taking into consideration the residents who earn their livelihood from the river and utilize the river. The above matters were noted by JCC.

2-5. The JICA Study Team assisted in the preparation of the draft Resettlement Action Plan (RAP) through the Study. The number of house relocation affected by the Project is limited to seven teen (17). After the endorsement for the implementation of the Project, land acquisition and resettlement will be implemented in line with the RAP. The RAP should be agreed to by the residents affected by the Project prior to the Project implementation and will be modified based on the actual situation by the Project implementation agency. The above matters were noted by JCC.

2-6. The JCC was informed that three (3) public consultations were held. The summary of the meetings was reported by the JICA Study Team. Generally, there were favorable opinions obtained to the flood control plan. The above matter was noted by JCC.

2-7. The seminar program presented by JICA Study Team in the 5th JCC was noted by JCC. The seminar will be held on 13 and 14 July 2016.

2-8. The conclusion of the Study and recommendations was explained by the JICA Study Team as shown below and accepted by JCC.

(1) Conclusion

When the Master Plan and Priority Project formulated in the Study will be completed, it will be possible to minimize flood damages by the historical maximum scale of flood with occurrence probability of once in 50 years in the entire basin of Nadi River by the Master Plan and in the Important Protected Area by the Priority Project.

(2) Recommendations

- 1) For flood damage mitigation, the Priority Project should be implemented as soon as possible. The other components of the Master Plan should also be considered for implementation.
- 2) Non-structural measures are also required in order to mitigate flood damage during the construction of the Priority Project and to mitigate flood damage by flood exceeding the design level.
- 3) Remaining issues related to inland water damage due to rainfall water and drainage problems should be also solved in the near future.

3. Session 2: Summary of the Result of the Study

3-1. The layout and components of the Master Plan structural measures was presented by the JICA Study Team as shown below.

- (1) Retarding Basin including dike along the Queen's Road and surrounding dike of retarding basin in downstream and River Improvement in downstream.
- (2) Ring Dike
- (3) River Widening including rebuilding of two (2) bridges
- (4) Retarding Basin A,B in upstream
- (5) Dam and River improvement in upstream
- (6) Retarding Basins and River Improvement in Tributaries including rebuilding of 4(four) bridges in tributaries

3-2. The components of the Master Plan non-structural measures was presented by the JICA Study Team as shown below.

- (1) Strengthening flood forecasting technology, such as expansion of rainfall gauge, water level gauge and introduction of real-time monitoring camera
- (2) Strengthening of understanding flood risk with flood hazard map
- (3) Establishing a system of evaluation of Pre-disaster activity / existing measures and feedback
- (4) Strengthening flood forecasting technology, such as accurate observation equipment and flood forecasting system
- (5) Strengthening disaster management system (Disaster prevention planning, Development and update of Standard Operating Procedures (SOP)
- (6) Economic evaluation of disaster prevention investment, Strengthening of emergency assistance system, etc.)
- (7) Development of land-use regulation
- (8) Strengthening river basin management
- (9) Strengthening disaster risk management for economic damage by development of regional Business Continuity Plan (BCP)

3-3. The components of the Priority Project structural measures and design features such as plan and cross sections of each components was explained by the JICA Study Team and accepted by JCC.

The components of the Priority Project are as follows:

- ① River Widening
- ② Retarding Basin A, B
- ③ Surrounding dike
- ④ Ring Dike
- ⑤ Shortcut of tributaries
- ⑥ Rebuilding of Bridge (Nadi Town (Namotomoto) Bridge)
- ⑦ Rebuilding of Bridge (Old Queens Road Bridge)

3-4. The Priority Project profile details, inundation condition with and without the Project and effectiveness of the Project was explained and accepted by JCC.

3-5. The non-structural measures in the Priority Project are as follows;

- (1) Strengthening flood forecasting technology, such as expansion of rainfall gauge, water level gauge and real-time monitoring camera
- (2) Strengthening of understanding flood risk with flood hazard map
- (3) Establishing a system of evaluation of Pre-disaster activity / existing measures and feedback

As to the item (1) above, the proposed location and number of hydrological observations was explained by the JICA Study Team and noted by JCC.

3-6. The approximate work quantity of the river works which is the major part of the Priority Project and the proposed division of the construction sections was explained by the JICA Study Team and noted by JCC.

3-7. The excavation method in the rainy season and dry season was shown and explained by the JICA Study Team and noted by JCC. The method is that in the rainy season the both sides of the banks is excavated at a higher level than the elevation of the average maximum sea level during the past five (5) years including an allowance. In the dry season the coffer dam is installed on the riverbed, and the river water diverted to either side of the coffer dam, then the opposite side is excavated in dry condition, after the same process is repeated in the other side, the coffer dam is finally demolished. In the dry season, the turbid water caused by the excavation work is collected inside the coffer dam so that the pollution of the river water will not occur.

3-8. The tentative location of the disposal sites and transportation route was shown and explained by the JICA Study Team and noted by JCC. There are nine (9) potential locations of disposal areas from A to I with total capacity of $3,130 \times 10^3 \text{m}^3$ which is sufficient compared with the estimated spoil disposal volume of $2,760 \times 10^3 \text{m}^3$. The main transportation routes are planned in the excavation area of river widening as a temporary construction road so that the traffic hazard to public transportation will be limited. The details of the soil disposal plan will be examined in the implementation stage of the Priority Project.

3-9. The approximate construction schedule was explained and noted by JCC. The total construction period of the Priority Project will be four (4) years for the river widening from downstream to upstream.

3-10. The economic evaluation, the economic evaluation indexes, premises of evaluation, consideration of flood control benefit and project cost evaluation were explained and accepted by JCC.

The results of economic evaluation are shown below.

- Economic internal rate of return (EIRR): 12.0%
- Benefit/cost ratio (B/C ratio): 1.2

Since all indexes of the above clear the threshold values of economic evaluation such as EIRR; 10%

and B/C; 1.0, the Priority Project is feasible.

4. Submission of the Final Report

The Final Report will be submitted to MOA at the beginning of July 2016 after receiving comments on the Draft Final Report. The comments requested to be delivered to the JICA Study Team through the Ministry of Agriculture within two (2) weeks until June 20, 2016.

5. Discussions

Session 1:

- Mr. Jone Feresi of Water Authority of Fiji (WAF), WAF and Telecom utilities are not included in the study report as most of their underground infrastructures are located within the proposed project site. He further mentioned that he did not see any involvement by the Fiji Government for the relocation of those infrastructures. The JICA Study Team replied that this will be considered and implemented in the detailed design phase. Mr. Sowane Puamau of Ministry of Infrastructure & Transport (MOIT) stated they had considered and recommended for the river widening option as it has less effect on utilities relocation than the diversion channel.
- Mr. Kamal Gounder of Ministry of Finance (MOF) (Strategic Planning) enquired about whether there was any consultation with Fiji Road Authority (FRA) in regards to the rebuilding of the four (4) bridges in the tributaries as they were only aware of the two (2) main bridges which was discussed earlier in the JCC Meeting. The JICA Study Team replied that the river improvement in the tributaries is in the Master Plan included the rebuilding of four (4) bridges in the tributaries and is also mentioned in the Draft Final Report.
- Mr. Sowane Puamau of MOIT enquired when was the last time dredging was done at the mouth of the Nadi river. Mr. Colin Simmons of Land and Water Resource Management of MOA (LWRM) mentioned that the last dredging at the Nadi River was in the year 2013. The JICA Study Team advised that dredging is not included in the Master Plan as it will be considered after the implementation of the priority project only for river maintenance. Mr. Sowane Puamau of MOIT reiterated that the issue of dredging of the river mouth should be taken into consideration for maintenance as there are huge volumes of silt at the river mouth. Mr. Colin Simmons of LWRM advised that the Ministry of Agriculture is cooperating with the private sector for dredging in the Nadi River due to the interest in sand for commercial purposes. The Chairman emphasized that the river dredging program will continue to be given importance by Government.
- Mr. Kamal Gounder of MOF enquired if there was any pre-consultation done with the home owners for their relocation under the study project. The Chairman mentioned that no consultation was made as the proposed project has not been finalized yet.
- Mr. Krishna Prasad of MOF questioned about the starting of the Implementation phase. The Chairman answered that the Ministry of Agriculture is still waiting for the final submission of the

report by JICA Study Team. This will be considered by Government and will make its decision on the way forward.

Session 2

- Mr. Jone Feresi of WAF further questioned in the event of major flooding, what happens to the water remaining within the dikes after flooding. The JICA Study Team replied that there will be drainage/outlet planned to allow water out of the dike during the detailed design phase. He further enquired about the possibility of 3dimensional simulation to understand the proposed flood control measures. The JICA Study Team presented the 2dimensional simulation model highlighting the impact of the priority project in reducing inundation in the Priority Project area.
- Mr. Rajendra Prasad of South Pacific Commission (SPC) thanked the JICA Study Team for the inclusion of the Non-Structural Measures in the Master Plan. He further requested as a security measure to install Flood Early Warning System in case the flood water rises to a critical level around Moala village. It will assist the community to evacuate to higher grounds or evacuation centers.
- Mr. Sowane Puamau of MOIT enquired whether there was consideration for slope protection measures for the proposed widening of the river. The JICA Study Team replied that there is a proposal for river bank protection at the bridge section in the plan. The JICA Study Team also explained that the flow velocity during flood is calculated and sections of the river where the velocity is fast are specified in the report, therefore if erosion occurs in the future at those sections, river bank protection should be considered.
- Mr. Krishna Prasad of MOF (Strategic Planning) enquired about the cost of the proposed construction packages and the priority which will be given for implementation. The Chairman responded that the Project will first be taken to Government for consideration.
- Mr. Kamal Gounder of MOF (Strategic Planning) enquired if there are any plans in regards to farm land-use apart from sugarcane within the proposed retarding basin which the JICA Study Team has calculated for the 1/50 year return period. The Chairman replied that there are risk to agriculture from the weather and there maybe consideration for compensation to farmers if their farmland is inundated by an extreme flood event when the flood water flows into the retarding basin. The changes in land-use will also be considered and the types of suitable crops. The Chairman highlighted that there will also be socio economic benefits as the land within the retarding basin will be protected from flooding which normally inundate the area.

6. Closing

- The Chairman thanked the JCC members for their participation and contribution. A project of such scale may require further consultation among stakeholders if the need arises. This is one of a number of areas in Fiji which is facing similar situation due to climate change and this Study gives information on the issues that require to be addressed.



- He advised that the Study Report and findings will be given to Government for consideration and there will be a Ministerial Statement regarding Governments decision. He emphasized that the proceedings of the meeting, presentation documents and any reports circulated is Confidential.
- The Chairman in concluding acknowledged the JICA Study Team Mr. Nakagawa and Mr. Toyoda for their presentation. He further acknowledged the presence of the Embassy of Japan, JICA Fiji Office, JICA Study Team and other Government line ministries for their contribution in the discussion and closed the meeting.



Reference Documents

Reference: Distributed materials at the 6th JCC Meeting
Session 1: Briefing of the Study and of Draft Final Report
Session 2: Summary of the Result of the Study

Reference

