

**IRRIGATION DEPARTMENT
MINISTRY of AGRICULTURE AND IRRIGATION
THE REPUBLIC OF THE UNION OF MYANMAR**

**THE REPUBLIC OF THE UNION OF
MYANMAR
CAPACITY DEVELOPMENT OF
IMPLEMENTATION OF
IRRIGATION DEVELOPMENT PROJECT
IN WESTERN BAGO REGION**

FINAL REPORT

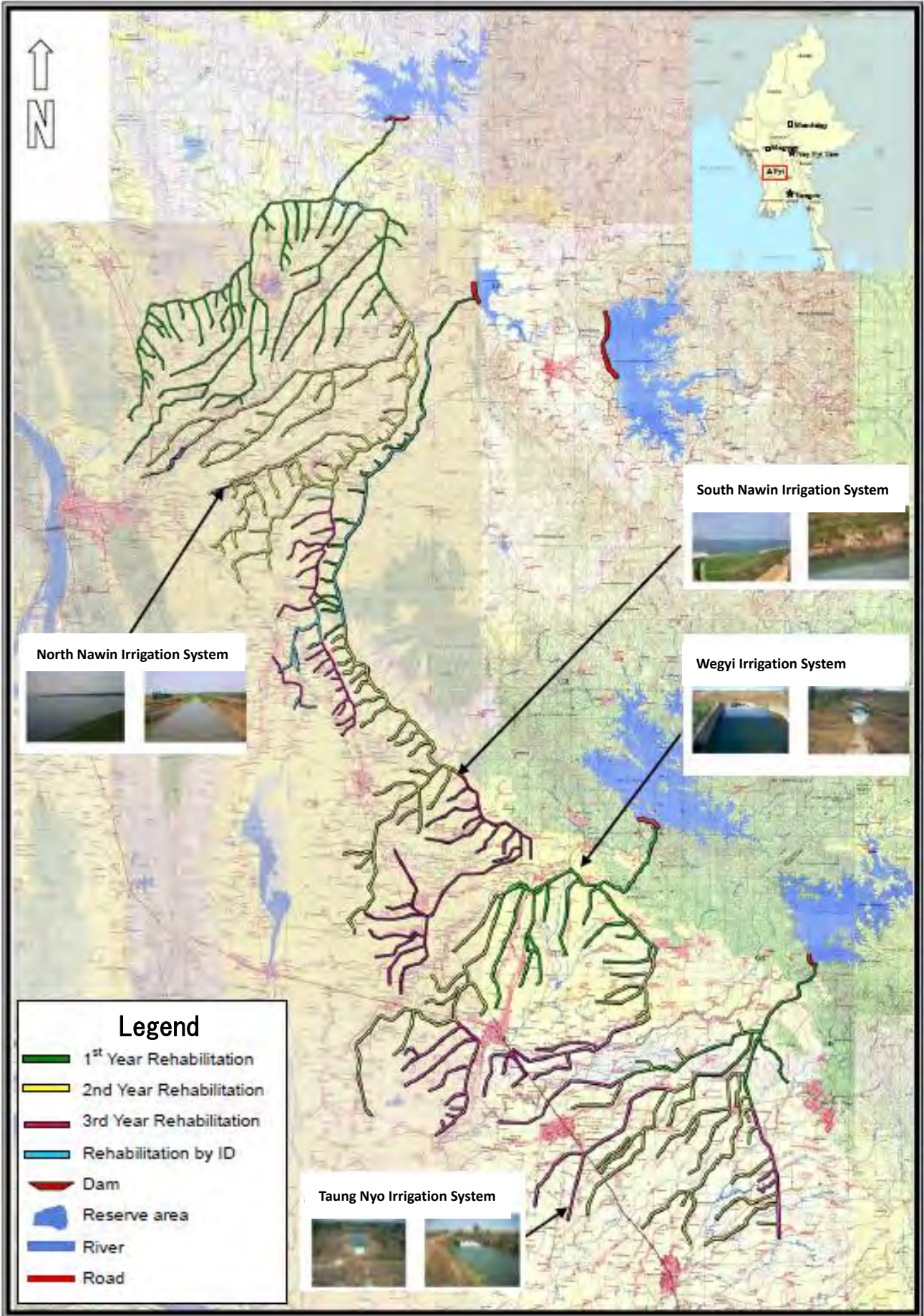
APRIL 2015

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

**GLOBAL GROUP 21 JAPAN, INC.
SANYU CONSULTANTS INC.**

1R
JR
15-013

Location Map



Photographs



Irrigation Department Head Office
(Nay Pyi Taw)



Presentation in the Office of Deputy
Director General



Meeting in the Office of Account Director



Office of Construction Circle (2) (Pyay)



Seminar at Construction Circle (2)



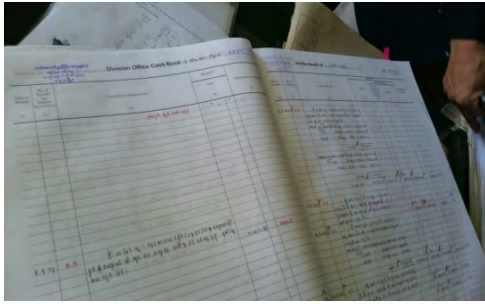
Meeting at Construction Circle (2)



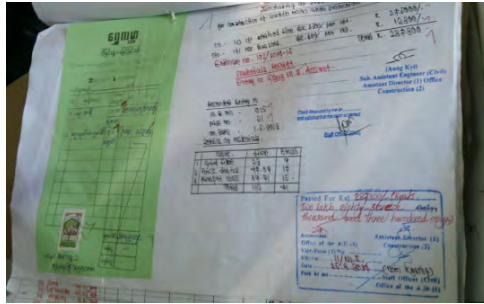
Reservoir of North Nawin Irrigation
System



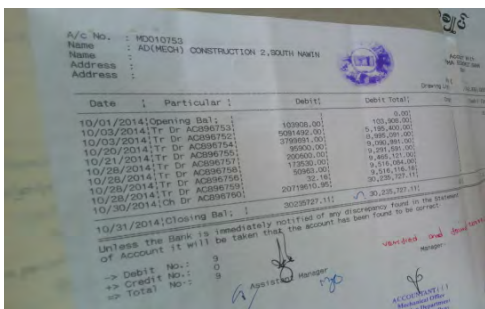
Main Canal of Reservoir of North Nawin
Irrigation System



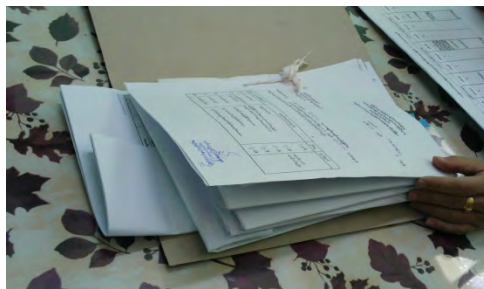
Accounting Documents of Construction Circle (2): Cash Book



Cash memo
(Green-colored part is Invoice/ Receipt;
Right hand side is records of transaction)



Bank Statement of MEB Pyay Branch



Monthly Accounting Report of Drawing Officer to Director of Construction Circle (2)



Example of summary table, Monthly Accounting Report: Breakdown of payments by each irrigation system



Volume of Monthly Accounting Report of Drawing Officer

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List of Acronyms and Abbreviations

AMD	Agricultural Mechanization Department
Con (2)	Construction Circle (2)
EA	Executing Agency
GG21	Global Group 21 Japan, Inc.
ICB	International Competitive Bidding
ID	Irrigation Department
ITC	Irrigation Technology Center
JICA	Japan International Cooperation Agency
JV	Joint Venture
LA	Loan Agreement
LCB	Local Competitive Bidding
MOAI	Ministry of Agriculture and Irrigation
MDBW	Maintenance Division, Bago West
ODA	Official Development Assistance
PIC	Project Implementation Committee
PMU	Project Management Unit
SCI	Sanyu Consultant Inc.

1. Introduction

1-1 Background of the Services

In the economy of Myanmar, agriculture plays a key role in terms of food production and supply, exports and employment and, therefore, the government had been exerting efforts to improve irrigation facilities to support the agricultural sector. However, such efforts had not been proceeding as intended due to funding constraints especially on large scale capital investment projects. As a result, the irrigation rate remained low as compared to nearby ASEAN countries. For this reason, Japan International Cooperation Agency (JICA) is extending a soft loan to finance this irrigation development project in Myanmar.

The project was planned to be implemented by the Irrigation Department (ID) of the Ministry of Agriculture and Irrigation (MOAI) as the Executing Agency (EA), covering four irrigations systems in Bago Region i.e. North Nawin Irrigation System, South Nawin Irrigation System, Wegyi Irrigation System and Taung Nyo Irrigation System, and to be executed on a force-account basis.

The Irrigation Department (ID) had limited experiences in the implementation of projects financed under ODA including JICA. The latest project assisted by JICA in Myanmar was the South Nawin Irrigation System implemented in 1984. Further, since documents almost equivalent to detailed design were available, construction work of the North and South Nawin Irrigation Systems was scheduled to commence even before mobilization of the consultants to be employed under the JICA Yen Loan, which was expected to be around March – April 2015.

Accordingly, it was recognized that there is a need to support the Irrigation Department (ID) to ensure proper project management including procurement/ fund administration and construction supervision until the consultants under JICA Yen Loan will be mobilized.

1-2 Objective of the Services

The objectives of the consulting Services were:

- 1) to strengthen the capacity of the Irrigation Department (ID) of the Ministry of Agriculture and Irrigation (MOAI) in the areas of project implementation and construction supervision to be funded by JICA Yen Loan; and
- 2) to support the Irrigation Department (ID) to ensure proper project management and construction supervision until the consultant to be employed under JICA Yen Loan is mobilized.

The expected outcomes of the Services were:

- Proper and efficient project management by the Project Implementation Committee (PIC) to be established in the Irrigation Department (ID) by way of clearly defining roles and responsibilities of PIC and facilitating proper understanding of such roles and responsibilities by the staff concerned.
- Proper and efficient project management by the Project Management Unit (PMU) to be established in the regional office of the Irrigation Department (ID) by way of clearly defining

roles and responsibilities of PMU and facilitating proper understanding of such roles and responsibilities by the staff concerned.

- Proper and efficient procurement of equipment and construction materials and proper administration of JICA Yen loan funds during the implementation of the North and South Nawin Irrigation Systems components of the Project.
- Enhanced construction supervision capability of the Irrigation Technology Center (ITC) including inspection, quality control, safety management, operation management and performance management by the construction unit of the Irrigation Department (ID).
- Enhanced capability of the Investigation Branch of the Irrigation Department (ID) with respect to environmental and social considerations.

1-3 Consultants for the Services

JICA publicly announced an opportunity of the consulting services on Jan. 22, 2014, evaluated submitted proposals, and signed a contract with the joint-venture (JV) of Global Group 21 Japan, Inc. (GG21) and Sanyu Consultants Inc. (SCI) on Mar. 25, 2014.

2. Services Rendered

2-1 Staffing

At the start of the Services, the Consultant Team for the Services (the Team) comprised of four experts. Mr. Teruyuki Tanabe, Team Leader and responsible for Overall Project Implementation, had experiences on strengthening implementation structure including procurement and disbursement management experiences under JICA funded projects. Mr. Tatsuhiko Mori, responsible for Construction Supervision, had experiences and knowledge on various stages of irrigation projects in Southeast Asia including planning, implementation, maintenance, and post evaluation. Mr. Rentaro Tamaishi, responsible for Disbursement Management, had experiences on procurement and disbursement management at the Overseas Economic Cooperation Fund (OECF)/ the Japan Bank for International Cooperation (JBIC). Mr. Hideki Ishikawa, responsible for Environmental and Social Considerations, had experiences of works related to environmental and social consideration under ODA, and was very familiar with this project itself and the project area.

During the Services, the “Support for Construction Supervision Capacity Building” became difficult to be implemented due to the delay in the start of construction work. Instead, support for procurement of construction/agricultural machinery became necessary as described in “2-3 Activities”. Accordingly, three experts i.e. Mr. Shinichi Arai, who was in charge of “machinery” during the JICA study for preparation of this project, Mr. Akira Sudo and Mr. Motoyoshi Hikasa were assigned for this purpose.

Also, due to the delay in start of construction work, it was not possible to provide on-the job-training on actual measurement of environmental monitoring indicators using monitoring equipment. The team instead focused more on activities on social considerations such as explanations of the project by ID to the people to be affected with respect to mechanism/ contents/ frequency of explanations and monitoring systems to follow up responses of the people. Accordingly, the Services were implemented placing emphasis more on these aspects and replacing the existing expert to Mr. Yoji Sawada who is the more appropriate expert on environmental concerns.

Name	Assigned Tasks	Affiliation
Teruyuki Tanabe	Team Leader/ Project Implementation	Global Group 21 Japan, Inc.
Tatsuhiko Mori	Construction Supervision	Sanyu Consultants International Inc.
Rentaro Tamaishi	Disbursement Management	Global Group 21 Japan, Inc.
Hideki Ishikawa	Environmental and Social Considerations	Sanyu Consultants International Inc.
Yoji Sawada	Environmental and Social Considerations	Sanyu Consultants International Inc.
Shinichi Arai	Procurement Support (1)	Sanyu Consultants International Inc.
Akira Sudo	Procurement Support (2)	Sanyu Consultants International Inc.
Motoyoshi Hikasa	Procurement Support (3)	Sanyu Consultants International Inc.

2-2 Implementation Structure

The joint-venture (JV) of Global Group 21 Japan, Inc. (GG21) and Sanyu Consultants Inc. (SCI), the former as the lead, created an implementation structure with Shigeru Takeda, Representative Director of GG21, as the head of JV, responsible for coordination with Kosei Hashiguchi, Managing Director/ Head of International Department of SCI and for overall management of JV activities including contracting and account settlement (Akiko Kida: GG21 and Tomoyuki Nakasone: SCI). Technical support to the Team will be provided by Nobuo Hazeyama (GG21) and Motoyoshi Hikasa (SCI) and risk management by (Akiko Kida (GG21) and Yoshiharu Nakagami (SCI). Overall support to the Team was headed by Teruyuki Tanabe, Senior Consultant of GG21.

In Myanmar, SCI Yangon Office supported the Team in collecting necessary information/ data and undertaking the services including logistics.

Further, some local staff was hired to provide support to the consultants on accounting and implementation activities particularly in undertaking field work.

2-3 Activities

The Team commenced the Services in accordance with the Flowchart in Section 6 of the Work Plan (Annex 1 of this Progress Report). During the 1st Field Work, it turned out that, due to delay in signing the Loan Agreement (LA) for this Project which was originally scheduled for March - April 2014, there was no possibility to start construction work of irrigation facilities scheduled for June - December 2014. The LA was signed early September 2014; hence the idea of undertaking construction work during the rainy season of 2014 was abandoned since preparatory work for the construction work in 2014 would take time and too late to facilitate the construction work within 2014.

Under the circumstances, the Team discussed with the Southeast Asia and Pacific Department of JICA and, in accordance with the consultation: i) the 1st – 3rd Field Work for “Support for Implementation Capacity Building including Disbursement Management” was undertaken as planned slightly adjusting timing of implementation; ii) while shelving the 2nd Field Work for “Support for Construction Supervision Capacity Building”, preparation of Construction Supervision Manual was made ahead of the original schedule and its draft was explained to ID during the 3rd Field Work; iii) the 2nd – 3rd Field Work for “Support for Capacity Building of Environmental Social Considerations” was shelved as well since support planned for the period during construction work would not be made.

Meanwhile, it became necessary to support procurement of construction/agricultural machinery. Accordingly, three experts were assigned, utilizing mostly the remaining MMs of the expert for Construction Supervision Capacity Building, and were scheduled to undertake Field Work until February 2015.

The Ministry of Agriculture and Irrigation strongly wished to complete the procurement of agricultural machinery in October 2015. To ensure the completion by this target, it was considered essential to support contract negotiation and subsequent advance payment for the period of March-April. However, the timing of deployment of the consultants to be employed under the JICA loan was delayed and, therefore, the support expected from these consultants for the period of March-April was not possible. Under the circumstance, the support was provided by the team of Implementation Support Services,

extending the service period from February 2015 to April 2015 and adding extra MMs for the needed additional support.

Accordingly, the timing of explaining the draft Completion Report to ID and submitting the Completion Report to JICA were changed from late February 2015 to April 2015 and from early March 2015 to late April 2015, respectively.

Further, due to the delay in start of construction work, it became more important that support activities of social considerations should focus on explanations of project by ID to the people to be affected with respect to mechanism/ contents/ frequency of explanations and monitoring systems to follow up responses of the people instead of the actual measurement of environmental indicators using monitoring equipment.

Details of activities under the Services rendered are as provided below:

[1] Preparatory Work at Home Office (Late March – Early April 2014)

[1-1] Review/ Confirmation of Objective, Characteristics, Methodology, Work Schedule of the Services

In making preparatory work for the Services, adequate attentions were paid to the characteristics of the Irrigation Development Project in Western Bago Region, i.e. the Project will be financed under JICA Yen Loan and construction work will be undertaken on force-account basis and not on ordinary contractor basis. In addition, procedures which will likely take longer period of time at Myanmar and/or Japanese side were identified so that adequate discussions would be made with JICA and ID at the start of the 1st Field Work on how to tackle such possible delays.

[1-2] Review/ Confirmation of Scope, Progress, Executing Agency of the Irrigation Project

Information on the Irrigation Development Projects including scope and progress in procurement of construction materials, which ID intended to start soon after signing of Loan Agreement (LA), was updated though JICA and Yangon Office of Sanyu Consultant Inc. (SCI).

[1-3] Review/ Confirmation of JICA Procurement Guidelines, Rules and Regulations of Myanmar

JICA Procurement Guidelines and rules/ regulations on procurement in Myanmar were reconfirmed. As the rules/regulations of Myanmar has been revised frequently, and the most updated information was sought from the Procurement Division and the Construction Circle (2) of ID through SCI's Yangon Office.

[1-4] Preparation of Work Plan in both Japanese and English

Work Plan was prepared both in Japanese and English based on the existing and updated information.

[1-5] Consultation with JICA on Work Plan and Challenges to be tackled

The Work Plan which included plans for Field Works and agenda was submitted and discussed with the Southeast Asia and Pacific Department of JICA, and was finalized based on the results of discussions.

[2] 1st Field Work (Late March – Late May)

As the Myanmar New Year Holidays were scheduled around the middle of April, the 1st Field Work was initiated by Team Leader's visit to ID Head Office in Nay Pyi Taw for a week from March 6 through April 6 to cover the activities of [2-1], [2-2], [2-3] and (1), (2), (3), (4) below. After the holiday, the Team started the full-fledged Field Work in the fourth week of April.

[2-1] Submission/ Explanation of Work Plan to JICA Myanmar Office

At the start of the 1st Field Work, the Work Plan was submitted/ explained to JICA Myanmar Office, and timing and means of communications during the Field Works were agreed with JICA Myanmar Office.

[2-2] Explanation/ Consultation with ID on Work Plan

The Work Plan was explained to ID. Attentions were drawn to locations of Field Works which varied depending on types and timing of assignments and, therefore, necessary logistic supports and counterpart staff at each location were confirmed. Also considered was the potential risk of "conflict of interest" between the consultants engaged in the Services and the selection process of consultants under JICA Yen Loan.

[2-3] Support for Implementation Capacity Building (mostly in Nay Pyi Taw and Bago West)

The Team Leader/ Expert for Project Implementation was engaged in the activities of (1), (2), (3) below in Nay Pyi Taw during the period from April 22 to May 16 except for the period worked for in(5) and (6) below in Bago West (from May 4 through May 9) and the period for travel.

Also the Expert for Disbursement Management was engaged in the activities of (4) below in Nay Pyi Taw during the period from April 22 to May 11 except for the period worked for (7) below in Bago West (from May 4 to May 9) and the period for travel.

(1) JICA Yen Loan Procedures (at ID Head Office)

After explanation of the Work Plan at ID Head Office, the Expert on Project Implementation provided advice/ guidance with respect to JICA Yen Loan procedures and required documentations on a timely manner taking into account depth of understanding of ID staff members concerned.

The Expert was supposed to follow up progress of procedures for effectiveness of Loan Agreement (LA) so as to prevent delay in project implementation after signing of LA; however, LA had not been signed until the completion of the 1st Field Work. As a result, it was decided that this would be followed up during the 2nd Field Work.

The Expert explained to ID the necessity and ways of preparing progress reports to JICA including Project Status Report (PSR) handing over to the staff in charge a soft copy of the PSR format.

(2) Establishment of PIC (at ID Head Office)

It was confirmed that, due to delay in the signing of the LA, the Project Implementation Committee (PIC) had not yet been established, although support to establishment of PIC and defining its roles and responsibilities, authority to approve, work flow etc. was included in the assignment. Accordingly, it was decided that this would be followed up during the 2nd Field Work.

(3) Procurement (at ID Head Office)

At ID Head Office, procurement procedures of the entire Project, items to be procured, arrangements for overall coordination, required procedures, their work flow, and authority to approve were confirmed.

The Expert on Project Implementation explained procedures and principles of JICA Procurement Guidelines to the Director of the Procurement Division who would directly be involved in procurement under the Project. For ensuring proper and smooth procurement, the Expert made efforts to promote proper understanding of JICA Procurement Guidelines not only to the staff members directly related to procurement but also to those indirectly related to procurement.

At ID Head Office, construction equipment/ agricultural machinery and reinforced bars/ cement would be procured by International Competitive Bidding (ICB) and Local Competitive Bidding (LCB), respectively. Further, diesel oil would be procured by direct contracting. The Expert explained to the Director of the Procurement Division and concerned staff agreements with JICA on these procurement methods and matters to be taken into account under JICA loan.

While procurement of construction equipment/ agricultural machinery by ICB was out of scope of the Services until the end of the 3rd Field Work, proper understanding was sought regarding the principles that LCB should be conducted paying due attention to the basic principles of JICA Procurement Guidelines such as Economy, Efficiency, Transparency, Non-Discrimination and so forth although JICA Guidelines would not be straightforwardly applied.

(4) Disbursement Management (at ID Head Office)

At ID Head Office which would manage the entire project account and monetary transactions of JICA Year Loan, the Expert for Disbursement Management explained first arrangements between ID and the Ministry of Finance, which would represent the Government of Myanmar as the borrower, and signing of Banking Arrangement between the Paying Bank, which would make payments of loan proceeds on behalf of JICA, and the role of Agent Bank, with which ID's account for this Project would be opened.

Advance Procedures would be used for disbursement of funds for procurement of diesel oil/ reinforced bars/ cement and sands/ gravels/ woods, while Transfer Procedures would be applied to construction equipment/ agricultural machinery and consultants. Accordingly, The Expert explained to the staff directly engage in disbursement procedures based on JICA brochures of "Advance Procedures (December 2012)" and "Transfer Procedures (August 2012)". Further, practical guidance for preparation of actual documents such as "Request for Disbursement/ Statement of Expenditure/ Summary Sheet of Expenditure" was provided.

ID would have to ensure to meet the most fundamental principle that disbursement of loan proceeds shall be made only to the expenditures for implementation of this Project and, therefore, disbursement request to JICA shall not include expenditures for other projects. This point was emphasized to avoid confusion and mishandling.

As actions for making payments would be taken at different sections, arrangements for overall coordination, required procedures and their work flow, and authority to approve was reviewed and advice/ guidance was provided where inappropriate and/or inadequate arrangements were found.

(5) Establishment of PMU (in Bago West)

It was confirmed that, due to delay in signing LA, the Project Management Unit (PMU) had not yet been established, although support to establishment of PMU and defining its roles and responsibilities, authority to approve, work flow etc. was included in the assignment. Accordingly, it was decided that this would be followed up during the 2nd Field Work.

(6) Procurement (in Bago West)

A number of procurement of small amount by the Construction Circle (2) and/or the Maintenance Division Bago West (MDBW) were expected to be very large. Further, confirmation of materials procured by ID Head Office and delivered to/ stored at the sites would have to be made. The Expert for Project Implementation reviewed overall coordination of these procedures, authority to approve, required procedures, and work flow and provided advice/ guidance where appropriate.

(7) Disbursement Management (in Bago West)

The Expert for Disbursement Management reviewed means and procedures for payments at Construction Circle (2). During the review process, it was found that payments for materials procured at ID Head Office were made at Construction Circle (2). The Expert provided advice/ guidance, based on the confirmed procedures of the payments at Construction Circle (2), concerning procedures for requesting JICA for its disbursement of loan funds and administration of funds received by ID.

[2-4] Support for Construction Supervision Capacity Building (mostly in Bago West)

The Expert for Construction Supervision explained to ID Head Office in Nay Pyi Taw regarding his assignment on April 24, and engaged in the activities below in Bago West during the period from April 25 through May 24 except during travel period.

(1) Confirmation of the Scope of Works and Implementation Plan to be undertaken by ITC

Since this was the first time for ITC to supervise construction, it was considered appropriate for the Expert for Construction Supervision to work together with the ITC members and to have discussions regarding construction supervision after full understanding of the existing conditions of the construction and management conducted in Bago West. Therefore, firstly the work started in Pyay in Bago West, where the Construction Circle (2) (regional office of ID, hereinafter referred to as Con (2)) was located, instead of visiting Bago City where ITC Head Office was located.

At first, scope of works was explained to Con (2) utilizing the Work Plan. Further, the project implementation organization expected for the first year 2014 in Bago West was explained by referring to the Attachment 9 and 10 of the Minutes of Discussion (MD) at the JICA's project appraisal, and the relations and roles of PIC/PMU/ITC in the Project was confirmed.

The Expert carried out site surveys of the North and South Nawin Irrigations Systems and studied the construction methods and its management under on-going works in Bago West. Meanwhile, the Expert requested a meeting with the members of ITC who would undertake the supervision for the Project several times. However, no positive responses were received from ITC due to perception gap regarding the construction supervision work for the year 2014.

Finally, a letter to instruct ITC to conduct supervision for this year was issued from the ID Head Office in response to a request of JICA Myanmar Office, and a meeting with ITC with respect to the supervision was held in Bago City on the last day of the 1st Field Work.

According to ITC, it undertakes quality control of the large scale constructions such as the dam, bridge and etc.; however, almost no quality control was conducted in projects composed of many small scale facilities like the rehabilitation project in Bago West.

According to the MD agreed between JICA and ID, the Assistant Director of ITC would be appointed as the Inspection Manager in the project organization. However, in the opinion of ITC, it was considered difficult to manage the work in accordance with the proposed organization since ITC would be unable to allocate permanent staff members in charge of supervision as required in the project organization due to shortage of manpower. ITC and ID Head Office understood that: i) ITC would function as the Inspection Management Office (IMO) and IMO would, in consideration of requirements of supervision, from time to time dispatch appropriate staff members for supervision to the construction site in Bago West from ITC; and ii) one Staff Officer for supervision and two staff members for support to quality control are considered for that purpose at this moment.

(2) Construction Supervision and Procedure under the Service

It was agreed with ITC that preparation of the Construction Supervision Manual was required for the effective implementation of supervision activities. The Manual would be revised and modified as needed during the course of actual application of the construction supervision works. Accordingly, it was confirmed that the Manual would be drafted hereafter and copy also provided to ITC for its review and modification as needed.

(3) Review of Detailed Design Equivalent, Preparation of draft Project Implementation Plan and draft Project Organization

Under the design made by Yugoslavian consultant in 1966, the North Nawin Irrigation System was build and operation started in 1976, while the South Nawin Irrigation System was build under the design made by Japanese consultant in 1984 and its operation started in 1996. Review of the "detailed design equivalent documents" utilized these existing detailed design data of the above two projects and the design data consolidated in the preceding JICA study project "Preparatory Survey for the Project for Rehabilitation of Irrigation Systems"(PRIS).

As a result of review, it was found that the detailed design drawings made at the design stage of both projects remained (although drawings of several distribution canals were partially missing). However, sectional dimensions of canals did not match the canals actually constructed, and neither as-built drawings nor technical specifications existed. In addition, the canal dimension tables retained by the maintenance division were considered to correspond to the actual canal dimensions in the site survey report of the PRIS, although important dimensions such as canal bed slope were missing.

Detailed design drawings for the rehabilitation work of this year for both North and South Nawin Projects were not provided. However, the Construction Circle (2) provided cost estimation documents, which included sketches of the target facilities to be rehabilitated with indications of all necessary dimensions, specifications of facilities, plan of temporary works, procurement of materials and cost estimation. The cost estimation documents would be used as the construction drawings in the construction work. The Assistant Director (AD) would approve the cost estimation documents and almost all construction would be carried out based on these documents.

The cost estimation documents for the works of the North Nawin project in the year 2014 has been provided and approved by AD. However, the cost estimation documents for South Nawin is now under preparation but not yet completed. Hereafter, the Con(2) shall provide the specifications for the construction, the implementation schedule and procurement plan for equipment and materials based on the cost estimation documents in order to implement the construction appropriately.

(4) Confirmation of the Opinion of Beneficial Farmers

The maintenance of the existing irrigation facilities in Bago West was made by the Maintenance Division Bago West (MDBW). However, due to limited budget for maintenance of the irrigation facilities, which was mainly expended as salary payments to office staff and gate keepers and to priority maintenance for dam facilities, maintenance was limited only to such small works as weeding in the canals and repairing of the lining brick.

According to ID, beneficial farmers had information concerning works of the irrigation rehabilitation Project to be implemented under JICA loan through information in township meetings, which were held every month in the Township Administration Office. In addition, opinions and requests from the beneficiary farmers under the Project were communicated to the Villages Administration by the Village Head Men and further forwarded to ID through Villages Administration.

As a result of the above, some canal-crossing-bridges and cause ways / bridges were planned to be constructed in the North and South Nawin Projects based on the request of the beneficiary farmers. In the past, when construction takes place, small scale works such as leveling of pavement of roads and premises by gravel were requested occasionally to Sub-assistant Engineer (SAE) at site directly from beneficiary farmers. As ID positively responded to such beneficiary's requests as much as possible, ID would consider attention to requests coming out under this Project to the extent possible. During site surveys, the Expert interviewed beneficiary farmers about the information and their understanding of the Project, but the Expert did not encounter clear evidences that the beneficiary farmers had adequate knowledge and understanding of the Project.

[2-5] Support for Capacity Building of Environmental Social Considerations (mostly in Yangon)

The Expert for Environmental and Social Considerations explained to ID Head Office Nay Pyi Taw regarding his assignment on April 24 2014, and engaged in the activities in Yangon, where staff of the ID Investigation Branch Yangon (Investigation Branch) in charge of this Project is stationed, during the period from April 25, 2014 through May 11 except during travel period.

(1) Support and Confirmation of Environmental Management and Monitoring Plan

The Investigation Division was responsible for monitoring environmental and social considerations. The Expert confirmed staff arrangement together with the required survey items of the environmental management under the monitoring plan. As regards air pollution and noise/ vibration, the Expert's support staff members, who would actually conduct the monitoring plan by using equipment on a regular basis, is preparing the monitoring plan that will be submitted to the ID Head Office.

Construction Circle (2) and MDBW would be in charge of monitoring i) government response to comments from residents; ii) waste; iii) working environment (including safety)/ accident. Therefore, the Expert explained the need for the Construction Circle (2) and MDBW to appoint staff members responsible for monitoring these items.

(2) Confirmation and Procurement Support of the Necessary Equipment

The Expert supported ID Investigation Branch to prepare specifications for portable instruments or equipment to measure/ detect five substances of air pollution, noise and vibrations, and wind direction and velocity, which were included in the list of targeted measurement items for environmental monitoring.

[3-1] 2nd Field Work (Early June 2014 – Mid June 2014)

[3-1-1] Support for Implementation Capacity Building (mostly in Nay Pyi Taw and Bago West)

The Team Leader/ Expert for Project Implementation engaged in the activities of [3-1] below except for those related to Disbursement management and the Expert for Disbursement Management engaged in the activities related to Disbursement Management of [3-1] at ID Head Office in Nay Pyi Taw during the period from June 9 through June 20 except for the period worked in Bago West (from June 11 through June 13) and during travel period.

During the 2nd Field Work, the advice/ guidance provided by the Team during the 1st Field Work concerning the matters below were followed up and, and as necessary, supplemental support was provided. While expatriate experts were away from Myanmar, local support consultants followed up necessary matters in close coordination with the expatriate experts concerned.

- Advice/ guidance on JICA Yen Loan procedures/ required documentations and approvals/ submission of documents for effectiveness of LA;
- Review of progress of the Project and procurement;
- Advice/ guidance on compliance with LA and JICA Procurement Guidelines, and eligibility for JICA financing;
- Follow up of processing of necessary documentations/ obtaining approvals within Myanmar Government;

- Advice/ guidance on documentations for requesting disbursement and coordination among concerned entities; and
- Support for preparation of progress reports to JICA (Project Status Report in particular)

It should be noted that, during the 2nd Field Work, necessity of opening Sub-Account in Kyat in addition to Designated Account in Yen to receive JICA loan proceeds was discussed and views/opinions were exchanged.

Further, draft of Standard Procedures for Payments under JICA loan, which was prepared based on the findings during the 1st Field Work, was explained to ID at both Head Office and Construction Circle (2) and their comments were sought.

[3-2] 3rd Field Work (Early October 2014 – Early November 2014)

[3-2-1] Support for Implementation Capacity Building (mostly in Nay Pyi Taw and Bago West)

The Team Leader/ Expert for Project Implementation engaged in activities [3-1] below, except for those related to Disbursement Management at ID Head Office in Nay Pyi Taw during the period from October 6 through November 1 except for the period worked in Bago West (from October 20 through October 24) and during travel period.

Also, the Expert for Disbursement Management engaged in the activities related to Disbursement Management of [3-1] below at ID Head Office in Nay Pyi Taw during the period from October 18 through November 1 except for the period worked in Bago West (from October 20 through October 24) and during travel period.

During the 3rd Field Work, the advice/ guidance provided by the Team during the 1st and 2nd Field Work concerning the matters below were followed up and, as needed, supplemental support were provided. While expatriate experts were away from Myanmar between the 2nd and 3rd Field Work, local support consultants followed up necessary matters in close coordination with the expatriate experts concerned.

- Advice/ guidance on JICA Yen Loan procedures/ required documentations and approvals/ submission of documents for effectiveness of LA;
- Review of progress of the Project and procurement;
- Advice/ guidance on compliance with LA and JICA Procurement Guidelines, and eligibility for JICA financing;
- Following up of processing of necessary documentations/ obtaining approvals within Myanmar Government;
- Advice/ guidance on documentations for requesting disbursement and coordination among concerned entities; and
- Support for preparation of progress reports to JICA (Project Status Report in particular)

It should be noted that, during the 3rd Field Work, views and information were exchanged with respect to transferring of fund to the existing bank accounts of Construction Circle (2) from the Sub-Account which was decided to be opened based on the discussions during the 2nd Field Work.

Further, advice/ guidance was provided concerning preparation of documents to be submitted to JICA

soon after effectiveness of LA, and concerning issues on withholding corporate income tax.

[3-2-2] Support for Construction Supervision Capacity Building (mostly in Bago West)

LA was signed early September. Nevertheless, ID decided to cancel construction work of irrigation facilities in the rainy season of the year 2014 due to delay in conclusion the LA. Accordingly, it was planned to complete the Construction Supervision earlier than the initially anticipated schedule and the draft Construction Supervision Manual was explained at the ID Head Office in Nay Pyi Taw and at Construction Circle (2) Office in Western Bago Region during the 3rd Field Work from Oct 25 to Nov. 1.

(1) Advice / Guidance to ITC

The implementation manual for construction supervision was drafted during the 1st Field Work and Home Office Work before the 3rd Field Work. In August 2014, preliminary draft of the manual was submitted to JICA for review. Additional descriptions to strengthen the part on Safety Control were suggested by JICA. Accordingly, almost all parts of “The Guidelines for the Management of Safety for Construction Works in Japanese ODA Project (Preliminary Draft), July 2013, JICA, the Overseas Construction Association of Japan, Inc.” were quoted in the draft Construction Supervision Manual.

It was initially indicated in the Work Plan that drafted manual would be used during the actual supervision work of ITC and, while appropriate advice and guidance would be provided from time to time in accordance with the draft manual, improvements and modifications would be made on the draft manual so as to make the manual more operational and appropriate under the actual conditions of the Project. However, ID decided to cancel the construction work in 2014 and, therefore, the ITC’s role of construction supervision as well as advice/ guidance to ITC in this regard became unnecessary.

As the supervision is defined to make inspection, confirmation and guidance on the construction management (including quality control, dimension control, schedule control, progress and cost control, and safety control) being undertaken by the construction unit, the descriptions regarding the contents and methods of construction management constitute the major part of the Manual. Therefore, the draft Construction Supervision Manual was explained to the construction unit of ID i.e. Construction Circle (2) for two days and comments on the draft manual were requested.

After the explanation to ID, the draft Manual was revised and finalized incorporating comments/suggestions received, and translated into Myanmar language.

(2) Procurement and Disbursement Management

As explained in [3] above, support to procurement and disbursement management in Bago West was undertaken by the Expert for Project Implementation and the Expert for Disbursement Management.

[3-3] 4th Field Work (Mid November 2014 – Late January 2015)

[3-3-1] Support for Implementation Capacity Building (mostly in Nay Pyi Taw and Bago West)

(1) Implementation/ Disbursement Management

The Team Leader/ Expert for Project Implementation was engaged in the activities provided below, except for those related to Disbursement Management, at ID Head Office in Nay Pyi Taw from December 2 to December 17 except for the period worked in Bago West from December 7 to December 13 and during travel period.

Also, the Expert for Disbursement Management was engaged in the activities related to Disbursement Management at ID Head Office in Nay Pyi Taw from December 2 to December 17 except for the period worked in Bago West from December 7 to December 13 and during travel period.

During the 4th Field Work, the support for necessary procedures after the conclusion of Loan Agreement was the same as that of the previous Field Work and the advice/ guidance provided by the Team during the 1st and 3rd Field Work concerning the matters below were followed up and, as needed, additional support were provided. While expatriate experts were away from Myanmar between the 3rd and 4th Field Work, local support consultants followed up necessary concerns in close coordination with the expatriate experts concerned.

- Advice/ guidance on JICA Yen Loan procedures/ required documentations and approvals/ submission of documents for effectiveness of LA;
- Review of progress of the Project and procurement;
- Advice/ guidance on compliance with LA and JICA Procurement Guidelines, and eligibility for JICA financing;
- Following up of processing of necessary documentations/ obtaining approvals within Myanmar Government;
- Advice/ guidance on the amount of the initial request for disbursement
- Advice/ guidance on documentations for requesting disbursement and coordination among concerned entities; and
- Support for preparation of progress reports to JICA (Project Status Report in particular)

Furthermore, the Expert for Disbursement Management was engaged in the activities related to Disbursement Management at ID Head Office in Nay Pyi Taw from January 11 to January 28 except for the period worked in Bago West from January 18 to January 22 and during travel period. During this Field Work, the Expert for Disbursement Management conducted necessary confirmation for finalizing Operation Manual for Project Implementation with respect to the issues on project implementation, for which the Team Leader/ Expert for Project Implementation was responsible.

It should be noted that, during the 4th Field Work, views and information were exchanged in meetings with ID and Ministry of Finance and revenues with respect to various issues including a possibility of transferring JICA loan funds to the existing bank accounts of Construction Circle (2) from the Sub-Account, which was decided to be opened based on the discussions during the 2nd Field Work. As a result, the decision on the fund flow under Advance Procedure was finalized at the meeting on January 14, 2015.

Furthermore, because LA was effectuated on December 24, 2014, advice/ guidance was provided concerning preparation of disbursement documents to be submitted to JICA after effectiveness of LA

including discussions on the amount of the initial request for disbursement. As a result, the initial Request for Disbursement dated January 16, 2014 was submitted to JICA Myanmar Office.

(2) Construction/ Agricultural Machinery Procurement Support

While support to Construction Supervision Capacity Building became not feasible, it became necessary to support procurement of construction/agricultural machinery. Accordingly, it was agreed with JICA in November taking into account the preceding discussions with ID that additional experts were assigned, utilizing almost all of the remaining MMs of the expert for Construction Supervision Capacity Building and a part of MMs of the expert for Capacity Building of Environmental and Social Considerations, to provide advice/guidance with respect to procurement method/ preparation of tender documents/ bid evaluation as a part of “[3-1] Implementation Capacity Building”. In accordance with the above amendments, the expert on “Procurement Support (1)” was engaged in activities related to procurement support at ID Head Office in Nay Pyi Taw from November 17 to December 26, 2014 and from January 7 to January 17, 2015 except during travel period.

Preparation of tender documents, tender announcement, handing out of tender documents, drawing up tender evaluation report, contract negotiations, and finalization of contract documents etc. were listed as necessary work for procurement of machinery in Annex II of the Project Memorandum signed between JICA and ID on Oct. 28, 2014. In accordance with the agreement with JICA, ID established committees for preparation of tender specifications/ tender documents, tender opening, and tender evaluation, and the expert supported carrying out of construction machinery through International Competitive Bidding (ICB) and agricultural machinery through Limited International Bidding (LIB).

As a result, procurement of construction machinery was undertaken with the announcement of Prequalification (PQ) through the newspapers from January 9-16, 2015 and handing out tender documents from January 13-19, 2015. Procurement of agricultural machinery also proceeded with the sending out invitation letters for bid to invited bidders on January 12, 2015 and handing out of tender documents from January 19-21, 2015.

[3-3-2] Support for Capacity Building of Environmental Social Considerations (mostly in Bago West)

The Expert for Environmental and Social Considerations explained to Investigation Branch in Yangon regarding his assignment from November 17, 2014, and held several meetings with the staff of Investigation Branch in charge of this Project until November 28, 2014.

After confirmation and amendment of Monitoring Plan in Yangon, the Expert moved to Pyay, where staff of Con (2) and MDBW in charge of this Project are stationed, and engaged in the activities from December 1 to December 19, 2014 except during travel period. The Expert explained his assignment to Con (2) and MDBW and held series of meetings on environmental management, Monitoring Plan and Stakeholder Meeting. The contents of environmental management, monitoring system, implementation method of monitoring and stakeholder meeting were confirmed by Con (2) and MDBW. After confirmation of these contents, stakeholder meetings of the four irrigation schemes were held by Con (2) at each site.

The Expert moved back to Yangon and engaged in activities from December 22 to December 26, 2014. The Expert reported the result of activities in Pyay to Investigation Branch. Also, confirmation was made on a plan of environmental management and environmental monitoring that will be conducted by ID.

(1) Confirmation of Environmental Management and Monitoring Plan (Investigation Branch)

The Expert and Investigation Branch confirmed the detailed monitoring system and implementation method of monitoring (noise/ vibration) and finalized the Monitoring Plan. The Expert proposed that the Investigation Branch should regularly be informed on the details of construction work plan by Con (2).

(2) Support for Stakeholder Meeting (Pyay)

The Expert supported Con (2) to prepare the program of stakeholder meetings and confirmed the contents of meeting and schedule. Stakeholder meetings, sponsored by Con (2), were held once in each irrigation scheme (total four times at North Nawin, South Nawin, Wegyi, Tanug Nyo). The staff of Con (2) and MDBW in charge of this Project attended the meetings and explained about the Project to the participants. Farmers, village headmen and administrators etc. attended the meetings as stakeholders.

In each meeting, many requests and comments were aired out by the stakeholders such as situation of irrigation water shortage, issues on poor drainage, repair of irrigation facilities, repair of road and bridge, expectations of the Project and so on. Con (2) replied to their requests and comments and explained that agricultural infrastructure is expected to improve with the completion of the Project, and will likely improve the living standard of residents.

(3) Confirmation of Environmental Management and Monitoring Plan (Con (2) and MDBW)

The Expert explained and confirmed the contents of monitoring system and implementation method of monitoring such as i) responses from the Government on comments of residents; ii) waste management; and iii) working environment (including safety)/ accident. The Expert also submitted environmental management and Monitoring Plan, which was finalized by Investigation Branch and Expert, and explained to the concerned beneficiaries of the Project.

The Expert proposed to Con (2) that detailed information about construction of irrigation facilities (construction work plan, schedule, construction method, preparation of construction machinery, labor management and safety control etc.) should be communicated to Investigation Branch and MDBW. Con (2) and MDBW confirmed that they would support Investigation Branch by conducting the part of monitoring (noise/ vibration).

The Expert explained on roles and responsibilities and several procedures regarding Environmental and Social Considerations based on the "Guidelines for Environmental and Social Considerations (by JICA, April, 2014)" and "Minutes of Discussion between JICA and MOAI (30th October 2013)".

(4) Final Confirmation of Environmental Management and Monitoring Plan (Investigation Branch)

The Expert reported to Investigation Branch the result of activities in Pyay and confirmed the monitoring system, implementation method of monitoring (noise/ vibration), location of monitoring and condition of monitoring etc. It is expected that the Investigation Branch will be needing the assistance of Con (2) and MDBW in conducting the monitoring at all construction sites, because construction sites will be spread over the irrigation area during construction period. The Expert advised to entrust the monitoring (noise/ vibration) to Con (2) and MDBW as necessary.

[3-4] 5th Field Work (Early February 2015 – Mid April 2015)

[3-4-1] Support for Implementation Capacity Building (mostly in Nay Pyi Taw and Bago West)

The expert for Procurement Support (3) was engaged in the activities to provide advice/guidance with respect to procurement method and preparation of tender documents mostly at the ID Head Office in Nay Pyi Taw from February 4 to February 27.

As a result, pre-qualification documents were submitted on February 4 and evaluation results were sent to JICA for review. Then, tender documents were handed out to the pre-qualified bidders and clarifications on the documents were made. As for agricultural machinery, after clarifications on the tender documents handed out in January, bids were submitted on February 23 and evaluation results were sent to JICA for review.

Further, with the target to make advance payment for agricultural machinery at the end of March and for construction machinery late April, the expert for Procurement Support (1) was engaged in the activities to provide advice/guidance with respect to procurement method and preparation of tender documents mostly at the ID Head Office in Nay Pyi Taw from March 2 to April 13. As a result, contract negotiation was completed for agricultural machinery by mid March and for construction machinery by early April.

Meanwhile, the Team Leader/ Expert for Project Implementation was engaged in the activities below at the ID Head Office in Nay Pyi Taw from March 4 to March 19, 2015 except for the period worked in Bago West on March 12 - 13, 2015.

- Advice/ guidance on JICA Yen Loan procedures/ required documentations and approvals/ submission of documents for effectiveness of LA;
- Review of progress of the Project and procurement;
- Advice/ guidance on compliance with LA and JICA Procurement Guidelines, and eligibility for JICA financing;
- Following up of processing of necessary documentations/ obtaining approvals within Myanmar Government;
- Advice/ guidance on the amount of the initial request for disbursement
- Advice/ guidance on documentations for requesting disbursement and coordination among concerned entities; and
- Support for preparation of progress reports to JICA (Project Status Report in particular)

As a result of these Field Works, procurement of diesel oil, cement, gravels etc. had started using the funds converted and credited to the Kyat bank account with MEB Pyay Branch from the JICA loan proceeds in Japanese Yen disbursed late February 2015.

[4] Home Office Work

[4-1] Preparation of Draft Completion Report and Draft Operation Manuals

The Completion Report and Operation Manuals for Project Implementation were drafted describing the services performed, capacity of the Executing Agency in project implementation and construction supervision, suggestions for further improvement, matters to be considered and so forth, and were submitted/explained to the Southeast Asia and Pacific Department of JICA together with the Construction Supervision Manual which was completed after the 3rd Field Work.

(1) Project Implementation Operation Manual

In the course of undertaking the Services, implementation structure, procedures, and necessary time period for obtaining approvals etc. under JICA Yen Loan had become clearer. Further, reference materials that were useful for ID in making project implementation were explained /provided to ID. Including such information/ documents, the Project Implementation Operation Manual was drawn up.

(2) Draft Completion Report

The Completion Report was drafted, describing the Services performed, capacity of the Executing Agency in project implementation and construction supervision, suggestions for further improvement, points to be considered and so forth.

[5] 6th Field Work (Early - Mid April 2015)

[5-1] Explanation of Draft Completion Report to ID

The draft Completion Report and the draft Operation Manuals for Project Implementation submitted/explained to the Southeast Asia and Pacific Department of JICA were explained to ID by the Team Leader/ Expert for Project Implementation during the 6th Field Operation from April 5 to April 11.

[6] Final Home Office Work

[6-1] Finalization of the Completion Report and submission to JICA

The draft Completion Report and the draft Operation Manuals for Project Implementation explained to ID were finalized incorporating comments/ suggestions received, and were submitted to the Southeast Asia and Pacific Department of JICA with the Construction Supervision Manual which was completed after the 3rd Field Work.

[6-2] Duty Transfer to the Consultant employed under JICA Yen Loan

Adequate preparation was made so that the duties under the Services including relevant information and documents obtained during the course of undertaking the Services would be properly transferred to the consultants to be employed under JICA Yen loan and the consultant would be able to undertake its duties smoothly and effectively.

3. Findings and Issues

3-1 Implementation Capacity Building

3-1-1 Methodology

The Services were provided taking into account findings of preceding Field Works and approach and the methodology were adjusted based on actual environments as described below.

(1) Locations of Services

It was anticipated that the Expert for Disbursement Management would work at ID Head Office and would not visit Bago West after visit to Construction Circle (2) for explanation of disbursement procedures under JICA loan during the 1st Field Work. However, it was found during the 1st Field Work that all of the payments including those for materials procured at ID Head Office were also made at Construction Circle (2). Accordingly, the Expert for Disbursement Management decided to visit Bago West at every Field Work to provide advice/ guidance and to follow them up.

(2) Fact Finding

While conducting explanations to ID staff on JICA loan procedures, substantial time was spent for fact finding and confirmation of on-going practices and procedures of ID especially during the 1st Field Work paying particular attention to the following:

- Policies and rules change over time and, therefore, efforts were made to ensure that information collected during the preceding Field Work would be updated during the succeeding Field Work.
- Ways of explanation and/ or emphases placed in explanations vary depending on their policies/ priorities and, therefore, efforts were made to ensure that explanations made at one section would be cross-checked at different sections.
- Staff members were not necessarily good at communicating in English orally and, therefore, efforts were made to ensure that information orally obtained would be written down and be double checked in the form of written sentences.

(3) Confirmation with Third Parties

The information obtained at ID was cross-checked/ reinforced by meetings with third parties such as the Ministry of Finance (MOF) and Myanmar Economic Bank (MEB) as needed.

(4) Sharing Information with Consultants working for Preceding Projects

Knowledge and experiences of the consultant team of the preceding implementation support services to three (3) projects, of which LAs were signed June 2013, were shared by the Team during meetings for exchange of information.

(5) Sharing Information with JICA Myanmar Office

For maintaining close communications and sharing information with JICA Myanmar Office, the Team visited and had meetings with JICA Office at onset of each Field Work. Further, for sharing information with the national staff in charge, efforts were made to communicate in English to the extent possible.

(6) Myanmar Support Consultants

A local support consultant with experiences in accounting was employed. The local consultant was stationed at Nay Pyi Taw continuously during the Services period, accompanied expatriate experts during Field Works, and followed up necessary matters in close coordination with the expatriate experts while away from Myanmar.

The local consultant translated the Operation Manual into Myanmar language, which was reviewed and completed a Myanmar expert in this area.

(7) Seminar and Tutoring

To ensure proper and smooth disbursement process, procedures under JICA loan should be well understood not only by staff members directly involved in disbursement but also those who would be engaged in project implementation.

Accordingly, advice/ guidance was provided by i) organizing a seminar for explanation of the overall picture and basic principles of procurement under JICA loan to ID staff concerned; and ii) providing concrete and detailed explanations directly to the staff in charge.

(8) Preparation and Explanation of Standard Procedures

Draft of Standard Procedures for Payments under JICA Loan was prepared based on findings during the 1st Field Work and was explained to ID during the 2nd Field Work. The draft was revised taking ID's comments into account and further comments were sought during the 3rd ~4th Field Work.

The Standard Procedures formed part of the Operation Manual incorporating ID's comments.

3-1-2 Current Status and Issues

The current state and issues of the Project and Services are as described below.

(1) Procedures under JICA Loan

Signing of LA was expected to be around March – April when the Services started; however, it was substantially delayed and finally signed only on September 5.

The signed LA had become effective late December. What ID had to do for effectuation of LA was limited only to preparation of Evidence of Authority/ Specimen Signature upon instruction from MOF and, therefore, ID's procedures had not been a bottleneck of effectuation of LA.

The Project Memorandum which updated the agreements in the Minutes of Discussion of the JICA's appraisal and these agreements thereafter was signed late October.

(3) PIC

Due to delay in signing of LA, establishment of PIC as well delayed; however, PIC had been established around the time of LA signing with the members agreed at the time of JICA's appraisal and without making major changes in the TOR.

With respect to working relationship between PIC and the Agricultural Mechanization Department (AMD) for procurement of agricultural machinery, it was understood that:

- While ID took responsibility for procurement of the agricultural machinery, ID did not have expertise of agricultural machinery and, therefore, AMD would have to undertake the procurement virtually.
- Under the circumstance, the expert for support to the procurement would have to work closely with AMD.
- Nevertheless, the terms of Reference of PIC/ PMU to be attached to the Project Memorandum would not have to be amended.
- It would work well as long as ID would invite representatives of AMD to PIC meetings.
- It would also work well as long as the consultants to be employed under the JICA loan would support ID and AMD in reporting to JICA regarding the agricultural machinery procurement since the TOR of consultants included support for preparation of progress reports.

(3) PMU

PMU was established on September 4 with the members of the PMU identified and agreed at the time of JICA's appraisal and with no major changes in the TOR.

(4) Procurement

Materials to be Procured and Section responsible for Procurement

At the time of starting the Services, it had been agreed between JICA and ID that: i) Construction/ Agricultural Machinery would be procured by ID Head Office by International Competitive Bidding (ICB) (Support to procurement of machinery was out of scope of the Services when Services started.); ii) Cement/ Reinforced Steel Bars would be procured by the Procurement Division by Local Competitive Bidding (LCB); iii) Diesel Fuel would be procured by the Procurement Division by "Direct Contracting" from Myanmar Petroleum Products Enterprise (MPPE); iv) Local Materials such as gravels/ sands would be procured by Construction Circle (2) (Con (2)) with Local Competitive Bidding (LCB) in case contract amount is more than 5 million Kyat and Shopping by Quotation in case contract amount is less than 5 million Kyat; v) Laborer would be employed by Direct Payment. Later, procurement of agricultural machinery was changed to Limited International Tender (LIB). Further, at the time of completing the Services, JICA was considering to allow direct purchase of cement from a government owned factory similar to the case of diesel oil.

New Myanmar Government Procurement Rule

Under the circumstance where there were no laws/ regulations for government procurement, New guidelines were introduced in January 2014 based on the draft prepared by the Public Works Department of the Ministry of Construction. In respect of applicability of the new guidelines, it was confirmed that:

- The new guidelines would be applied to procurement of ID Head Office and Construction Circle (2) from private sectors.
- The guidelines would not be applied to procurement from government sectors.
- The Procurement Division considered it would be good to use the contract forms attached to the guidelines for contracts with private suppliers under this JICA loan Project, while it had not yet been decided to what extent ID would use payment forms attached to the guidelines.
- It should be noted that there were payment forms that were attached to the guidelines and had been already used by ID such as the Payment Form 24 and 28.

ID's existing practices of procurement and payments including documents/ forms were included in the Operation Manual for Project Implementation, which is Attachment 5 of the Completion Report of the Services.

During the process of confirming ID's existing practices, it was explained to ID that the first contract of each procurement category would have to be submitted to JICA as Request for Review of Contract and the second and subsequent contracts as Notice of Contract attaching English translation of the contract.

Contract Review by Concerned Ministries

At the start of the Services, it was not necessarily clear whether the contract review by the Budget Management Department of Ministry of Finance, FERD of the Ministry of National Planning, Central Bank, and Attorney General's Office required under the preceding JICA loan funded projects would be also required for contracts in terms of Kyats under this Irrigation project. During the Services, it was confirmed as follows:

- Contracts with foreign parties were to be reviewed by the Ministry of Finance/ Central Bank/ Attorney General's Office.
- Contracts under ICB and under foreign financing were to be reviewed by the Ministry of National Planning in addition to the above three i.e. the Ministry of Finance/ Central Bank/ Attorney General's Office.
- Accordingly, contracts with foreign parties selected under ICB and JICA loan are subject to review of the above four authorities.
- Such contract review are not required for local contracts with Myanmar firms as contracts under LCB and under domestic financing are not subject to review by such ministries.

Withholding Corporate Income Tax

The Myanmar government organizations will withhold Corporate Income Tax from payments to private firms. The Japanese nationals are exempted from Corporate Income Tax, Personal Income

Tax, Commercial Tax, and Import Duties. Taking these into account, tax treatment under this Irrigation Project was confirmed as below.

- At present, Instruction of the Ministry of Finance dated 13 August 2011 is applicable.
- Under the Instruction, government entities has to withheld 2 % as corporate income tax from the payments of invoice amount to private contractors/ suppliers of Myanmar nationality and Myanmar residents and 3.5% when they are non-Myanmar and non-Myanmar residents.
- Withholding is not made from payments to government entities.
- Withholding is exempted from payments to foreign suppliers regardless of nationality under the Instruction; however, payments to foreign consultants are not exempted.
- Withheld taxes have to be paid to the Internal Revenue Department of the Ministry of the Finance and Revenue.
- The Internal Revenue Department would issue a receipt to the tax withheld from contractors/suppliers.
- Government entities will not withhold in case of Commercial Tax.

Taking the above into account, the Team explained to ID as follows:

- Japanese nationals are exempted from Corporate Income Tax etc. in accordance with the Exchange of Notes signed by Myanmar and Japanese government; however, concrete means of exemption had not been established. Accordingly, ID should consult with the tax authority when the contract would be awarded to Japanese nationals.
- JICA's disbursement would not cover the tax portion of payments.

Specially Designated Nationals (SDN)

The enterprises listed in the Specially Designated Nationals (SDN) were not eligible bidders under this JICA loan as provided in paragraph 38 of the Minutes of Discussions (MD) signed at the time of JICA's appraisal of this Project. The list is periodically revised and, therefore, should be followed-up. These were explained to the Director of Procurement Division and he knew well about the issue.

(5) Payments and Disbursement Management

Payments at Construction Circle (2)

When the Services started, the Expert for Disbursement Management presumed that payments would be made both at ID Head Office and the project site office in Bago West. However, during the process of explaining Advance Procedures to the Account Division of ID Head Office during the 1st Field Work, it was found that all of the payments including those for materials procured at ID Head Office will also made at Construction Circle (2).

Accordingly, the Expert, while explaining JICA's disbursement procedures, inquired and confirmed existing practices and documents used for projects on a force account basis by Construction Circle (2)

and flow of funds between ID Head Office and Construction Circle (2).

The expert conducted the explanation/survey in Bago West throughout the 1st – 4th Field Work.

Sub-Account under Advance Procedures

The Expert explained Advance procedures and inquired flow of funds from ID Head Office to Construction Circle (2). During the process, it was found that payments under the Advance Procedures would be difficult with the Designated Account (DA) when payment is in Japanese Yen. It would therefore be more practical to open the Sub-Account (SA) denominated in Kyat. Accordingly, the Expert discussed this matter with ID Head Office, Construction Circle (2), MEB Head Office and Pyay Branch, and JICA Head Office/ Myanmar Office.

At present when undertaking projects at Construction Circle (2) with the budget of Myanmar government, actual transfer of funds to bank accounts of Construction Circle (2) is not made. Instead, Drawing Limit of the bank accounts is given to Construction Circle (2). More concretely, Drawing Limit is set by MEB NPT based on the requested amount from ID Head Office and in consideration of the budget allotted to ID, and is informed to each Drawing Officer through MEB Pyay, while a copy of Drawing Limit is forwarded from MEB NPT to Con (2) through ID Head Office.

Several different ideas were considered in the course of discussions, and the fund flow was decided as follows:

- After opening of Designated Account (DA) denominated in Japanese Yen is opened with MEB NPT, Sub-Account denominated in Kyat was opened with MEB Pyay. The purpose of opening of Sub-Account (SA) is to carry out payments in Kyat to suppliers and laborers efficiently. SA is used only for the payments of JICA financed project, so the existing accounts of Construction circle (2) are not used for the payments of JICA financed project.
- JICA disburses loan proceeds. The disbursed proceeds are transferred to DA with MEB NPT through Loan Account (the Borrower's account). ID Head Office withdraws proceeds from DA and transfer to SA in Kyat applying the prevailing exchange rate on the day of withdrawal.
- ID Head Office requests MEB NPT to set an amount of Drawing Limit for SA within the limit of approved budget amount.
- The Assistant Directors of Construction circle (2) make payment to suppliers and laborers from the withdrawn fund from SA (Drawing Officer of SA is the Director of Construction Circle (2)).
- The statement of expenditure and related evidence documents for payments are prepared by assistant directors and these documents are reported monthly to ID Head Office through the Director of Construction circle (2).

Acceleration of Concluding Banking Arrangement

In order to obtain disbursement from JICA, it was necessary to conclude Banking Arrangement between the agent bank of JICA (Bank of Tokyo Mitsubishi UFJ) and the agent bank of the Borrower (Myanmar Economic Bank: MEB). Before the start of the 1st and 3rd Field Work, the Expert contacted the staff in charge of the Bank of Tokyo Mitsubishi UFJ in Japan to inquire likely timing of

signing the Arrangement and to request acceleration of the process. The Banking Arrangement was concluded on January 27, 2014.

The Amount of the Initial Request for Disbursement to JICA

Discussion on the amount of the initial Request for Disbursement under Advance Procedure was conducted during 3rd ~4th Field Operation. Though the basic principle under Advance Procedure for Executing Agency is to request amount required for the next 6 months, ID Head Office, at first, showed the intention of requesting only the amount required from January to March, 2015, considering the possible problem of revenue of the next fiscal year in the current fiscal year. Responding to the team's explanation that it is better to request the amount covering the payments from January to June for materials for civil work in the rainy season, as an initial Request for Disbursement, considering possible difficulty to collect the appropriate evidence documents for payments for the subsequent Request for Disbursement, the Request for Disbursement covering the requirement from January to June (about 675 million Yen) was submitted to JICA. The first installment of the requested amount was disbursed by JICA on February 17 2015.

(6) Financing before LA Signing

During the 1st Field Work, it turned out that signing of the Loan Agreement (LA) for this Project was substantially delayed. Under the circumstance, for enabling construction work during the rainy season of 2014 before JICA LA signing, financing means before LA signing was sought; however, ID did not have clear-cut information. Accordingly, the Expert for Project Implementation inquired to the Budget Management Department of the Ministry of Finance and received the following responses:

The JICA loan portion of the Bago West Irrigation Project has not yet been budgeted/ allotted. The loan portion of the project costs separately has to obtain the approval from the Parliament in the following manner:

- Loan negotiation has to be completed and the agreed draft loan documents has to be sent to the Parliament for approval from the Executing Agency through: 1) Foreign Economic Relations Department (FERD) of the Ministry of National Planning and Economic Development; 2) its standing committees related to foreign aid; 3) the Ministry of Finance and Revenue; 4) the Cabinet; and then to: 5) the Parliament.
- After approval by the Parliament, the Loan Agreement was signed.
- The signed loan agreement was sent passing through the same path as above up to the Cabinet (not to the parliament).
- With the approval of the Cabinet, the budget approval process for the loan portion of the project was completed.
- It is not allowed to provide finance for the purposes that had not been budgeted/ allotted.

(7) Procurement of Agricultural Machinery

When all of the Team members visited ID Head Office after the Myanmar New Year Holiday around

the middle of April 2014, the Minister of Agriculture and Irrigation (MOAI) explained to the Team with the presence of other key management staff of the ministry including Vice Minister, Director General of Irrigation Department etc. about the importance/ necessity of procuring agricultural machinery under the JICA loan.

The Team responded to the explanation, requesting the Minister's attention to the fact that the issue was under discussion between MOAI and JICA and was out of scope of the Team's Services and indicated that the message of the Minister would be appropriately conveyed to JICA.

Later, an agreement was reached between JICA and MOAI so that support to procurement of the agricultural machinery would be included under the implementation support Services. Types and numbers of machinery to be procured, which were very large when initially requested from MOAI, were carefully examined based on the review of existing machinery and discussions with MOAI taking into account manageable level and quantity of operators and maintenance after strengthening their capacities.

(8) Project Implementation Operation Manual

Project Implementation Operation manual was prepared taking into account the following:

- Since a manual covering JICA loan operations in general had been prepared by other consultant team in previous projects and was available, this manual focused on matters/issues specific to this irrigation project.
- Reference materials for staff members of ID such as agreements, explanatory notes, and manuals were included in this manual as attachments for easy reference.
- The manual also provided JICA staff members with useful information that will help them understand ID's operations and practices. Existing practices of ID were described and included in the manual as attachment together with examples/formats of documents being used.

3-2 Construction Supervision Capacity Building

The Construction Supervision Manual was prepared under the concept that supervision was defined to make inspection, confirmation and guidance by the supervisor on the contents of the construction management and differ from the construction management (including quality control, dimension control, schedule control, progress and cost control, and safety control) being undertaken by the Con (2) (construction unit of ID).

The construction of the Bago West irrigation Project will be undertaken by Con (2) i.e. the construction unit of ID on a force-account basis. In the past projects, Con (2) undertook not only construction but also construction management and supervision by themselves. However, since almost all of the facilities to be rehabilitated were considerably small, construction management on quality control, dimension control, safety control and so forth were not necessarily conducted. Accordingly, scope and existing practices on construction management undertaken by Con (2) are considered to be different from the construction management and construction supervision described in the Construction Supervision Manual.

Therefore, when the construction and construction supervision by the Consultant under JICA loan will commence, scope, contents, procedures, process and so forth of the construction management to be undertaken by the construction unit of ID shall be reviewed and confirmed between the Consultant and the construction unit of ID. In addition, the construction plan, specifications, construction schedule etc. necessary for construction shall be provided by the construction unit (Con (2)) in order not only to enable Con (2) to implement construction and management properly but also to enable Consultant to supervise the construction properly.

Furthermore, the standard values for quality control and dimension control in the Manual have been quoted mainly from the Standards formulated by the Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan. When applying the Manual to the Bago West Irrigation Project, these values shall be reviewed, discussed with ID, and modified appropriately taking into account required degrees of accuracy for facilities to function properly and actual conditions of the existing construction management of ID and ITC.

ITC Pyay office, which has been playing a role of testing and evaluation as quality control in the past ID's projects, is assumed in the Manual to act as the main laboratory of testing for quality control under this Project. Due attention should be paid to this assumed arrangement and adjustments should be made wherever appropriate.

3-3 Environmental and Social Considerations Capacity Building

Environment-related Laws of Myanmar

Monitoring of environment-related laws of Myanmar was carried out constantly to obtain the latest information. The Expert confirmed that "ENVIRONMENTAL CONSERVATION RULES 5th June, 2014" was the latest edition issued by the Ministry of Environmental Conservation and Forestry.

Implementation Structure of Environmental Management and Monitoring

Six staff of Investigation Branch was assigned as monitoring staff for the Project. Deputy Director of Investigation Branch is expected to report the result of monitoring that will be conducted by Investigation Branch, which will be included as a part of progress report, to PIC and ITC_{SVO} every quarter of the fiscal year during the construction period. Furthermore, Deputy Director is expected to prepare report once a year for two years after completion of construction.

Con (2) and MDBW would be in charge of monitoring the i) response from the Government to comments from residents; ii) waste management; and iii) working environment (including safety)/accident. Since the detailed construction work plan is not yet prepared, monitoring schedule and monitoring staff would be decided after the drafting of construction work plan. One monitoring staff will be dispatched at each site. Also, the site representative or the staff who is in equivalent position (such as Staff Officer (SO), Special Sub Assistant Engineer(SSAE), Sub Assistant Engineer(SAE), Engineer Survey(ES) etc.) will be assigned as monitoring staff.

Assistant Directors, who are in charge of each irrigation schemes, will submit the result of monitoring that will be conducted by Con (2) and MDBW, to PMU and MDBW. Also, Deputy Director of Investigation Branch should report the result of the monitoring, which will be included as part of progress report, to PIC and ITC_{SVO} every quarter of the fiscal year during the construction period.

Furthermore, Deputy Director should also prepare yearly report for two years after completion of the construction.

Investigation Branch, Con (2) and MDBW are responsible for monitoring and reporting of the monitoring result.

Since the office of Investigation Branch is located in Yangon, the Expert proposed that Con (2) and MDBW provide regular information on details of construction work plan to Investigation Branch. The Expert also proposed to Con (2) that detailed information (such as construction work plan, schedule, construction method, preparation of construction machinery, labor management, safety control etc.) be provided to Investigation Branch and MDBW. It is expected that monitoring staff of Investigation Branch will need the assistance of Con (2) and MDBW in the conduct of the monitoring at all construction site, because several construction sites will be spread over the irrigation area during construction period. The Expert advised to entrust the monitoring (noise/ vibration) to Con (2) and MDBW as needed.

Confirmation and Procurement Support on the Monitoring Equipment

The items of environmental monitoring, which will be conducted mainly by Investigation Branch, are air pollution, noise and vibrations, wind direction and wind velocity. The Expert supported Investigation Branch to prepare specifications for portable instruments or equipment to measure/ detect such factors for environmental monitoring.

ID will purchase the environmental monitoring equipment directly from domestic dealers. ID should secure national budget for these equipment. Before purchase of the equipment, Investigation Branch should confirm the specification of equipment, maintenance of equipment and purchase of accessories and/ or consumables.

Support of Stakeholder Meeting

The Expert explained to the participants about i) Outline of JICA Project, ii) Importance of “Environmental and Social Considerations” under JICA Projects and iii) Environmental Monitoring Plan at the four stakeholder meetings. Although the Expert explained in English, the attendees were provided copies of materials in Myanmar language translated by the counterpart staff, to deepen understanding of participants.

ID holds township meetings periodically and explains construction of irrigation facilities to residents. ID is expected to explain “Environmental and Social Considerations” and “Monitoring Plan” to residents at township meetings, for better understanding on JICA Project.

4. Achievements and Challenges

4-1 Progress of the Project

4-1-1 Signing and Effectiveness of the Loan Agreement

The timing of signing of LA was expected to be around March-April 2014 when the Services started: however, it was delayed substantially and was actually signed early September 2014 and has become effective late December 2014.

4-1-2 Establishing Project Implementation Structures

Because of the delay in LA signing, establishment of both PIC and PMU was delayed, and were actually establish as agreed with JICA around the time of LA signing.

4-1-3 Employment of Consultants

The Request for Proposal for employment of consultants under JICA loan was sent out to the invited consultants in October 2014 and selection process has been underway. Yet, the process has been slightly delayed and the timing of service-in of the consultants is expected to be around 3 months behind the targeted schedule of March-April 2014.

4-1-4 Disbursement

The Banking Arrangement was concluded late January 2015. Almost simultaneously, the Initial Request for Disbursement under Advance Procedure was submitted by ID to JICA Myanmar Office, and the first disbursement made on mid February.

4-1-5 Procurement

(1) Local Procurement: at ID Head Office

Parallel with the first disbursement, procurement of diesel oil was started.

(2) Local Procurement: at Construction Circle (2)

Parallel with the start of procurement at ID Head Office, procurement at Con (2) was started as well.

(3) Procurement of Agricultural/ Construction Machinery

After issuance of tender documents for agricultural machinery in January 2015 and for construction machinery in March, contract negotiations were completed mid March for agricultural machinery and early April for construction machinery.

4-1-6 Construction Supervision

LA was signed early September 2014; however, the idea of undertaking construction work during the rainy season of 2014 was abandoned since preparatory work for the construction

work in 2014 would take time and too late to facilitate the construction work within 2014. Accordingly, construction work and its supervision work have not started yet.

4-1-7 Environmental and Social Considerations

Due to the same reason as construction supervision i.e. delay in the start of construction work, environmental monitoring has not yet started.

Explanation of construction work to residents of nearby areas was necessary to be made before commencement and was actually made with the support of the Services at each of the four irrigation systems through organizing stakeholders meetings.

4-2 Progress of the Services

Annex 2 indicates the detailed activities planned at the start of the Services and actual progress of the activities.

The activities of the Home Office Work from "[1-1] Review/confirmation of Objective, Characteristics, Methodology, Work Schedule of the Services" through "[1-5] Consultation with JICA on Work Plan and Challenges to be tackled" and the 1st Field Work from "[2-1] Submission and Explanation of Work Plan to JICA Myanmar Office" through "[2-5] Support for Capacity Building of Environmental and Social Considerations" were undertaken as scheduled.

During the 1st Field Work, it turned out that signing of the Loan Agreement (LA) for this Project was substantially delayed and its likely timing was uncertain. Under the circumstance, the Team discussed with JICA regarding timing of planned activities. As a result, the assignments of facilitating better understanding and preparation for procedures under JICA loan of "[3-1] Implementation Capacity Building" was carried out in June as the 2nd Field Work, while Construction Supervision Manual was prepared ahead of the original schedule shelving the 2nd Field Work for "[3-2] Support for Construction Supervision Capacity Building" since the support services would not be provided as on-the-job-training. Further, the 2nd Field Work for "[3-3] Support for Capacity Building of Environmental and Social Consideration" was as well shelved since the planned support for actual measurement using equipment would not be made under the circumstances that construction work would not be made and measuring equipment had not been procured.

LA was signed early September. Then, the Service of "[3-1] Implementation Capacity Building" was resumed and the 3rd Field Work was made in October – November to support procedures for affectivity of the signed LA, preparation of the Initial Request for Disbursement and so forth. Further, the Construction Supervision Manual drafted ahead of the original schedule under [3-2] was explained to ID during the 3rd Field Work, finalized incorporating ID's comments and was translated into Myanmar language. As for "[3-3] Capacity Building of Environmental and Social Considerations", it was decided at the time of the 3rd Field Service to wait and see an appropriate timing for the undertaking of the Field Service.

While support to Construction Supervision Capacity Building became infeasible during the 2014 rainy season because of delay in commencement of actual construction work, it became necessary to support procurement of construction/agricultural machinery. Accordingly, it was agreed with JICA in November taking into account the preceding discussions with ID that two experts were assigned, utilizing almost all of the remaining MMs of the expert for Construction Supervision Capacity Building and a part of MMs of the expert for Capacity Building of Environmental and Social Considerations, to provide advice/guidance with respect to procurement method/ preparation of tender documents/ bid evaluation. In accordance with the above amendments, support for procurement of construction/ agricultural machinery was made during the 4th and 5th Field Work as a part of “[3-1] Implementation Capacity Building”.

”[3-3] Capacity Building of Environmental and Social Considerations”, which was decided at the time of the 3rd Field Service to wait and see an appropriate timing for the undertaking of the Field Service, was undertaken as the 4th Field Work shifting emphasis on activities on social considerations such as explanations of project by ID to the people to be affected with respect to mechanism/ contents/ frequency of explanations and monitoring systems to follow up responses of the people.

The Ministry of Agriculture and Irrigation strongly wished to complete the procurement of agricultural machinery in October 2015. To ensure the completion by this target, it was considered essential to support contract negotiation and subsequent advance payment for the period of March-April. However, the timing of dispatch of the consultants to be employed under the JICA loan was expected to be delayed from the initial target of March 2015 and, therefore, support from these consultants were not expected. Under the circumstance, the support was provided by the team of Implementation Support Services, extending the service period from February to April and adding extra MMs for the extra support.

Accordingly, the timing of explaining the draft Completion Report to ID and submitting the Completion Report to JICA were changed from late February 2015 to April 2015 and from early March 2015 to late April 2015, respectively.

As described above, all of the services listed in the terms of reference of the Services have been completed, although a part of the Services was changed from the support to construction supervision to procurement of construction/ agricultural machinery and the timing of completion was slightly delayed due to such reasons as delay in signing of LA and delay in employment of consultants under the JICA loan.

4-3 Achievements and Challenges

4-3-1 Services as a Whole

As provided in “1-2 Objective of the Services”, the services stated with the overall objective of below 1) and 2), and the particular objectives of 3), 4), 5),6)and 7). However, 6) was dropped because of delay in signing of LA.

Overall Objectives:

- 1) to strengthen the capacity of the Irrigation Department (ID) in the areas of project implementation and construction supervision; and
- 2) to support the Irrigation Department (ID) to ensure proper project management and construction supervision until mobilization of the consultant to be employed under JICA Yen Loan.

Particular Objectives:

- 3) Proper and efficient project management by the Project Implementation Committee (PIC) by way of clearly defining roles and responsibilities of PIC and facilitating proper understanding of such roles and responsibilities by the staff concerned.
- 4) Proper and efficient project management by the Project Management Unit (PMU) by way of clearly defining roles and responsibilities of PMU and facilitating proper understanding of such roles and responsibilities by the staff concerned.
- 5) Proper and efficient procurement of equipment and construction materials and proper administration of JICA Yen loan funds during the implementation of the North and South Nawin Irrigation Systems components of the Project.
- 6) Enhanced construction supervision capability of the Irrigation Technology Center (ITC) including inspection, quality control, safety management, operation management and performance management by the construction unit of the Irrigation Department (ID).
- 7) Enhanced capability of the Investigation Branch of the Irrigation Department (ID) with respect to environmental and social considerations.

The overall objectives of strengthening ID's capacity and to support ID until mobilization of the consultants to be employed under JICA Yen Loan were achieved to a certain extent. The particular objectives may be considered to have been generally achieved from the viewpoint of setting up a basis of project implementation given such outcomes that PIC/ PMU were established as agreed with JICA, procurement/ disbursement were started in line with the agreements with JICA, and preparation for implementing environmental monitoring in accordance with the requirements of JICA were undertaken.

Yet, due to delay in LA signing, the Services were to be completed before start of full-fledged project implementation activities. Accordingly, careful attentions should be paid to see whether or not the set-up framework for project implementation would work properly as designed and/or whether or not capacity of staff members would be sufficient to ensure proper project management and, as necessary, timely support should be extended from the consultants under the JICA loan and/or through other JICA's assistance scheme.

4-3-2 Implementation

Practical guidance regarding procurement has not yet been provided to ID adequately since actual procurement has just recently started. Accordingly, it will be necessary to carefully keep paying attention to ID's procurement activities including compliance with the agreements with JICA and related documentations from the viewpoint of capacity building of staff members and strengthening of the implementation structure. Timely support should be provided as needed.

As for disbursement management, the team explained the necessary documents to be submitted to JICA for disbursement throughout the 1st-4th Field Work. Considering the fact that the initial Request for Disbursement was submitted to JICA after the signing of Banking Arrangement and the first installment of the requested amount was disbursed on February 17 2015, it seems that the first step of capacity building for Disbursement Management was achieved.

On the other hand, the 2nd Request for Disbursement will be prepared after the completion of the Services of the consultant team because progress of project implementation is behind schedule due to the delay of conclusion of LA. It is necessary to attach to the 2nd Request for Disbursement Reconciliation Statement and the evidence documents of payments which were not included in the initial Request for Disbursement. Although the team thoroughly explained the necessary documents for 2nd Request for Disbursement in the Field Work, the proper documentation by ID should be carefully monitored.

With respect to fund flow under Advance Procedure, it could be said that the aim was achieved, because the fund flow mechanism was decided in the form acceptable to JICA although it took considerable time to finalize the mechanism.

4-3-3 Construction Supervision

As explained, since ID decided not to carry out construction work of irrigation facilities in this year, construction supervision work was not required and, therefore, support to ITC was not necessary. Accordingly, the Services of Construction Supervision Capacity Building has been completed with the completion of the Construction Supervision Manual prepared ahead of the original schedule.

Construction Supervision from 2015 will be undertaken by the consultants to be employed under the JICA loan.

4-3-4 Environmental and Social Considerations

During the 1st Field Work, confirmation of the Monitoring Plan including staff arrangement together with the required survey items of the environmental monitoring was made. Furthermore, the Team supported Investigation Branch to prepare a work schedule for the monitoring plan by specifying issues such as monitoring items and timing, prepare specifications for portable instruments or equipment to measure/ detect five substances of air pollution, noise and vibrations, and wind direction and velocity, and facilitate appropriate

actions with respect to: i) responses from the Government on comments from residents; ii) waste management; and iii) working environment (including safety)/ accident.

Detailed monitoring system and implementation method of monitoring was confirmed at the 4th Field Work. The Monitoring Plan was finalized and submitted to Investigation Branch, Con (2), MDBW and ITC.

The Expert supported Con (2) in the holding of the stakeholder meetings. The meetings were held at each site of the four irrigation schemes (North Nawin, South Nawin, Wegyi, Tanug Nyo). It was confirmed that Con (2) provided appropriate responses to the requests and comments made by the participants during the stakeholders meetings.

On-the-job-training for actual measurement using equipment and advice/ guidance on the responses to actual comments of affected people have not yet made in the same case of the Support for Construction Supervision Capacity Building, because of delay in the commencement of construction works and purchase of environmental monitoring equipment. ID expects Japanese consultant under JICA Yen Loan to conduct the on-the-job training for monitoring equipment.

4-3-5 Points of Attention in Project Implementation without Consultants

The process of employing consultants under JICA loan has been delayed and the timing of contract negotiation will definitely be after Myanmar's New Year holidays. Since several months will be required for review of agreed contract by Myanmar government authorities, construction work of the Bago West Project is likely to start in June 2015 without the consultants.

Provided below are points of attention in implementing the Project without consultants.

Project Implementation in General

- To maintain close communications with JICA in implementing the Project
- To submit quarterly Progress Report to JICA by updating Project Status Report attached to Project Memorandum

Procurement of Agricultural/ Construction Machinery

- To undertake contract negotiations for construction machinery
- To make payment to suppliers of agricultural/construction machinery by Transfer Procedure
- To inspect machinery delivered to the designated warehouse in Yangon
- To assemble the delivered machinery at the warehouse
- To transport the machinery to project sites
- To test the machinery at the project sites and to train operators
- To train operators and to properly manage the use of the procured machinery

It should be noted that support to the remaining tasks should be timely considered as needed

since an expert for procurement of machinery is not included in the consultants team to be employed under JICA loan.

Procurement at ID Head Office

- To properly undertake tender for reinforced steel bars etc.

Procurement at Con (2)

- To properly undertake procurement through Tender and Shopping by Quotation

Disbursement Management

- To ensure that Banking Charge of Designated Account (DA) , if any, should be excluded from JICA's finance, such charges should be paid with ID's own budget, and should not be debited from DA
- To obtain/ maintain Certificate of Exchange Rate form Yen to Kyat at the date of transaction
- To ensure that Withheld Corporate Income Tax, if any, should be excluded from the amount of JICA's finance
- To properly prepare Payment Documents such as invoice/ receipt, , ensuring that e.g. date/amount/ signature of authorizing payment etc. should be clearly indicated and properly placed
- To submit to JICA 2nd and subsequent Request for Disbursement in principle every 3 months attaching Reconciliation Statement prepared in accordance with the required format and proper payment documents such as invoice/ , periodically reviewing and updating funding requirements
- To prepare Reconciliation Statement in accordance with the required format of JICA
- To prepare and send an original of Transfer Instruction to Paying Bank.
- To attach, in addition to Invoice, Claims for Payment prepared by the supplier in accordance with the format attached to JICA's Brochure

Construction Supervision

- To properly undertake Construction Management including Quality Control/ Dimension Control/ Schedule Control/ Progress and Cost Control/ and Safety Control taking into account the descriptions provided in the Construction Supervision Manual, although in recent years Con (2) did not necessarily have to pay adequate attention to Construction Management since most of the facilities rehabilitated were small..

Environmental and Social Considerations

- To procure necessary environmental monitoring equipment
- To acquire knowledge/ skills to use the procured equipment through training/ guidance from the local agent of the equipment and/or obtaining appropriate manual

Annex 1: Flowchart

	Work Items	Deliverables
Preparatory Work at Home Office	<p>[1] Preparatory Work at Home Office (Late March - Early April 2014)</p> <p>[1-1] Review/confirmation of Objective, Characteristics, Methodology, Work Schedule of the Service [1-2] Review/confirmation of Scope, Progress, Executing Agency of the Irrigation Project [1-3] Review/confirmation of JICA Procurement Guidelines, Rules and Regulations of Myanmar [1-4] Preparation of Work Plan in both Japanese and English [1-5] Consultation with JICA on Work Plan and Challenges to be tackled with</p>	<p>Work Plan in Japanese</p> <p>Work Plan in English</p>
1st - 5th Field Work	<p>[2] 1st Field Work (Mid April - Late May 2014)</p> <p>[2-1] Submission and Explanation of Work Plan to JICA Myanmar Office [2-2] Explanation and Consultation with ID on Work Plan</p> <p>[2-3] Support for Implementation Capacity Building (mostly in Nay Pyi Taw)</p> <ul style="list-style-type: none"> Review/confirmation regarding setting up of PIC/PMU and progress of procurement Provision of advice/guidance as needed regarding establishment of PIC/PMU and clearly defining their roles/responsibilities Provision of advice/guidance regarding compliance with L/A and JICA Procurement Guidelines and eligibility for JICA financing Following up of processing of necessary documentations/obtaining approvals Provision of advice/guidance regarding documentations for requesting disbursement and coordination among concerned entities Support for preparation of progress reports to JICA (Project Status Report in particular) <p>[2-4] Support for Construction Supervision Capacity Building (mostly in Bago West)</p> <ul style="list-style-type: none"> Review of ITC's supervision policy/ existing documents and consultation/ preparation of draft implementation plan/ organization Review of facility design and operation/ maintenance systems from the view point of user-friendliness to beneficiary farmers <p>[2-5] Support for Capacity Building of Environmental Social Considerations (mostly in Yangon)</p> <ul style="list-style-type: none"> Review of Environmental Management/ Monitoring Plan and support to Investigation Branch for its preparation of implementation plan <p>[3] 2nd - 5th Field Work (Early June 2014 - Late January 2015)</p> <p>[3-1] Support for Implementation Capacity Building (mostly in Nay Pyi Taw)</p> <ul style="list-style-type: none"> Advice/guidance on JICA Yen Loan procedures/ required documentations and approvals/ submission of documents for effectiveness of L/A Review of progress of project and procurement Advice/guidance on compliance with L/A and JICA Procurement Guidelines and eligibility for JICA financing Following up of processing of necessary documentations/obtaining approvals Advice/guidance on documentations for requesting disbursement and coordination among concerned entities Support for preparation of progress reports to JICA (Project Status Report in particular) <p>[3-2] Support for Construction Supervision Capacity Building (mostly in Bago West)</p> <ul style="list-style-type: none"> Provision of advice/guidance to ITC (Either expatriate consultant or local supporting consultant will be continuously on site) <p>[3-3] Support for Capacity Building of Environmental Social Considerations (mostly in Bago West)</p> <ul style="list-style-type: none"> Provision of advice/guidance for ensuring compliance with the environmental/social Considerations provided in the implementation plan 	<p>Mid-Term Report (Late September 2014)</p>
Home Office Work	<p>[4] Home Office Work</p> <p>[4-1] Preparation of Draft Completion Report, Draft Operation Manual for Project Implementation and Construction Supervision, and submission/ explanation to JICA, which include:</p> <ul style="list-style-type: none"> Services completed, project management/ construction supervision capacity of the executing agency Suggestions and points to consider thereafter Workable operation manual for project implementation/ construction supervision incorporating discussions with the executing agency 	<p>Project Implementation Manual (Draft)</p> <p>Construction Supervision Manual (Draft)</p>
6th Field Work	<p>[5] 6th Field Work (Early - Late February 2015)</p> <p>[5-1] Explanation of Draft Final Report, Draft Operation Manual for Project Implementation and Construction Supervision to ID</p>	
Final Home Office Work	<p>[6] Final Home Office Work</p> <p>[6-1] Finalization of the Completion Report incorporating ID's comments and submission to JICA [6-2] Duty Transfer to the Consultant to be employed under JICA Yen Loan</p>	<p>Final Report</p>

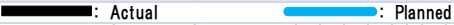
Annex 2: Detailed Activities Plan

Year		2014												2015							
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	4						
Work Schedule		1st Field Work												←2nd-5th Field Work→				6th Field Work			
		Preparatory Work at Home Office												Interim Report				Home Office Work			
Work Items		Work Plan (Japanese)												Project Implementation Manual (Draft)				Construction Supervision Manual (Draft)			
		Work Plan (English)												Final Report							
Preparatory Work at Home Office	[1-1]	Review of Objective, Characteristics, Methodology, Work Schedule of the Service																			
	[1-2]	Review of Scope, Progress, Executing Agency of the Irrigation Project																			
	[1-3]	Review JICA Procurement Guidelines, Rules and Regulations of Myanmar																			
	[1-4]	Preparation of Work Plan in both Japanese and English																			
	[1-5]	Consultation with JICA on Work Plan and Challenges to be tackled with																			
1st- 5th Field Work	[2-1]	Submission and Explanation of Work Plan to JICA Myanmar Office																			
	[2-2]	Explanation and Consultation with ID on Work Plan																			
	[2-3]	Support for Implementation Capacity Building (mostly in Nay Pyi Taw)																			
	[2-4]	Support for Construction Supervision Capacity Building (mostly in Bago West)																			
	[2-5]	Support for Capacity Building of Environmental Social Considerations (mostly in Yangon)																			
	[3-1]	Support for Implementation Capacity Building (mostly in Nay Pyi Taw)																			
	[3-2]	Support for Capacity Building of Environmental Social Considerations (mostly in Bago West)																			
	[3-3]	Support for Capacity Building of Environmental Social Considerations (mostly in Bago West)																			
Home Office Work	[4-1]	Preparation of Draft Completion Report, Draft Operation Manual for Project Implementation and Construction Supervision Manual, and submission/ explanation to JICA												Drafting of Construction Supervision Manual				Drafting of Final Report/Project Implementation Manual and Explanation to JICA			
6th field Work	[5-1]	Explanation of Draft Final Report, Draft Operation Manual for Project Implementation and Construction Supervision Manual to ID												Explanation of Draft Construction Supervision Manual to ID				Explanation of Draft Final Report/Project Implementation Manual to ID			
Final Home Office Work	[6-1]	Finalization of Completion Report incorporating ID's comments and submission to JICA																			
	[6-2]	Duty Transfer to the Consultant employed under JICA Yen Loan																			

Planned: ■ : Field Work ■ : Home Office Work
 Actual: ■ : Field Work ■ : Home Office Work

Annex 3: Assignment Schedule: Planned and Actual

Field Work Assigned Tasks		Number of Field Works	2014												2015				MDs	MMs
			Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr				
Teruyuki Tanabe (Team Leader/Project Implementation)	Planned	7																	111	3.70
	Actual	5	3/30-31 (2日)	4/1-6-22-30 (6日)(9日)(16日)	5/16 (16日)	6/9-20 (12日)						10/6 (26日)	11/1 (1日)	12/2-17 (16日)			3/4-19 (16日)	4/5-11 (7日)	111	3.70
Tatsuhiko Mori (Construction Supervision)	Planned	7																	41	1.37
	Actual	2		4/22-30 (9日)(24日)	5/24								10/25-11/1 (7日)(1日)						41	1.37
Rentaro Tamalehi (Disbursement Management)	Planned	5																	81	2.70
	Actual	5		4/22-30 (9日)(11日)	5/11 (12日)	6/9-20						10/18 (14日)	11/1 (1日)	12/2-17 (16日)	1/11-28 (18日)				81	2.70
Hideki Ishikawa (Environmental and Social Considerations)	Planned	1																	20	0.67
	Actual	1		4/22-30 (9日)(11日)	5/11 (20日)														20	0.67
Yoji Sawada (Environmental and Social Considerations)	Planned	1																	30	1.00
	Actual	1											11/14 (17日)	12/28 (28日)					45	1.50
Shinichi Arai (Procurement Support (1))	Planned	2																	113	3.77
	Actual	2											11/17 (14日)	12/26 (26日)	1/7-17 (11日)		3/2 (30日)	4/13 (13日)	94	3.13
Akira Sudo (Procurement Support (2))	Planned	0																	0	0.00
	Actual	0																	0	0.00
Motoyoshi Hikasa (Procurement Support (3))	Planned	1																	30	1.00
	Actual	1															2/4-27 (24日)		24	0.80
												Field Work: Sub-Total		Planned	426	14.20				
														Actual	416	13.87				

Home Office Work Assigned Tasks	Number of Field Works	2014										2015				MDs	MMs		
		Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr				
Teruyuki Tanabe (Team Leader/Project Implementation)																		36	1.80
			3/25-28 (4日)	4/7-9,16-18 (3日)	5/16-18,26-28 (6日)	6/2 (1日)	6/25 (1日)	8/27 (1日)	10/1,3 (2日)		12/22-24 (4日)	1/26-28 (3日)		3/23-26 (4日)	4/21-24 (4日)			36	1.80
Tatsuhiko Mori (Construction Supervision)																		44.8	2.24
			3/25-27 (3日)	4/16,18 (2日)	5/26 (1日)	6/2 (1日)	7/14-18 (5日)	8/27 (1日)	9/26,29,30 (3日)	10/1-24 (12日)								28	1.40
Rentaro Tamahshi (Disbursement Management)																		16	0.80
			3/28 (1日)	4/16,18 (2日)	5/12,26-27 (3日)	6/2 (1日)	6/25 (1日)	8/27 (1日)	10/3,10 (2日)		12/22,26 (2日)	1/30 (1日)	2/9 (2日)					16	0.80
Hideki Ishikawa (Environmental and Social Considerations)																		10.8	0.54
			3/25-27 (3日)	4/16,18 (2日)		6/2 (1日)		8/27 (1日)	10/15-17 (3日)	11/10 (0.8日)								10.8	0.54
Yoji Sawada (Environmental and Social Considerations)																		3	0.15
											11/11-13 (3日)			3/9-13 (5日)				8	0.40
Shinichi Arai (Procurement Support (1))																		12	0.60
											11/10-16 (7日)		2/27-28 (2日)	4/14-21 (8日)				17	0.85
Akira Sudo (Procurement Support (2))																		4	0.20
													2/16-18 (3日)	3/2-3 (1.4日)	4/18-21 (4日)			8.4	0.42
Motoyoshi Hikasa (Procurement Support (3))																		0	0.00
														3/1-4 (4日)	4/8-12 (5日)			9	0.45
											Home Office Work: Sub-Total		Planned	126.6	6.33				
													Actual	133.2	6.66				
											Total		Planned	552.6	20.5				
													Actual	549.2	20.5				
Deliberables		△ Work Plan										△ Pr/R		△ DC/R		△ C/R			

Annex 4: List of Persons Contacted

Ministry of Agriculture and Irrigations

Mr. Myint Hlaing: Minister

Mr. Khin Zaw: Deputy Minister

Irrigation Department

Mr. Kyaw Myint Hlaing : Director General

Mr. Tint Zaw: Deputy Director General

Mr. Kyaw Zaw: Director, Planning and Work Divisions

Mr. Aung Bo: Deputy Director, Planning and Works Division

Ms. Aye Aye Hlaing: Deputy Director, Planning and Works Division

Mr. Myo Aung: Assistant Director, Planning and Works Division

Dr. Mu Mu Than: Assistant Director, Planning and Works Division

Mr. Htay Aung Tint: Staff Officer, Planning and Works Division

Mr. Tint Lwin: Director, Procurement Division

Mr. Thein Htay Aung: Deputy Director, Procurement Division

Ms. Soe Soe Ohn: Staff Officer (Account); Procurement Division

Mr. Tun Kyaw Soe: Chef Mechanical Engineer

Mr. Mg Mg Cho: Deputy Director, Mechanical Division

Mr. Win Nyunt: Assistant Director, Mechanical Division

Ms. Aye Aye Myint: Director, Account Division

Ms. Yin Thien: Assistant Director, Account Division

Ms. Aye Mar Pe: Assistant Officer, Account Division

Agricultural Mechanization Department

Mr. Soe Hlaing: Director General

Mr. Myint Zaw: Deputy Director General

Mr. Aung Win: Deputy Director, Research and Technology Division (JICA Loan Project Manager)

Mr. Ko Ko: Deputy Director, Equipment and Store Division

Ms. Ei Ei Khin: Staff Officer, Planning Division (JICA 2KR Project Manager)

Construction Circle (2)

Mr. Myint Htun Latt: Director

Mr. Ko Ko Htay: Deputy Director

Mr. Hla Win Myint: Assistant Director (1)

Mr. Tin Maung Wai: Assistant Director (2)

Mr. Aung Moe Win: Assistant Director (3)

Ms. Khin Mar Myint: Account Officer

Mr. Win Kyaing: Staff Officer

Mr. San Thein: Staff Officer

Mr. Aung Kyaw Oo: Staff Officer

Mr. Nay Myo Aung: Staff Officer

Maintenance Division Bago West

Mr. Soe Aung: Deputy Director

Mr. Myint Thaug: Assistant Director

Investigation Branch

Ms. Myint Myint Than: Assistant Director (Soil Survey Section)

Mr. Phyo Wai: Staff Officer (Soil Survey Section)

Irrigation Technology Center

Mr. Zaw Min Htut: Director

Dr. Maung Maung Naing: Assistant Director

Mr. Aung Win Swe: Staff Officer

Ms. Myint Myint Sein: Staff Officer of Laboratory (Pyay Office)

Ministry of Finance and Revenues

Ms. Ni Ni Than : Deputy Director, Budget Department/ Treasury Department

Ms. Kay Zin Latt: Staff Officer, Budget Department/ Treasury Department

Myanmar Economic Bank

Mr. Myint Oo: General Manager, Nai Pyi TawHhead Office

Mr. Than Lwin Oo: General Manager, Nai Pyi Taw Head Office

Mr. Win Naing Oo: Deputy General Manager, Nai Pyi Taw Head Office,

Ms. Sint Sint Aung: Deputy General Manager, Nai Pyi Taw Head Office

Mr. Thu Ra: Assistant General Manager, Nai Pyi Taw Head Office

Mr. Kyaw Zin Oo: Manager, Pyay Branch (Predecessor)

Mr. Htet Naing: Pyay Branch (Successor)

Consultant Team for preceding three projects

Mr. Tadayuki Kanazawa: OPMAC Corporation

Mr. Atsushi Hashimoto: Maenam Advisory Co., Ltd.

Mr. Tomoo Mochida: OPMAC Corporation

Mr. Kazuyoshi Yamashita: OPMAC Corporation

JICA Myanmar Office

Mr. Masahiko Kojima: Chief Representative

Mr. Kyosuke Inada: Senior Representative

Mr. Kenji Kuronuma: Representative

Ms. Yamazaki: Project Formulation Advisor

Mr. Yoshifumi Tokushige: Project Formulation Advisor

U Tun Myint Thein: Program Officer

Dr. Phyo Thet Lwin: Program Officer

APPENDIX 5: Environmental and Social Consideration:

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APPENDIX 5-4 Attendant List of Stakeholder Meeting

APPENDIX 5-1 Environmental Conservation Rules (5th June, 2014)

THE GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF ENVIRONMENTAL CONSERVATION AND FORESTRY



ENVIRONMENTAL CONSERVATION RULES

5th June, 2014

The Government of the Republic of the Union of Myanmar
Ministry of Environmental Conservation and Forestry
Notification No. 50 / 2014
The 8th Waxing of Nayon, 1376 M.E.
(5th June, 2014)

The Ministry of Environmental Conservation and Forestry, in exercise of power conferred under sub-section (a) of section 42 of the Environmental Conservation Law, hereby issues these rules with the approval of the Union Government.

Chapter I

Title and Definition

1. These rules shall be called the Environmental Conservation Rules.
2. The expression contained in these rules shall have the same meanings as contained in the Environmental Conservation Law. Moreover, the following expressions shall have the meaning as follows:
 - (a) **Law** means the Environmental Conservation Law;
 - (b) **School** means any university, college, institute, school established by any Government department, Government organization or established by any private, private organization and recognized by the Government;
 - (c) **Environmental management** means the management of human activities which affect all living and non-living things which influence living things in the world and their relations;
 - (d) **Environment Impact Assessment** means the process of systematic study whether or not there are potentials or impact processes that may cause on the physical, human and biological, social and socio-economic of environment which is required as part of the decision making process any project, business, service or activity proposed to carry out;
 - (e) **Third person or organization** means any other person or organization except a person or an organization that implements the project, business, service or activity or a person or an organization that scrutinizes and allows it;
 - (f) **Initial Environmental Assessment** means the initial process which studies whether or not potential impacts of a project, business, service or activity is significant, whether or not it is necessary to carry out environment impact assessment and whether or not it is necessary to prepare and submit stipulated other documents;

- (g) **Environmental Management Plan** means project which expressed methods and plans which carried out to mitigate cause to effect bad or to avoid or to protect cause to effect bad to environment and performance steps by steps of work such as construction, implementation, operation, termination, closure of plan, business, service or activity and any other cause which relevant such performance. Such expression includes the activities relating to environmental conservation and change of environment situation and the prior management in respect of emergency situation relating to environment impact;
- (h) **Form** means the form contained in these rules;
- (i) **Environmental Conservation Officer** means the staff officer and senior officers from the Environmental Conservation Department.

Chapter II

Adopting Policy Relating to Environmental Conservation

3. The Committee shall prepare the necessary policies relating to environmental conservation according to relevant sector in coordination with the suitable organization, person from the relevant Government department, Government organization and private sector and submit to the Union Government. The policies relating to environmental conservation approved by the Union Government shall be released for public awareness by the suitable manners.
4. The Committee shall, if it considers that policies relating to environmental conservation should be amended according to the guidance of the Union Government or at the advice or on the submission of the Ministry or at the advice of the relevant Government department, Government organization, private sector and the public, amend it with the approval of the Union Government.
5. The Ministry shall, when it is necessary to consider, to adopt or amend the policies relating to environmental conservation, submit its finding and advice for adoption or amendment of such policies to the Committee.
6. The Ministry shall implement the Myanmar National Environment Policy and other policies relating to environmental conservation issued by the Committee according to rule 3 with the approval of the Union Government.

Chapter III

Environmental Conservation

7. The Committee shall coordinate the following educational and organizational measures, development activities relating to environmental conservation studies in coordination and cooperation with the relevant Government departments, Government organizations, civil society and private organizations:
- (a) arranging and holding talks relating to environmental conservation in schools;
 - (b) dissemination of knowledge on environmental conservation through media such as newspaper, journal, magazine, periodical, radio, television, internet etc.;
 - (c) drawing and adopting programmes for talks and seminars relating to environmental conservation in urban and rural areas and coordination and carrying out with relevant administrative bodies, school administrators, organizations relating to environmental conservation;
 - (d) carrying out for the development of environmental conservation studies and research works;
 - (e) carrying out educational and organizational activities relating to other environmental conservation.
8. The Committee may carry out the following activities relating to environmental conservation in coordination and cooperation with relevant Government departments, Government organizations, other organizations relating to environmental conservation:
- (a) growing tree, inserting fingerlings and carrying out supporting activities relating to environmental conservation;
 - (b) exhibiting exhibitions; holding competitions, concerts, opera and entertainments relating to environmental conservation;
 - (c) carrying out collective cleansing sanitary;
 - (d) holding commemorative days relating to environmental conservation;
 - (e) carrying out other activities relating to environmental conservation;
 - (f) carrying out for the conservation and safeguarding of endangered species and rehabilitation and regeneration in the habitats.
9. The Committee:
- (a) may advise and encourage to insert and to enable amend, as may be necessary, the lessons on environmental conservation contained in school curriculum to the relevant department;;

- (b) shall scrutinize, from time to time, the situation of implementation in respect of the advice by the relevant Government department, Government organization.
10. The Committee may, if any of the following situations arises, send necessary advices or encouragements to the relevant Government department, Government organization:
- (a) guiding by the Union Government in respect of environmental conservation;
 - (b) asking advice by the relevant Government departments, Government organizations;
 - (c) finding out according to investigation relating to environmental conservation;
 - (d) considering, according to any report or by his own motion, that it is necessary for environmental conservation.
11. The Committee may assign duty to the Ministry to scrutinize whether or not complies with and carries out in accord with the advice or encouragement under rule 10 by the relevant Government department, Government Organization.
12. The Committee, for the conservation and enhancement of environment:
- (a) may ask suitable manner for necessary proposals, advices, and remarks from the relevant Government departments, Government organizations, international organizations, local and international non-governmental organizations, civil society, experts and the public for particular case or generally;
 - (b) may guide to the Department to hold workshops, conference if it is necessary;
 - (c) may accept and obtain the local or foreign technical assistance;
 - (d) may cause maintain the list, using and managing from the Ministry the technical assistances obtained in accord with sub-rule (c);
 - (e) may make causing to obtain technology assistances from local and foreign and giving necessary assistances for enabling to receive so;
 - (f) shall coordinate and carry out to inform to the committee receiving the technology of the relevant government department, government organization which received the technological assistance and the progressive performance situation of work at the time of completion of relevant work or annually.
13. The Committee in respect of occurrence environmental damage or situations which could be damaged environmental;

- (a) may inform to amend and carry out, as may be necessary, within the stipulated period not to cause environmental damage, if it is found that it is occurred because of the Government department, Government organization-owned enterprise, mill, factory, work centre, service or place, to the relevant Government department, Government organization; if it is found that it is occurred because of the private-owned, joint-venture company, factory, , work centre, service or place, to the relevant owner; and to the Government department, Government organization which issues permission, licence, permit, order to operate the work to them;
 - (b) shall inform to the relevant Government department, Government organization to take action until such business is terminated, if it is not complied with information under sub-rule (a) within the stipulated time;
 - (c) shall ask and carry out for the policy from the Union Government and carry out if it is necessary.
14. The Ministry shall implement the relevant work programmes with the whole country or the local work programmes in respect of environmental management with the approval of the Committee.
15. The Ministry shall cooperate and coordinate so as to comply with and carry out in accord with the stipulations the work programmes for environmental management, implemented under rule 14, by the relevant Government departments, Government organizations, Nay Pyi Taw Council, Region or State Government Body, Leading Body of the Self-administered Division or Leading Body of the Self-administered Region, District Administrator, Township Administrator of the General Administration Department or Ward or Village-tract Administrator, private organization and the public.
16. The Ministry:
- (a) shall adopt the necessary programmes, with the approval of the Committee, for the conservation and enhancement of environment, protection, protect, control not to become the environment pollution, decreasing and disappearing of environment pollution and re-conservation;
 - (b) may assign duty to the relevant department and organization under its Ministry or other relevant Government department and Government organization with the guidance of the Committee to implement the programmes contained in sub-rule(a);

- (c) may cause to inspect by forming inspection team in the department or organization under its Ministry or in any relevant other Government department and organization with the guidance of the Committee to monitor and inspect the implementation of programmes contained in sub-rule (a);
 - (d) may tender advice for environmental conservation, as may be necessary, in accord with the guidance laid down by the Committee, if the relevant Government department, Government organization, private organization and persons asks the advice or it considers that it enhancement of environment, protection, control and reduction of pollution in environment, or if it considers that it is necessary.
17. The organization which monitors, inspects and supervises the implementation of the programmes according to sub-rule (c) of rule 16 shall submit the report which relevant the situation of their work performance to the Ministry.
18. The Ministry:
- (a) may assign duty to the Department to prepare and submit the proposals for incentive manners and conditions relations relating to economic which causes least affect the environment or cannot affect the environment for continuously development in addition to legal matters and guidelines which relevant environment;
 - (b) shall scrutinize the proposals submitted by the Department and submit to the Committee with its comment.
19. The Ministry:
- (a) may assign duty to the Department to support in settling such dispute smoothly if any environmental dispute arises between the Government department, Government organization; between Government department, government organization and private, private organization, organization or public; between private, private organizations; between private, private or organization and public;
 - (b) may form each conciliation body, if it is necessary, comprising representatives from the relevant Government department, Government organization, representatives of both parties, and suitable citizens, to conciliate and settle the dispute. Moreover, it may determine the functions and duties of such body;
 - (c) may reform the conciliation body if the formation of the conciliation body is objected, with sufficient reason, by any of the parties to the dispute or by both parties;

- (d) shall submit to and ask for the guidance of Union Government for the disputes which cannot be settled by conciliation body.
20. The Ministry shall, according to the power contained in sub-section (h) of section 7 of the Law, determine the categories of hazardous materials which may significantly affect the environment at the present situation or in the short term or long term in accord with the international conventions and international agreements which relevant environmental conservation accepted by Myanmar, to prohibit import, export, production, storing, transport, selling or buying of them.
21. The Ministry may assign duty to the Department to implement the policies, orders, work programmes and guidelines relating to environmental management, conservation and enhancement which laid down for the matters of protection of ozone layer, biodiversity conservation, conservation of coastal environment, mitigation and adaptation of global warming and climate change, combating against desertification, management of persistent organic pollutants and other environmental matters.
22. The Ministry shall, if the Union Government assign other functions and duties in respect of environmental conservation, implement by the Ministry itself or, if it is necessary, by coordination and cooperation with the relevant Government departments, Government organizations and persons.
23. The Department:
- (a) shall negotiate and draw the relevant short term, medium term, long terms plans with the whole country, relevant region in respect of environmental management and carry out implementation, supervision and scrutinization on implementation with the approval of the Ministry;
 - (b) shall implement the plans for environmental conservation and enhancement, control not to become the environmental pollution, control and decreasing and disappearing to environmental pollution in accord with the guidance of the Ministry;
 - (c) shall monitor on the implementation of the plans and programmes contained in sub-rules (a) and (b), if it is necessary, carry out in cooperation and coordination with other Government departments, Government organizations, non-governmental organizations, and submit the report which relevant the work performance situation to the Ministry.
24. The department shall, after preparing the proposals, submit to the Ministry for incentive manners and conditions relating to economic which causes least affect the

environment or cannot affect the environment for continuously development in addition to necessary legal matters, guidelines which relevant with the environment.

25. The Department shall prepare necessary facts so as to enable to determine the categories of hazardous substances which may affect the environment at the present situation or in the short term and long term in accord with the relevant international conventions, international agreements relating to environmental conservation accepted by Myanmar, to prohibit the import, export, production, storing, transport, selling and buying of them, and submit them to the Ministry.

26. The Department shall also carry out the following functions and duties for conservation of environment:

- (a) collection and compiling of data for the conservation and enhancement of environment, doing research and carrying out training programmes;
- (b) mitigation the climate change and laying down the programmes which carried out in accord with the policy relating to the compliance;
- (c) implementation and carrying out programmes for the dissemination of environmental information and enhancement of environmental awareness;
- (d) managing and carrying out environmental education and information awareness works for enabling teaching environmental subjects in schools and public participation in environmental conservation processes;
- (e) scrutinizing and submitting so as to enable to issue the necessary permissions in respect of business, mill, factory which may affect the environmental quality which would be carried out by the government departments, government organizations, private, private organizations;
- (f) giving remark after scrutinizing on the certificate of the relevant departments and organizations in respect of import, export and transport of hazardous materials which are restricted or prohibited according to international agreements, national existing laws and which may damage the environment;
- (g) determining and issuing guidance relating to environmental impact assessment process;
- (h) drawing environmental impact assessment system and submitting it to the Ministry;
- (i) preparing and submitting state of the environment report for the whole country;

- (j) publishing the state of the environment for the whole country or a regional or a regional or for a particular case to the public in accord with the guidance of the Ministry.

Chapter IV

Cooperation International, Regional and Bi-lateral which relevant Environmental Conservation

27. The Committee may, if it considers that it is necessary to take part in international, regional, bi-lateral agreements, instruments which relevant environmental conservation, assign duty to the Ministry to carry out as may be necessary after submitting to and obtaining approval of the Union Government.

28. For the conservation and enhancement of environment, to perform in accord with the international conventions, regional agreements, bi-lateral agreements which relevant environmental conservation which implemented by Myanmar, the Committee:

- (a) may coordinate and discuss with the relevant Government departments, Government organizations;
- (b) may coordinate for cooperation of the Ministry and the relevant Government departments, Government organizations in implementation.

Chapter V

Environmental Management Fund

29. The Committee, for conservation of environment:

- (a) may accept the donation, aid and other incomes in cash or by account transfer or by any other means;
- (b) shall cause to deposit donation, aid and other incomes contained in sub-rule(a) to the environmental management fund;
- (c) shall expend the environmental management fund only for environmental conservation matters except otherwise decided and carried out by the Committee;
- (d) shall direct the incomes received under sub-rule (a) to make maintenance the list, using inspection and management by the Ministry.

30. The Ministry:

- (a) may determine with the approval of the committee the necessary facts including the amount of money which would be compensated and to

cause compensate by the polluter to environment in environment damage;

- (b) may determine, with the approval of the Committee, to contribute fund by the organizations which obtain benefit from the natural environmental service system and other necessary facts including the amount of money to be contributed for contributing in environmental conservation works from a part of benefits from the business which extract, trade and use the natural resources.

31. The Ministry shall establish the environmental management fund with the following incomes to enable effective implementation of environmental conservation works:

- (a) income received from the State Budget;
- (b) income received by the Ministry in carrying out its functions and duties relating to environmental conservation;
- (c) loan, donation, aid and other official income received by the Committee and the Ministry from inland and abroad;
- (d) compensation by the polluter under sub-section (o) of section 7 of the Law and rule 30, and contribution to environmental conservation fund by the organizations which obtain benefit from the natural environment system and contribution to environmental conservation works funds a part of benefit from business which extract, trade or use the natural resources.

32. The Ministry may assign duty to the Department to carry out for depositing, managing, drawing and using, transfer and keeping accounts of the environmental management fund under rule 31, in accord with the guidance of the Committee.

33. The Department, with the supervision of the Ministry, the environmental management fund:

- (a) shall open and, entrust the drawing account in any State-owned bank;
- (b) shall keep accounts and records separately according to categories of materials, cash donations, aids;
- (c) shall draw and carry out the management in accord with the financial regulation;
- (d) may draw, use, transfer the expenses from the fund.

34. The Department shall carry out depositing to the environmental management fund, keeping accounts, reporting the list to the Ministry monthly.

35. The Ministry may contribute and expend from the environmental management fund for the expenditure for the special matters relating to the

environmental management, conservation and enhancement of environment for the protection of ozone layer, biodiversity conservation, conservation of coastal environment, mitigation of and adaptation to the global warming and climate change, pollution control, management of persistent organic pollutants, doing research and development works relating to environmental conservation and other environmental matters.

Chapter VI Environmental Emergency

36. The Committee:

- (a) shall, if it knows by itself and believes or if it receives sufficient information from the Ministry or any other Government department or Government organization or by any other means that any situation of environmental emergency arises or likely to arise in the Myanmar entire country or Nay Pyi Taw or any Region or State or any area, submit immediately to the Union Government to enable to declare the occurrence of an environmental emergency;
- (b) if it is considered that emergency situation is over, it shall submit to the Union Government to enable to declare the termination of emergency.

37. The Ministry:

- (a) shall prepare, in advance, the emergency response plans in respect of the environmental emergency in coordination with the relevant Government departments and Government organizations;
- (b) shall carry out, as may be necessary, in coordination and cooperation with the relevant Government departments, Government organizations, non-governmental organizations and experts, in accord with the guidance of the Union Government, to enable to prevent environmental damage which is caused or likely to be caused by environmental emergency.

Chapter VII Environmental Quality Standards

38. The Ministry:

- (a) may declare and determine, with the approval of the Union Government and the Committee, by notification, the environmental quality standards contained in sub-section (d) of section 7 and section 10 of the Law for conservation and enhancement of environment for the whole country,

or for any area or urban or rural area, river, stream, lake or any part of them;

- (b) may coordinate and cooperate, as may be necessary, with the relevant Government department, Government organization which is assigned duty to determine standard, other Government departments, Government organizations, Nay Pyi Taw Council, Region or State Governments, City Development Committees, local development bodies and the relevant non-governmental organizations in determining the environmental quality standards under sub-rule (a);
- (c) may amend such determination under sub-rule (a), as may be necessary, for the interest of the public according to the time and location;
- (d) may carry out, as may be necessary, for the observance of and carrying out the stipulations for environmental quality standard issued under sub-rule (a), by the public in addition to the relevant Government departments, Government organizations.

39. The Department:

- (a) shall coordinate, with the relevant Government department, Government organization, other Government departments, Government organization, Nay Pyi Taw Council, Region or State Governments, City Development Committees and local development bodies, relevant non-governmental organizations which is assigned duty to determine standard, as may be necessary, and prepare the facts relating to environmental quality standard, for enabling to determine the environmental quality standard by the Ministry under sub-rule (a) of rule 38 and submit to the Ministry;
- (b) may carry out necessary special inspections, or surveys at necessary times, periods and locations to enable to determine environmental quality standards.

Chapter VIII

Management of Urban Environment

- 40. (a) The Ministry may give, as may be necessary, advice for environmental conservation, if the relevant Government departments, Government organizations, private, Private organizations and persons ask for advice for the management of urban environment contained in section 17 of the Law in accord with the guidance laid down by the Committee, or if it considers necessary to give advice;

- (b) The Department shall submit to the Ministry, with its comment, if it is necessary to give advice for the management of urban environment.

Chapter IX

Waste Management

41. The Ministry, in carrying out industries, agricultural businesses, mineral explorations, livestock breeding and fisheries, waste disposal and other works, shall determine and coordinate with the relevant government department or organization, categories and classes of hazardous wastes which may come out from producing or using chemicals or other hazardous materials.

42. The Ministry, to enable to promote the establishment of necessary facilities or centres for the treatment of solid waste, liquid waste and emissions which contain poisonous and hazardous materials, in cooperation with the relevant Government departments, Government organizations, experts:

- (a) shall cause to carry out waste treatment by the categories of business which emit or produce solid wastes, liquid wastes, emissions, radiations which contain poisonous and hazardous materials which determined by establishing their own facility or centre, or collective facility or centre;
- (b) shall determine the period to establish waste treatment facilities or plants by the businesses which are established before the issue of these rules and which are responsible to establish their own or collective waste treatment facility or plant;
- (c) may assign duty to the Department to inspect and report whether or not comply with as contained in sub-rule (a) relating to the waste treatment by the relevant businesses.

43. The Ministry:

- (a) may determine terms and conditions for treatment of effluent in industrial areas, special economic zones and other necessary areas and buildings, and terms and conditions relating to emissions of machine, vehicle and machineries;
- (b) may prescribe manners for supervision relating to confiscation, storing, keeping safety measures, transport, import, export of disposed hazardous material, management, treatment and disposal of such material by high technology;
- (c) may adopt necessary better measures relating to the maintenance, store, transport and destruction of solid waste in coordination with the relevant Government departments and Government organizations;

- (d) may adopt manners for cleaner production mechanisms and recycling of natural resources and wastes in industries and businesses.

44. The department shall coordinate and prepare, in carrying out industry, agricultural business, mineral exploration, livestock breeding and fishery, waste disposal and other works, the categories and classes of hazardous wastes which may come out from producing or using chemicals or other hazardous materials with the relevant government departments, government organizations, if it is necessary, suitable non-governmental organizations, in accord with the guidance of the Ministry and submit to the Ministry.

45. The Department shall inspect whether or not the business which are responsible to establish waste treatment facility or centre under rule 42 comply with the stipulations in respect of waste treatment and carry out, and submit in accord with the guidance of the Ministry.

46. The Department:

- (a) shall prepare terms and conditions for treatment of effluent in industrial areas, special economic zones and other necessary areas and buildings, and terms and conditions relating to emissions of machine, vehicle and machineries and submit to the Ministry;
- (b) shall prepare manners for supervision relating to confiscation, storing, keeping safety materials, transport, import, export of disposed hazardous materials, management, treatment and disposal of such material by advanced technology and submit to the Ministry;
- (c) shall cause to implement and supervise the measures adopted by the Ministry for the betterment of the destruction, keeping, store, and transport of solid waste;
- (d) shall submit to the Ministry after inspecting whether or not the manners adopted by the Ministry for cleaner production mechanisms and recycling of natural resources and wastes are complied with and applied in industries and businesses.

Chapter X

Conservation of Natural Resources and Cultural Heritages

47. The Department:

- (a) shall scrutinize, as may be necessary, in accord with the guidance of the Union Government and the Committee, the situation of performance

relating to conservation of natural resources, management, beneficial use, sustainable use, enhancement of regional cooperation contained in section 18 of the Law which carried out by the relevant Government departments or Government organizations, and report to the Ministry;

- (b) shall, in carrying out matters contained in sub-rule(a), coordinate and carry out with the relevant government department and government organizations not to deplete the habitats or natural plants and living things.

48. The Ministry may carry out and assign duty to the Department for such cooperation and carrying out with the relevant Government departments, Government organizations in the matters of environmental conservation for the perpetuation of cultural heritage areas, natural heritage areas, cultural monuments and buildings, and natural areas stipulated under any existing law.

49. The Ministry may assign duty to the Department to cooperate with the relevant Government departments and Government organizations for making proper land use for the perpetuation of natural resources and cultural heritages contained in section 18 of the Law.

50. The Ministry may communicate, coordinate and carry out with the international organizations, as may be necessary, to enable to obtain necessary technology, skill assistance for the perpetuation of natural resources, cultural heritages.

Chapter XI

Environment Impact Assessment

51. The Ministry may assign duty to the Department for enabling to adopt and carry out the environment impact assessment system.

52. The Ministry shall determine the categories of plan, business, service or activity which shall carry out environmental impact assessment.

53. The Ministry may, so as to scrutinize whether or not it is necessary to conduct environment impact assessment, determine the proposed plans, businesses, service or activities which do not include in stipulation under rule 52 as the categories which are required to conduct initial environmental examination.

54. The business, department, organization or person who would carry out categories of plan, business, service or activity stipulated under rule 52:

- (a) shall conduct environment impact assessment for his plan, business, service or activity;

- (b) submit to the Ministry in advance by which organization person or third person, the environment impact assessment is intended to be carried out;
 - (c) submit the environmental impact assessment report to the Ministry.
55. The government department, organization or person which carry out the plan, business, service or activity which are responsible to carry out environmental impact assessment or initial environment examination which is established before the issue of these rules;
- (a) shall submit to the Ministry, after drawing environment management plan in accord with the procedure relating to the environmental impact assessment.
 - (b) shall implement and carry out the environment management plan which approved and scrutinized by the Ministry and the stipulations to comply with within the time stipulated by the Ministry.
56. The person who carries out any project, business, service or activity shall arrange and carry out for conducting the environmental impact assessment for the project, business or activity by a qualified third person or third party accepted by the Ministry.
57. The Ministry shall, on submission to the Ministry in advance by which organization or third person, the environment impact assessment is intended to be carried out under sub-rule (b) of rule 54, determine and decide, after making scrutiny by the Ministry, whether or not it is suitable level of international organization or third person to carry out the environmental impact assessment. The decision of the Ministry relating to such matter is final and conclusive.
58. The Ministry shall form the Environmental Impact Assessment Report Review Body with the experts from the relevant Government departments, Government organizations for reviewing the Environment Impact Assessment.
59. If the private persons are included in the Environment Impact Assessment Report Review Body, honorariums, allowances and aids for them may be borne from the environmental management fund.
60. The Ministry may assign duty to the Department to scrutinize the report of environment impact assessment prepared and submitted by a third person or organization relating to environment impact assessment and report through the Environment Impact Assessment Report Review Body.
61. The Ministry may approve and reply on the environment impact assessment or environmental management plan with the guidance of the Committee.

Chapter XII Prior Permission

62. The Ministry shall determine and declare the categories or business, workplace or factory which may affect necessary environmental quality to obtain prior permission after obtaining the approval of the committee and the agreement of the Union Government.
63. The owner or person in possession of the category of business, workplace, or mill or factory stipulated under section 21 of the Law and rule 62 shall apply to the Ministry in the application (Form-1) to issue the prior permission.
64. The Ministry shall, if the application for prior permission is allowed after scrutiny, issue the prior permission in (Form-2) by prescribing terms and conditions to be followed. The business, workplace, mills or factories which are issued prior permission shall be registered and kept records.
65. The Ministry may, if it refuses any application to issue prior permission as it is not in conformity with the stipulations, as may be necessary, securitize and allow to reapply for the issue of prior permission if it has carried out completely in conformity with such stipulations.
66. The Ministry, in issuing prior permission, whether or not it is complied with the stipulated terms and conditions:
- (a) may assign duty to the Department to scrutinize and submit;
 - (b) may inform to the relevant Government department or Government organization to scrutinize and reply.
67. The persons who desirous to carry out work of investment project shall carry out to obtain the prior approval of the Ministry in accord with whether or not it affects the environment.
68. For the goodness of environmental management, the small-scaled private enterprises, mills and factories which are not included in the categories stipulated under rule 52 and 53 and 62 shall obtain the agreement of the Department in accord with whether or not it affects the environment, before applying for permission, licence to the relevant Ministry to construct or operate the business.

Chapter XIII Prohibitions

69. (a) Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants to environment and the hazardous waste or hazardous material stipulated by notification under

the Law and any of these rules at any place which may affect the public directly or indirectly.

- (b) Any person shall not carry out the actions which can be damaged to natural environment which is changing due to ecosystem and such system, except the permission of the relevant Ministry in order to the interest of the public.

Chapter XIV
Miscellaneous

- 70. The Committee may coordinate, cooperate and carry out to keep contact person or division in accord with environment conservation matters in the relevant Government departments, Government organizations to enable to cooperate and carry out according to sector-wise in the works of environmental conservation.
- 71. The Ministry may give record or certificate of honour for the goodness of environmental management to the city, place, mill, factory, work etc, which is good in environmental management.
- 72. The functions and duties determined to be carried out by the Department under these rules shall be carried out by the Environmental Conservation Department under the Ministry of Environmental Conservation and Forestry.
- 73. The environmental Conservation Department may carry out its functions and powers, by conferring, to the officer-in-charge of the relevant Region or State Environmental Conservation department, as may be necessary.
- 74. Any person who finds the commission of any act or the violation of any prohibitions which may affect the environment may, for environmental conservation, inform to the relevant Township General Administration Department or relevant department, organization or the ward or village-tract administrator.

(Sd.) Win Tun
Union Minister
Ministry of Environmental Conservation and Forestry

5-11

Application to Issue the Prior Permission
(Rule 63)

To
Union Minister
Ministry of Environmental Conservation and Forestry

Dated:.....th,.....

Subject: Application to issue the prior permission

- 1. I, (U/Daw/Mr./Ms.....), residing in(Country)..... Region/StateDistrict..... Township.....City.....Ward/Village-tract apply to issue the prior permission according to rule 64 of the Environmental Conservation Rules as I am desirous to do the business expressed in article 2.
- 2. The relevant facts are submitted as follows:
 - (a) Name of the applicant owner:
 - (b) Name of Father:
 - (c) Number of Citizen Scrutiny Card/ Passport :
 - (d) Place of issue of Citizen Scrutiny Card/Passport:
 - (e) Citizen / Nationality:
 - (f) Place of Birth:
 - (g) Address:
 - (i) local address if he is a citizen:
 -
 - (ii) address in the relevant country if he is a foreigner:
 -
 - (iii) address residing in Myanmar if he is a foreigner:
 -
 - (h) Type of business for which prior permission shall be obtained:.....
 -
 - (i) Address of work/ work site/factory/workstation:
 -
 - (J) Copy of the document registering as a company or organization if it is a company or organization, as attachment.

(K) Copy of the permission, licence, permit etc., if they were obtained from other Government department, Government organization relating to the business, as attachment.

Applicant / Owner

(Mr./ Ms.)

5 - 12

Prior Permission
(Rule 64)

Subject: Issuing the Prior Permission

1. Relating to the matter of application to issue prior permission for enabling to do business expressed in article 2, by *U/Daw/Mr./Ms.*.....residing in *(Country)*.....*Region/State**District*.....*Township**City*..... *Ward/Village-tract*, it is hereby issued the prior permission under rule 64 of the Environmental Conservation Rules by stipulating to follow and implement the terms and conditions expressed in article 3.
2. The facts relating to the business:
 Type of the business for which prior permission shall be obtained

 Address of the work/ work site/factory/workstation:.....

3. Terms and conditions which shall be followed and implemented:
 - (a) The money stipulated by the Ministry shall be paid as compensation if the environment is caused to pollute;
 - (b) The money stipulated by the Ministry shall be contributed if the benefit is obtained from the natural environmental services system;
 - (c) If it is a business which explores and exploits the natural resources, a part of benefit shall be contributed to the environmental management fund as stipulated by the Ministry for environmental conservation.
 - (d)
 - (e)
 - (f)



For the Union Minister,
(Person who is authorized to issue prior permission)

APPENDIX 5-2 Work Plan

**(Environmental and Social Consideration for Irrigation
Development Project in Western Bago Region)**

THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF AGRICULTURE AND IRRIGATION
IRRIGATION DEPARTMENT
INVESTIGATION BRANCH

Work Plan
Environmental and Social Consideration for
Irrigation Development Project in Western Bago Region
Year-I (2015-2016)

26th December 2014
SOIL SURVEY SECTION

Location Map

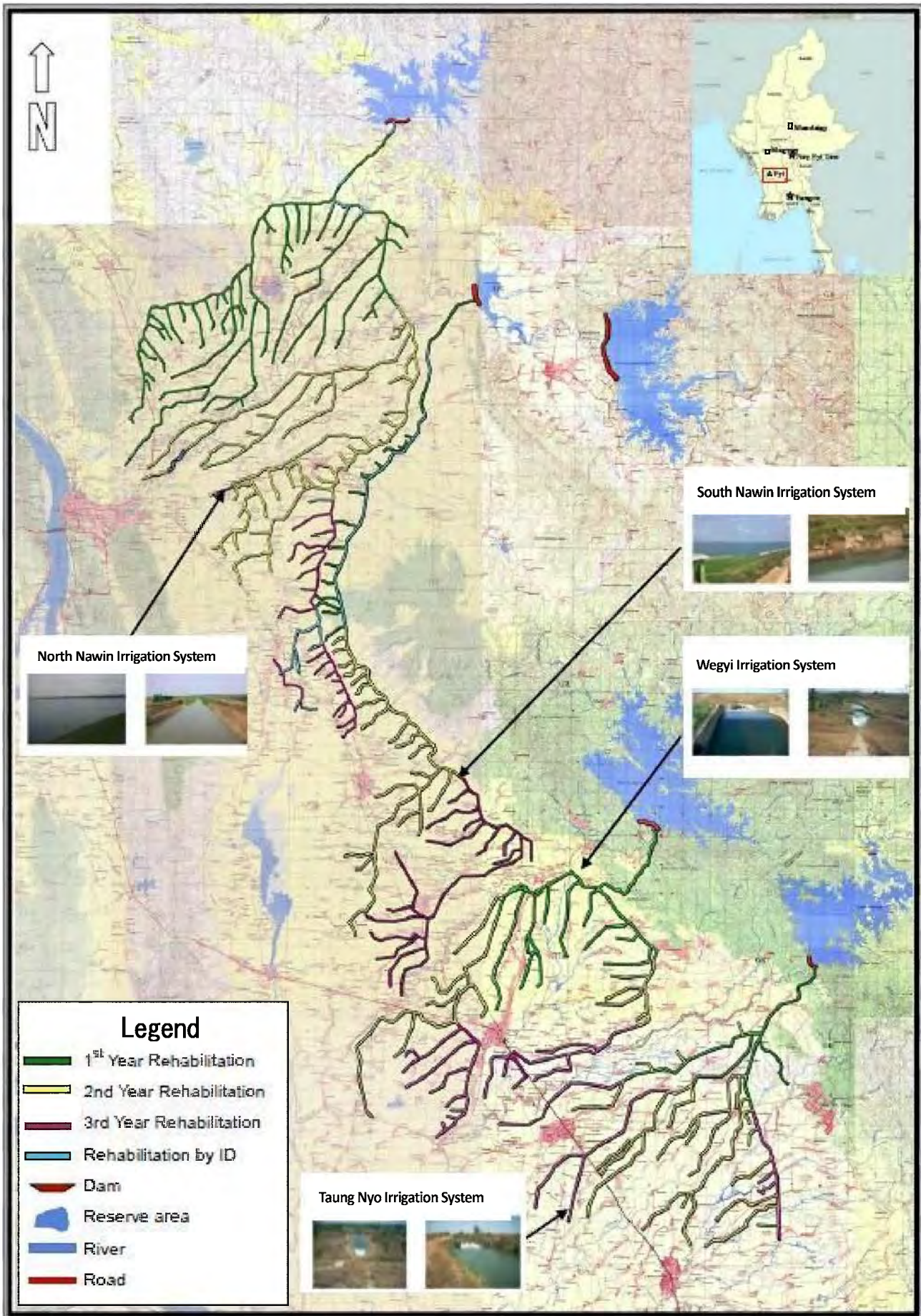


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List of Acronyms and Abbreviations

Con(2)	Construction Circle (2)
ICB	International Competitive Bidding
ID	Irrigation Department
JICA	Japan International Cooperation Agency
JV	Joint Venture
LA	Loan Agreement
LCB	Local Competitive Bidding
MAOI	Ministry of Agriculture and Irrigation
MDBW	Maintenance Division, Bago West
PIC	Project Implementation Committee
PMU	Project Management Unit

1. Introduction

In the economy of Myanmar, agriculture has been playing a key role in terms of food production and supply, exports and employment and, therefore, the government has been exerting efforts to improve irrigation facilities to support the agricultural sector. However, such efforts have not been proceeding as intended due to funding constraints especially on large capital investment projects. As a result, the irrigation rate remains low as compared to nearby ASEAN countries. For this reason, Japan International Cooperation Agency (JICA) intends to extend soft loan to finance an irrigation development project in Myanmar.

The outline of the irrigation project to be funded by JICA Yen Loan is as follows:

- 1) Project Name
 - Irrigation Development Project in Western Bago Region
- 2) Project Objective
 - To increase agricultural production by developing irrigation systems in Western Bago Region, thereby contributing to the improvement of the standard of living farmers in the Region as well as contributing to the economic development of Myanmar
- 3) Project Site
 - North Nawin Irrigation System in Pyay District of Bago Region
 - South Nawin Irrigation System in Pyay District of Bago Region
 - Wegyi Irrigation System in Pyay District of Bago Region
 - Taung Nyo Irrigation System in Thayawaddy District of Bago Region
- 4) Project Scope
 - Civil and structural works for development/ improvement/ rehabilitation of irrigation facilities such as main and secondary canals, maintenance roads, ancillary structures to be undertaken on a force-account basis, procuring required machinery/equipment/materials through local competitive bidding (LCB)
 - Procurement of machinery/equipment such as excavators, bulldozers, agricultural machines through international competitive bidding (ICB)
 - Consulting services for detailed design, tendering assistance, construction supervision to be selected by short-list method.
- 5) Project Schedule
 - 58 months from March 2014 through March 2018, when the final components of the Project i.e. the Wegyi and Taung Nyo Irrigation Systems will be completed
- 6) Executing Agency
 - Irrigation Department (ID), Ministry of Agriculture and Irrigation (MOAI)

The Irrigation Department (ID) of the Ministry of Agriculture and Irrigation (MOAI), the executing agency of the Project, has limited experience in the implementation of projects financed under ODA including JICA. The latest project assisted by JICA in the country was, the South Nawin Irrigation System signed in 1984. Further, as the Irrigation Development Project will be executed on a force-account basis, capacity of staff that will be involved in construction supervision is a concern.

Since detailed design is available, construction work of the North and South Nawin Irrigation Systems will commence even before the mobilization of the consultant, to be employed under the JICA Yen Loan with TOR including implementation support and construction supervision, which is expected to be around March – April 2015. Accordingly, it has become necessary to support the Irrigation Department (ID) to ensure proper project management including procurement/ fund administration and construction supervision until the consultant under JICA Yen Loan is mobilized.

2. Objective of the Service

The expected outcomes of the JICA consulting service are:

- Proper and efficient project management by the Project Implementation Committee (PIC) to be established in the Irrigation Department (ID) by way of clearly defining roles and responsibilities of PIC and facilitating proper understanding of such roles and responsibilities by the staff concerned.
- Proper and efficient project management by the Project Management Unit (PMU) to be established in the regional office of the Irrigation Department (ID) by way of clearly defining roles and responsibilities of PMU and facilitating proper understanding of such roles and responsibilities by the staff concerned.
- Proper and efficient procurement of equipment and construction materials and proper administration of JICA Yen loan funds during the implementation of the North and South Nawin Irrigation Systems components of the Project.
- Enhanced construction supervision capability of the Irrigation Technology Center (ITC) including inspection of and appropriate guidance to works being undertaken by the construction unit of the Irrigation Department (ID) with respect to quality, safety, operation and performance.
- Enhanced capability of the Investigation Branch of the Irrigation Department (ID) with respect to environmental and social considerations.

3. Objective of Environmental and Social Impact Assessment

- (1) To monitor and assess environmental and social impacts of the proposed project.
- (2) To measure air pollution; noise and vibration during project implementation.
- (3) To generate baseline data for monitoring and evaluation of how well the mitigation measures will be implemented during the project cycle.
- (4) To recommend cost effective measures to be implemented to mitigate against the expected impacts.
- (5) To prepare an Environmental Impact Assessment Report.
- (6) To provide guidelines to stakeholders participating in the mitigation of adverse social impacts of the project.

4. Locations of Field Work

- (1) North Nawin Irrigation System Rehabilitation Project, Bago Region (2015-2017)
- (2) South Nawin Irrigation System Rehabilitation Project, Bago Region (2015-2017)

(3) Wegyi Irrigation System Rehabilitation Project, Bago Region (2016-2018)

(4) Taung Nyo Irrigation System Rehabilitation Project, Bago Region (2016-2018)

5. Capacity Building for Environmental and Social Considerations

The Investigation Branch of ID carries out topographic survey and construction site survey in the formulation of project implementation plan. They also conduct investigations on soil material used for construction. The Investigation Branch of Yangon Office is in charge of all concerns related to environmental and social considerations in this Western Bago Project. The monitoring team will confirm with the staff of the Yangon Office the environmental and social considerations of the Project, the method of research to be undertaken, required equipment, as well as the relevant rules and regulations on social and environmental considerations in Myanmar.

Since ID staff do not have sufficient experiences in investigating environmental impacts, the Team will share and explain necessary information and knowledge to concerned officers of ID such as Director, Deputy Director, Assistant Director, Staff Officer, Sub-Assistant Engineers and so on of the Investigation Branch so that the Project's activities will be implemented smoothly and effectively.

As for equipment to be utilized for the environmental impact survey the Team will assist procurement arrangement of such equipment after detailed discussion with ID and JICA.

6. Environmental Management and Monitoring Plan

Investigation Branch is responsible for monitoring environmental and social considerations. The Team will initially confirm staff arrangement together with the required survey items of the environmental management under the monitoring plan. The Team will also confirm the responsibility and tasks of assigned staff. The following items are subjected to monitoring.

Monitoring Item	Frequency	Responsible Agency
Government response to comments from residents	-	Con(2) and MDBW
Air Pollution (SO ₂ , CO, SPM, NO ₂ , Ox)	Once a month	Investigation Branch
Wastes	Every day	Con(2) and MDBW
Noise / Vibration	Once a month	Investigation Branch
Working environment (including working safety) / Accident	Every day / designated day	Con(2) and MDBW

The Con (2), which is in charge of construction, will monitor items such as; i) government response to comments from residents ;ii) waste; and iii) working environment (including safety) and accident while the Investigation Branch will monitor the items on; iv) air pollution; and v) noise/ vibration. The Team will support staff who will actually conduct monitoring at the field level on a regular basis.

Monitoring Item	Unit	Referred Japanese Standards	Specification of Portable Device
SO ₂	ppm	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	Detectable range : 0 ~ 20 ppm Resolution capability : 0.1 ppm
CO	ppm	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	Detectable range : 0 ~ 1,000 ppm Resolution capability : 1 ppm
SPM	mg/m ³	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	Resolution capability : 0 ~ 0.5mg/m ³

NO ₂	ppm	average daily less or equal 0.04 - 0.06ppm/hr	Detectable range : 0.001 ~ 0.5 ppm Resolution capability : 0.001 ppm
Ox	ppm	less or equal 0.06ppm/hr	Detectable range : 0 ~ 0.25 ppm Resolution capability : 0.025 ppm
Vibration	dB	85	Detectable range : 30 ~120 dB
Noise	dB	75	Detectable range: 30 ~130 dB Resolution capability : 0.1 dB
Wind	-	Anemometer	-

7. Confirmation and Procurement Support of the Necessary Equipments

As for monitoring of air pollution, five substances are targeted to be measured. Portable instruments or equipment will practically be applicable to detect these five substances. The Team will exchange knowledge and opinions with JICA as well as ID about required specifications of instruments or equipment and its method of procurement. It is considered that these instruments or equipment shall be procured not later than the construction commencement which is targeted at the beginning of June 2014.

Noises can be also measured by a portable instrument with a capacity to measure up to 85db which is regulation value of the noise measurement standard. Portable instrument is applicable for vibration measurement which can detect 75dB of the noise measurement standard. Measurement results of air pollution and noise will be affected not only by wind but also by its speed and directions at measuring points. This is why availability of wind data from relevant government offices shall be examined and confirmed. If it is difficult to obtain such information, procurement of anemometer will be considered.

8. Environmental Monitoring during Project Implementation

Based on the implementation work plan and monitoring plan made by ID, regular monitoring will be carried out. The Team will support the Investigation Branch to comply with regular checking procedures described in operation and maintenance manuals of instruments in order to prevent malfunctioning during monitoring period. The surveyor of the Investigation Branch will have to visit West Bago and conduct measurement once a month.

Daily monitoring is required for investigation of construction waste and working conditions. Since rehabilitation sites of irrigation networks are scattered widely in the project area, working places and working conditions differ. In addition, heavy rain will cause muddy construction condition especially at the later part of construction period. There will be on the average three construction sites in an irrigation system; therefore, the monitoring staff shall be divided into three teams.

Under such situation, the Team will support ID to set up monitoring regulation and standard to prevent as much as possible personal equation or biases. Appropriate measurement can avoid errors and biases, and then ID can comply with rules and regulations of environmental and social considerations in this Project.

9. Monitoring and Interpretation of the Result

Air pollution, noise and vibration is usually measured within 200 meters away from construction site except in cases where there are proximate private houses. If there is a private house near construction site, measurement shall be done in the private house area. And also air pollution is measured within

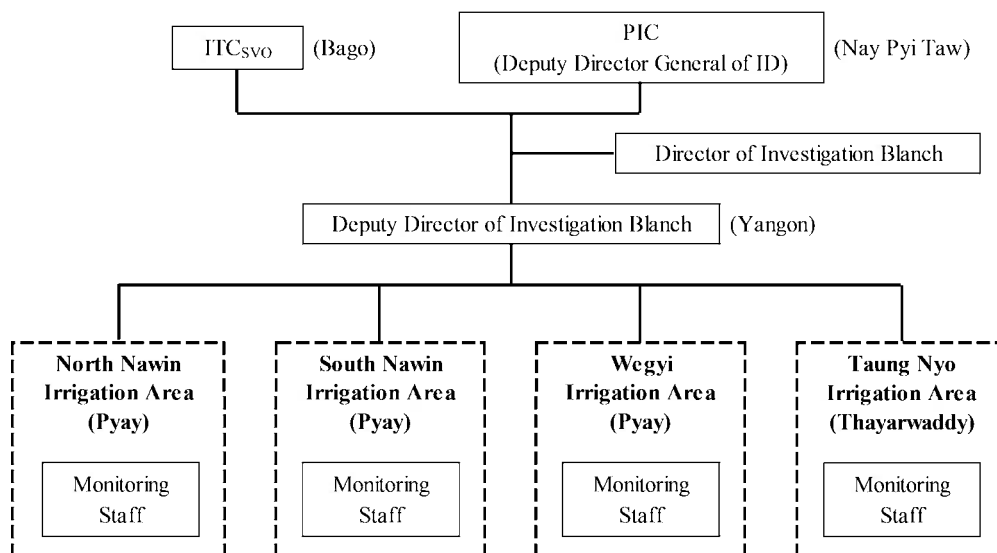
10~20m from side of the road. Measurement height is about 1.5m from the ground except the SPM. The measurement height should be more than 3m from the ground, if possible. Because the wind raise the SPM. Measurement of noise should be stopped at the rainy day and/or when the wind speed is more than 1m/s.

It is planned that the construction area will be moved as it progresses, and some construction teams are arranged for one irrigation system. It is assumed that the place of measurement is not fixed and at least six ~ twelve (6~12) places are required to be measured in two ~ four (2~4) irrigation systems. Since the project sites are widely spread, monitoring locations are required to be always displayed and confirmed on the map. The Team will support compilation of these monitoring data and information utilizing computer software and analysis of the result of monitoring which will be included in the project report. **The results of the monitoring Plan will be reported to JICA, by filling in the Environmental Monitoring Form quarterly during construction, and annually during 2 years after construction as part of progress reports.**

10. Monitoring Systems

(1) Investigation Branch

Monitoring system of Investigation Branch is as follows;



Monitoring staff of Investigation Branch is as follows;

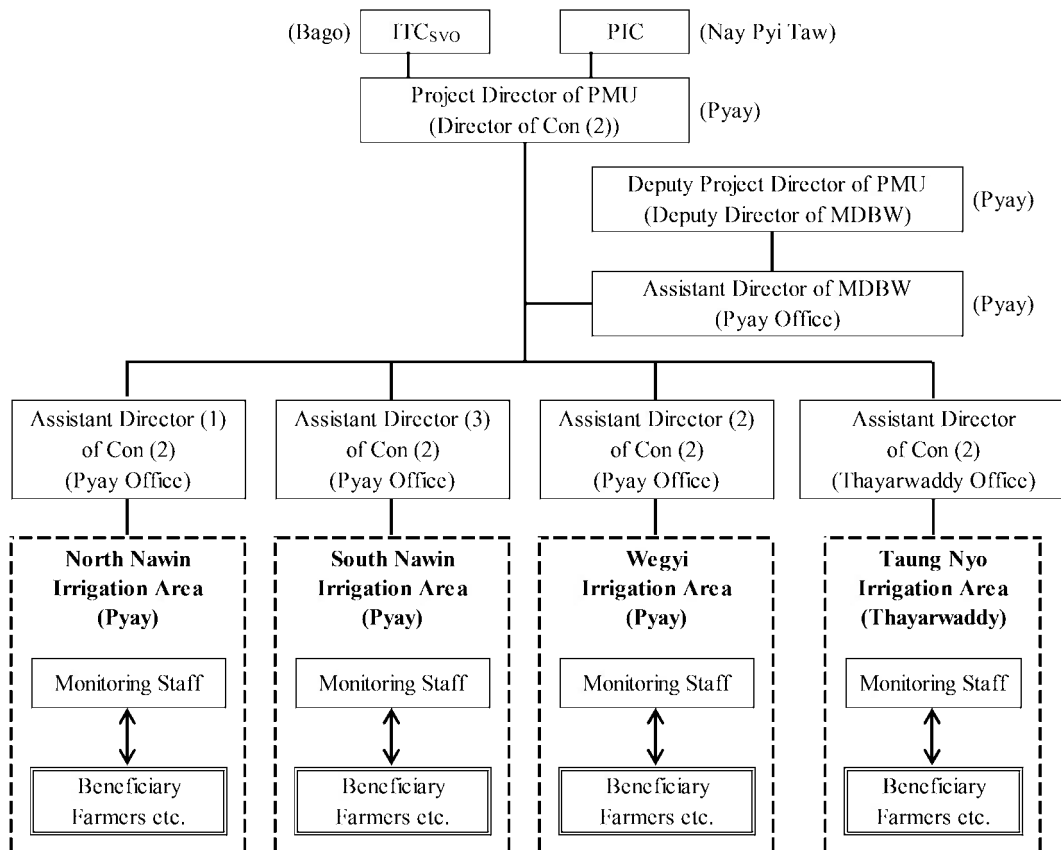
Name of Staff	Position	Organization
U Phyo Wai	Staff Officer (SO), soil	Investigation Branch, ID
U Htay Kywe	Special Sub Assistant Engineer (SSAE), soil	ditto
Daw Tin Aye Khine	Sub Assistant Engineer (SAE), soil	ditto
U Min Kyaw Htike	Engineer Survey (ES), soil	ditto
U Myo Kyaw Aung	ES, soil	ditto
Daw Hla Myo Nwe	ES, soil	ditto

In case of the large number of construction sites will be widely spread, staff of Con(2) &

MDBW will assist the staff of Investigation Branch for monitoring of air pollution, Noise and vibration.

(2) Con(2) and MDBW

Monitoring system of Con(2) & MDBW is as follows;



The number of construction site and place will not be fixed. Monitoring staffs (SO or SSAE or SAE or ES) will be appointed depending on the situation. And Assistant Director will correct the result of monitoring for each site. Monitoring staffs of Con(2) & MDBW will assist the Investigation Branch, if required.

Project	Construction site	Position	Organization
North Nawin Irrigation Project	Site 1	SO or SSAE or SAE or ES	Con(2) or MDBW (Pyay Office)
	Site 2	ditto	
	Site 3	ditto	
South Nawin Irrigation Project	Site 1	SO or SSAE or SAE or ES	Con(2) or MDBW (Pyay Office)
	Site 2	ditto	
	Site 3	ditto	
Wegyi Irrigation Project	Site 1	SO or SSAE or SAE or ES	Con(2) or MDBW Pyay Office
	Site 2	ditto	
	Site 3	ditto	
Taung Nyo Irrigation Project	Site 1	SO or SSAE or SAE or ES	Con(2) or MDBW (Pyay or Thayarwaddy Office)
	Site 2	ditto	
	Site 3	ditto	

Con(2) should inform Investigation Branch & MDBW about construction schedule, place of construction site, construction equipment and safety control etc. during construction.

11. Restraint of Air Pollution / Vibration / Noise

Constructor (Con(2)) is required to restrain the air pollution, vibration and noise from construction equipment. The following measures are effective in pollution control.

- Limitation for immoderate engine speed of construction equipment.
- Limitation for working time of construction equipment.
- Limitation for working range of construction equipment.
- Limitation for traffic of dump trucks.
- Periodic maintenance of construction equipment.
- Education for operator (construction equipment, dump truck etc.)
- Leveling of maintenance road and temporary road.
- Leveling of construction site.
- Briefing of construction for residents.

12. Monitoring Form

Table Monitoring Form (For the Project Construction Phase)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public		Con (2) and MDBW
Number and contents of responses from the people		Con (2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm			-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	Once per month	Investigation Blanch
CO	ppm			-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	Once per month	Investigation Blanch
SPM	mg/m ³			-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	Once per month	Investigation Blanch
NO ₂	ppm			-	average daily less or equal 0.04 - 0.06ppm/hr	Once per month	Investigation Blanch
Ox	ppm			-	less or equal 0.06ppm/hr	Once per month	Investigation Blanch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
<p>Wastes</p> <p>In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of distributary canals, and re-use the dilapidated concrete portions of NN access road for basement of concrete pavement. Further, remaining ones which can not be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.</p>			Every day	Con (2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB			-	85	Once per month	Investigation Blanch
Vibration	dB			-	75	Once per month	Investigation Blanch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.			First time of the construction work.	Con (2) and MDBW
Safety check for refueling car accessing the work sites.			Every day.	Con (2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.			Last time of the construction work.	Con (2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.			Every day	Con (2) and MDBW
Installation of project sign board around the field.			First time of the construction work.	Con (2) and MDBW

APPENDIX 5-3 Record of Stakeholder Meeting (Photograph)

1. North Nawin Irrigation Project

Date: December 13, 2014 / Venue: Briefing Hall of North Nawin Irrigation Project

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation / Observed by: JICA Project Team



2. South Nawin Irrigation Project

Date: December 16, 2014 / Venue: Briefing Hall of South Nawin Irrigation Project

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation / Observed by: JICA Project Team



3. Wegyi Irrigation Project

Date: December 18, 2014 / Venue: Paung De Township Hall

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation / Observed by: JICA Project Team



4. Taung Nyo Irrigation Project

Date: December 19, 2014 / Venue: Briefing Hall of Taung Nyo Irrigation Project

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation / Observed by: JICA Project Team



APPENDIX 5-4 Attendant List of Stakeholder Meeting

1. North Nawin Irrigation Project
1-1. Attendant List of Participant (Original)

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(North Nawin Irrigation Project)

Date: December 13, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
1	ဒေါ်မြင့်ဆွန်းလတ်	ဒုတိယအဖွဲ့ဝင်	ဘဏ်မြန်မာ (၀၁-၁၁၇၂)		-
2	ဒေါ်ဇော်စိန်	ဒုတိယအဖွဲ့ဝင်	"		-
3	ဒေါ်နီအောင်	"	ဘဏ်မြန်မာ (၀၁-၁၁၇၂)		
4	ဒေါ်အောင်မြင်	အထွေထွေအဖွဲ့ဝင်	ဘဏ်မြန်မာ (၀၁-၁၁၇၂)		
5	ဒေါ်စန်းစန်းစိန်	"	"		
6	ဒေါ်မြင့်သန်း	"	ဘဏ်မြန်မာ (၀၁-၁၁၇၂)		
7	ဒေါ်ခင်အေး	ဒုတိယအဖွဲ့ဝင်	ဘဏ်မြန်မာ (၀၁-၁၁၇၂)		
8	ဒေါ်အောင်အောင်	"	"		
9	ဒေါ်အေးအေး	"	"		
10	ဒေါ်စန်းစန်း	"	စက်မှုဥစ္စာဦးစီးဌာန		
11	Mr. Thein Win	Planning Officer	Planning (JICA)		
12	Mr. Aung Mye	ရေ/ကျွန်းရေး	ရေ/ကျွန်းရေး		

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(North Nawin Irrigation Project)

Date: December 13, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
13	ဒေါ်အေးအေး	ရေ/ကျွန်းရေး	ရေ/ကျွန်းရေး		
14	ဒေါ်အေးအေး	စက်မှုဥစ္စာ	စက်မှုဥစ္စာ		
15	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
16	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
17	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
18	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
19	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
20	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
21	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
22	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
23	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		
24	ဒေါ်အေးအေး	ဒုတိယအဖွဲ့ဝင်	စက်မှုဥစ္စာ		

1-2. Attendant List of Participant (English)

Attendant List of Participant Stakeholder Meeting for Irrigation Development Project in Western Bago Region (North Nawin Irrigation Project)

Date: December 13, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone
1	U Myint Htun Latt	Director	Irrigation Department,con: 2	
2	U Ko Ko Htay	Deputy Director	Irrigation Department,con: 2	
3	U Soe Aung	Deputy Director	Irrigation Department, Maintainance Division	
4	U Hla Winn Myint	Assistant Director	Irrigation Department,con: 2	
5	U Tin Maung Wai	Assistant Director	Irrigation Department,con: 2	
6	U Myint Thaug	Assistant Director	Irrigation Department, Maintainance	
7	U San Thein	Staff Officer	Irrigation Department,con: 2	
8	U Aung Kyaw Oo	Staff Officer	Irrigation Department,con: 2	
9	U Winn Kying	Staff Officer	Irrigation Department,con: 2	
10	U Winn Zaw Aung	Staff Officer	Water Resource Utilization Dept:	
11	U Thet Zin Aung	Planning Officer	Planning Department	
12	Daw New Mar Ohnn	Accountant	Livestock & Treatment Department	
13	U Aye Soe	Assistance Vaterinary Surgon	Livestock & Treatment Department	
14	U Htay Myint	Forester	Department of Forestry	
15	U Myint Kyu	Sub -Assistance Engineer	A.M.D	
16	U Tin Ohnn	Staff Officer		
17	U Kyaw Swe	Sub -Assistance Engineer	Department of Agriculture	
18	U Myint Thu	S.A.E	S.L.R.D	
19	Daw Myint Myint Aye	Staff Officer	Dept: of Agriculture (Paukkhaung)	
20	Daw Myint Swe	Staff Officer	Irrigation Depaertment (Paukkhaung)	
21	U Thura	Assistant Director	Water Resource Utilization Dept:	
22	U Aye Kyu	Staff Officer (Pyay)	Irrigation Department (Maintainance)	
23	U Aung Aung	Assistant Director	Administrator(Pyay Township)	
24	U Aung Kyaw Oo	Member	Township Support Team	

S.L.R.D= Settlement and Land Record Department

A.M.D= Agricultural Mechanizing Department

1-3. Attendant List of Stakeholder (Original)

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(North Nawin Irrigation Project)

Date: December 13, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Briefing Hall of S.N.I.P Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
1	ဦးစိုးလွင်	ပျဉ်းမာန်		
2	ဒေါ်ခင်အေး	၂		
3	ဒေါ်ခင်အေး	၂		
4	ဒေါ်ခင်အေး	၂		
5	ဒေါ်ခင်အေး	၂		
6	ဒေါ်ခင်အေး	၂		
7	ဒေါ်ခင်အေး	၂		
8	ဒေါ်ခင်အေး	၂		
9	ဒေါ်ခင်အေး	၂		
10	ဒေါ်ခင်အေး	၂		
11	ဒေါ်ခင်အေး	၂		
12	ဒေါ်ခင်အေး	၂		
13	ဒေါ်ခင်အေး	၂		
14	ဒေါ်ခင်အေး	၂		
15	ဒေါ်ခင်အေး	၂		
16	ဒေါ်ခင်အေး	၂		
17	ဒေါ်ခင်အေး	၂		
18	ဒေါ်ခင်အေး	၂		
19	ဒေါ်ခင်အေး	၂		
20	ဒေါ်ခင်အေး	၂		
21	ဒေါ်ခင်အေး	၂		
22	ဒေါ်ခင်အေး	၂		

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(North Nawin Irrigation Project)

Date: December 13, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Briefing Hall of S.N.I.P Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
23	ဒေါ်ခင်အေး	၂		
24	ဒေါ်ခင်အေး	၂		
25	ဒေါ်ခင်အေး	၂		
26	ဒေါ်ခင်အေး	၂		
27	ဒေါ်ခင်အေး	၂		
28	ဒေါ်ခင်အေး	၂		
29	ဒေါ်ခင်အေး	၂		
30	ဒေါ်ခင်အေး	၂		
31	ဒေါ်ခင်အေး	၂		
32	ဒေါ်ခင်အေး	၂		
33	ဒေါ်ခင်အေး	၂		
34	ဒေါ်ခင်အေး	၂		
35	ဒေါ်ခင်အေး	၂		
36	ဒေါ်ခင်အေး	၂		
37	ဒေါ်ခင်အေး	၂		
38	ဒေါ်ခင်အေး	၂		
39	ဒေါ်ခင်အေး	၂		
40	ဒေါ်ခင်အေး	၂		
41	ဒေါ်ခင်အေး	၂		
42	ဒေါ်ခင်အေး	၂		
43				
44				

2. South Nawin Irrigation Project
2-1. Attendant List of Participant (Original)

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(South Nawin Irrigation Project)

Date: December 16, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
1	ဒေါ်မြင့်ထွန်းလတ်	ညွှန်ကြားရေးမှူး	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
2	ဒေါ်အောင်မုခ်ဝင်း	လုပ်ထုတ်ညွှန်ကြားရေးမှူး	"		
3	ဒေါ်လှဝင်းမြင့်	"	"		
4	ဒေါ်ကျော်စိုဦး	ဦးစီးဌာနကြီးမှူး	"		
5	ဒေါ်စာမောင်ဝေ	လုပ်ထုတ်ညွှန်ကြားရေးမှူး	"		
6	ဒေါ်မြင့်အောင်	"	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
7	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
8	ဒေါ်မြင့်အောင်	"	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
9	ဒေါ်အောင်ကျော်စိုဦး	အထွေထွေရေးမှူး	ကလေးတောင်မြို့နယ်၊ ဧရာဝတီတိုင်းဒေသကြီး		
10	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဧရာဝတီတိုင်းဒေသကြီး		
11	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
12	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	"		

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(South Nawin Irrigation Project)

Date: December 16, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
13	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
14	ဒေါ်အောင်ကျော်စိုဦး	အထွေထွေရေးမှူး	လုပ်ထုတ်		
15	ဒေါ်အောင်ကျော်စိုဦး	အထွေထွေရေးမှူး	လုပ်ထုတ်		
16	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဧရာဝတီတိုင်းဒေသကြီး		
17	ဒေါ်အောင်ကျော်စိုဦး	ဒီ.စီ.အ.ဂ.ဥ.ပ.	ဧရာဝတီတိုင်းဒေသကြီး		
18	ဒေါ်အောင်ကျော်စိုဦး	အထွေထွေရေးမှူး	ဆည်မြောင်း၊ တ.အ.ဂ.ဥ.ပ. ()		
19	ဒေါ်အောင်ကျော်စိုဦး	"	"		
20	ဒေါ်အောင်ကျော်စိုဦး	"	"		
21	ဒေါ်အောင်ကျော်စိုဦး	"	"		
22	ဒေါ်အောင်ကျော်စိုဦး	"	"		
23	ဒေါ်အောင်ကျော်စိုဦး	"	"		
24	ဒေါ်အောင်ကျော်စိုဦး	"	"		

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(South Nawin Irrigation Project)

Date: December 16, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of S.N.I.P

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
25	ဒေါ်မာမာစု	အထွေထွေရေးရာ	မိမိ		
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

2-2. Attendant List of Participant (English)

Attendant List of Participant Stakeholder Meeting for Irrigation Development Project in Western Bago Region (South Nawin Irrigation Project)

Date: December 16, 2014
Venue: Briefing Hall of S.N.I.P

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone
1	U Myint Htun Latt	Director	Irrigation Department, con: 2	
2	U Aung Moe Winn	Assistant Director	Irrigation Department, con: 2	
3	U Hla Winn Myint	Assistant Director	Irrigation Department, con: 2	
4	U Ko Ko Htay	Deputy Director	Irrigation Department, con: 2	
5	U Tin Maung Wai	Assistant Director	Irrigation Department, con: 2	
6	U Myint Thaug	Assistant Director	Irrigation Department, Maintenance Division	
7	U Aung Kyaw Oo	Staff Officer	Irrigation Department, con: 2	
8	U Myint Swe	Assistant Director	Irrigation Department, Maintenance	
9	Daw Han Shwe	Manger	Irrigation Development Bank	
10	Daw Myint Myint Aye	Staff Officer	Dept: of Agriculture (Paukhaung)	
11	U Maw Maw Khaing	Staff Officer	Department of Forestry	
12	U Htay Myint	Forester	Department of Forestry	
13	U Kyaw Myo Swe	S.A.E	Planning Department	
14	U Kyaw Thu	Township Electrical Engineer	Electricity Supply Enterprise	
15	U Kyaw Aung Soe	A.M.D	A.M.D	
16	U Aung Win	Staff Officer	Department of Agriculture	
17	U Aung Myint	Staff Officer	S.L.R.D	
18	U Kyaw Kyaw Aung	Township Administrator	Pauk Kaung	
19	U Hla Moe Oo	Township Administrator	The Kone	
20	U Myint Thaug	Assistant Director	Irrigation Department, Maintenance Division	
21	Daw My Thein May	Lower Division Clerk	Township Administrator Office	
22	Daw Naing Naing Maw	Lower Division Clerk	Township Administrator Office	
23	Daw Khin Sandar Tin	Lower Division Clerk	Township Administrator Office	
24	Daw Sann Sann Htay	Lower Division Clerk	Township Administrator Office	
25	Daw Mar Mar Htway	Lower Division Clerk	Township Administrator Office	

2-3. Attendant List of Stakeholder (Original)

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(South Nawin Irrigation Project)

Date: December 16, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Briefing Hall of S.N.I.P Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
1	ဦးမောင်ညွှန်	ကျွမ်းကျင်ပညာရှင်		
2	မောင်မောင်	"		
3	မောင်မောင်	"		
4	မောင်မောင်	လုပ်ငန်းရှင်		
5	မောင်မောင်	"		
6	မောင်မောင်	ကုမ္ပဏီရှင်		
7	မောင်မောင်	ကော်ပီ		
8	မောင်မောင် (အထွေထွေ)	အထွေထွေ		
9	မောင်မောင်	အထွေထွေ		
10	မောင်မောင်	အထွေထွေ		
11	မောင်မောင်	အထွေထွေ		
12	မောင်မောင်	အထွေထွေ		
13	မောင်မောင်	အထွေထွေ		
14	မောင်မောင်	အထွေထွေ		
15	မောင်မောင်	အထွေထွေ		
16	မောင်မောင်	အထွေထွေ		
17	မောင်မောင်	အထွေထွေ		
18	မောင်မောင်	အထွေထွေ		
19	မောင်မောင်	အထွေထွေ		
20	မောင်မောင်	အထွေထွေ		
21	မောင်မောင်	အထွေထွေ		
22	မောင်မောင်	အထွေထွေ		

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(South Nawin Irrigation Project)

Date: December 16, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Briefing Hall of S.N.I.P Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
23	မောင်မောင်	အထွေထွေ		
24	မောင်မောင်	"		
25	မောင်မောင်	"		
26	မောင်မောင်	အထွေထွေ		
27	မောင်မောင်	"		
28	မောင်မောင်	အထွေထွေ		
29	မောင်မောင်	"		
30	မောင်မောင်	"		
31	မောင်မောင်	"		
32	မောင်မောင်	"		
33	မောင်မောင်	"		
34	မောင်မောင်	"		
35	မောင်မောင်	"		
36	မောင်မောင်	"		
37	မောင်မောင်	"		
38	မောင်မောင်	"		
39	မောင်မောင်	"		
40	မောင်မောင်	"		
41	မောင်မောင်	အထွေထွေ		
42	မောင်မောင်	အထွေထွေ		
43	မောင်မောင်	အထွေထွေ		
44	မောင်မောင်	အထွေထွေ		

45 မောင်မောင်
အထွေထွေ

2-4. Attendant List of Stakeholder (English)

Attendant List of Stakeholder Stakeholder Meeting for Irrigation Development Project in Western Bago Region (South Nawin Irrigation Project)

Date: December 16, 2014

Venue: Briefing Hall of S.N.I.P

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
1	U Maung Thwin	Kywepaungpin Village	Farmer	
2	U Thaug Myint	Kywepaungpin Village	Farmer	
3	U Maung Htay	Kywepaungpin Village	Farmer	
4	U Htun Htun Winn	Village Headman		
5	U Winn Hlaing	Village Headman		
6	U Winn Swe	Member of Support Committee		
7	U Nyo Winn Oo	Farmer		
8	U San Maung	Member of Support Committee	Wattoe	
9	U Zaw Winn Htun	Village Headman (Yat-thit)		
10	U Htun winn	Village Headman (Wettoe)		
11	U Hla Myint	Member of Support Comity	Wettoe	
12	U Kyaw Soe	Administrator (No.4 Quarter)	Pauk Kaung	
13	U Nyi Nyi	Village Support Committee		
14	U Nyan Myint	Member of Support Comity	Pauk Kaung	
15	U Maung Oo	Yat-thit village	Farmer	
16	U Winn Ngwe	Sai-gaung village	Farmer	
17	U Hla Ngwe	Yat-thit village	Farmer	
18	U Aye Naing	In-ngar-kwa village	Farmer	
19	U Myo Nyunt Naing	No.5 Quarter, Pauk Kaung	Farmer	
20	U Zaw Linn Aung	In-ngar-kwa village	Farmer	
21	U Myint soe	In-ngar-kwa village	Farmer	
22	U Myo Naing	Ywar-shae village	Farmer	
23	U Aung Moe Thu	Chaung-kaung village	Farmer	
24	U Kyaw Swar Linn	Chaung-kaung village	Farmer	

No.	Name	Occupation	Phone	Signature
25	U Htay Hlaing Winn	Chaung-kaung village	Farmer	
26	U Cho Lwin	Tha-pyay-taung village	Farmer	
27	U Zin Ko Winn	Tha-pyay-taung village	Farmer	
28	U Tin Hlaing	Thae-kone Township	Farmer	
29	U Winn Naing	Thae-kone Township	Farmer	
30	U Nay Winn	Thae-kone Township	Farmer	
31	U Soe Thant	Thae-kone Township	Farmer	
32	U Soe Moe Thu	Thae-kone Township	Farmer	
33	U Min Din	Thae-kone Township	Farmer	
34	U Than Aung	Thae-kone Township	Farmer	
35	U Swe Myint	Thae-kone Township	Farmer	
36	U Aung Minn Thu	Thae-kone Township	Farmer	
37	U Myo Kyaw Oo	Thae-kone Township	Farmer	
38	U Winn Myint	Thae-kone Township	Farmer	
39	U Thein Shwe	Thae-kone Township	Farmer	
40	U Khin Zaw	Thae-kone Township	Farmer	
41	U Soe Tint	Kyawe-tet village	Farmer	
42	U winn Oo	Ngwe-kauk village	Farmer	
43	U Zaw Zaw	Thit-ni-taw village	Farmer	
44	U Aung Myo Naing	Agriculture Development Bank		
45	U Ba Than	Department of Agriculture		

3. Wegyi Irrigation Project

3-1. Attendant List of Participant (Original)

Attendant List of Participant

Stakeholder Meeting for Irrigation Development Project in Western Bago Region (Wegyi Irrigation Project)

Date: December 18, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Paung De Township Hall

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
1	ဦးစောဝင်း	ဦးစီးချုပ်	ဦးစီးဌာန		
2	ဒေါ်မျိုးစန်းစု	ဒါရိုက်တာ	ဝန်ထမ်း		
3	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
4	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
5	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
6	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
7					
8					
9					
10					
11					
12					

Attendant List of Participant

Stakeholder Meeting for Irrigation Development Project in Western Bago Region (Wegyi Irrigation Project)

Date: December 18, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Paung De Township Hall

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
13	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
14	ဒေါ်မျိုးစန်းစု	ဒါရိုက်တာ	ဝန်ထမ်း		
15	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
16	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
17	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
18	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
19	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
20	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
21	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
22	ဦးစောကျော်	ဒါရိုက်တာ	ဝန်ထမ်း		
23					
24					

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyi Irrigation Project)

Date: December 18, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Paung De Township Hall

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone	E-mail Address
25	ဒေါ်စိုစိုစို	ဒီ-အုပ်ကြီး	မ.ဘ.ဂ. (၂)		
26	ဒေါ်နီနီ	"	မ.ဘ.ဂ.		
27	ဒေါ်မာမာ	မ.ဘ.ဂ. (၂)	မ.ဘ.ဂ. (၂)		
28	ဒေါ်နီနီ	ဒီ-အုပ်ကြီး	"		
29	ဒေါ်မာမာ	"	"		
30	ဒေါ်နီနီ	"	"		
31	ဒေါ်နီနီ	"	မ.ဘ.ဂ. ပေါင်းစုံ		
32	ဒေါ်နီနီ	ဒီ-အုပ်ကြီး	"		
33	ဒေါ်နီနီ	"	မ.ဘ.ဂ. (၂)		
34	ဒေါ်နီနီ	ဒီ-အုပ်ကြီး	"		
35	ဒေါ်နီနီ	"	"		
36	ဒေါ်နီနီ	ဒီ-အုပ်ကြီး	"		

3-2. Attendant List of Participant (English)

Attendant List of Participant
Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyi Irrigation Project)

Date: December 18, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Paung De Township Hall

Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone
1	U Ko Ko Htay	Deputy Director	Irrigation Department,con: 2	
2	U Soe Aung	Deputy Director	Irrigation Department, Maintainance Division	
3	U Tin Maung Wai	Assistant Director	Irrigation Department,con: 2	
4	U Soe Myint	Staff Officer	Irrigation Department,con: 2	
5	U Aung Kyaw Oo	Staff Officer	Irrigation Department,con: 2	
6	U Myint Lwin	Staff Officer	Irrigation Department,con: 2	
7	U Thein Htun Aung	Staff Officer	Irrigation Department, Maintainance Division	(Paung-De)
8	U Htun Htun Winn	S.A.E	Irrigation Department, Maintainance Division	(Paung-De)
9	U Than Naing	S.A.E	Irrigation Department,con: 2	
10	U Than Zin	S.A.E	Irrigation Department,con: 2	
11	U Hla Win Aung	S.A.E	Irrigation Department,con: 2	
12	U San Thein	Staff Officer	Irrigation Department,con: 2	
13	U Aung Win	S.A.E	Department of Agriculture	
14	U Myo Htet Htun	S.A.E	S.L.R.D	
15	U Zaw Htoo	Supervisor	Agriculture Development Bank	
16	U Sai Khon Phone	Forester	Forestry	
17	U Tin Htun	S.A.E		
18	U Thein Htun	E.S	Department of Agriculture	
19	U Aung Kyaw Zaya	Township Administrater		
20	U Nyi Nyi Htun	Township S.A.E		
21	U Htun Linn Htwe	Accountant	Irrigation Department,con: 2	
22	U Minn Zaw Oo	Computer	Irrigation Department,con: 2	

3-3. Attendant List of Stakeholder (Original)

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyi Irrigation Project)

Date: December 18, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Paung De Township Hall Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
1	ဖိုးစန်းစော	ကျွေးမွေးရေး		
2	အောင်ကျော်စွာ			
3	အောင်ကျော်စွာ			
4	အောင်ကျော်စွာ	ပျဉ်းမာ		
5	အောင်ကျော်စွာ			
6	အောင်ကျော်စွာ	အထွေထွေ		
7	အောင်ကျော်စွာ	အထွေထွေ		
8	အောင်ကျော်စွာ	အထွေထွေ		
9	အောင်ကျော်စွာ			
10	အောင်ကျော်စွာ	အထွေထွေ		
11	အောင်ကျော်စွာ			
12	အောင်ကျော်စွာ			
13	အောင်ကျော်စွာ	အထွေထွေ		
14	အောင်ကျော်စွာ			
15	အောင်ကျော်စွာ	အထွေထွေ		
16	အောင်ကျော်စွာ	အထွေထွေ		
17	အောင်ကျော်စွာ	အထွေထွေ		
18	အောင်ကျော်စွာ			
19	အောင်ကျော်စွာ			
20	အောင်ကျော်စွာ	အထွေထွေ		
21	အောင်ကျော်စွာ			
22	အောင်ကျော်စွာ			

Attendant List of Stakeholder

Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyi Irrigation Project)

Date: December 18, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Paung De Township Hall Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
23	အောင်ကျော်စွာ	အထွေထွေ		
24	အောင်ကျော်စွာ			
25	အောင်ကျော်စွာ			
26	အောင်ကျော်စွာ			
27	အောင်ကျော်စွာ	အထွေထွေ		
28	အောင်ကျော်စွာ	အထွေထွေ		
29	အောင်ကျော်စွာ	အထွေထွေ		
30	အောင်ကျော်စွာ	အထွေထွေ		
31	အောင်ကျော်စွာ	အထွေထွေ		
32	အောင်ကျော်စွာ	အထွေထွေ		
33	အောင်ကျော်စွာ	အထွေထွေ		
34	အောင်ကျော်စွာ	အထွေထွေ		
35	အောင်ကျော်စွာ			
36	အောင်ကျော်စွာ	အထွေထွေ		
37	အောင်ကျော်စွာ	အထွေထွေ		
38	အောင်ကျော်စွာ	အထွေထွေ		
39	အောင်ကျော်စွာ	အထွေထွေ		
40	အောင်ကျော်စွာ	အထွေထွေ		
41	အောင်ကျော်စွာ	အထွေထွေ		
42	အောင်ကျော်စွာ	အထွေထွေ		
43	အောင်ကျော်စွာ	အထွေထွေ		
44	အောင်ကျော်စွာ	အထွေထွေ		

Attendant List of Stakeholder

**Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyí Irrigation Project)**

Date: December 18, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Paung De Township Hall Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
23	ဒေါ်စောစော	ကျွေးမွေးရေး	✓	
24	မောင်မောင်	"		
25	ဒေါ်အေးအေး	ကျွေးမွေးရေး	✓	
26	မောင်မောင်	"		
27	ဒေါ်အေးအေး	လက်ကားရောင်း		
28	ဒေါ်အေးအေး	"		
29	ဒေါ်အေးအေး	ကျွေးမွေးရေး	✓	
30	ဒေါ်အေးအေး	ကျွေးမွေးရေး		
31	မောင်မောင်	ကျွေးမွေးရေး	✓	
32	မောင်မောင်	ကျွေးမွေးရေး	✓	
33	မောင်မောင်	ကျွေးမွေးရေး		
34	မောင်မောင်	"		
35	ဒေါ်အေးအေး	ကျွေးမွေးရေး	✓	
36	ဒေါ်အေးအေး	ကျွေးမွေးရေး	✓	
37	ဒေါ်အေးအေး			
38	မောင်မောင်	ကျွေးမွေးရေး	✓	
39	မောင်မောင်	ကျွေးမွေးရေး		
40	မောင်မောင်	ကျွေးမွေးရေး		
41	မောင်မောင်	ကျွေးမွေးရေး		
42	မောင်မောင်	ကျွေးမွေးရေး	✓	
43	မောင်မောင်	ကျွေးမွေးရေး	✓	
44	မောင်မောင်	"		

Attendant List of Stakeholder

**Stakeholder Meeting for Irrigation Development Project in Western Bago Region
(Wegyí Irrigation Project)**

Date: December 18, 2014 Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Venue: Paung De Township Hall Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature
23	မောင်မောင်	ကျွေးမွေးရေး		
24				
25				
26				
27				
28				
29				
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31				
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34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				

3-4. Attendant List of Stakeholder (English)

Attendant List of Stakeholder (1/2) Stakeholder Meeting for Irrigation Development Project in Western Bago Region (Wegyi Irrigation Project)

Date: December 18, 2014

Venue: PaungDe Township Hall

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature	No.	Name	Occupation	Phone	Signature
1	U Min Aung	Kyu-taw-kan	Farmer		25	Daw Yin Than	Clerk		
2	U Myo Min Winn	Kyu-taw-kan	Farmer		26	Daw Marlar winn	Clerk		
3	U Han Soe	Kyu-taw-kan	Farmer		27	U Tin Aung	Gyo-pin-thar		
4	U Winn Kyine	Pyin-pone	Farmer		28	U Khin Maung Zaw	Hmat-tine		
5	U Thein Zaw Oo	Pyin-pone	Farmer		29	U Thein Oo	Myauk-kone-gyi		
6	U Than Shane	Nwar-chan-kone	Farmer		30	U Thant Zin Htun	Myauk-kone-gyi		
7	U Than Winn	Myauk-kone-gyi	Farmer		31	U Kyaw Thu winn	Paung-taw		
8	U Myint Lwin	Htan-thone-kwa	Farmer		32	U Thiha Than	Me-khaung		
9	U Hla Myint	Htan-thone-kwa	Farmer		33	U Aung Aung	Ma-gyi-kone		
10	U Thein Winn	Ko-win-saung	Farmer		34	U Myint Oo			
11	U Tin Soe	Ko-win-saung	Farmer		35	U Hla Soe			
12	U Bo Bo Kyaw	Ko-win-saung	Farmer		36	U Than Myint	Tha-phan-pin-sate		
13	U Than Kyine	Sin-luu	Farmer		37	U Than Myint	Ywar-palae		
14	U Myint Soe	Sin-luu	Farmer		38	U Thein Naing Oo	Myauk-kone-gyi		
15	U Aung Winn	Sa-yae	Farmer		39	U Than Sein	Farmer		
16	U Saw Lwin	Myauk-kone-gyi	Farmer		40	Daw Win Kyine	Gyo-pin-thar		
17	U Mya Han	Thapyay-su	Farmer		41	U Aung Thaung	Administrator		
18	U Tin Maw Winn	Thapyay-su	Farmer		42	U Khin Maung Htwe	Farmer		
19	U Thaw Zin Htun	Thapyay-su	Farmer		43	Daw Thet Maw Oo	Ma-gyi-pin		
20	U Zaw Winn	Bo-tha-aung-kone	Farmer		44	U Kyaw Shwe	Paung-i-gyi		
21	U Soe Kyaw Thu	Bo-tha-aung-kone	Farmer		45	U Zaw Than Myint	Byat-Gyi		
22	U Aye Winn	Bo-tha-aung-kone	Farmer		46	U Htun Lwin	Byat-Gyi		
23	U Aung Winn	Clerk			47	U Khin Zaw	Payar-nga-su		
24	Daw Swe Swe Myint	Clerk			48	U Myint Ohn	Payar-nga-su		

4. Taung Nyo Irrigation Project

4-1. Attendant List of Participant (Original)

ဆွေဆွေတောင်မြေသွင်းစီမံကိန်း
 မောင်ညိုကျေးရွာစာပေ

(19.12.2014)

စဉ်	အမည်	လူထု	ဌာန	ဖုန်း	E-mail Address
၁။	ဦးကျော်စွာ	ဦးထွန်းကျော်စွာ	မောင်ညိုကျေးရွာ		
၂။	ဦးစိုးမောင်	"	"		
၃။	ဦးလွင်မောင်	လ/ထွန်းကျော်စွာ	"		
၄။	ဦးခင်မောင်	ဦးစိုးမောင်	"		
၅။	ဦးမောင်မောင်	"	"		
၆။	ဦးကျော်စွာ	"	"		
၇။	ဦးကျော်စွာ	"	"		
၈။	ဦးကျော်စွာ	"	"		
၉။	ဦးကျော်စွာ	"	"		
၁၀။	ဦးကျော်စွာ	"	"		
၁၁။	ဦးကျော်စွာ	"	"		
၁၂။	ဦးကျော်စွာ	"	"		
၁၃။	ဦးကျော်စွာ	"	"		
၁၄။	ဦးကျော်စွာ	"	"		
၁၅။	ဦးကျော်စွာ	"	"		
၁၆။	ဦးကျော်စွာ	"	"		
၁၇။	ဦးကျော်စွာ	"	"		
၁၈။	ဦးကျော်စွာ	"	"		
၁၉။	ဦးကျော်စွာ	"	"		

ဆွေဆွေတောင်မြေသွင်းစီမံကိန်း
 မောင်ညိုကျေးရွာစာပေ

(19.12.2014)

စဉ်	အမည်	လူထု	ဌာန	ဖုန်း	E-mail Address
၂၀။	ဦးကျော်စွာ	ဦးကျော်စွာ	မောင်ညိုကျေးရွာ		
၂၁။	ဦးကျော်စွာ	"	"		
၂၂။	ဦးကျော်စွာ	"	"		
၂၃။	ဦးကျော်စွာ	"	"		
၂၄။	ဦးကျော်စွာ	"	"		
၂၅။	ဦးကျော်စွာ	"	"		
၂၆။	ဦးကျော်စွာ	"	"		
၂၇။	ဦးကျော်စွာ	"	"		
၂၈။	ဦးကျော်စွာ	"	"		
၂၉။	ဦးကျော်စွာ	"	"		
၃၀။	ဦးကျော်စွာ	"	"		
၃၁။	ဦးကျော်စွာ	"	"		
၃၂။	ဦးကျော်စွာ	"	"		
၃၃။	ဦးကျော်စွာ	"	"		
၃၄။	ဦးကျော်စွာ	"	"		
၃၅။	ဦးကျော်စွာ	"	"		
၃၆။	ဦးကျော်စွာ	"	"		
၃၇။	ဦးကျော်စွာ	"	"		
၃၈။	ဦးကျော်စွာ	"	"		
၃၉။	ဦးကျော်စွာ	"	"		

4-2. Attendant List of Participant (English)

Attendant List of Participant Stakeholder Meeting for Irrigation Development Project in Western Bago Region (Taung Nyo Irrigation Project)

Date: December 19, 2014
Venue: Briefing Hall of T.N.I.P

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation
Observed by: JICA Project Team

No.	Name of Participant	Position	Organization	Phone
1	U Ko Ko Htay	Deputy Director	Irrigation Department, con: 2	
2	U Soe Aung	Deputy Director	Irrigation Department, Maintenance Division	
3	U Hla Winn Myint	Assistant Director	Irrigation Department, con: 2	
4	U San Thein	Staff Officer	Irrigation Department, con: 3	
5	U Nay Myo Aung	Staff Officer	Irrigation Department, con: 4	
6	U Kyi Than	Staff Officer	Irrigation Department, con: 5	
7	U Aung Kyaw Oo	Staff Officer	Irrigation Department, con: 6	
8	U Sutt Khon Oo	Staff Officer	Irrigation Department, con: 7	
9	Daw Aye May	Staff Officer	Agriculture	
10	U Maung Maung Than	Staff Officer		
11	U San Nu	sub Administrator	General Administrator	
12	U San Htun	S.A.E (Civil)	Irrigation Department	
13	U Pho Htaung	S.A.E (Civil)	Irrigation Department	
14	U Tin Maung Lwin	S.A.E (Civil)	Irrigation Department	
15	U Han Nyunt	Township Manager	Development Bank	
16	U Aung Tin Winn	S.A.E (Civil)	Irrigation Department, Maintenance Division	
17	U Zaw Winn	S.A.E (Civil)	Irrigation Department	
18	U Aung Sann Winn	Township S.A.E	Agriculture (Zee-kone)	
19	U Thaug	Township S.A.E	S.L.R.D (Zee-kone)	
20	U Tin Naing Htun	Village Head Man	Thin-kan group	
21	U Than Htut	Farmer	Thin-kan village	
22	U Winn Lay	Village Head Man	Chaug-saunt village	
23	U Tin Ngwe	Village Head Man	Maw-ya (Zee-kone)	
24	U Aye Ko	Village Head Man	Phayar-gyi-kone village	
25	U Htun Linn	Village Head Man	Shwe-gyo-pin village	

4-4. Attendant List of Stakeholder (English)

Attendant List of Stakeholder Stakeholder Meeting for Irrigation Development Project in Western Bago Region (Taung Nyo Irrigation Project)

Date: December 19, 2014

Organized by: Irrigation Department, Ministry of Agriculture and Irrigation

Venue: Briefing Hall of T.N.I.P

Observed by: JICA Project Team

No.	Name	Occupation	Phone	Signature	No.	Name	Occupation	Phone	Signature
1	U Aung Kyine	Administrator							
2	U Thant Zin Oo	General Administrative							
3	U Aung Ko Winn	Department of Agriculture							
4	U Maung Htay	Administrator							
5	U Khin Maung Htwe	Agriculture Committee							
6	U Tin Moe	Administrator							
7	U Htay Winn	S.L.R.D							
8	U Htun Htun Winn	S.L.R.D							
9	U Yan Thein	Administrator							
10	U Htun Htun Naing	Farmer							
11	U Hla Soe	Administrator							
12	U Than Winn	Farmer							
13	U Khin Soe	Administrator							
14	U Aung Thein Lwin	Administrator							
15	U Winn Naing	Village Headman							
16	U Bo Tint	Farmer							
17	U Hla Myint Oo	Forestry							
18	U Htun Than	Farmer							
19	U Hla Saung	Farmer							
20	U Hla Winn	Farmer							
21	U Than Winn	Farmer							