

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Fiji Office and Solomon Islands Office:, February 2020

Country Name	The Strengthening Community-Based Disaster Risk Management Project
Republic of Fiji The Solomon Island	

I. Project Outline

Background	<p>Island countries of the Pacific Region, including Fiji and Solomon Islands, are vulnerable against natural disasters such as cyclones, floods and tsunami because of their geographical and topographical conditions. In order to cope with the vulnerability, these countries established the emergency response system and the authorities concerning meteorological and water management had very basic knowledge and skills on weather and hydraulic observation and flood flow simulations. However, limited capacity of flood forecast and early warning. Also, they did not have any manuals for emergency response defining division of roles and specific actions to be taken by each authority concerning disaster management and evacuation drills. In addition, no evacuation drill based on the manual was conducted. Furthermore, the evacuation routes, evacuation areas as well as mutual communication system between communities and the local offices were not developed. Therefore, the people in these countries were not able to transmit timely and precise evacuation information and to obtain safety confirmation and had difficulty to evacuate safely and timely to the safety areas. Under those situations, it was essential to establish and reinforce community-based early warning system.</p>											
Objectives of the Project	<p>Through capacity building on flood forecast, establishment of flood warning system and community disaster management system, implementation of awareness raising on disaster management and evacuation drills for the communities as well as risk assessment by the communities in the pilot sites, the project aimed at establishment of appropriate evacuation system for the residents in the selected sites, and thereby contributing to establishment of appropriate evacuation system developed by the project in other sites in the two countries of the Pacific Region, Fiji and Solomon Islands.</p> <ol style="list-style-type: none"> Overall Goal: A system in which the residents of the area(s) other than the selected community (village or settlement) is (are) able to evacuate appropriately is enhanced. Project Purpose: A system in which the residents of the selected community (village or settlement) area(s) is (are) able to evacuate appropriately is established. 											
Activities of the Project	<ol style="list-style-type: none"> Project Site: (Fiji) Ba, Northwest of Viti Levu Island, (Solomon Islands) Tamboko, Guadalcanal Province Main activities: (1) Capacity development of meteorological offices and water authorities for flood forecasting and strengthening flood warning system, (2) strengthening implementation system of community-based disaster management plans for the target communities and enhancement of organizational capacity for emergency response, and (3) implementation of awareness program as well as risk assessment by residents at the pilot sites. Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Fiji and Solomon Islands Side</td> </tr> <tr> <td>1) Experts: 15 persons (8 for Fiji and 7 for Solomon Islands)</td> <td>1) Staff allocated: 85 persons (47 from Fiji and 38 from Solomon Islands)</td> </tr> <tr> <td>2) Trainees received in Japan: 20 persons (10 from Fiji and 10 from Solomon Islands)</td> <td>2) Land and facilities: project offices in Fiji and Solomon Islands</td> </tr> <tr> <td>3) Equipment: rain gauges, water level gauges, hydrological information system, etc.</td> <td>3) Local expenses: costs for project activities, etc.</td> </tr> <tr> <td>4) Local expenses: cost for local project staffs, travel expenses, cost for consumables, etc.</td> <td></td> </tr> </table>		Japanese Side	Fiji and Solomon Islands Side	1) Experts: 15 persons (8 for Fiji and 7 for Solomon Islands)	1) Staff allocated: 85 persons (47 from Fiji and 38 from Solomon Islands)	2) Trainees received in Japan: 20 persons (10 from Fiji and 10 from Solomon Islands)	2) Land and facilities: project offices in Fiji and Solomon Islands	3) Equipment: rain gauges, water level gauges, hydrological information system, etc.	3) Local expenses: costs for project activities, etc.	4) Local expenses: cost for local project staffs, travel expenses, cost for consumables, etc.	
Japanese Side	Fiji and Solomon Islands Side											
1) Experts: 15 persons (8 for Fiji and 7 for Solomon Islands)	1) Staff allocated: 85 persons (47 from Fiji and 38 from Solomon Islands)											
2) Trainees received in Japan: 20 persons (10 from Fiji and 10 from Solomon Islands)	2) Land and facilities: project offices in Fiji and Solomon Islands											
3) Equipment: rain gauges, water level gauges, hydrological information system, etc.	3) Local expenses: costs for project activities, etc.											
4) Local expenses: cost for local project staffs, travel expenses, cost for consumables, etc.												
Project Period	October 2010 – September 2013	Project Cost (ex-ante) 300 million yen, (actual) 333 million yen										
Implementing Agency	<p>[Fiji] National Disaster Management Office (NDMO), Ba Provincial Office, Ba District Office, Fiji Meteorological Service, Hydrology Team, Water Authority of Fiji (WAF) [Solomon Islands] National Disaster Management Office (NDMO), Meteorological Service, Water Resources Division</p>											
Cooperation Agency in Japan	Yachiyo Engineering Co., Ltd., Oyo Corporation											

II. Result of the Evaluation

I Relevance	<p><Consistency with the Development Policy of Fiji and Solomon Islands at the Time of Ex-Ante Evaluation > [Fiji] The project was consistent with Fiji's development policies of the "Natural Disaster Management Act" (1998) stipulating reduction of disaster damages and the "Fiji National Disaster Risk Management Arrangements" (2006) focusing capacity building in disaster management for enhancement of community resilience.</p> <p>[Solomon Islands] The project was consistent with Solomon Islands' development policies of the "National Disaster Management Act" (1989) and the "National Disaster Management Plan" (revised in 2009) focusing on importance of enhancement of community disaster management.</p> <p><Consistency with the Development Needs of Fiji and Solomon Islands at the Time of Ex-Ante Evaluation ></p>
-------------	---

The project was consistent with the development needs of Fiji and Solomon Islands for timely and precise transmission of evacuation information for communities for safe and timely evacuation in case of floods.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policies for Fiji and Solomon Islands. For the Pacific Islands countries, including Fiji and Solomon Islands, the government of Japan focused on the three pillars to support including "Environment and Climate Change" and "Human Security" at the 5th Pacific Islands Leaders Meeting (PALM5) in 2009. For Fiji, one of the three priority areas for the Japan's ODA policy under the PALM 5 was "Environment and Disaster Management" including community disaster management¹. For Solomon Islands, the economic cooperation policy dialogue between Solomon Islands and Japan in June, 2009 prioritized three areas including enhancement of resilience against natural disaster².

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion.

[Fiji]

100% residents evacuated when the floods occurred in January and March 2012 (Indicator 1). In total, 6 evacuation drills were conducted in 3 communities (Indicator 2).

[Solomon Island]

Although no flood occurred during the project implementation, 62% of the residents participated in the evacuation drill and evacuated at the drill in 2013 (Indicator 1). The evacuation drills were conducted in 2011 and 2013 (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been partially continued since the project completion.

[Fiji]

The Flood Early Warning System (EFW) in Fiji is functioning well after it is managed by the Fiji Meteorological Services (FMS). The public advisory warnings are now issued from the Hydrology Unit of FMS after it has moved from the Department of Water and Sewerage. In 2010 the Government of Fiji made some reforms to the Water Sector and established the Water Authority of Fiji (WAF) as a statutory body responsible for water and sewerage sector. Based on the flood warnings being issued by FMS, more than 60% of the residents evacuated in eastern, western and northern part of Central Division. In addition to this, in 2016, residents in Qamea and in 2018, residents in Kadavu could evacuate based on the warnings that had been issued for the flood risk associated with Tropical Cyclones and Tropical Depressions. On the other hand, all the equipment that was installed under the Project for flood monitoring is no longer in operational. The automatic rainfall gauges, simplified rain gauges, water level gauges and warning rain gauges installed at Nasolo Village, Votua Village and Nawaqarua village were all damaged by the flood and cyclone and the equipment was not repaired after it was damaged. The equipment that was handed over to NDMO, BDO, FMS is no longer in use as well due to wear and tear of the equipment and no repairs were carried out as well. WAF was supposed to monitor the equipment in the villages, however, no site inspection was carried out. Since all the equipment were damaged including the sirens, the villagers have not carried out any drills though they have quite a good knowledge on precautions to be taken at a time of any natural disasters. On the other hand, the equipment that was installed at one of the project sites (Ba River) was stolen in the same year after the completion of the Project.

[Solomon Islands]

The Water Resource Division (WRD) is responsible for flood warning and they issued warning only in 2014 but still now WRD doesn't have any capacity to issue flood warnings. And there is no good collaboration between NDMO and WRD though a new National Disaster Management Plan (2018) mentions each roles and responsibility. Currently, flood response plan has also not been developed for communities to act accordingly as soon as they receive warning from the flood/water level gauge. Although NDMO is responsible for development of the flood response plans, NDMO does not provide any support to the target village. In Tamboko village, the selected site for the project, the Flood Early Warning System was operated until year of 2015 but the equipment has not been working anymore. NDMO hasn't conducted evacuation drills in the target village after the project completed.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved by the time of ex-post evaluation.

[Fiji]

Currently, NDMO has collaborated with other communities and has continuously conducted evacuation drills because such practice has empowered the communities to take actions and to enhance their resilience towards risks from natural hazards. The community-based trainings which have been delivered by NDMO also aligns the communities to the government process and procedures, informing them of their link to NDMO through the District Office and the Divisional Commissioner.

[Solomon Islands]

Some evacuation drills were conducted in other areas by NDMO with another donor funds. Evacuation drill was conducted in Guadalcanal Province under United Nations Development Programme (UNDP) Tailing Storage Facility (TSF) Project at Gold Ridge, and 31 downstream communities participated in the exercises. Many communities still need to be covered with Community Based Disaster Risk Management (CBDRM) activities. NDMO and partners would like to replicate good results from the pilot project in Tamboko Village under the JICA project to other vulnerable communities in the country.

<Other Impacts at the time of Ex-post Evaluation>

Some positive impact by the project were confirmed at the time of ex-post evaluation.

[Fiji]

There are some positive impacts observed at the time of ex-post evaluation. Through the project, women participation during the drills and even in decision making have been enhanced. Some women represented in the Community Disaster Committee which allowed them to

¹ Ministry of Foreign Affairs, "ODA Databook", (2009)

² Ministry of Foreign Affairs, "ODA Databook", (2009)

address gender sensitive issues which was often neglected during emergencies and disasters such as sanitation and protection. In addition, NDMO received an allocation of annual budget from the Government of Fiji for “Maintenance of Flood EWS” which has led to the upgrading of all water level stations and rainfall stations to the telemetry system (Real Time Data). Telemetric System is now installed in 15 River Catchments in Central and Eastern Divisions, 20 Catchments in Western Division, and 8 Catchments in Northern Division. FMS has confirmed that the Government of Fiji has also allocated budget to purchase water level and rainfall instruments (Telemetry System). NDMO’s stance strengthened by the project has been a driving force to continue conducting CBDRM trainings around the country.

[Solomon Islands]

In Tamboko Village, the project site for Solomon Islands, individuals in the community were instilled with sense of alertness at the time of rain or flooding.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results																
<p>(Project Purpose) A system in which the residents of the selected community (village or settlement) area(s) is (are) able to evacuate appropriately is established.</p>	<p>Indicator 1 Percentage of the residents who take on the behavior of evacuation when the warnings are issued. (For Fiji: 95%, For Solomon Islands: 80%)</p>	<p>Status of the Achievement: Achieved. (Partially continued) (Project Completion) ● Fiji: 100% of the residents evacuated when the floods occurred in January and March 2012. ● Solomon Islands: 62% (430 out of 696) of the residents evacuated at the evacuation drill in 2013. No flood requiring evacuation occurred (Ex-post Evaluation) ● Fiji: 60-80% of the residents evacuated in the flood areas. [Evacuation in case of flood]</p> <table border="1" data-bbox="759 786 1528 1048"> <thead> <tr> <th>The flood area</th> <th>Year of flood occurred</th> <th>No. of residents evacuated</th> <th>% of residents evacuated in the flood area</th> </tr> </thead> <tbody> <tr> <td>Eastern, Western, Northern and parts of Central Division</td> <td>2016</td> <td>64,007</td> <td>60-80%</td> </tr> <tr> <td>Qamea</td> <td>2016</td> <td>N.A.</td> <td>60%</td> </tr> <tr> <td>Kadavu</td> <td>2018</td> <td>N.A.</td> <td>60%</td> </tr> </tbody> </table> <p>Note: Incidents of flood detailed above are associated with Tropical Cyclones and Tropical Depressions. ● Solomon Islands: Equipment was broken 2015 and those hasn’t been repaired till now, therefore, no warnings were issued but some local residents evacuated in case of heavy rain.</p>	The flood area	Year of flood occurred	No. of residents evacuated	% of residents evacuated in the flood area	Eastern, Western, Northern and parts of Central Division	2016	64,007	60-80%	Qamea	2016	N.A.	60%	Kadavu	2018	N.A.	60%
The flood area	Year of flood occurred	No. of residents evacuated	% of residents evacuated in the flood area															
Eastern, Western, Northern and parts of Central Division	2016	64,007	60-80%															
Qamea	2016	N.A.	60%															
Kadavu	2018	N.A.	60%															
<p>(Overall Goal) A system in which the residents of the area(s) other than the selected community (village or settlement) is (are) able to evacuate appropriately is enhanced.</p>	<p>Indicator 2 Cases that the residents of selected community have evacuation drills in cooperation with NDMO.</p>	<p>Status of the Achievement: Achieved. (Partially continued) (Project Completion) ● Fiji: In total 6 evacuation drills were conducted for the communities under the cooperation with NDMO: 3 times in Nawanquarua, 2 times in Nasolo, and 1 time in Natutu. ● Solomon Islands: 2 evacuation drills for the villagers were conducted under the cooperation with NDMO in 2011 and 2013. (Ex-post Evaluation) ● Fiji: NDMO and the villagers have not carried out any drills though they have a good understanding on the precautionary methods required for evacuation during any disasters which is acquired in the Project. ● Solomon Islands: No drills by villagers with NDMO.</p>																
	<p>Cases that the residents of the area(s) other than selected community have evacuation drills in cooperation with NDMO.</p>	<p>Status of the Achievement: Partially achieved (Ex-post Evaluation) ● Fiji: ➢ NDMO has also in collaboration with other communities and conducted evacuation drills. NDMO has continued this practice because it empowers the community to take action and be resilient toward risks from natural hazards. The training also aligns the community to government processes and procedures, informing them of their link to NDMO through the District Office and Divisional Commissioner. ➢ NDMO has no record of how many drills were carried out by the villagers and whether it was replicated to another village or community. ➢ The villagers could not protect any equipment during the floods. ● Solomon Islands: Evacuation drill was conducted in Guadalcanal Province under UNDP TSF Project at Gold Ridge, and 31 downstream communities participated in the exercises.</p>																

Source : Terminal Evaluation Reports, Project Completion Report, Information provided by NDMO (Fiji), Information provided by NDMO (Solomon Islands)

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 111%). The outputs of the both projects were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

[Fiji]

The CBDRM activities enhanced by the project was endorsed by the “Natural Disaster Management Act” (1998) which is currently being revised by the Government of Fiji.

[Solomon Islands]

The CBDRM activities enhanced by the project have been endorsed by the policies of the “National Disaster Management Plan” (2018) and the “National Development Strategy” (2016-2035). In the Strategy, awareness raising of disaster and climate risk at the community level has been a part of ongoing development planning.

<Institutional/Organizational Aspect>

[Fiji]

NDMO is responsible for delivery of CBDRM trainings and evacuation drills. For CBDRM trainings, NDMO has 5 officers, including 3 officers in charge of DRR in Central, Western and Northern Division. There are around 10 District Officers (DOs) per Division in Fiji and the number of DOs has been sufficient for ordinary period however during the cause of any disaster, additional staff from other government ministries are deployed to work with the coordination of disaster relief, collection and analysis of data on damages. Once disaster occurs, staff mainly from the Ministry of Economy and other Government Ministries are deployed to provide additional support in terms of compiling information and donor coordination for relief and humanitarian aid.

[Solomon Islands]

NDMO is responsible for coordination and implementation for promoting CBDRM. They have 18 staff for CBDRM and the number of staff has been sufficient for the ordinary period without disaster. Once disaster occur, they require additional staff from the partner organizations. The Provincial Disaster Officers (PDOs) are also responsible for coordination and implementation for promoting CBRDM at the provincial level. There are 10 PDOs and the number of PDOs has been sufficient for ordinary period but they need additional staff at the time of disaster from the partner organizations. The Solomon Islands Meteorological Service (SIMETS) is responsible for weather forecasting and monitoring of rain gauges as well as issuing of heavy rain warnings but not flood warnings in accordance with the Meteorology Act 1985. They have 4 staff members which is sufficient for their responsibility. WRD is responsible for flood monitoring and awareness of hydrological monitoring. They have 4 staff members for the duties but the number of staff is insufficient and they need for each staff to do separate duties.

Site with the Automatic Weather Station is opened in July, 2020 and equipment can be accessed by authorized personnel. It would be much easier and better if data from instrument is transmitted real time to all offices via appropriate technology either mobile phone network or satellite though the current system used (data logger) is only appropriate for climate purposes and not weather or early warnings.

<Technical Aspect>

[Fiji]

NDMO has drafted a CBDRM Training Manual through Partners in Community Development Fiji (PCDF) that NDMO and other stakeholders will be able to use for guiding the communities when conducting trainings specifically on CBDRM. One or two staff trained by the project is still retained in NDMO and has sustained skills for conducting CBDRM trainings however they are now transferred to another District under the Ministry of Rural and Maritime. The manuals developed by the project is rarely used by NDMO because all the equipment installed by the project has not been in operation and no activity has been conducted as mentioned above. However, the Manual drafted through PCDF will be piloted in Kadavu and the Northern Division in February 2020.

[Solomon Islands]

The staffs of NDMO, WRD and PDO have sustained the knowledge and skills acquired through the CBDRM trainings by the project but SIMS requires more trainings. NDMO has continuously utilized the guidelines and manuals developed by the project for implementation of other CBRDM activities after the project completion. Since WRD also continues technical support to other organizations which implement similar project with other communities based on the guidelines and the manuals, they has limited manpower technical capacity and budget to implement national Flood Warning Systems in the country but would be able to continue with community early flood warning systems

<Financial Aspect>

[Fiji]

Currently, NDMO receives budget for CBDRM activities and trainings. For year 2017 and 2018, NDMO had a budget of 10,000 FJD. In addition, NDMO received financial support from NGO and other development partners for CBDRM trainings. Furthermore, NDMO has received a budget of 75,000 FJD for “Maintenance of Flood EWS” from the government of Fiji since 2015 however the budget was reduced to 60,000 FJD in 2019/2020.

[Solomon Islands]

NDMO does not have annual budget for the CBDRM activities and the main source of funds for the activities are the donor agencies, such as the European Union (EU) on the project basis. Without donors’ support, NDMO is not able to ensure sufficient budget for the CBDRM activities. PDOs do not have annual budget neither. On the other hand, WRD has annual budget which has increased from 1,850 US dollars (USD) in 2014 to 8,500 USD in 2018. The increase in their budget is related to the expansion of their functions and responsibilities. However, the budget to implement monitor the target village has not been sufficient and WRD has not conducted any flood analysis since the project completion.

<Evaluation Result>

Therefore, there are some problems in institutional, technical and financial aspect of the implementing agencies, and the sustainability of the project effects the project is rated fair.

5 Summary of the Evaluation

The project achieved the Project Purpose for establishing the CBDRM system in Fiji and Solomon Islands and partially achieved the

Overall Goal for extending the CBDRM system in other areas in the countries in order to enhance resilience of the communities against disasters. As for sustainability, there have been some problems in the institutional, technical and financial aspects. As of efficiency, the project cost slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[Fiji: for NDMO]

The Government of Fiji should setup a mechanism for monitoring of community-based projects. It should have resources such as personnel and budget to carry out regular monitoring of these projects. It should enhance communities setting up of committee in taking care of community projects. In addition, the Government of Fiji should have standard operating procedures (SOPs), which assist sustainability of projects where high staff turnover is an issue, for bi-annual reviews of projects and the project to have an exit strategy. It is recommended that the Government of Fiji should ensure sustainability of the project effects through the enhanced mechanism for community project

[Solomon Islands: for NDMO]

The Government of Solomon Islands should make more smooth coordination among the stakeholders such as the Meteorological Services, WRD and the communities, and to secure human resources and budget for conducting regular monitoring. In particular, coordination amongst technical divisions need to be strengthened as well as resource capacitating. Responsibilities should also be clearly defined and tasked according to technical mandate to avoid confusion on roles and responsibilities considering project sustainability. WRD and SIMETS need to collaborate in maintaining national flood warnings and community flood warning systems Also, they need to enhance promotion for the communities through implementation of periodic evacuation drills in order to facilitate proper evacuation by the local people in the case of emergency disaster. In addition, it is recommended to ensure the sustainability of the project effects through those efforts.

Lessons Learned for JICA:

[Fiji]

CBDRM requires continuous follow ups including strong commitments and clear divisions of roles among the relevant government authorities. In addition, for Fiji, BDO does not have any regulation or policy to promote community-based disaster projects therefore it was very difficult for BDO to sustain the activities introduced by the project. NDMO also had lack of resources including budget to sustain the activities introduced by the project as well. Therefore, it is essential to carefully consider the institutional structure and the available resources for CBDRM in the target country at the time of project planning and design.

On the other hand, there are difficulties to manage community-based project activities in the two different countries. Therefore, it is desirable to conduct follow up support for the two different countries after the project completion in order to sustain the CBDRM activities in the target sites at least. In addition, it is preferable to consider components to establish a monitoring system for FWS and to formulate an extension plan for CBDRM in other sites at the time of project preparation/design in order to ensure sustainability of CBDRM.

There is a very high turnover of staff in the Pacific, therefore JICA needs to continue its relationship with the relevant authorities even after the completion of the Project in order to make the new comers understand the model and/or the activities introduced by the project for sustain the project effects

[Solomon Islands]

CBDRM requires a strong commitment by the relevant government authorities and continuous follow-ups under clear divisions of responsibilities. In Solomon, the Water Resource Division, a responsible government authority in charge of flood monitoring and analysis, did not have sufficient technical skills for flood analysis and had difficulties to conduct analytical activities including data collection. Also, NDMO had lack of necessary resources including budgets, as similar to Fiji. Therefore, it is essential for JICA to carefully consider institutional aspects and available resource for CBDRM in the target countries at the time of project planning/design. In addition, it is essential to assess technical capacity and available resources including infrastructure of the responsible organizations. Also, selecting suitable site for piloting and installation of project equipment and early warning systems should have been based on local research findings, local recommendations and knowledge about high-risk and flood prone areas with larger than thousands people population catchment.



(Solomon Islands)

Manual siren installed by the project in Tamboko Village



(Fiji)

Damaged equipment at Nasolo Village

(Solomon Islands)

Water gauge damaged by heavy rain in Tamboko Village



(Fiji)

Damaged Water Gauges at Nawaqarua Village