

National Irrigation Administration (NIA)  
The Republic of the Philippines

**PREPARATORY SURVEY  
ON  
MALITUBOG-MARIDAGAO  
IRRIGATION PROJECT  
(PHASE II)  
IN  
THE REPUBLIC OF THE PHILIPPINES**

**FINAL REPORT  
(APPENDIXES)**

September 2018

Japan International Cooperation Agency (JICA)  
Sanyu Consultants Inc. (SCI)

1R
JR (先)
18-066

# CONTENTS

## APPENDIXES

<b>I.</b>	<b>IMPLEMENTATION ARRANGEMENT .....</b>	<b>I-1</b>
<b>II.</b>	<b>METEOROLOGY AND HYDROLOGY .....</b>	<b>II-1</b>
<b>III.</b>	<b>AGRICULTURE .....</b>	<b>III-1</b>
<b>IV.</b>	<b>IRRIGATION AND DRAINAGE.....</b>	<b>IV-1</b>
<b>V.</b>	<b>ROAD AND BRIDGE.....</b>	<b>V-1</b>
<b>VI.</b>	<b>FLOOD SIMULATION.....</b>	<b>VI-1</b>
<b>VII.</b>	<b>ENVIRONMENT .....</b>	<b>VII-1</b>
<b>VIII.</b>	<b>INDIGENOUS PEOPLE AND OTHER SOCIAL ISSUES.....</b>	<b>VIII-1</b>
<b>IX.</b>	<b>COST ESTIMATION .....</b>	<b>IX-1</b>
<b>X.</b>	<b>PROJECT EVALUATION .....</b>	<b>X-1</b>
<b>XI.</b>	<b>SATELLITE IMAGE ANALYSIS .....</b>	<b>XI-1</b>
<b>XII.</b>	<b>A CATCH-UP PLAN ON HELP FOR CATUBIG AGRICULTURAL ADVANCEMENT PROJECT (HCCAP) .....</b>	<b>XII-1</b>
<b>XIII.</b>	<b>TOR AND PERSON-MONTH FOR LOAN CONSULTANT .....</b>	<b>XIII-1</b>

# **APPENDIX-I**

## **IMPLEMENTATION ARRANGEMENT**

## **APPENDIX I: IMPLEMENTATION ARRANGEMENT OF THE PROJECT**

### **TABLE OF CONTENTS**

I.1	JICA Team Members and Counterparts Personnel .....	I-1
I.1.1	JICA Team Members.....	I-1
I.1.2	Counterpart Personnel.....	I-1
I.2	Person-Month Input for the Survey .....	I-2
I.3	Minutes of Meetings Concluded in the Process of the Project .....	I-3



## APPENDIX I. IMPLEMENTATION ARRANGEMENT

### I.1 JICA Team Members and Counterpart Personnel

#### I.1.1 JICA Team Members

Team Leader/ Irrigation Planning	Kosei HASHIGUCHI
Irrigation Designing	Kosuke HIROTA
Agriculture/ Farming	Harunobu YOSHINO/Ai NAGINO
Institutional Development	Hiroko YASHIKI
Civil/ Road Design	Yoji SAWADA
Meteorology/ Hydrology	Takayuki OISHI
Cost Estimation/ Procurement	Yoji SAWADA
Economic and Financial Evaluation	Ryo INOUE
Environmental Consideration	Rie KITAO
Social Consideration	Hiroko YASHIKI
Satellite Image Analysis (A)	Izumi KATO
Satellite Image Analysis (B)	Taketo EGUCHI
Inundation Analysis (A)	Toru NAKAGAWA
Inundation Analysis (B)	Hajime KITA

#### I.1.2 Counterpart Personnel

##### (1) Central Office, National Irrigation Administration (NIA)

Mr. Ricardo R. Visaya	Administrator
Mr. Czar M. Sulaik	Deputy Admin for Eng. And Operations
Ms. Felipa E. Mascariñas	Manager, CMD - Engr. Dept.
Ms. Alma S. Villaluna	Senior Engineer A, CMD
Ms. Andrea P. Pagtulingan	Engineer A, CMD
Ms. Alfonso delos Reyes	Technical Assistant A, CMD
Mr. Reynaldo B. Villanera	DM PPD- Engineering Dept.
Ms. Kit A. Maglangit	Senior Exec. Assistant, Office of Senior Deputy Administrator
Mr. Josias R. Pacolon	DSD, Consultant, DSD
Mr. Ernesto G. Collado	Technical Assistant A
Ms. Lydia S. Esguerra	Department Manager
Ms. Alma S. Villaluna	Senior Engineer A
Ms. Andrea Pagtulingan	Engineer A
Mr. Reynaldo B. Villanera	Project Planning Division Manager
Mr. Hanzel Nonilon de Guzman	Supervising Engineer A

##### (2) Ministry of Finance

Ms. Megan Barte	Economist
-----------------	-----------

##### (3) MMIP Project Management Office (PMO) under NIA Region XII

Mr. Reynaldo M. Sarigumba	Manager, Engr. Division
Mr. Abedin L. Hadjisalik	Head Construction
Mr. Ali S. Satol	RM/APM

##### (4) NIA Cotabato Irrigation Management Office under NIA Region XII

Mr. Saldi P. Serafino	Acting Division Manager, CIMO
Mr. Saleh P. Kabunto	Provincial Engineer A, NIA – MRIS

## Person-month: Preparatory Survey on Malitubog-Maridagao Irrigation Project (Phase 2)

[illegible]

**I.3 Minutes of Meetings Concluded in the Process of the Project**

<b>No.</b>	<b>Title</b>	<b>Page</b>
<b>1</b>	<b>Minute of Meeting on Inception Report</b>	<b>I-4</b>
<b>2</b>	<b>Minute of Meeting on Interim Report</b>	<b>I-8</b>

**MINUTES OF MEETING  
ON  
THE INCEPTION REPORT  
OF  
THE PREPARATORY SURVEY  
ON  
MALITUBOG-MARIDAGAO IRRIGATION PROJECT  
(PHASE II)  
IN  
THE REPUBLIC OF THE PHILIPPINES**

**DISCUSSED BETWEEN  
NATIONAL IRRIGATION ADMINISTRATION  
AND  
JICA PREPARATORY SURVEY TEAM,  
JAPAN INTERNATIONAL COOPERATION AGENCY**

Manila, May 9, 2017



Gen. Ricardo R. Visaya  
Administrator,  
National Irrigation Administration (NIA)



Mr. Kosei HASHIGUCHI  
Team Leader,  
JICA Preparatory survey team,  
Japan International Cooperation Agency  
(JICA)

Gen. Ricardo R. Visaya, Administrator of NIA, opened the meeting on the Inception Report of the Preparatory Survey on Malitubog-Maridagao Irrigation Project (Phase II) (MMIP II), which was held in a conference room of the Headquarters of National Irrigation Administration (NIA) located in Quezon City, on May 9, 2017 at 9:00 AM.

Mr. Katsurai, Deputy Director of the Southeast Asia Division 5 of the JICA Headquarters, thanked the Administrator of NIA for organizing the meeting, and introduced the participants from the JICA side. He also informed the body on the objective of the meeting, the scope of the preparatory survey as well as the time-frame of the preparation for the implementation of MMIP II with possible Japanese ODA Loan provision.

Gen. Visaya, in turn, welcomed the JICA side participants, and expressed the expectation from NIA for the MMIP II. Subsequently, Gen. Visaya asked Mr. Kosei Hashiguchi, Leader of the JICA survey team, to make a presentation on the Inception Report (ICR) of the Preparatory Survey.

Mr. Hashiguchi made a presentation on the ICR. The contents of the presentation were: Survey outline; Survey area; Work schedule; Supposed MMIP II components; Detailed components of the preparatory survey (Natural conditions survey, Topographic/geotechnical survey, Environmental impact survey, Socio-economic survey, Village profiling, Satellite image analysis, Flood inundation analysis, and Project evaluation with operation and effect indicators); Possible impact of MMIP II on farmers; Security measures; and Requests to NIA for collaboration during the survey. Following are the major points discussed:

- 1) Mr. Hashiguchi informed the body that the survey period is planned practically for four (4) and a half months starting from May up to mid-September 2017. He added however, that the survey would require more time, if the necessities for further field surveys to develop a comprehensive Environmental Impact Assessment (EIA) of the Liguasan Marsh, an abbreviated Resettlement Action Plan (RAP) and/or an Indigenous Peoples Plan (IPP) are confirmed. Mr. Hashiguchi informed the body of the need to conduct a topographic survey of the Pulangi River in order to come up with a Flood Inundation Analysis. He further emphasized the importance of the said analysis.
- 2) Following the presentation, Gen. Visaya recommended to the survey team to ask for an update on security situation of the areas from the Division Commander of the Philippine Army, as soon as the team moves into Cotabato. Gen. Visaya said that he will coordinate with the Division Commander to ensure the security of the survey team during the survey period. Ms. Sherilyn Aoyama informed the body that the Division Commander would participate in the meeting between the Coordinating Committee on Cessation of Hostilities (CCCH) and the JICA mission/JICA survey team, which was planned in the afternoon of May 10<sup>th</sup>, and the survey team would be able to get acquainted with the Division Commander in the meeting.
- 3) Ms. Lydia S. Esguerra, Construction Management Division Manager of NIA, responded to the requests made by the survey team through the presentation by saying that the NIA headquarters in collaboration with the NIA Regional Office would facilitate necessary data to the survey team and introduce the survey team to relevant stakeholders. Further, she also answered to the question from the survey team asking which institution would be more appropriate to be responsible for the implementation of the agricultural component of MMIP II. According to her, it would depend on actual contents of the component. If the component is to promote agricultural mechanization, the PhilRice would be the appropriate institution, while if the component mainly entails capacity building for the farmers, ATI would be more appropriate due to its rich experience in the technical assistance in the area.
- 4) Mr. Reynaldo B. Villanera, Project Planning Division Manager of NIA, inquired Mr. Hashiguchi if counterpart officers to the survey from both the headquarters and the regional office are needed. Mr. Hashiguchi expressed his expectation to have counterpart officers assigned from the NIA Project Management Office (PMO) which is located in Midsayap, and to this end, he requested for the facilitation by the NIA Headquarters to have at least two focal persons designated by the PMO. Mr. Katsurai proposed that the survey team and NIA headquarters would continue having meetings periodically throughout the





survey period. The request and proposal were agreed by the NIA side as such.

- 5) Ms. Aoyama wanted to confirm the actual situation of the land ownership of the MMIP II project area, since the issues of multiple land titles hindered the MMIP phase I (MMIP I) from being implemented as planned. In response, Ms. Esguerra told the body that such title issues have already been settled. Mr. Hashiguchi also wanted to confirm with NIA about progress in land acquisitions and Ms. Esguerra answered that the amount required for compensation has been budgeted.
- 6) Ms. Aoyama also wanted to consult with NIA whether the construction of terminal facilities (on-farm facilities) should be considered as a component for Japanese ODA Loan project or not. Ms. Esguerra recommended to consider it as part of the same project in order to assure that the farmers can benefit from the project. According to her, there have been cases where farmers did not benefit from the existing irrigation facilities, as they could not afford to establish necessary terminal facilities on their farms. She also added that the land acquisition for the construction of terminal facilities seemed to have been already done, although this should be confirmed with the NIA Regional Office.
- 7) Mr. Katsurai proposed to further analyze this issue, and Mr. Hashiguchi advised to consider the right of way and by doing so, the government of the Philippines would need to budget an amount necessary for the compensation of the land to be acquired for the terminal facilities. Ms. Esguerra proposed to the body to make two different scenarios for the time being: one is to include the component into the project scope, and the other, NOT to include. The final decision could be made based on results of the preparatory survey, including results of the analysis of Internal Rate of Return (IRR) of the project. The threshold of IRR in the Philippines, according to NEDA, should be 10%.

After the discussion session, the meeting was officially closed by at 9:55 with thanks to all the participants.



## List of Attendance

No.	Name	Organization	Position
<b><u>Philippines Side</u></b>			
1.	Mr. Ricardo R. Visaya	NIA	Administrator
2.	Ms. Lydia S. Esguerra	NIA	Department Manager
3.	Ms. Alma S. Villaluna	NIA	Senior Engineer A
4.	Ms. Andrea Pagtulingan	NIA	Engineer A
5.	Mr. Reynaldo B. Villanera	NIA	Project Planning Division Manager
6.	Mr. Hanziel Nonilon de Guzman	NIA	Supervising Engineer A

**Japan Side**

1.	Mr. Taro Katsurai	JICA Headquarters	Deputy Director
2.	Ms. Remi Sekiguchi	JICA Headquarters	Officer
3.	Mr. Jin Hirosawa	JICA Philippines Office	Representative
4.	Ms. Sherilyn Aoyama	JICA Philippines Office	Senior Program Officer
5.	Mr. Kosei Hashiguchi	JICA survey team	Team Leader
6.	Ms. Hiroko Yashiki	JICA survey team	Consultant Member
7.	Mr. Takayuki Oishi	JICA survey team	Consultant Member
8.	Mr. Ryo Inoue	JICA survey team	Consultant Member

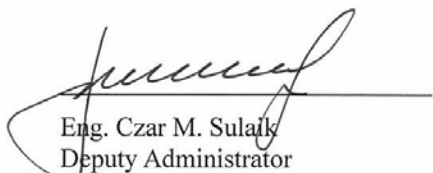
**Note**

JICA	Japan International Cooperation Agency
MMIP II	Malitubog-Maridagao Irrigation Project (Phase II)
NIA	National Irrigation Administration
NEDA	National Economic Development Authority

**MINUTES OF MEETING  
- ON  
THE INTERIM REPORT  
OF  
THE PREPARATORY SURVEY  
ON  
MALITUBOG-MARIDAGAO IRRIGATION PROJECT  
(PHASE II)  
IN  
THE REPUBLIC OF THE PHILIPPINES**

**DISCUSSED BETWEEN  
NATIONAL IRRIGATION ADMINISTRATION  
AND  
JICA PREPARATORY SURVEY TEAM,  
JAPAN INTERNATIONAL COOPERATION AGENCY**

Manila, July 13, 2017



Eng. Czar M. Sulalk  
Deputy Administrator  
for Engineering and Operations  
National Irrigation Administration (NIA)



Mr. Kosei HASHIGUCHI  
Team Leader,  
JICA Preparatory survey team,  
Japan International Cooperation Agency  
(JICA)



Eng. Czar M. Sulaik, Deputy Administrator for Engineering and Operations, opened the meeting at 09:47 am. First of all, he asked the meeting to accept the excuse of Administrator for his absence due to an emergency trip to the Leyte Island to deal with damages caused by the earthquake which took place last week. He, assuming the role of chairperson for this meeting, invited Mr. Kosei Hashiguchi, Team Leader of the JICA Survey Team, to make a presentation to inform the meeting on progress in the survey.

- 1) Mr. Hashiguchi, in response to the chair's invitation, started his presentation on the Interim Report of the Preparatory Survey on the Malitubog-Maridagao Irrigation Project Phase II (MMIP II). First, he briefly reviewed the basic information on the MMIP II project area, especially the ODA target Area of the Lower Malitubog Service Area (LMSA). Then, he explained that an improvement on the crop yields and an increase in the paddy cropping from 1 to 2 cycles per year could be expected with the irrigation services. He also showed the irrigation and drainage networks to be developed as well as the planned dyke and canal alignments. He explained that without the construction of the dykes, 44% of LMSA and 53% of the ODA target area would be lost for the purpose of agriculture, remaining submerged, during the rainy seasons.
- 2) Mr. Hashiguchi, then, moved to the topic of the foundation for the Ring Dyke (RD) and Protection Dyke (PD), which would be very soft, according to the results of the boring tests previously undertaken for the construction of a siphon between the Maridagao Service Area and the Pagalungan Extension Service Area. According to the calculation done by the Survey Team, the settlement of the foundations for the RD and PD would be 1.5m and 1.0m, respectively, while the time required for the settlement process of RD and PD to reach to its 80% would be 40 to 50 years. He also drew the attention of the meeting, not only on the settlement but also on the sliding risk of the foundation. He showed the results of the comparison of four different methods of foundation treatment to avoid the settlement and the sliding risk. Based on the results of the comparison, he recommended the Sand Compaction Pile Method, since it is the economically most feasible one. Yet this method would still require almost PHP 4.2 billion.
- 3) Subsequently Mr. Hashiguchi illustrated that the total costs of the construction works, except the costs for the foundation treatment, would be almost PHP 4.1 billion, which would be divided into PHP 3.5 billion to JICA and PHP 0.6 billion to NIA/ATI. If the treatment to the foundation is done, the total amount would be doubled.
- 4) However, he pointed that the total budget to be left to this project is only around PHP 1.1 billion, after deducting already executed and planned budget from the total budget approved by the National Economic Development Authority (NEDA) on the project: approximately PHP 5.4 billion.
- 5) Mr. Hashiguchi also reported that NEDA was clear on that the budget allocated to the project would remain the same, even if part of the project, such as the construction of dykes, is transferred to under the responsibility of another government agency, such as the Department of Public Works and Highways (DPWH). To fill the gaps between the remaining budget and the budget that would be required for the project completion, if we drop the construction of the RD and PD, the rehabilitation of the existing facilities in the MMIP I area, the procurement of maintenance machineries, and in addition, if we limit the agricultural extension activities, the total cost would be amounted to nearly PHP 1.0 billion, hence slightly under the budget ceiling approved by NEDA.
- 6) Mr. Hashiguchi continued informing the meeting with the results of economic analysis of the project. IRR for the project components in LMSA without the foundation treatment would be 9.9%, and that with the foundation treatment would be -0.2%, while IRR for the project components in the ODA target area without the foundation treatment would be 6.3% and that without the foundation treatment would be -1.5%. The threshold in IRR for the Government of the Philippines is 10%, and the IRR for the project only in the ODA target area would not be able to reach to the threshold, unless it is combined with the works in other areas.
- 7) Lastly, Mr. Hashiguchi presented possible three options to be analyzed, based on the results of the survey so far: the Option 0 is to construct neither the RD nor PD; the Option 1 is to construct the RD and PD as





currently planned and the Option 2 is to construct the RD with the location shift to the Pulangi River bank. He even provided a summary of the results of comparison analysis between a package of the Option 1& Option 2 (namely, the options with the construction of the dykes, somehow) and the Option 0 (the option without the construction of dykes) to help the decision making of the Government of the Philippines side around the construction of the dykes.

- 8) Mr. Sulaik thanked Mr. Hashiguchi for his presentation on the Interim Report, and commenced the questions and answers session by expressing the importance to find out a way to save already submerged area in LMSA and, therefore, to address the issues of dykes.
- 9) Ms. Yuko Tanaka informed the meeting that NEDA clarified its position that the option in that the dykes are constructed by another agency is a sort of transferring the cost from one agency to another, so the IRR would not be accepted from the national economic point of view.
- 10) Mr. Josias R. Pacolor asked whether we could reduce the height of the dykes in order not to thoroughly discard the option of the construction of dykes, and Mr. Hashiguchi answered it would be difficult for the current designs. In addition, Mr. Sulaik also questioned whether there would be any mean to drain or discharge accumulated water in LMSA during the rainy seasons. Mr. Hashiguchi responded that if the irrigation and drainage canals work as planned, accumulated water, which is not only rain water but also irrigated water in future, would be properly drained out to the Pulangi River, according to the 1992 Detail Design. The drainage by pumps would be an ideal solution; however, the costs for the installation, operation and maintenance of pumps would be too expensive.
- 11) Mr. Reynaldo M. Sarigumba showed the current situation of LMSA, especially of Barangays Punol and Katilacan, by putting the video which had been taken last week on the screen.
- 12) Mr. Taro Katsurai wanted to confirm whether the area of accumulated water was to serve as reservoir or not, as indicated by the 1992 DD. Mr. Hashiguchi clarified that there was surely an area planned by the 1992 DD to serve as reservoir inside the Ring Dyke, during the rainy seasons. However, we might have more water to be accumulated today.
- 13) Mr. Reynaldo B. Villanera stated that the threshold of IRR is 10% for the projects to be implemented by the government, and the IRRs shown for all the options in the presentation were below 10%, and therefore, they cannot be implemented. Following to this statement, Mr. Katsurai asked Mr. Hashiguchi how accurate the total costs of the project shown in the presentation. Mr. Hashiguchi assured that all the estimated costs of the construction works shared in the presentation were accurate, except the costs for the foundation treatment.
- 14) When asked by Mr. Katsurai whether the economic analysis of the project was done based on the Option 1, Mr. Hashiguchi affirmed it. In addition, he suggested the possibility for the total costs to come down, if we go for the Option 2. Especially the costs for the construction of dykes would be reduced up to a half. He added that we would not be able to know the accurate costs until the boring test is done, although the Survey Team could make a tentative estimate of the costs for the option 2. Mr. Hashiguchi requested to allow the Survey Team to come up with such an estimate by the end of next week, since the designing of the dykes on the new alignment should be done first before making an estimate.
- 15) Mr. Sarigumba put his suggestion of an extension of PD up to the Upper Malitubog Service Area (UMSA). Based on his observation on the ground, the elevation in UMSA is also lower than the surface of the Pulangi River, and if PD is not extended, after the construction of both RD and PD, a major part of LMSA would still remain submerged. He also added that local consultants would confirm the elevation of UMSA. Mr. Hashiguchi responded that the inundation in UMSA cannot be seen in the satellite images and the digital elevation map available so far cannot be much reliable. He wanted to reserve his comments on the necessity of an extension of PD, until the topographic survey is done.



- 16) Mr. Hashiguchi continued to explain the Environmental and Social Consideration aspects, in response to the request by Mr. Katsurai. Regarding the consideration for Indigenous People's rights, the 2 Ancestral Domains which are located near from the project sites were turned out not overlapped with the project sites, and the project would not affect IPs. With regard to the Right of Way, the land area to be acquired would be 78ha, if the dykes are not constructed, and the project would remain in the Category B for the JICA Guidelines, although a huge volume of embankment would still be necessary. The Ecological Survey for vulnerable species of birds and fish, the survey is still on-going and the results would be available only at the beginning of the next month, August.
- 17) Mr. Sulaik proposed to study the timing of excavation of such a huge volume of embankment, and he wanted to confirm whether the dredged soil from the Pulangi River could be applied for the construction of dykes. Mr. Hashiguchi hardly agreed with such an idea due to the quality and type of the soil to be dredged. It would be too silky and would not have necessary concentration.
- 18) Mr. Sulaik requested more time for NIA to analyze the issues of dykes including discussions with NEDA. On the other hand, Mr. Katsurai also clarified that following the Survey Team's submission of the estimated costs and the results of economic analysis of the Option 2 to JICA by the end of next week, JICA would share the results with NIA.

The meeting was closed at 11:10.



**List of Attendance****Government of the Philippines Side**

- |     |                           |                 |   |
|-----|---------------------------|-----------------|---|
| 1.  | Mr. Czar M. Sulaik        | NIA CO          | Deputy Admin for Eng. And Operations                          |
| 2.  | Ms. Felipa E. Mascariñas  | NIA CO          | Manager, CMD - Engr. Dept.                                    |
| 3.  | Ms. Alma S. Villaluna     | NIA CO          | Senior Engineer A, CMD  |
| 4.  | Ms. Andrea P. Pagtulingan | NIA CO          | Engineer A, CMD   |
| 5.  | Ms. Alfonso delos Reyes   | NIA CO          | Technical Assistant A, CMD                                    |
| 6.  | Mr. Reynaldo B. Villanera | NIA CO          | DM PPD- Engineering Dept.                                     |
| 7.  | Ms. Kit A. Maglangit      | NIA CO          | Senior Exec. Assistant, Office of Senior Deputy Administrator |
| 8.  | Mr. Josias R. Pacolon     | NIA CO          | DSD, Consultant, DSD  |
| 9.  | Mr. Ernesto G. Collado    | NIA CO          | Technical Assistant A   |
| 10. | Ms. Megan Barte           | DOF             | Economist   |
| 11. | Mr. Reynaldo M. Sarigumba | NIA PMO MMIP II | Manager, Engr. Division                                       |
| 12. | Mr. Abedin L. Hadjisalik  | NIA PMO MMIP II | Head Construction   |

**Japanese Side**

- |     |                      |                  |                              |
|-----|----------------------|------------------|------------------------------|
| 1.  | Mr. Taro Katsurai    | JICA HQ          | Deputy Director              |
| 2.  | Ms. Remi Sekiguchi   | JICA HQ          | Officer in charge of MMIP II |
| 3.  | Ms. Yuko Tanaka      | JICA Philippines | Senior Representative        |
| 4.  | Mr. Jin Hirosawa     | JICA Philippines | Representative               |
| 5.  | Ms. Sherilyn Aoyama  | JICA Philippines | Senior Program Officer       |
| 6.  | Mr. Kosei Hashiguchi | JICA Survey Team | Team Leader                  |
| 7.  | Ms. Hiroko Yashiki   | JICA Survey Team | Member                       |
| 8.  | Mr. Yoji Sawada      | JICA Survey Team | Member                       |
| 9.  | Ms. Rie Kitao        | JICA Survey Team | Member                       |
| 10. | Mr. Ryo Inoue        | JICA Survey Team | Member                       |