

Country Name	Project for Strengthening Flood Risk Management Capacity
Republic of Colombia	

I. Project Outline

Background	Colombia is located on the fringe of the volcanic Andes, with great rivers and presenting vulnerabilities to weather and natural disasters. During La Niña ¹ between years of 2010 and 2011, 28 of the 32 departments were affected by floods and landslides caused by massive heavy rains. That historical disaster wreaked 2.3 million affected people and 26 billion pesos (1.26 billion Japanese yen) for recovery and rehabilitation. The government of Colombia promulgated many laws, decrees and regulations to accelerate efforts to prevent and reduce disaster by introducing the Disaster Risk Management in regional planning. However, demarcation of roles for managing flood risk among the institutions at national, departmental and municipal levels was not sufficiently organized and the activities related to flood risk management were not being implemented effectively. These were causing problems such as insufficient exchange of observational data, lack of maintenance and proper administration of the observation infrastructure.												
Objectives of the Project	Through strengthening capacities for the flood risk assessment, flood forecasting and warning, enhancing the collaboration among the related entities, and formulating provisional integrated flood risk management plans for the pilot areas, the project aims at enhancing the capacity of Colombian institutions in flood management, thereby contributing to the reduction of flood risk in Colombia.												
	<ol style="list-style-type: none"> Overall Goal: The reduction of flood risk in Colombia. Project Purpose: Capacity of Colombian institutions in flood management is enhanced. 												
Activities of the project	<ol style="list-style-type: none"> Project site: Río Negro Basin in the Department of Cundinamarca. Main activities: Training of the staff of National Unit for Disaster Risk Management (UNGRD), Institute of Hydrology, meteorology and Environmental Studies (IDEAM) and other related entities on hydrological and hydraulic modelling, flood risk mapping, flood risk assessment, flood forecasting, etc., clarifying roles of the related entities, formulation of the integrated flood risk management plans (IFMP) for the pilot river basin, preparation of the guidelines for IFMP formulation, etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Colombian Side</td> </tr> <tr> <td>1) Experts: 7 persons</td> <td>1) Staff allocated: 20 persons</td> </tr> <tr> <td>2) Trainees received in Japan: 24 persons</td> <td>2) Facility: Office space for experts, etc.</td> </tr> <tr> <td>3) Equipment: PCs, printers, hydrological analysis software, Geographic Information System (GIS) software, etc.</td> <td>3) Operational cost: activity implementation expenses, installation and operation and maintenance of the equipment, etc.</td> </tr> <tr> <td>4) Operational cost: project operational expenses.</td> <td></td> </tr> </table> 			Japanese Side	Colombian Side	1) Experts: 7 persons	1) Staff allocated: 20 persons	2) Trainees received in Japan: 24 persons	2) Facility: Office space for experts, etc.	3) Equipment: PCs, printers, hydrological analysis software, Geographic Information System (GIS) software, etc.	3) Operational cost: activity implementation expenses, installation and operation and maintenance of the equipment, etc.	4) Operational cost: project operational expenses.	
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Project Period	(ex-ante) June 2015 to June 2018 (actual) July 2015 to July 2018	Project Cost	(ex-ante) 246 million yen, (actual) 240 million yen										
Implementing Agency	National Unit for Disaster Risk Management (UNGRD), Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), Regional Autonomous Corporation of Cundinamarca (CAR), Department of Cundinamarca, and Ministry of Environment and Sustainable Development (MADS)												
Cooperation Agency in Japan	Oriental Consultants Global Co., Ltd., Pacific Consultants Co., Ltd.												

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Indicator 1 of the Project Purpose was set as “planning capacity regarding flood management.” In the terminal evaluation, the achievement status was judged by verifying if the counterpart (C/P) agencies developed reports after participating in the capacity building activities. In the ex-post evaluation, the continuity of the effects was verified by asking two major implementing agencies (UNGRD and IDEAM) if they have developed any reports related to flood risk management based on monitoring and evaluation.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Colombia the time of Ex-ante Evaluation>

The “National Development of Planning: For the Prosperity of All Citizens” (2010-2014) included target indicators including risk management efforts for regional plans (Land Management Plans (POTs) and Management and Regulation Plans for Basin (POMCAs)) that local governmental corporations and municipalities were obliged to develop, improvement of early warning systems and observation networks for frequent disasters, and strengthening of disaster hazard mapping capacity. In addition, the plan called for strengthening the SNGRD with the primary objective of integrated risk management. The project was consistent with the development policy of Colombia at the time of ex-ante evaluation.

<Consistency with the Development Needs of Colombia at the time of Ex-ante Evaluation>

Colombia is located on the fringe of the volcanic Andes, with great rivers and presenting vulnerabilities to weather and natural disasters. However, demarcation of roles for managing flood risk among the institutions at national, departmental and municipal levels was not sufficiently organized. Thus, the project was consistent with development needs of Colombia for effective implementation of activities

¹ La Niña is a phenomenon in which sea surface temperatures in the same area remain below normal. It is the colder counterpart of El Niño.

related to flood risk management at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.)

[Coherence]

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

One of the priority areas was "responses to environmental issues and disaster," and in this regard, it was specified that support would be provided for environmental administration, such as waste and wastewater treatment in urban areas, as well as strengthening support for natural disaster response efforts, such as earthquakes, volcanoes, and floods². Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.

<Interlinkage with other JICA's Interventions>

Any collaboration/coordination between the project and other JICA's intervention was not clearly planned at the time of ex-ante evaluation.

<Cooperation with Other Institutions/Coordination with International Frameworks>

Any cooperation/coordination with donors or international frameworks was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

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

At the time of project completion, the Project Purpose was mostly achieved as planned. All the C/P institutions prepared the report based on their learning in the training in Japan (Indicator 1) though the reports prepared at the department level could not be confirmed. Regarding the flood forecasting and warning, IDEAM installed 36 new hydrological stations (Indicator 2), and the Department of Cundinamarca examined the plan to strengthen the early warning system through the installation of real-time stations within the department. For the effective use and share of data for flood management, C/P institutions realized that there was improvement in collaboration between participating and relevant entities (Indicator 3). IFMP formulation guidelines were developed for the principal rivers and subzones (Indicator 4).

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

By the time of ex-post evaluation, the project effects have continued. IDEAM and UNGRD has developed the annual report based on the flood risk monitoring or evaluation and the monitoring reports of 2019 and 2020 were shared with JICA Colombia office as committed at the time of project completion. The report of 2021 was developed but not sent to JICA office because it took much time to complete it because of the pandemic of COVID-19. New hydrological stations have not been installed since the project completion, but UNGRD has agreed with IDEAM for improving the weather forecast and early warnings at the national level to assure the transmission of satellite data from 427 hydro-meteorological stations. The database of flood events has been shared by IDEAM and MADS. Besides, IDEAM and CAR have operated and maintained the hydrological data in real time to provide the information for studies in a strip of the Magdalena River to propose flood and river erosion control measures in the municipality of Puerto Boyacá. IFMP formulation guidelines for both the principal rivers and subzones have been effective.

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

At the time of ex-post evaluation, the Overall Goal has been partially achieved. The number of coordination meetings among related institutions was not confirmed in the ex-post evaluation (Indicator 1). However, it could be interpreted that relevant meetings have been held as follows. The instruments for planning, operation and management of hydrographic basins and aquifers had been regulated by the Decree 1076 of 2015, based on which issues related to risk management be included in POMCA. These efforts required coordination among the relevant entities. The technical guide and protocol for promotion of POMCA to include risk management issues was reviewed in 2021 and has been in the process of revision (Indicator 2). Regarding POMCAs that introduced the concept of integrated flood management, four POMCAs were developed with the concept of integrated flood management for Rio Bogota, Rio Seco y other directs of Magdalena, Rio Guayuriba and Rio Guavio in 2019 (Indicator 3). Incorporation of the concept of the provisional plan of IFMP for Sub Zone (IFMP-SZ) in the POMCA of Rio Negro Cuenca has been in process. With regard to the reduction measures implemented in the pilot basin, no structural or non-structural intervention measure has been implemented in the Rio Negro basin (Indicator 4). The reason could not be confirmed in the ex-post evaluation.

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

No impact other than explained above has been confirmed in the ex-post evaluation.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ②.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Capacity of Colombian institutions in flood management is enhanced.	1. Planning capacity regarding flood management.	Status of the achievement (Status of the continuation): Partially achieved (Continued). (Project Completion) ● All the C/P entities prepared reports on the participation in the training in Japan; however, it was not possible to confirm the	Project Completion Report.

² MOFA, ODA Databook 2015.

		preparation of other types of reports.	
		(Ex-post Evaluation) ● IDEAM and UNGRD has annually developed the follow-up report on flood risk management since 2019.	UNGRD.
	2. Capacity of flood forecasting and warning.	<u>Status of the achievement (Status of the continuation): Mostly achieved as planned (Partially continued).</u> (Project Completion) ● IDEAM installed 36 new hydrological stations at the national level. Although the installation of new stations was not confirmed in other C/P entities, the Department of Cundinamarca studied the plan to strengthen the early warning system through the installation of real-time stations within the department.	Project Completion Report.
		(Ex-post Evaluation) ● IDEAM have sustained the exiting hydrological stations, but not have newly installed any hydrological stations since the project.	UNGRD.
	3. Effective use and share of data for flood management.	<u>Status of the achievement (Status of the continuation): Mostly achieved as planned (Continued).</u> (Project Completion) ● According to MADS, UNGRD, and CAR, there was improvement in collaboration between participating and relevant entities. MADS answered that it had not been collaborating with other entities in a meaningful manner at the beginning of the project, but the relationship was strengthened by the project, by recognizing and sharing the relevant information.	Project Completion Report.
		(Ex-post Evaluation) ● The database of flood events has been shared by IDEAM and MADS.	UNGRD.
	4. IFMP formulation guideline developed.	<u>Status of the achievement (Status of the continuation): Achieved as planned (Continued).</u> (Project Completion) ● IFMP formulation guidelines were developed.	Project Completion Report.
		(Ex-post Evaluation) ● Both the Guideline for IFMP-RP Formulation and the Guideline for IFMP-SZ Formulation have been in force.	UNGRD.
(Overall goal) The reduction of flood risk in Colombia.	1. Number of coordination meetings among entities for the implementation of indicators 2, 3, and 4.	<u>Status of the achievement: Not verifiable.</u> (Ex-post Evaluation) ● The number of meetings could not be confirmed. ● It could be interpreted that inter-institutional meetings for preparation and response to flood situations have been conducted, considering the revision of POMCA-related guides.	UNGRD.
	2. A protocol for the incorporation of DRM in POMCAs that involves the concept of integrated flood management exists.	<u>Status of the achievement: Not achieved.</u> (Ex-post Evaluation) ● The technical guide and protocol for promotion of POMCA to include risk management issue has been in the process of revision.	UNGRD.
	3. Number of POMCAs that introduce the concept of integrated flood management.	<u>Status of the achievement: Partially achieved.</u> (Ex-post Evaluation) ● The concept of integrated flood management was reflected in 4 POMCAs (for Rio Bogota, Rio Seco y other directs of Magdalena, Rio Guayuriba and Rio Guavio) in 2019. ● Incorporation of the concept of the IFMP-SZ provisional plan has not been reflected in the POMCA of the Rio Negro basin because it has not been updated.	UNGRD.
	4. Number of reduction measures implemented in the pilot basin of the project.	<u>Status of the achievement: Not achieved.</u> (Ex-post Evaluation) ● No reduction measure has been implemented in the pilot basin.	UNGRD.

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 98% and 100%, respectively). Outputs were produced as planned. Therefore, the efficiency of the project is ④.

4 Sustainability

<Policy Aspect>

Flood risk management has been prioritized in the “National Disaster Risk Management Plan” (2015-2030), which has guided actions of the state and the civil society in terms of risk knowledge, risk reduction and disaster management. Thus, the political backup for sustaining the project effects could be expected to continue for future.

<Institutional/Organizational Aspect>

The demarcation of roles among central and local governments related to flood risk management of principal rivers has been clearly defined. Specifically, UNGRD has functioned as a coordinator of SNGRD, and MADS has formulated relevant strategies and also acted

as a technical advisor. IDEAM has been responsible for meteorological and hydrological observation of the basin, hydrological and hydraulic modeling of the main channel, forecast and flood warning. However, with respect to jurisdiction over the Magdalena River, CAR has jurisdiction over its tributaries but not over the banks of the river. The agreement for collaborative flood risk management among MADS, CORMAGDALENA and IDEAM has been still effective. With regard to the subzone level, the demarcation of functions between the central and local governments has been clearly, such as CAR, COR, departments and municipalities. Subzones have been managed through POMCA, and the Basin Council has been established for the activity implementation. However, there has not been a sufficient number of the staff assigned for the flood risk management section at all institutions, as there have been many other duties which should be performed. UNGRD might be restructured as results of the presidential election held in 2022, but it has been presumed by UNGRD itself that the knowledge-based disaster risk management would be continued by the new administration.

<Technical Aspect>

According to UNGRD, IDEAM has sustained the knowledge for the topics including a) hydrologic & hydraulic modeling, b) flood risk mapping including vulnerability analysis using GIS and c) flood forecasting and warning, through training opportunities provided in the projects with international partners such as NASA SERVIR, GEOGLOWS and the World Meteorological Organization, while IDEAM has needed more capacity building in the topic of hydrologic observation and data analysis. UNGRD itself has considered that it has sustained the knowledge for a) flood risk mapping including vulnerability analysis using GIS, b) hydrologic observation and data analysis and c) flood forecasting and warning. UNGRD has had a system of capacity building for the new staff on risk management in general. For the new staff in the area of flooding knowledge, they have been familiarized with the project outputs. The guidelines for formulation of IFMP-RP and IFMP-SZ developed by the project have been utilized in the forums where regional issues of Magdalena River are discussed.

<Financial Aspect>

Financial data could not be confirmed in the ex-post evaluation. According to UNGRD, since the disaster risk management has been its mission and the budget has been provided by the central government for this purpose.

<Environmental and Social Aspect>

No issue on environmental and social aspect by the promotion of flood risk management has been observed and it has not been necessary to take any countermeasures

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and technical aspects and some problem in the financial aspect of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project mostly achieved the Project Purpose which was to enhance the capacity of related institutions for planning, flood forecasting and warning, and data management related to flood risk management, and the project effects have continued. Regarding the Overall Goal, the exact data for verifying the achievement could not be confirmed. Since POMCA have been newly developed and coordination meetings among the related entities have been conducted, it could be presumed that flood risks have been reduced to some extent. Regarding the sustainability, small issues include the shortage of the staff who could dedicate only to the flood risk management. On the other hand, IDEAM and UNGRD have mostly sustained knowledge for flood risk management. The guidelines developed by the project have been effective and utilized.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- For flood risk management, it is indispensable to sustain communication and information sharing among the related institutions. It is recommended to UNGRD as the main institution to designate a permanent staff responsible for coordinating meetings with other institutions and communicating with the JICA office for monitoring purposes. UNGRD can request JICA Office to explain its cooperation to a newly assigned staff.
- It is recommended to UNGRD to complete the revision of the technical guide and protocol for promotion of POMCA as early as possible and to update POMCA of the Rio Negro basin reflecting the concept of IFMP-SP so that risk reduction measures could be taken in the basin. It is also important to assign a staff responsible for implementing and monitoring POMCA based on the monitoring plan. When risk reduction measures are taken, it is requested to report to JICA Office, as it could not be confirmed in the ex-post evaluation

Lessons Learned for JICA:

- When the project was completed, it was agreed with the implementing agencies to conduct monitoring of the progress of the Overall Goal and annually report to the JICA office. Actually, the report was submitted to the JICA office in 2019 and 2020. However, it did not include all necessary information such as the number of the coordination meetings, although it was presumed based on the activity progress that they had actually meetings, which made difficult the verification of the achievement level of the Overall Goal in the ex-post evaluation. To ensure the agreed matters after the project completion, it is important to recommend to the implementing agency to assign a permanent staff which participated in the project so that she/he could follow the matters. Also, it is important for the JICA office to direct the national staff to continue the communication with the implementing agencies. Even if the national staff leaves the office, it is necessary to assign to another staff to follow the matters.



Interview at the Magdalena River



Crossing the Magdalena River