

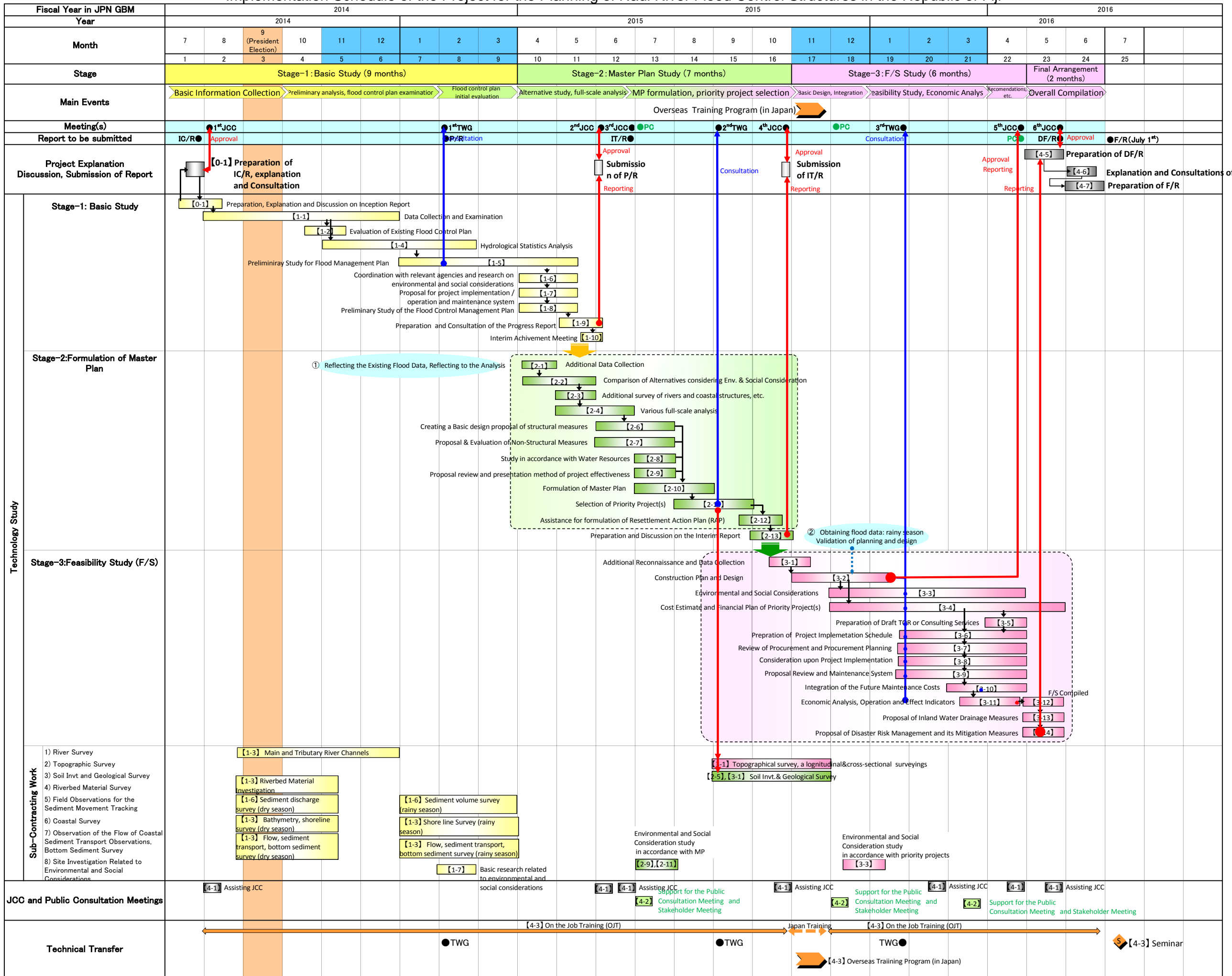
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## Appendix-1

調査フロー

# 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

### 要員計画



## 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 Ligari  
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 22<sup>nd</sup> 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 2<sup>nd</sup> 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

Jyces-flow-DR and Jyces-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. Vineesh Kumar

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

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Environmental Officer, LWRM: Ms. Iosivini Sansauwai

## 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 7 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.

  
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List of Attendance

Name	Position
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
Ropate Liganf	Permanent Secretary
Jomiso R. Maia	Deputy Secretary of Cooperate Services
Utho Simione	Director of Land & Water Resource Management
Vinesh Kumar	Marine Agriculture Officer
<b>Ministry of Fisheries and Forests</b>	
Inoka Waluqalo	Permanent Secretary
Elibi Senivasa	Deputy Conservator Forest (Services)
George Madden	Acting Director Fisheries
<b>Ministry of Works, Transport and Public Utilities</b>	
Fikiko Maiwireri	Senior Mechanical Engineer
Iate Uluilakehi	Senior Technical Officer of Fiji Meteorological Service
<b>Ministry of Foreign Affairs and International Co-operation</b>	
Aliti Balava	Acting Senior Administration Officer
Vakacou Kedravute	Economics Officer
<b>Ministry of Local Government, Urban Development, Housing and Environment</b>	
Talei Rokotubau	Director Town & Country Planning
Asuke Raratabu	Technical Officer
Bian Mauveni	Principal Administration Officer
<b>Ministry of Lands and Mineral Resource Lands Department</b>	
Sanjesh Kumar	Principal Lands Officer
<b>Ministry of Rural and Maritime Safety and Natural Disaster Management</b>	
Filipe Alifereci	Permanent Secretary
Luke Marovulu	Commissioner Western
Sonia Ratlevu	Principal Disaster Management Officer (Risk Management & Research, NDMO)
<b>Ministry of Strategic Planning, National Development and Statistics</b>	
Ovini Rabulu	Acting Chief Economic Planning Officer
<b>Ministry of Finance</b>	
Uma Tatumalaba	Principal Economist/Planning Officer
<b>iTaukei Land Trust Board</b>	
Uma Ninaba	Regional Manager South
<b>Water Authority of Fiji</b>	
Jone Tubui	Team Leader of Water Resource
<b>Fiji Road Authority</b>	
Dale Nicholles	Manager, Maintenance Works
<b>Nadi Chamber of Commerce</b>	
Babu Singh	Board Member
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Ichiro Mimuro	Deputy Resident Representative
Shigeki Ishigaki	Project Formulation Advisor
Nira Prasad	Program Officer
<b>Japan Embassy</b>	
Yukitsune Kokuba	2nd Secretary
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Operational coordination / Flood Control Planning, River Planning Assistance
<b>Regional Organization</b>	
<b>SPC/SOPAC</b>	
KiTe Kimali	Chief Geoscientist
Shohel Matamua	JICA Expert

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

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- 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

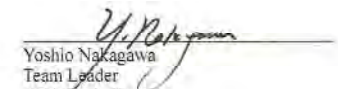
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**MINUTES OF MEETING**  
**OF**  
**SECOND JOINT COORDINATION COMMITTEE**  
**FOR**  
**THE PROJECT FOR THE PLANNING OF THE NADI RIVER**  
**FLOOD CONTROL STRUCTURES**  
**IN**  
**THE REPUBLIC OF FIJI**

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

Reference Documents


References


- 1) Minutes of Meeting of 1<sup>st</sup> 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



Chairman of the 3<sup>rd</sup> JCC Meeting: Mr. Colin Simmons

List of Attendance

Name	Position
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
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
<b>Office of Prime Minister</b>	
Filipe Bainimoli	Director
<b>Ministry of Infrastructure and Transport</b>	
Manasa Lesuma	Deputy Secretary
<b>Ministry of Foreign Affairs and International Co-operation</b>	
Apolosi Lewaqai	Principal Administration Secretary
Vinai D	Project Officer
<b>Ministry of Local Government, Urban Development, Housing and Environment</b>	
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
<b>Ministry of Lands and Mineral Resource Lands Department</b>	
Irene Nayacakalou	Principal Valuer
Meizyanne Hicks	Principal Administration Officer
<b>Ministry of Rural and Maritime Safety and Natural Disaster Management</b>	
Sunia Ratulevu	Principal Officer, NDMO
Kaie Wawasa	Executive Officer Planning, CWD
<b>Ministry of Finance</b>	
Ovini Ralulu	Principal Economics Planning Officer
<b>iTaukei Land Trust Board</b>	
Kolinio M	Senior Estate Officer Southwest
<b>Water Authority of Fiji</b>	
Jone Tubui	Team Leader of Water Resource
<b>Fiji Road Authority</b>	
Dale Nicholls	Manager, Maintenance Works
<b>Nadi Town Council</b>	
Meli N	
Hazcen S. Ali	
<b>Nadi Chamber of Commerce</b>	
Babu Singh	
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Hiroyuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Nila Prasad	Program Officer
<b>Japan Embassy</b>	
Shinobu Nakai	1st Secretary
<b>JICA Study Team</b>	
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 2<sup>nd</sup> 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 3<sup>rd</sup> 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 3<sup>rd</sup> 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:

- 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"> <li>River Channel Widening (L=Approx.13km)</li> </ul>	<ul style="list-style-type: none"> <li>Diversion Channel (L=Approx.4km)</li> <li>River Channel Widening (L=Approx.6.5km)</li> <li>River Channel Normalization (L=Approx.6.5km)</li> </ul>	
Affect to Existing Public Facilities	<ul style="list-style-type: none"> <li>Rebuilding of bridge(2): Nadi Town Bridge (Nanotomoto Bridge) (L=Approx.140m)</li> <li>Old Queens Road Bridge (L=Approx.140m)</li> </ul>	<ul style="list-style-type: none"> <li>Rebuilding of bridge(1): Old Queens Road Bridge (L=Approx.140m)</li> <li>New Construction of bridge(2) over diversion: Queens Road (L=Approx.80m)</li> <li>Bypass Road (under construction) (L=Approx.80m)</li> </ul>	
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 2<sup>nd</sup> 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>&lt;Social and Environmental Impact&gt;</p> <ul style="list-style-type: none"> <li>● The social and environmental impact is less than the Diversion.</li> <li>● 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.</li> <li>● Number of House Relocations is less.</li> <li>● All projects will be approved after consideration has been made on the social and environmental impacts. (Government Policy for all capital projects)</li> <li>● River widening is more natural than the Diversion.</li> </ul> <p>&lt;Development, Tourism and Town Planning&gt;</p> <ul style="list-style-type: none"> <li>● It will create new values to river bank properties and promote new developments, residential &amp; commercial</li> <li>● It will open up opportunities to create new tourism, recreational and beautification concepts to Nadi Town &amp; communities</li> <li>● It will enhance Nadi Town's visions of creating a "New City" with the new river and bridge as its development features.</li> </ul> <p>&lt;Residents Opinion, Consensus&gt;</p> <ul style="list-style-type: none"> <li>● River Widening seems to be easy to be accepted by the people along the river because they are damaged by flood</li> </ul>	<p>&lt;Flood Flows&gt;</p> <ul style="list-style-type: none"> <li>● Flood is diverted fast to sea before flowing into central area of Nadi Town without much interruption.</li> </ul> <p>&lt;Nature restoration&gt;</p> <ul style="list-style-type: none"> <li>● If the old river channel route that is dried up near McDonald's is used, it will return back to its past natural situation.</li> </ul> <p>&lt;Construction Period&gt;</p> <ul style="list-style-type: none"> <li>● Diversion Channel construction period shorter than river widening.</li> </ul>



	<p>many times.</p> <ul style="list-style-type: none"> <li>● It keeps the general population demographics in existing communities.</li> </ul> <p>&lt;Flood Flows&gt;</p> <ul style="list-style-type: none"> <li>● It will ease current erratic flow of river</li> </ul> <p>&lt;Construction, Disposal&gt;</p> <ul style="list-style-type: none"> <li>● The fill material gained from the river excavations can be used to enhance current low ground in villages &amp; communities to be utilized as farmland or new development.</li> </ul>	
<p>Negative opinion and Concerned Issues</p>	<p>&lt;Impact to Down Stream, Measures in Downstream&gt;</p> <ul style="list-style-type: none"> <li>● 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.</li> <li>● Current river mouth is narrow</li> </ul>	<p>&lt;Social and Environmental Impact&gt;</p> <ul style="list-style-type: none"> <li>● With the diversion project, new route/channel has to be created which will have greater social and environmental impacts.</li> <li>● 40houses will be relocated and other problems like traffic congestion will occur due to the construction of the new diversion channel in the area.</li> <li>● Seacoast line will be changed at Nadi Bay and River mouth. In addition, potential for development utilization will be drastically changed at Nadi Bay.</li> </ul> <p>&lt;Risk in the future&gt;</p> <ul style="list-style-type: none"> <li>● 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.</li> <li>● There is a risk for children to drown when flood flows in diversion channel suddenly like flash flood.</li> </ul>

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

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

	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 3<sup>rd</sup> 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 4<sup>th</sup> JCC Meeting: Mr. Uraia Waibuta

List of Attendance

Name	Position
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
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
<b>Ministry of Fisheries and Forests</b>	
Eroni Talemaikanaca	Fishery Officer Western
<b>Ministry of Infrastructure and Transport</b>	
Terry Atulifo	Principal Scientific Officer, FMS
<b>Ministry of Rural and Maritime Safety and Natural Disaster Management</b>	
Kafo Wawasa	Executive Officer Planning, CWD
<b>Ministry of Finance</b>	
Robert Sovatabua	Acting Senior Economics Planning Officer
Martin Nahola	Senior Economics Planning Officer
Epeli Wagavonovono	Economics Planning Officer
<b>iTankei Land Trust Board</b>	
Marama Sukani	Regional Officer
<b>Water Authority of Fiji</b>	
Jone Feresi	
Miteshwar Chand	
<b>Fiji Road Authority</b>	
Ian Hunters	Coastal Work Manager
<b>Nadi Town Council</b>	
Robin K. Ali	Special Administrator
Hazeen S. Ali	Manager Engineering
Meli Naca	Building & Planning
<b>Nadi Chamber of Commerce</b>	
Babu Singh	Board Member
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Hirovuki Sawada	Resident Representative
Hideki Sawada	Assistant Resident Representative
Nita Prasad	Program Officer
<b>Japan Embassy</b>	
Yukitsune Kokuba	2nd Secretary
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Masahiro Kiumo	Flood Control Planning / River Planning
Takeshi Watanabe	Project Implementation Planning
Tomohiro Urneki	Non-Structural Measures
Yu Kaneko	Operational coordination / Flood Control Planning, River Planning Assistance
<b>Regional Organization</b>	
<b>SPC/SOPAC</b>	
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 5<sup>th</sup> JCC. Draft Final Report shall be submitted in April 2016. After the 4<sup>th</sup> JCC meeting, the 2<sup>nd</sup> 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 2<sup>nd</sup> 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 <sup>1)</sup> 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 <sup>2)</sup> v) River Improvement and Retarding Basins in tributaries <sup>3)</sup> 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 3<sup>rd</sup> 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 4<sup>th</sup> 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
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
Jitendra Singh	Permanent Secretary
Colin Simons	Director of Land & Water Resource Management
Kim Maung Cho	Principal Engineer of IWRM
Vinesh Kumar	Principal Agricultural Officer West
Bunesh Prasad	Senior Agricultural Officer West
<b>Ministry of Infrastructure and Transport</b>	
Piemanu Sowane	Deputy Secretary Infrastructure
Susana Pulua	Director Water, Sewerage and Energy
<b>Ministry of Lands</b>	
Maizyenne Hicks	Senior Technical Officer
<b>Ministry of Fisheries and Forests</b>	
Lasana Turaga	Senior Forestry Officer
<b>Ministry of Finance</b>	
K. Prasad	Deputy Secretary
Epreli Wagavousovo	Senior Economic Planning Officer
Isona Talemabua	Principal Economic Planning Officer Budget
Ledua Vakaloloma	Senior Economic Planning Officer Budget
<b>Office of Prime Minister</b>	
Edward Tunoiu	Deputy Secretary, Dev. Cooperation Facilitation Office
<b>Ministry of Foreign Affairs</b>	
Vakaoca Kedrayate	Oceania Asia & Russia (OAR) Bureau
<b>Ministry of Local Government</b>	
Nilesh Naidu	Senior Administration Officer
Mere Riyawa	Senior Economic Planning Officer (Housing)
<b>Taukei Land Trust Board</b>	
Epreli Nadrasere	Senior Land Use Planner
<b>Fiji Roads Authority</b>	
Ian Hunter	Capital Works Manager
<b>Nadi Town Council</b>	
Robin Ali	Special Administrator
Mali Naevo	Building & Planning
<b>Nadi Chamber of Commerce</b>	
Babu Singh	Board Member
<b>Water Authority of Fiji</b>	
Jone Feresi	Acting General Manager Construction
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Hiroaki Sawada	Resident Representative
Haleki Sawada	Assistant Resident Representative
Nila Prasad	Program Officer
<b>JICA Headquarter</b>	
Masayoshi Ono	Southeast Asian and Pacific Department, Country Officer
<b>Japan Embassy</b>	
Yukisune Kokubo	Second Secretary
Tomonoki Miyamoto	Second Secretary
<b>JICA Study Team</b>	
Yosho Nakagawa	Team Leader
Takasi Toyoda	Deputy Team Leader
Metusela Mun	Local Staff
Ameima Ratubuti	Local Staff
<b>Regional Organization</b>	
SPC/SOPAC	
Rajendra Prasad	Gen. 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 6<sup>th</sup> 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 3<sup>rd</sup> or 4<sup>th</sup> May 2016.

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.

- Design and construction plan
- Environmental and social considerations
- Cost estimation and cash planning
- Preparation of the draft TOR for consultant
- Examination of the project implementation schedule
- Examination of procurement and implementation plan
- Consideration of the project implementation
- Examination and proposition of the maintenance system
- Cost estimation of the maintenance work
- Confirmation of economic evaluation and operation effect indicator
- Preparation of F/S report
- Preparation of the points of attention to implement the countermeasure against inland water
- Proposition of improvement strategy on disaster risk reduction and management

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

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 6<sup>th</sup> 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 ILLTB 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.

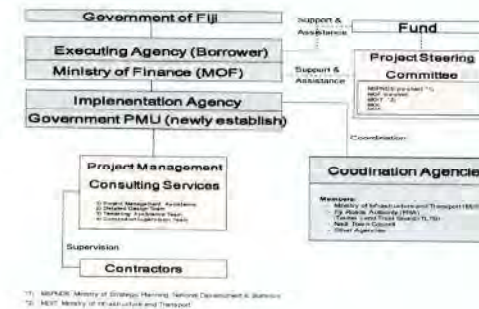
**4. Session 3: Issues toward Implementation of the Project**

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.



<sup>1)</sup> MPEADS: Ministry of Environment, Planning, National Development & Statistics  
<sup>2)</sup> MIT: Ministry of Infrastructure and Transport

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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 5<sup>th</sup> 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
<b>Fiji Side</b>	
<b>Ministry of Agriculture, Rural and Maritime Development and National Disaster Management</b>	
Jitendra Singh	Chairman, Permanent Secretary for Ministry of Agriculture
Colin Simmons	Director of Land & Water Resource Management
Khin Manng Cho	Principal Engineer of LWRM
Mahendra Kumar	Principal Agricultural of LWRM
Tinoci Ratudra	Information Officer
<b>Ministry of Local Government, Housing, Environment, Infrastructure &amp; Transport</b>	
Puamau Sowane	Deputy Secretary Infrastructure
George Iava	Divisional Engineer (Western)
Vilame Vercivalu	Principal Scientific Officer, Fiji Meteorological Service
Livai Nadore	EIA Officer, Environment
<b>Attorney-General and Minister for Finance, Public Enterprises, Public Service &amp; Communications</b>	
Makereta Konrote	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)
<b>Office of Prime Minister</b>	
Sharon Lakhan	Administration Officer
<b>Ministry of Foreign Affairs</b>	
Vakanea Kedrayate	Oceania Asia & Russia (OAR) Bureau
<b>iTaukei Land Trust Board</b>	
Epeli Nadraigere	Senior Land Use Planner
<b>Fiji Roads Authority</b>	
Ian Hunter	Capital Works Manager
<b>Nadi Town Council</b>	
Robin Ali	Special Administrator
<b>Water Authority of Fiji</b>	
Jone Feresi	Acting General Manager Construction
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Hiroyuki Sawada	Resident Representative
Shinya Tamio	Deputy Resident Representative
Shunichiro Ikeda	Assistant Resident Representative
Nila Prasad	Program Officer
<b>Japan Embassy</b>	
Tsuguyoshi Hada	Councillor/Deputy Head of Mission
Tomoaki Miyamoto	First Secretary Head of Economic Cooperation
Yukitsune Kokuba	Second Secretary
Peri Saurara	Economic Research
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader
Takasi Toyoda	Deputy Team Leader
Yu Kaneko	Operational coordination/Flood Control Planning, River Planning Assistance
Ashok Kumar	Local Staff
Mtuisela Mus	Local Staff
Amelima Ratubuli	Local Staff
<b>Regional Organization</b>	
<b>SPC/SOPAC</b>	
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 5<sup>th</sup> 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 6<sup>th</sup> JCC Meeting  
Session 1: Briefing of the Study and of Draft Final Report  
Session 2: Summary of the Result of the Study

**Reference**



Appendix-6


MM of TWG

**MINUTES OF MEETING**  
**OF**  
**FIRST TECHNICAL WORKING GROUP MEETING**  
**FOR**  
**THE PROJECT FOR THE PLANNING OF THE NADI RIVER**  
**FLOOD CONTROL STRUCTURES**  
**IN**  
**THE REPUBLIC OF FIJI**

Nadi, 4 February, 2015



Colin Simmons  
Chairman,  
Technical Working Group

  
Yoshio Nakagawa  
Team Leader,  
JICA Study Team

The 1st Technical Working Group (hereinafter referred to as "TWG") was held on February 4, 2015 in Nadi Town Council Chambers based on the decision of Inception Report Meeting held between MOA and JICA Study Team on August 22, 2014, and Joint Coordination Committee (hereinafter referred to as "JCC") held on September 2, 2014.

The list of attendance of this meeting is attached as Appendix-1. The Terms of Reference and member list of JCC and TWG are as shown from Appendix-2 to Appendix-5. The meeting was opened by the Commissioner Western Division.

The main items which were discussed and understood among attendees are summarized as follows:

1. Mr. Colin Simmons, Director of Land and Water Resources Management of MOA, was selected as Chairman of TWG and Mr. Robin Ali, Special Administrator of Nadi Town Council, was selected as Deputy Chairman of TWG.
2. The Chairman briefed the TWG on the background of the Project for the planning of the Nadi River Flood Control Structures (hereinafter referred to as "the Project") and the establishment of the Joint Coordinating Committee and Technical Working Group to assist the Ministry of Agriculture in the implementation of the Project. The TWG were informed of the Terms of Reference that will guide JCC in its role and purpose.
3. The JICA Study Team made presentations of the progress of the Study, and the contents were discussed by the TWG. The presentation was composed of the following 5 sessions.
  - Session 1 Background and Progress of the Study
  - Session 2 Technical Report (Initial Findings)
  - Session 3 Technical Topics (1), Rainfall and Runoff Analysis
  - Session 4 Technical Topics (2), River Flow Measurements
  - Session 5 Technical Topics (3), Flood Control and Land Issues
4. The additional data and information related to Facility Design/Construction Planning/Cost Estimation and Institutional, Legal System Analysis was requested by the JICA Study Team to the related authorities of TWG.
5. The former Chairman of the Nadi Basin Catchment Committee Mr Brian Watson, person who are invited by TWG member, commented on the issue of the bypass road project that the land acquisition and compensation can take 2 or 3 years. This negotiation period shall be taken note of by the Project.
6. The Meteorological Department of Fiji Meteorological Services confirmed that they will continue to work with TWG and the JICA Study Team in providing data and information regarding rainfall and water level measurement if any additional when requested.
7. Regarding the concept of river zone, the River and Stream Act [Cap 136] stipulates the width of ordinary water line in wet season and the highest spring tide plus 20 feet on both banks for access purposes only. In the Study, the various types of flood control measures such as river improvement, retarding basin, dam reservoir, and diversion channel might be planned. In that case, it is expected that the required area for flood control measures based on engineering aspects proposed by the JICA Study Team will take this into consideration.



8. Some example of easement in Japan was presented by the JICA Study Team. Such ideas are new concepts for Fiji; therefore, the JICA Study Team, MOA and related organizations will discuss and propose applicable ideas in Fiji.
9. The JICA Study Team presented findings of the proposed Fiji Plaza development plan. The District Officer Nadi agreed to confirm the current status and report back to TWG. At second JCC, initial results of main flood control measures shall be discussed and this matter shall be reported.
10. Regarding issues discussed at the TWG, all attendees advised to report it to their supervisors and JCC member of their respective organizations.
11. The Commissioner Western Division emphasized on the importance of collaborating and providing data and information with TWG members and other various stakeholders, and assisting the JICA Study Team in delivering their services.
12. The Chairman in closing thanked the members of the TWG on behalf of the Minister for Agriculture and looked forward to their continued support and co-operation to the JICA Study Team.

## List of Attendance

Name	Position
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
Colin Simmons	Director of Land & Water Resource Management
Vinesh Kumar	Senior Agriculture Officer
Khin Maung Cho	Principal Engineer (RE), LWRM
Reama Naco	Agriculture Officer
Marau Vuli	Agriculture Officer
Shiri Narayan	LWRM Office, Ba
Apisai Yaranamua	Landuse Unit
Joeli Waradi	Landuse Unit
<b>Ministry of Fisheries and Forests</b>	
Uraia Racule	Forestry Officer
<b>Ministry of Works, Transport and Public Utilities</b>	
George Tavo	Divisional Engineer Works (W)
Aminiasi Tuidraki	Acting Director Fiji Meteorology Services
Paula Tawakece	Technical Officer 1, Hydrology Section
<b>Ministry of Local Government, Urban Development, Housing and Environment</b>	
Senivasi Waqairamasi	Senior Environment Officer West
<b>Ministry of Lands and Mineral Resources Lands Department</b>	
Malakai Vakautawale	Principal Technical Officer
Meizyanne Hicks	Principal Technical Officer
Vakawale Waqawai	
Jone Draumbaka	
<b>Ministry of Rural and Maritime Safety and Natural Disaster Management</b>	
Manasa Tagicakibau	Divisional Commissioner Western
Sitiveni Tavaga	Divisional Planning Officer (Western)
Kaie Nawasa	Acting EO Planning CWD Office, Lika
Jiuta Waqavonovono	District Officer Nadi
<b>Ministry of Strategic Planning, National Development and Statistics</b>	
Epeli Waqavonovono	Principal Economic Officer
<b>Ministry of Finance</b>	
Sanjay Kumar	
<b>iTaukei Land Trust Board</b>	
Pauliasi Daunivalu	
<b>Water Authority of Fiji</b>	
Seremaia Koroi	WRMU
<b>Nadi Chamber of Commerce</b>	
Robin K. Ali	Nadi Town Council - Special Administrator
Robin Anganu	Nadi Town Council - Chief Executive Officer
Balwant Chandra	Board Member
Sunny Chand	Board Member
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Shigeaki Ishigaki	Project Formulation Advisor
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Makoto Yonekura	Hydrological Analysis / Runoff Analysis
Hajime Watanabe	Environmental and Social Consideration
<b>JICA Study Team Local Staff</b>	
Ashok Kumar	Assistant Engineer
Metuisela Mua	JICA Facilitator
Amelina Vualiku	Secretary/Office Assistant
<b>Regional Organization</b>	
<b>SPC/SOPAC</b>	
Litea Bitukoto	Disaster Management Advisor - SOPAC

**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.

**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 1WG 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

**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 (MWTPTU)
  - 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 TECHNICAL WORKING GROUP MEETING**

**FOR**

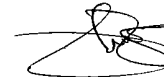
**THE PROJECT FOR THE PLANNING OF THE NADI RIVER**

**FLOOD CONTROL STRUCTURES**

**IN**

**THE REPUBLIC OF FIJI**

Nadi, 1 September, 2015



Colin Simmons  
Chairperson,  
Technical Working Group



Takashi TOYODA  
Deputy Team Leader,  
JICA Study Team



## List of Attendance

Name	Position
<b>Fiji Side</b>	
<b>Ministry of Agriculture</b>	
Colin Simmons	Director of Land & Water Resource Management
Khin Maung Cho	Principal Engineer (RE), LWRM
Vinesh Kumar	Principal Agriculture Officer West
Binesh Prasad	
Ateleni V	
Monika Bala	
Sohela Khan	
<b>Ministry of Works, Transport and Public Utilities</b>	
George Tavo	Divisional Engineer Works (W)
<b>Ministry of Fisheries and Forests</b>	
Eroni Talemaikanacea	Department of Fisheries
<b>Ministry of Local Government, Urban Development, Housing and Environment</b>	
Senivasa Waqairamasi	Department of Environment
Viliame Momoivalu	Department of Environment
<b>Ministry of Rural &amp; Maritime Development</b>	
Kelera Bale	Assistant DO, Nadi, Commissioner Westerns Office
Kaic Nawasa	Executive Planning Officer, Commissioner Westerns Office
<b>Ministry of Lands</b>	
Malakai Vakatauwale	Principal Technical Officer
Irene Nayakalou	Principal Valuer
<b>DTCP</b>	
Paul A. Seru	
<b>iTLTB</b>	
Kolinio Mudunavosa	Senior Estate Officer Southwest
<b>Fiji Roads Authority</b>	
Braeden Lobb	Area Manager, MWH
<b>Ministry of Public Enterprises, Communications, Tourism and Civil Aviation</b>	
Isei Tudreu	Civil Aviation Authority of Fiji (CAAFI)
<b>Developer</b>	
John Ross	
<b>Nadi Chamber of Commerce</b>	
John Grey	Representative of Chamber of Commerce
Rachna Dass	
<b>Nadi Town Council</b>	
Robin Ali	Nadi Town Council - Special Administrator
Ratu Meli Naevo	
Haroon S. Ali	
Roneel Raj	
Aruna Chandra	
Rajeshwar Raj	
<b>Japan Side</b>	
<b>JICA Study Team</b>	
Takashi Toyoda	Deputy Team Leader / Flood Management
Takeshi Watanabe	Project Implementation Planning
<b>JICA Study Team local Staff</b>	
Metuisela Mua	Facilitator
Ashok Kumar	Assistant Engineer
Joe Waqavakatoga	Assistant Engineer
Amelina Ratubuli	Secretary/Office Assistant
<b>Regional Organization</b>	
<b>SPC/SOPAC</b>	
Rajendra Prasad	

The 2<sup>nd</sup> Technical Working Group (hereinafter referred to as "TWG") was held on September 1, 2015 in Nadi Town Council Chambers based on the decision of Inception Report Meeting held between MOA and JICA Study Team on August 22, 2014. The Principal Agriculture Officer Western briefly welcomed the presence of the public and requested the chairperson to say a few words of welcome.

The JICA Study Team made presentations of the progress of the Study, and the contents were discussed by the TWG. The presentation was composed of the following 4 sessions.

Session 1 Progress of the Study

Session 2 Review of the decision of 3<sup>rd</sup> Joint Coordination Committee (JCC)

Session 3 Basic Concept of the River Widening

Session 4 Process to the implementation of the project

The main items which were discussed among attendees are summarized as follows:

## Discussion

Session 1

- In session 1, the progress of the Study was explained by the JICA Study team.
- Mr. Rajendra Prasad (SPC/SOPAC) inquired whether deepening of the Nadi River is considered or not. Mr. Toyoda (JICA Study Team) responded widening of river is the best option selected in the 3<sup>rd</sup> JCC with the inclusion of the retarding basins and the dam to reduce inundation areas, and deepening of river channel is not considered basically in the plan.
- Mrs. Senivasa Waqairamasi (Department of Environment (DOE)) stated that there are a lot of factors to consider from upstream to downstream of the river in this project. Especially, various applications for logging should be submitted to the forestry department in terms of upstream of the river. There are a lot of projects which are ongoing at the moment in the downstream and they might cause some problems in downstream. Widening of the middle-stream seems good, but we should consider incorporating decision considering the ongoing projects in the upstream and downstream.
- Mr. Vinesh (MOA) highlighted that two bridges included in the projects in terms of widening of the river. Mr. Braeden Lobb (Fiji Road Authority) pointed out that it might require significant government funding for the rebuilding of the two bridges.
- Mrs. Senivasa Waqairamasi (DOE) inquired about the social impact on the residential and industrial areas along both river banks, how are they going to be compensated given the fact that widening of the river is to take place. Mr. Colin (MOA) pointed out that the JICA Study team has also taken that into consideration and is also included in Master Plan and that point will also be considered in the Environment Impact Assessment Report before the implementation of the Project.
- Mr. Rajendra Prasad (SPC/SOPAC) inquired that any decision has been made or it is just a proposal. Mr. Colin (MOA) responded that it's just a proposal and a decision will be formalized after the submission of final report.
- Mr. Robin Ali (Nadi Town Council - Special Administrator) pointed out that the people of Nadi are following closely with all the discussions going on and they are quite anxious to see the project goes

ahead.

#### Session2

8. In session2, the result of decision of 3<sup>rd</sup> JCC was explained by the JICA Study team.
9. Mr. John Gray (Nadi Chamber of Commerce) expressed their gratitude on such a comprehensive report and they are eagerly waiting for the date for the projects to start, and thanked everyone for the contribution of ideas and views as well.

#### Session3

10. In session3, Basic Concept of the River Widening was explained by the JICA Study team.
11. Mr. Colin (MOA) inquired when the JICA Study team will finalize the alignment of the river planning. Mr. Toyoda (JICA Study Team) responded that at the end of October they will submit the masterplan and alignment of the river channel will be finalized through feasibility stage.
12. Mr. Colin (MOA) inquired there are any potential like in Japan for the Chamber of Commerce to utilize the banks of the river after the project for value adding or commercial developments. Mr. Toyoda responded that there are also similar situations in Japan and they sometimes have meetings with town planning section and river planning section on how to utilize the river side, and a collaboration of both river planning and town planning and a collaboration of both authorities are important.

#### Session4

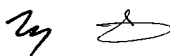
13. In session4, process to the implementation of the project was explained by the JICA Study team.
14. Mr. Gray (Nadi Chamber of Commerce) thanked the JICA study team for the presentation in terms of a general timeline of a project and he further added if the timeframe of the Project could be shortened.
15. Mr. Viliame (DOE) suggested the JICA study team to have a continuous update of their progress work to the JCC and other approving authorities for their comments and contribution knowing the different kinds of works that will be undertaken and other mitigating factors that will be in place. Furthermore, he suggested for the JCC to discuss with the Department of Environment on the EIA process and also if the progress report could be presented to other relevant agencies for them to start preparing from their side on what is required of them.

Mr. Vinesh (MOA) requested the Chamber of Commerce and Town Council to highlight some points discussed today to assist the communities while conducting meetings with the public.

Mr. Colin (MOA) further added that it gives a clear picture of what flood control means and the different roles that will be undertaken by the different agencies. He thanked the agencies' efforts and requested more coordination and more data and information so that JICA study team can examine in the study, and it contributes to a better and firm decision for the government and it is an essential issue.

Mr. Robin Ali (Nadi Town Council) expressed his sincere appreciation to the JICA study team for the efforts shown for presenting a more detail report and also informing the Nadi town council on how their work is progressing. Furthermore, he added the people of Nadi are looking forward to the implementation

of the project and also the declaration of Nadi town a city in 2017 by the Honorable Minister. He is confident with the support from Mr. Gray and Mr. Vinesh. He declares the meeting closed.



**MINUTES OF MEETING  
OF  
3RD TECHNICAL WORKING GROUP  
FOR**

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

Nadi 8<sup>th</sup> December, 2015



Colin Simmons  
Chairman  
Technical Working Group



Takashi Toyoda  
Deputy Team Leader  
JICA Study Team

Attendance List of 3<sup>rd</sup> Technical Working Group

No.	Name	Ministry/Organization	Designation
1	Colin Simmons	Ministry of Agriculture	Director of Land & Water Resource Management
2	Vinesh Kumar	Ministry of Agriculture	Principal Agriculture Office, West
3	Monika Bala	Ministry of Agriculture	Agriculture LWRM
4	George Tavo	Ministry of Infrastructure and Transport	Divisional Engineer West
5	Misaele Funaki	Ministry of Infrastructure and Transport	Senior Scientific Officer
6	Azreen Khan	Ministry of Foreign Affairs and International Co-operation	
7	Senivasa Waqairamasi	Ministry of Local Government, Urban Development, Housing and Environment	Senior Environment Officer West
8	Sanjesh Kumar	Ministry of Lands and Mineral Resource Lands Department	Principal Lands Officer
9	Kaie Nawasa	Ministry of Rural and Maritime Safety and Natural Disaster Management	Executive Officer -- Commissioner Western Office
10	Varea Waqa	Ministry of Rural and Maritime Safety and Natural Disaster Management	Commissioner Western Office
11	Kolinio Mudunasoko	iTaukei Land Trust Board	
12	Seremaia Koroi	Water Authority of Fiji	
13	Zaina Khan	Fiji Road Authority	
14	Braedon Lobb	MWH Global	
15	Robin K Ali	Nadi Town Council	Senior Administrator
16	Meli Naevo	Nadi Town Council	Acting Manager – Building & Planning
17	Maraia Ubitau	Nadi Town Council	Consultant
18	Haroon S. Ali	Nadi Town Council	Manager Engineering
19	Rachna Dass	Nadi Chamber of Commerce	Administrator
20	Takashi Toyoda	JICA Study Team	Deputy Team Leader
21	Hajime Watanabe	JICA Study Team	Environmental & Social Considerations
22	Ashok Kumar	JICA Study Team	Assistant Engineer
23	Metuisela Mua	JICA Study Team	Facilitator
24	Amelina Ratubuli	JICA Study Team	Administrator/Secretary

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 main items that were discussed and understood upon between TWG 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 TWG 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: Environmental and Social Considerations**

1. JICA Environmental and Social Consideration (ESC) Study
2. Difference between JICA ESC and Fiji EIA
3. Items studied and considered under ESC
4. Resettlement Action Plan (RAP)



**Opening Prayer:** Mr. Kaie Nawasa of Commissioner Westerns Office

**Chairman Opening Remarks:**


The Chairman Mr. Colin Simmons welcomed the members of the TWG expressing his appreciation for their attendance. He stated that the JICA Study Team is approaching the end phase of the study and a lot of issues has been raised which has been analyzed by the JICA Study Team. He updated the TWG on the decision taken at the 4<sup>th</sup> JCC Meeting on the alternative measures proposed by the JICA Study Team on the Priority Project for Widening of the Nadi River and the countermeasures for building of retarding basin and surrounding dikes.

Mr. Vinesh requested the Chairman for the TWG to quickly read through the minutes of the last TWG Meeting which was then moved by Mr. Robin Ali Special Administrator Nadi and was second by Mrs. Senivasa of Department of Environment.

**Session 1: Progress of the Study of the Outline of the Interim Report**  
(Presentation by Mr. Toyoda)

**Issues Discussed**

1. The Chair requested the Fiji Meteorological Office on how best they can prepare themselves to take over the Early Flood Warning System established by the LWRM Division under the IWRM Project in Nadi and developing a MOU for data sharing.
2. Mr. Funaki (MoIT)'s response was that they have submitted their operational submission for next year and they have factored the Early Warning System budget into the submission in order to run the program. He further mentioned that the Department of Meteorology still requires to be convinced on the operational status of the system. He also informed the TWG that the MOU can be prepared for both parties..
3. Mr. Vinesh (MOA West) requested that we should do our best to maintain the system to keep it running and also share knowledge, skills and other resources. He further added that one site was not operational due to vandalism and theft. This is being addressed by collaboration of LWRM and Department of Meteorology
4. The Chair brought to the attention of the TWG the additional data and information requested to provide to the JICA Study Team to assist carry out the study.
5. Mr. Vinesh also emphasized that regulatory authorities and technical groups to be well informed of decisions made by the JCC. Some issues being raised was that they refused to release information and data. This were mainly due to the decisions by JCC not reaching TWG and other stakeholders.
6. The Chairman stated that it is the role of the representatives of various stakeholders attending the meeting to inform their superiors of all the decisions approved by the JCC.
7. Ms. Azreen Khan (MoFA) requested for timeline to be given to regulatory authorities to provide additional information and data. She further appreciated the JICA Study Team for the initiative shown in the progress of the study and also for bringing up the issue in regards to the request for data and information.



**Session 2: Outline of Master Plan and Priority Project**  
(Presentation by Mr. Toyoda)

**Issues Discussed**

1. The Chairman briefly explained that the proposed plan for Surrounding Dike was approved in the 3rd JCC but then after conducting a more detailed study, the JICA Study Team reported the dike along the back road could be eliminated due to buildings, two road intersection and the tramline making its difficult for its construction. The JICA Study Team had proposed that it run along the Nawaka River which would provide a wider area of protection around Nadi Town. Furthermore, he clearly explained that this is the components of the Nadi River Flood Control Master Plan (hereinafter referred to as "the Master Plan") and the Priority Project.
2. Mrs. Senivasa (DOE West) asked, will the JICA Study Team anticipate any impact to the environment from the Smoothing of Alignment in the Malakua and Nawaka River tributaries?
3. Mr. Watanabe (JICA Study Team) responded that there will be some minor negative impact on the environment like reclamation to some parts of the river, but the old river channel will still be maintained and river flow will not change much. Therefore, river environment will be maintained.
4. Mrs. Maraia Ubitau (Nadi Town Council) questioned about the developments at south of Denarau area at right side of Nadi River mouth, what impact will that have on the Priority Project?
6. The Chairman stated that the JICA Study Team has considered the construction of Retarding Basin around the river mouth as a storage for overflow of water from upstream. He informed the TWG that the JICA Study Team had also carried out modeling of the situation. The TWG should be able to fully understand the impact of flood waters after the presentation of the simulation exercise by the JICA Study Team. Mrs. Maraia Ubitau raised a point for the developers to base their Development Plans in conjunction with this Priority Project.
7. Mrs. Senivasa added that the development works have been approved and land reclamation in progress. She added that some of the approved Development Plans (south and east of Denarau area) are to clear the tiri (mangroves) land. Furthermore, the Department of Environment acted on the approval given by Town & Country Planning and Ministry of Lands & Mineral Resources in regards to the issue and at the moment they are currently working together with the developers for monitoring of the EIA.
9. Mrs. Senivasa informed the TWG that they are willing to assist to provide the approval and development plans. The Chair informed her to provide information and data to be forwarded to the JICA Study Team so that they are aware of the current situation in regards to developments happening around the river mouth.
10. In regards to the impact of the Denarau Developments (south and east of Denarau area) on the Priority Project, Mr. Watanabe added that first of all we have to know what's the current situation and the processes involved.
10. Mr. Sanjesh (DOL) Kumar requested if the conditions of the approval could be looked into.
11. Ms Zaina (FRA) mentioned that there should be a checkpoint somewhere for any development along the Nadi River for new developers.



**Session: 3 Environmental and Social Considerations**  
(Presentation by Mr. Watanabe)

**Issues Discussed**

1. The Chairman acknowledged the assistance and expressed his appreciation to the JICA Study Team in coming up with the Resettlement Action Plan as currently there is no policy in Fiji.
2. Mr. Sanjesh Kumar requested for timeframe as negotiations will take time for this exercise to be completed. He stated that the Climate Change Division is working to develop a guideline and policy by March 2016.
4. Mrs. Senivasa highlighted that it's a lesson for our authorities that we should consult with the JICA Study Team because they are carrying out the survey and her suggestion is for all regulatory authorities present today to learn and hear the concerns raised in this meeting. She further requested they would like to hear the views from the public.

**Closing Address:**

With no further issues to be discussed, the Chairman in his closing address expressed his appreciation to the JICA Study Team in carrying out the study and the TWG in discussing issues. He informed the TWG of the Public Consultation Meeting that was to be held on Wednesday 9<sup>th</sup> December, 2015 and requested for their support to attend and assist the JICA Study Team as other private stakeholders will be present.



## Appendix-7

MM of Meeting with MOA

**MINUTES OF MEETINGS**  
**ON**  
**INCEPTION REPORT**  
**FOR**  
**THE STUDY**  
**ON**  
**THE PROJECT FOR THE PLANNING OF THE NADI RIVER**  
**FLOOD CONTROL STRUCTURES**  
**IN**  
**THE REPUBLIC OF FIJI**  
**AGREED UPON BETWEEN**  
**MINISTRY OF AGRICULTURE**  
**AND**  
**THE STUDY TEAM OF JAPAN INTERNATIONAL COOPERATION AGENCY**

Suva, August 22, 2014



Ropate Ligairi  
Permanent Secretary  
Ministry of Agriculture (MOA)




Yoshio Nakagawa  
Team Leader  
JICA Study Team

Witnessed by



Colin Simmens  
Director of Land and Water Resources  
Management (LWRM)  
MOA



Shigeki Ishigaki  
Project Formulation Advisor for Disaster  
Japan International Cooperation Agency  
(JICA)

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. The list of attendance of this meeting is attached as Appendix-1. MOA agreed with the contents of the draft of Inception Report. The main items that were discussed and agreed upon between MOA and the JICA Study Team are summarized as follows:

1. Basic Concepts and Policies for the Project Implementation

Three basic concepts, five basic technical policies and three basic management policies of 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 Fiji

Five 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 Japan.

Three 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 Government of Fiji and Pacific Region

2. Study Stages and Completion Period

The Study process is divided into 3 stages as shown below and will end about 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

3. Final Determination of Flood Control Structures

J.C.L. 

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 Fiji Office through obtaining the consensus of Joint Coordination Committee (hereinafter referred to as ICC)

4. Hydraulic Analysis Model

1D flow-DR and 1D flow-2D models which the JICA Study Team explained and proposed are to be applied to the runoff and inundation analyses of the Project.

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.

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 Fiji Office through obtaining the consensus of JCC.

7. Land Acquisition and Compensation

The land acquisition and compensation are very 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 the related authorities.

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 and assist the JICA Study Team to obtain them from other related authorities.

9. Cooperation and Coordination among Members

For the successful implementation of the Project, the cooperation and coordination are quite important among composed members of the Project, such as MOA, the JICA Study Team and other related ministries and agencies.

10. Counterpart Members of Fiji side

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

(1) Counterpart (MOA)

Project Director: Permanent Secretary for Agriculture

Project Manager: Director of LWRM

Counterpart Personnel:

Principal Agriculture Officer, LWRM: Mr. Viresh Kumar (tentative)

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

Environmental Officer, LWRM: Ms. Josivini Sausauwai

*[Handwritten signatures and initials]*

(2) Joint Coordination Committee (JCC)

JCC to be established is as shown Appendix-2, JCC will be held whenever deems it necessary on the occasion that the important decision should be made in policy making level. TOR will be developed to guide the ICC in its role.

(3) Technical Working Group(TWG)

Technical Working Group (hereinafter referred to as "TWG") will be established to discuss the technical issues in detail and to make the technical understanding immediately. The discussed matter should be reported to the superior of each member. The members should be nominated as soon as possible by JCC.

11. 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 the 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 Fijian counterpart's knowledge, the lessons and learn through this project and technical training in Japan shall be introduced by Fiji counterpart side.

12. 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

13. Summary of the Detailed Planning Survey

The JICA Study Team explained the summary of the Detailed Planning Survey results at the meeting. MOA well understood the results of the survey and requested the JICA Study Team to explain the key points of the result at the JCC.

Appendix-1 List of Attendance

Appendix-2 List of members of Joint Coordination Committee (JCC)

*[Handwritten signatures and initials]*



List of Attendants	
Name	Position
<b>Fiji Side, MOA</b>	
Ropate Ligaiti	Permanent Secretary
<b>Land &amp; Water Resources Management (LWRM)</b>	
Colin Simione	Director
Kyau Win	Principal Engineer
Khin Mung Chu	Principal Engineer
Rajiv Kumar	Senior Tech Assistant
Ivan Ferrer	Senior Engineer
Aung gi	Senior Engineer
<b>Animal Health &amp; Production (AH&amp;P)</b>	
Tumasi Tanielava	Director
<b>Land Resource Planning (LRPD)</b>	
Nahmiel Waka	Director
<b>Finance</b>	
Sikeli Bolaisavu	Senior Accountant
<b>Japan Side</b>	
<b>JICA Fiji Office</b>	
Ngohi Ishiyuki	Project Formulation Advisor
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader / Flood Management
Takashi Toyoda	Deputy Team Leader / Flood Management
Makoto Yoshimura	Hydrological Analysis / Runoff Analysis
Masahito Kizawa	Flood Control Planning / River Planning
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Operational coordination / Flood Control Planning, River Planning Assistance



R.L




## 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 of Local Government, Urban Development, Housing and Environment
- Permanent Secretary of Lands and Mineral Resources
- Permanent Secretary of Rural and Maritime Safety and Natural Disaster Management
- Permanent Secretary of Finance
- Permanent Secretary Strategic Planning, National Development and Statistics
- The Commissioner Western Office
- The General Manager, iTaukei Land Trust Board (TLTB)
- The Chief Executive Officer, Water Authority of Fiji (WAF)
- The Director, Fiji Meteorological Services (FMS)
- The Chief Executive Officer, Fiji Road Authority
- The Special Administrator Nadi Town Council
- The 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. Observer

- o Director SPC/SOPAC



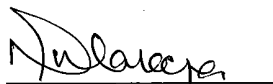
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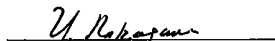

MINUTES OF MEETINGS  
ON  
PROGRESS REPORT  
FOR  
THE STUDY  
ON  
THE PROJECT FOR THE PLANNING OF THE NADI RIVER  
FLOOD CONTROL STRUCTURES  
IN  
THE REPUBLIC OF FIJI

AGREED UPON BETWEEN  
MINISTRY OF AGRICULTURE  
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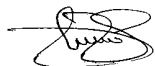
Suva, May 26, 2015



Maca Tulakepa  
Deputy Secretary  
Ministry of Agriculture (MOA)



Yoshio Nakagawa  
Team Leader  
JICA Study Team



Colin Simmons  
Director of Land and Water Resources  
Management (LWRM)  
MOA

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 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 JICA Study Team compiled the study results during the Stage-1 in the Draft of Progress Report and submitted it to the Ministry of Agriculture (hereinafter referred to as "MOA") and had a series of discussions on its contents with MOA. The last meeting was held on May 26, 2015 based on the summary document of the Progress Report. The list of attendance of this meeting is attached as Appendix-1.

MOA agreed with the contents of the Draft of the Progress Report. The main items discussed and agreed upon between MOA and JICA Study Team are summarized as follows;

1. The contents of the Draft of the Progress Report is acceptable, though after detail review of the report by MOA, the report shall be finalized by the JICA Study Team considering the, questions, comments and revisions presented by MOA.
2. 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.
3. The important protected areas from flood damage are to be Nadi town, Nadi airport and Queens's road. (refer to P-2 of the document of Session 3, the places enclosed in yellow line).
4. The method of flood control plan is divided into 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 (upstream from Back Road Bridge), and which is divided by 2 points just downstream of the Nawaka river confluence and Back Road Bridge, 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.
5. As 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 solutions in the downstream stretch, 3(three) types of solutions in the middle stretch and 4(four) types of solutions 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)



6. 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.

- 7. For the construction of the Priority Project, the land acquisition is required. The land for the 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.
- 8. According to MOA, generally it is rather difficult to acquire the Native Land than the Free Hold Land so that this matter might be an important factor for the selection of final solution in the Joint Coordination Committee (hereinafter referred to as "JCC").
- 9. In order to keep the Study schedule, topographical survey and geotechnical survey for priority project shall be implemented as soon as possible. In additions, in order to get advice from the Advisory Committee for Environmental and Social Considerations in Japan on time, the selection of Priority Project shall be conducted as soon as possible. Therefore, the selection of Priority Project shall be made within two weeks after 2nd JCC meeting held on June 3, 2015. MOA understands this schedule and suggested this schedule shall be emphasized in the 2nd JCC meeting.
- 10. 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 was 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.

List of Attendance

Name	Position
<b>MOA</b>	
Maca Tulakepa	Deputy Secretary (Corporate Services)
Miliakere Nawaikula	Acting Deputy Secretary (Agricultural Development)
Colin Simmons	Director, LWRM
Jone Sovalawa	Acting Director, Crop Extension
Apaitia Macanawai	Acting Director, Research
Pauliasi Tuilau	Acting Chief Economist
Eroni Tamani	Principal Research Officer, Animal and Health Production
Mahendra Kumar	Principal Agriculture Officer, LWRM
Panapasa Varea	Valuer, Land Research and Planning Development
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader
Takashi Toyoda	Deputy Team Leader

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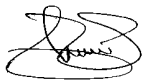
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**MINUTES OF MEETINGS  
ON  
INTERIM REPORT  
FOR  
THE STUDY  
ON  
THE PROJECT FOR THE PLANNING OF THE NADI RIVER  
FLOOD CONTROL STRUCTURES  
IN  
THE REPUBLIC OF FIJI**

**AGREED UPON BETWEEN  
MINISTREY OF AGRICULTURE  
AND  
THE STUDY TEAM OF JAPAN INTERNATIONAL COOPERATION AGENCY**

Suva, October 30, 2015



Colin Simmons  
Director of Land and Water Resources  
Management (LWRM)  
Ministry of Agriculture (MOA)



Yoshio Nakagawa  
Team Leader  
JICA Study Team

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") and had a series of discussions on its contents with MOA. The last meeting was held on October 30, 2015 based on the distributed explanation materials of the Interim Report. The list of attendance of this meeting is attached as Appendix-1. And the explanation materials are also attached as Appendix-2.

MOA agreed with the contents of the Draft of the Interim Report. The main items discussed and agreed upon between MOA and the JICA Study Team is summarized as follows.

1. The JICA Study Team explained the following matters in the 3 (three) sessions of the distributed materials to MOA 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. The contents of the Draft of Interim Report is acceptable, though after detail review of the report by MOA, the report shall be finalized by the JICA Study Team considering the questions, the comments



and the revisions presented by MOA.

3. The components of the Master Plan are determined on the condition of JCC approval as shown below (refer to Session 2, P-8).

- ① River Widening in middle stream
- ② Retarding Basins (A&B) in upstream
- ③ Countermeasures for negative impact
  - Ring Dike around Moala village
  - Surrounding Dike for Nadi town
  - Shortcut in tributaries
- ④ Retarding Basin and River Improvement in downstream including dike along the Queen's Road
- ⑤ River Improvement and Retarding Basins in tributaries
- ⑥ Dam and river improvement in upstream of main stream
- ⑦ Rebuilding 2 (two) bridges

4. The components of the Priority Project are determined on the condition of JCC approval as shown below (refer to Session 2, P-29).

- ① River Widening
- ② Retarding Basin( A &B)
- ③ Surrounding Dike for Nadi town
- ④ Ring Dike around Moala village
- ⑤ Shortcut in tributaries
- ⑥ Rebuilding of 2(two) Bridges

5. Due to construction of 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 flood water from the both tributaries.

2 (two) mitigation works, 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), against increase in inundation depth were compared and the latter was found to be better solution. Even though, the necessity of smoothing of alignment (shortcut) shall be determined at the 4<sup>th</sup> JCC meeting considering the extent of inundation damage and the scale of its

work.

6. The proposed Non-structural Measures in Master Plan including those in the Priority Project are shown in Session 1, P-8 is acceptable.

7. The JICA Study Team requested the data and the information as shown in Session 1, P-19.

8. As to the prospective schedule of the Study, the Feasibility Study for Priority Project shall be conducted in stage-3, and the outline of the result shall be confirmed on February in 2016 at 5<sup>th</sup> JCC. Draft Final Report shall be submitted in April, 2016.

In order to keep the Study schedule, topographical survey, geotechnical survey and social and environmental consideration survey for the priority project have to be implemented as soon as possible. Therefore, the decision on the components of Priority Project is to be made at 4<sup>th</sup> JCC meeting.

After the 4<sup>th</sup> JCC meeting, the 2<sup>nd</sup> Public Consultation and Stake holders meeting will be held at the end of November 2015 or at latest at the beginning of December 2015.

9. In the 2<sup>nd</sup> 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.

10. 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.

11. 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.

12. The following procedures, negotiations, surveys and so on are required to be considered by the Fiji Government before the implementation of the Project after this Study.

- 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.

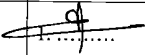
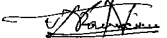

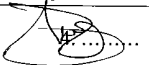
Appendix-1

List of Attendance

Name	Position
<b>MOA</b>	
Colin Simmons	Director, LWRM
Mahendra Kumar	Principal Agricultural Officer, LWRM
Khin Maung Cho	Principal Engineer (River Engineer), LWRM
Josefa Nawai	Engineer, LWRM
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader
Takashi Toyoda	Deputy Team Leader
Takeshi Watanabe	Project Implementation Planning
Tomohiro Umeki	Non-Structural Measures

ATTENDANT LIST

Subject :  
 Day/Date :  
 Time :  
 Place :

No.	Name	Organization/Position	Sign
1.	MAHENDRA KUMAR	LWRM, PAO	
2.	JOSEFA NAWAI	LWRM, ENGINEER	
3.	KHIN MAUNG CHO	LWRM, PE(RE)	3. .... 
4.	Colin Simmons	Director LWRM	
5.			5. ....
6.			6. ....
7.			7. ....
8.			8. ....
9.			9. ....
10.			10. ....
11.			11. ....
12.			12. ....




Appendix-2

**Explanation Materials of Interim Report**

**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**

A7-9

**MINUTES OF MEETINGS  
ON  
FEASIBILITY STUDY OF PRIORITY PROJECT  
FOR  
THE STUDY  
ON  
THE PROJECT FOR THE PLANNING OF THE NADI RIVER  
FLOOD CONTROL STRUCTURES  
IN  
THE REPUBLIC OF FIJI  
  
AGREED UPON BETWEEN  
MINISTREY OF AGRICULTURE  
AND  
THE STUDY TEAM OF JAPAN INTERNATIONAL COOPERATION AGENCY**

Suva, April 25, 2016

Colin Simmons  
Director of Land and Water Resources  
Management (LWRM)  
Ministry of Agriculture (MOA)

Yoshio Nakagawa  
Team Leader  
JICA Study Team

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, Stage-2 and Stage-3 which are the 3-stages of the Project and 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 and the meeting was held on April 25, 2016 based on the distributed explanation materials of the results of the Feasibility Study and other related important matters.

The list of attendance of this meeting is attached as Appendix-1. And the explanation materials are also attached as Appendix-2.

MOA agreed with the contents of the explanation materials of the Feasibility Study and other related important matters.

The main items discussed and agreed upon between MOA and the JICA Study Team is summarized as follows.

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

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#### Session 3: Issues toward Implementation of the Project

1. Project Implementation
  - 1.1 Project Implementation Schedule
  - 1.1 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. Session 1: Progress of the Study and Outline of Draft Final Report

- 2-1. The JICA Study Team presented and explained the progress and the outline of the Feasibility Study.

Some of feasibility study items studied in Stage-3 were explained by the JICA Study Team and accepted by MOA (refer to Session 1, P-5~P7).

- 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 MOA at the end of May 2016. And 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 at the beginning of May 2016 (refer to Session 1, P-8).

- 2-3. In the 3rd Public Consultation and Stake holders meeting, the JICA Study Team explained the objective is to promote understanding and cooperation among the local residents and related agencies and 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 (refer to Session 1, P-9,10).

- 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 6<sup>th</sup> 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 (refer to Session 1, P-11,12).

- 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 (refer to Topics P-1~P-10).

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

- 3-1. The components of the Priority Project agreed at the previous JCC meeting shown below was presented (refer to Session 2, P-3, P-5).

- ① River Widening

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- 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 MOA. 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 (refer to Session 2, P-8 ~P-25)..

3-3. Since the economic evaluation and project cost are still under studies, the final results will be reported to MOA as soon as this is completed. The economic evaluation, the economic evaluation indexes, premises of evaluation, consideration of flood control benefit and so on were explained and accepted by MOA (Session 2, P-27~P30). 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 were explained and accepted by MOA (refer to Session 2, P-29).

#### 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 (refer to Session 3, P-2).

4-2 The tentative project implementation structure for the Priority Project was presented by JICA Study Team as an example (refer to Session 3, P-3.4), its establishment is expected as soon as possible for the early commencement of the Priority Project.



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, and accepted by MOA (Session 3, P-5~P-7).

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 MOA.

4-4. The required EIA process to be followed by Fiji side was explained by JICA Study Team together with JICA EIA study results which was accepted by MOA (Session 3, P8).


The EIA by Fiji is the process that is required as soon as possible for the early commencement of the Priority Project.

5. MOA informed JICA Study Team to mention the effectiveness of the river widening only and the date of 3<sup>rd</sup> Public Consultation in coming 5<sup>th</sup> JCC. Details of the hydrological analysis result for the Priority Project should also be made available to MOA to study and to support the Feasibility Study Results.

6. The schedule of 6<sup>th</sup> JCC and Seminar is confirmed by MOA at this time as follow.

- 6<sup>th</sup> JCC: during the week of date of May 30, 2016
- Seminar: during the week of 11<sup>th</sup> day of July 2016




Appendix-1

List of Attendance


Name	Position
<b>MOA</b>	
Colin Simmons	Director, LWRM
Khin Maung Cho	Principal Engineer (River Engineer), LWRM
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader
Takashi Toyoda	Deputy Team Leader



Appendix-2

Reference Documents

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

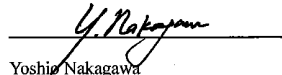


**MINUTES OF MEETINGS**  
**ON**  
**DRAFT FINAL REPORT**  
**FOR**  
**THE STUDY**  
**ON**  
**THE PROJECT FOR THE PLANNING OF THE NADI RIVER**  
**FLOOD CONTROL STRUCTURES**  
**IN**  
**THE REPUBLIC OF FIJI**  
  
**AGREED UPON BETWEEN**  
**MINISTRY OF AGRICULTURE**  
**AND**  
**THE STUDY TEAM OF JAPAN INTERNATIONAL COOPERATION AGENCY**

Suva, June 2, 2016



Colin Simmons  
Director of Land and Water Resources  
Management (LWRM)  
Ministry of Agriculture (MOA)



Yoshio Nakagawa  
Team Leader  
JICA Study Team

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, Stage-2 and Stage-3 which are the 3-stages of the Project and 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 and the meeting was held on June 2, 2016 based on the distributed explanation materials of the Draft Final Report and other related important matters.

The list of attendance of this meeting is attached as Appendix-1. And the explanation materials are also attached as Appendix-2.

MOA agreed with the contents of the explanation materials of the Draft Final Report and other related important matters.

The main items discussed and agreed upon between MOA and the JICA Study Team is summarized as follows.

1. The JICA Study Team explained the following matters in the two (2) sessions of the distributed materials to MOA.

**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

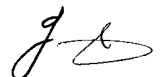
**Session 2: Summary of the Result of the Study**

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;

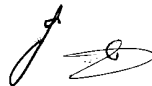
- (1) Summary Report
- (2) Main Report I: Master Plan Study  
Chapter 1 Introduction  
Chapter 2 Basic Data Collection of Basin and Flood Control Plans and Countermeasures



- Chapter 3 Field Investigations
- Chapter 4 Summary of Present Conditions and Issues of Flood Control and Basin Management in Nadi River
- 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 MOA

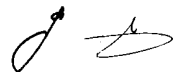
- 2-2. The required steps to the implementation of the Priority Project and present issues toward implementation were explained by the JICA Study Team as follows:
- Institution Arrangement for project preparation
  - Securing Finance
  - Selection of Consultant for Detailed Design and Construction Supervision
  - 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.
- 2-3. The social and environmental study such as pollution, natural conditions and social conditions carried out by the 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 residents who earn their livelihood from river and utilize the river. The above matters were noted by MOA.
- 2-4. The JICA Study Team assisted a preparation of the draft Resettlement Action Plan (RAP). The number of house relocation affected by the Project is limited to seventeen (17). After the endorsement for implementation of the Project, land acquisition and resettlement will be implemented in line with the RAP. The RAP should be agreed 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 MOA.
- 2-5. The seminar program presented by JICA Study Team in the 5<sup>th</sup> JCC was confirmed by MOA. The seminar will be held on 13 and 14 July 2016.
- 2-6. The conclusion of the Study and recommendations was explained by the JICA Study Team as shown below and accepted by MOA.
- (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 were 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 in non-structural measures are 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 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 MOA.

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 non-structural measures in the Priority Project is 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.

3-5. The approximate work quantity of the river works which is the major part of the Priority Project was explained and accepted by MOA. The work quantity of major works is as shown below.

Excavation	5,500 x 10 <sup>3</sup> m <sup>3</sup>
Embankment	1,820 x 10 <sup>3</sup> m <sup>3</sup>
Backfill	920 x 10 <sup>3</sup> m <sup>3</sup>
Spoil disposal	2,760 x 10 <sup>3</sup> m <sup>3</sup>

3-6. The construction is divided 5 packages and they are divided into sub construction sections as shown below.

Package-1: River Widening

P1-1; 5.0km to 9.75km

P1-2; 10.0km to 14.0km

P1-3; 14.0km to 18.75km

Package-2: Retarding Basin A & B

Package-3: Ring Dike

Package-4: Surrounding Dike and Shortcut

P4-1; Surrounding Dike

P4-2; Shortcut

Package-5: Rebuilding of two(2) bridges

The location and work contents of each construction division was explained by the JICA Study Team and noted by MOA.

3-7. The excavation method in rainy season and dry season was shown and explained by the JICA Study Team and noted by MOA. The method is that in the rainy season both side of the banks is excavated at higher level than the elevation of the average maximum sea level during the past five (5) years +0.5m of allowance. In the dry season the coffer dam is installed on the riverbed, and the river water is diverted to either side of the coffer dam, then the opposite side is excavated in dry condition, after the same process repeated in the other side, then 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 MOA. There are nine (9) potential locations of disposal areas from A to I with total capacity of 3,130 x 10<sup>3</sup>m<sup>3</sup> which is sufficient compared with the estimated soil disposal volume of 2,760 x 10<sup>3</sup>m<sup>3</sup>. 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 MOA. The total construction period of the Priority Project will be four (4) years.

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 MOA.

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 the comments on the Draft Final Report that are requested to be delivered to the JICA Study Team within two (2) weeks (until June 20, 2016).



**List of Attendance**

Name	Position
<b>MOA</b>	
Colin Simmons	Director, LWRM
Khin Maung Cho	Principal Engineer (River Engineer), LWRM
Josefa Nawai	Engineer (River Engineer), LWRM
<b>JICA Study Team</b>	
Yoshio Nakagawa	Team Leader
Takashi Toyoda	Deputy Team Leader



**Appendix-2**

Reference Documents

Reference: Distributed materials at the Meeting

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

Session 2: Summary of the Result of the Study

A handwritten signature in black ink, appearing to be 'J. S.', located at the bottom center of the page.