MINISTRY OF AGRICULTURE, LIVESTOCK AND IRRIGATION
THE REPUBLIC OF THE UNION OF MYANMAR

PREPARATORY SURVEY ON AGRICULTURE INCOME IMPROVEMENT PROJECT IN THE REPUBLIC OF THE UNION OF MYANMAR

FINAL REPORT (APPENDIXES)

APRIL 2018

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
SANYU CONSULTANTS INC. (SCI)

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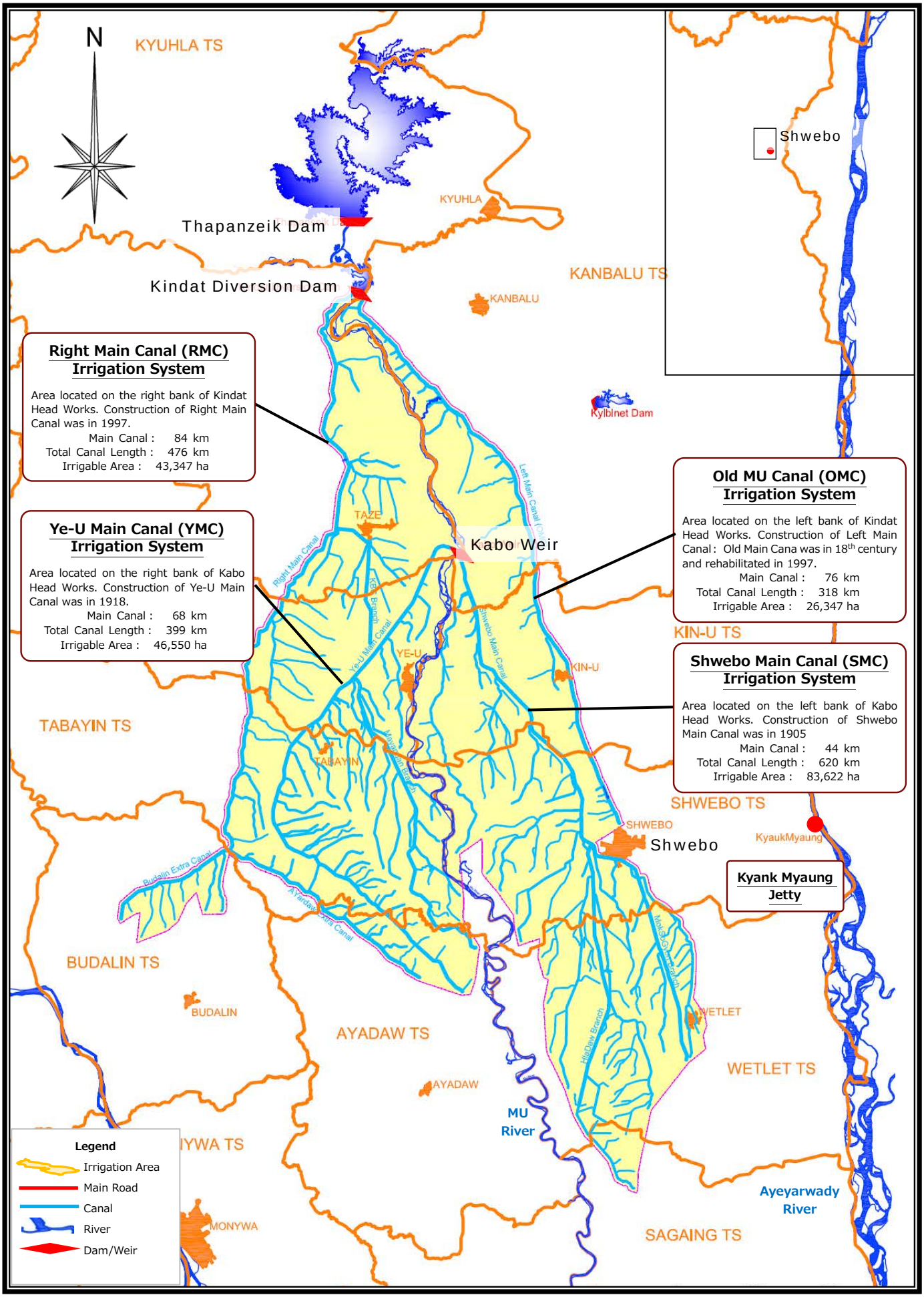

Location Map of Preparatory Survey on Agricultural Income Improvement Project (AIIP)

This map shows irrigation areas for the project identified based on the existing available data provided by Irrigation and Water Utilization Management Department (IWUMD). Areas surrounded by orange lines show the target irrigation areas of this project.

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I.1.1 JICA TEAM MEMBERS

Kosei HASHIGUCHI	Team Leader/Agricultural Development
Hideaki HIRUTA	Co-team leader/ Agricultural Development
Harunobu YOSHINO	Farming Pravtice and Extension Strengthning
Kosuke HIROTA	Design and Construction Planning (Irrigation)
Yoji SAWADA	Rural Infrastructure (Farm Road/ Bridge/ Jetty)
Shinichi ARAI	Agricultural Machineries
Hiroaki OKADA	Water Management/ Flood Monitoring System
Takahiro FUNAYAMA	Procurement
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Mizuki IIDA	Farmers Organization
Ryo INOUE	Economic and Financial Analysis/ Marketing
Taketo EGUCHI	Secretary/ Agricultural Machineries / Satelite Image Analysis
Izumi KATO	Satelite Image Analysis
Nobutoshi EGUCHI	Land Consolidation

I.1.2 COUNTERPART PERSONNEL

Ministy of Agriculture, Livestock and Irrigation (MOALI)

Irrigation and Water Utilization Management Department (IWUMD)

Mr. Kyaw Myint Hlaing	Director General
Mr. Soe Myint Htun	Deputy Director General (Upper Myamar)
Ms. Myint Zu Saw	Director (Accounts/Investigation)
Mr. Kyaw Zaw	Director (Planning and Works)
Mr. Tint Lwin	Director (Procurement)
Mr.Kyi Swe	Director (Sagaing Region)

Department of Agriculture (DOA)

Dr. Ye Tint Tun	Director General
Mr. Hla Myint Aung	Deputy Director General (Technology)
Mr. Myint Oo	Director (Agricultural Extension)
Mr.Than Kyaing	Director (Project Planning, Management and Evaluation)
Mr. Thet Zin Maung	Director (Seed)
Mr. Ko Ko Gyi	Director (Rice)

Department of Planning (DOP)

Mr. Kyaw Min Oo	Director General
Ms. Khin Mar Oo	Deputy Director General
Mr. Kyaw Swe Lin	Deputy Director General
Dr. Thandar Kyi	Director (Asean Relation)

Agricultural Mechanization Department (AMD)

Mr. Soe Hlang	Director General
Mr. Mynt Zaw	Deputy Director General
Mr. Aung Win	Director (Mechanization)
Mr. Naing Win	Director (Land Consolidation)

Department of Rural Development (DRD)※as of December 2016

Mr. Khant Zaw	Director General
Mr. Kyaw Soe	Deputy Director General
Ms. Nyo Nyo Win	Deputy Director General
Mr. Myint Oo	Deputy Director General (Road/ Electrification)
Ms Tin Moe Myint	Director (Rural Road and Bridge)
Dr. Zarni Minn	Director (IR)
Dr. Tun Myint Aung	Deputy Director (Rural Road and Bridge (Design))

Deartment of Agricultural Land Management and Statistics (DALMS)

Mr.Thet Naing Oo	Director General
Mr. Kan Tun	Deputy Director General
Dr.Win Htut	Director (Survey & Mapping)
Mr.Hlwan Moe	Director (Land Admin)
Mr.Than Htut	Director (Statistics)
Mr. Kyaw Nyein Aung	Director (Settlement & Planning)
Ms. Yi Yi Myint	Director (Budget)

APPENDIX-II

RURAL SOCIETY

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APPENDIX II. RURAL SOCIETY

II.1 Farmers' Canal Management and Existing Associations

Having seen the canal management in the Project area, farmers' voluntary activities and the canal/water course leaders could be observed, although they rarely establish a group for this. From the viewpoint of organization, various kinds of organizations exist in the area including formal associations with registration and informal groups. The survey revealed no registered association related to canal management, and the other informal farmers' joint activities. This chapter discusses the farmers' activities on canal management and others as well as registered associations under MOHA and Cooperative Department of MOALI in the target area.

II.1.1 Farmers' Activities for Canal Operation & Maintenance (O&M)

Currently farmers' involvement on operation and maintenance of minor canals, distributary canals and water courses varies by the area, canals and water users. At the same time, some voluntary farmers' activities are considered as a supportive factor to the irrigation management transfer (IMT) from the government to farmers. Even though the voluntary farmers' initiatives are not fully observed at present, some efforts of water users can be appreciated as a tailwind to introduce IMT in the Project area. This section provides the examples of farmers' canal maintenance and water distribution.

1) Methods of Canal Maintenance by Farmers

There were various cases of farmers' initiative on maintenance of canals and water courses. Some farmers have been conducted maintenance for water courses, minor and/or distributary canals by their responsibilities. While some farmers have been conducted those only for water courses. The different cases of farmers' canal maintenance are shown below by the section of maintenance.

1.1) A Distributary Canal and Water-courses

It was not often the case that both distributary canal and water courses are maintained by the water users' initiatives. However there was such a case in a direct outlet (distributary canal) of OMC.

At the distributary canal level, the water users had 4 canal leaders who are active farmers selected from water users and are in charge of the distributary canal maintenance. The 4 canal leaders facilitate weeding and un-siltation of the distributary canal before or during water supply. The date and methods of weeding and un-siltation are decided by the 4 canal leaders and village tract leader, then announced to water users with a speaker. Depending on the necessity, the 4 canal leaders collect money from the water users to hire a machinery or labors for the maintenance.

Maintenance of each water course is led by a water course leader and groups of 10 farmers. The group of 10 farmers are established along a water course and each group has their own leader. The groups along the same water course can conduct canal maintenance such as weeding and un-siltation together. These activities by 10 farmers' group were more active during the water shortage around 10 years ago.

1.2) A Minor Canal and/or Water-courses (with a Part of Distributary Canal)

In one minor and distributary canal of YMC, the maintenance of distributary canal is implemented by IWUMD, and some farmers voluntarily support the work as labors in some cases. The maintenance of minor canal is led by 2 minor canal leaders. The weeding and un-siltation of upstream portion of the minor canal is conducted by IWUUMD and farmers in collaboration, while that of downstream portion is done only by the farmers. These maintenance are usually performed twice a year. One maintenance activity requires about 2 – 3 days, and average about 20 farmers participate in this. If they need re-sectioning of the minor canal using a machinery, they request to IWUMD. While water course maintenance is facilitated by each water course leader.

In another minor and distributary canal under SMC, all water courses have water course leaders and they lead the canal and water course maintenance. The small repair, weeding and un-siltation along distributary canal is carried out by the call of water course leaders depending on the necessity. When they need maintenance for the minor canal, all the water course leaders gather together either in village tract leader's house or a farmer's house to discuss the date and plan of minor canal maintenance. In the day of maintenance, all the water users come to the minor canal and conduct weeding and un-siltation by hoes in the determined canal portion which is near to their beneficial turnout. The maintenance of water course is also supervised by water course leaders when necessary. These activities are done mainly in February and sometimes also in June according to the water supply for summer paddy and monsoon paddy.

In case of a distributary canal under Ayadaw Extension Canal of RMC, maintenance of distributary canal is mainly conducted by IWUMD, although occasionally some farmers (about 7 – 15 farmers) who cultivate neighboring plots carry out weeding or un-siltation in small portion, if necessary. Basically there is no water course and water course leader. Some area have individually made short water courses and some do not have one. In case there is no water course, the irrigation is done by plots to plots. In case the water course exists, the maintenance of water course is conducted among some of the beneficial farmers (usually about 5 water users). They gather and implement weeding and un-siltation for around 2 hours.

1.3) Only Water-courses

In case of a distributary canal under YMC, weeding and un-siltation of distributary canal is done by IWUMD without farmers' participation. While water course leaders exist in each water course, so that maintenance of water courses are implemented by the voluntary water users' involvement based on guidance of the water course leaders. The farmers carry out the activities especially around January to February before the summer paddy water supply.

2) Methods of Water Distribution in Water-courses

Planned or rotational water distribution was not confirmed at minor or distributary canal level. It was also rare to find at the water course level. In many cases, upstream farmers take the water as much as they want for their requirement, then release the water to downstream farmers after his satisfactory water intake. Therefore, if the given water is not enough for all the water users' requirements, downstream farmers cannot get the water at all. However, a few cases of rotational water distribution were observed in some water courses. The examples are shown below.

2.1) Rotational Water Distribution with Limitation of Intake Time

In a water course of one distributary canal in OMC, water is distributed from upstream farmers to downstream farmers one by one with following limitations; 12 hours per a farmer who own below 5 ac, and 24 hours per a farmer who own above 5 ac.

This water course was originally made by hoes but widen by a backhoe based on the requests from the water users to IWUMD. Therefore width of the water course currently looks like a distributary canal. Then further narrower farm ditches and sub-farm ditches made by hoes are extending from the water course to draw water to each plots.

It takes around 10 days to complete water distribution for all about 10 farmers. To control the water, farmers put sand bags

Local Check Structure in a Farm Ditch to Control Water by Sandbags

at the local check structure in farm ditches (see photo right). Water course leader came up with this water distribution rule and the construction of farm ditches while he was watching a Skynet TV program for farmers.

2.2) Rotational Water Distribution with Limitation of Intake Day

In a tail water course of one minor canal under SMC, the water users have been selected one water course leader and 4 canal committee members from active farmers. At some point this tail water course is divided into 3 farm ditches running towards different directions. They divide the water users along the same farm ditch into some groups, and allow each group to take water for 2 days at once. For example, when one group take water, the other groups stop to draw water by closing the intake point of each plot by mud.

These rotational water distribution is introduced by the water course leader and canal committee members. The leader and committee members are in charge of informing to close or open their intake points to the water users, although there is no meeting to discuss about this water distribution issues among the leader and committee members.

II.1.2 Registered Associations

There are 2 government institutes which are in charge of registration of association in Myanmar. One is MOHA (Ministry of Home Affairs) and the other is CD (Cooperative Department) under MOALI (Ministry of Agriculture, Livestock, and Irrigation). However, the associations for operation and maintenance of irrigation facilities have not been found from these registered organizations.

1) Organizations under MOHA (Ministry of Home Affairs)

The registration under MOHA is conducted in the several levels, namely township, district, region, and central. Mainly the associations, which are registered under MOHA, include religious, social,[1] business, and political organization. There is no duty to register for those associations, but it is possible for them to register at each level of the MOHA offices depending on their willingness.

The law regarding to registration of association under MOHA, there is 'The Law Relating to Registration of Associations (2014).' MOHA proceeds registration of association under this law. Registration forms and registration fees (free at township and district level, 30,000 kyats at regional level and 100,000 kyats at central level) are required for the registration. The registration form includes biography of all members, a recommendation letter from the relevant department of the government, a recommendation letter from the police and village tract leader to each of the members, the copy of each member's NRC (National Registration Card), biography of the association, and by-laws of the association.

The registration forms submitted to each MOHA office is examined by the 'Registration Group' at each level of the offices. And then these are approved within 30 days after all the required registration forms and documents are submitted. For instance, the 'Township Registration Group' is composed of chairman (assistant director), secretary (staff officer), co-secretary (law officer), member (police officer), and 2 members (members of association). Once it is registered, the registration is valid for 5 years. After that, the associations need a procedure to update the registration every 5 years. The registered association need to submit an annual report to the chairman of 'Registration Group' at the end of the year.

The advantages of registration are as follows;

[1] Social organization includes committees at village or ward level, mutual financing groups for funeral or wedding.

1. Can easily receive subsidy from the government.
2. Can easily receive supports or subsidies from international organizations.
3. Can file a lawsuit.
4. Can open a bank account.
5. Can collect money from the members systematically.
6. Can own assets.
7. Can use a stamp.

The MOHA registration of association has been recently started around beneficial area of the 4 irrigation systems where these are mainly consisted of Shwebo District and townships under Shwebo District. The registration records are observed since 2012 in Shwebo and Taze Townships, since 2015 in Shwebo District, and since 2016 in Wetlet and Ye-U Townships. The situation of association registration is as shown in Table II.2.1

Table II.2.1 Registration of Associations by MOHA under 4 Irrigation Systems

Activity	Shwebo district					Total
		Shwebo TS	Wetlet TS	Taze TS	Ye-U TS	
Scholarship	1	-	-	-	-	1
Health (Patient Transportation)	-	-	-	-	7	7
Health & Funeral	3	1	11	-	3	18
Religions & Funeral & Health	-	-	-	2	-	2
Funeral & Others	-	-	-	-	1	1
Religions & Education & Health	-	-	-	-	1	1
Others	1	-	-	-	-	1
Total	5	1	11	2	12	31
		26				
Total (funeral & health related)	3	1	11	2	11	28

Source: MOHA, Shwebo District

The associations which are currently registered under MOHA are 31 associations in total. Out of 31 associations, 28 associations are conducting activities related to funeral and/or patient transportation. Especially rural area of Myanmar tend not to have a private company offering dead body and surviving family transportation during funerals, and a service of emergency medical transportation. Therefore, those associations seem to have such activities based on their needs. It can be considered that most of the associations registered under MOHA around the 4 irrigation systems are calcified as social organizations which are mostly concerned with funeral and emergency transportation. And there are no registered association intended to water management under MOHA.

2) Associations under Cooperative Department (CD)

The registration desk of associations established under CD of MOALI is each township office of CD. Most of the associations registered under CD conduct activities related to some business. Each cooperative members collect funds from each member and loan the money among members, or conduct joint businesses. These business activities are one of the reasons to establish an association. In many cases, the associations is organized and registered by encouragement of CD. But sometimes voluntarily established associations are registered by their own requests.

The structure of cooperatives established under CD is as shown in Figure II.2.1. The cooperative is primarily organized at village level so called 'Primary Cooperative Society,' then the representatives organize 'Cooperative Society Syndicates' at township level and the township representatives establish 'Union of Cooperative Syndicates' at regional level. There is no district level office in CD. The Primary Cooperative Society is composed of several groups of 5 people who are engaged in activities of the similar purpose. 5 executive officials are selected from each group of 5 people. The roles of

executive officials include chairman, management director (MD), secretary, and 2 members. At least 15 members (3 groups) are required for one Primary Cooperative Society. The initial capital of the Primary Cooperative Society is collected from each member depending on the necessary cost for their activities.

11 representatives are selected from each Primary Cooperative Society formed at village level and establish a Cooperative Society Syndicate at township level. The responsibilities of the 11 executive officials are chairman, 2 vice-chairmen, management director (MD), secretary, 2 vice-secretaries, 2 auditors, and 2 members. Furthermore, each one representative is selected from the township level Cooperative Society Syndicate and the representatives organize the Union of Cooperative Syndicates at regional level, that is, there is one Union of Cooperative Syndicates in Sagaing Region.

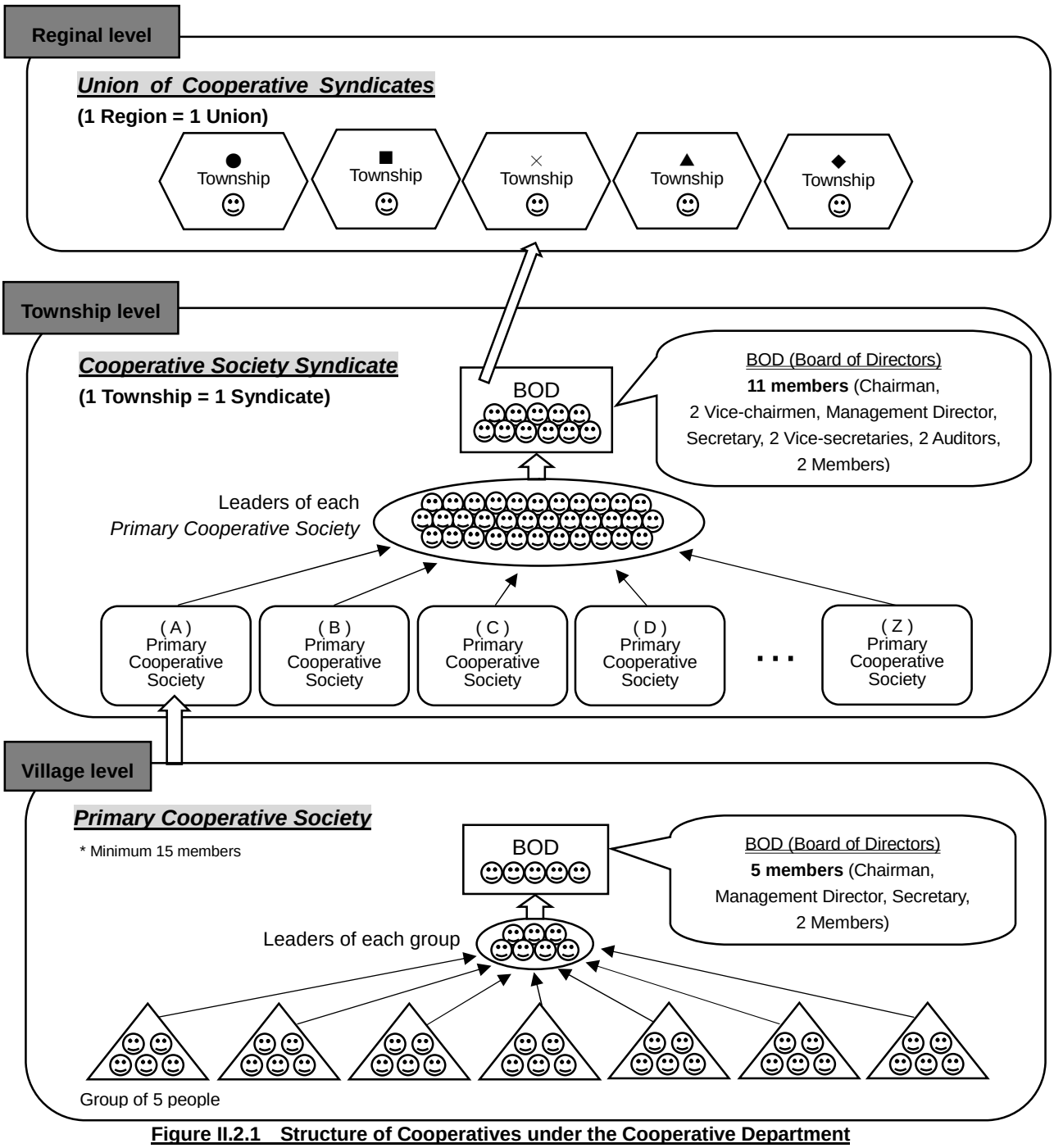

Figure II.2.1 Structure of Cooperatives under the Cooperative Department

The relevant law and regulation is 'The Cooperative Society Law (1992)' and 'The Cooperative Society Rules (2013).' For the registration, first the 5 members' group at village level discuss about the activities, required funds, the members, and so on. Subsequently, the members submit the meeting minutes with required information and a request letter to CD for the registration, mostly through a village tract leader.

Based upon this request, the executive officials of township level Cooperative Society Syndicate visit the village. If the executive officials reach agreement with the members, the officials request them to prepare necessary documents such as application form and face photos of the members. The format of the application form is prepared by each Cooperative Society Syndicate and it differs by syndicates and the type of activities.

The registration fee is 10,000 kyats per one Primary Cooperative Society. Once township level Cooperative Society Syndicate receive the requests of application, the requests is to be raised to regional office, and then central office. Each office has registration group composed of chairman (officer), secretary (upper clerk), and co-secretary (lower clerk). The registration group at township office and regional office just keep records of the application, and the final approval is only done at the central office.

The CD officers and cooperative members often communicate each other, and there is no obligation to submit plan or report from each cooperative to CD. Prior to revision of the law in 1992, CD officers had checked every 3 months to confirm activities and accounting conditions of each cooperative. After the revision, the officers conduct a half year check every 6 months and annual check every year.

The advantages to register as a cooperative are as follows;

1. Can do business activities.
2. Can loan to the cooperative members and out of members without deposit.
3. Can receive loan or funds from other individuals or organizations through CD and easy to receive supports from the government or international organization.
4. Can purchase expensive items as cooperative and can sale those within and to outside of the cooperative. (In case to purchase expensive goods from cooperatives, first pay 50% and then can pay back the left amount with less interests little by little.)
5. Can file a lawsuit.
6. Can open a bank account.
7. Can own assets and hire staff.
8. Can use a stamp.

The cooperative was introduced to Myanmar in 1904. The first cooperative in the Sagaing Region was registered in Myin Mu Township. Table II.2.2 shows the cooperatives registered under each township in the beneficial area of 4 irrigation systems. The table indicates that there is no cooperative related to canal maintenance.

Most of the cooperatives are related to farmland, agricultural production and agriculture general. The activities of these cooperatives are mainly agricultural business based on joint investment from the members. For instance, the members purchase and/or rent farmland by a group and produce crops. Also cooperatives loan to the members for agricultural production.

In case the cooperative make loans, they collect the products from the members after harvesting which are equivalent value to the loan. In case the members jointly use or rent farmlands, the products from the farmland is stored and they can sell the products when the price is high. Thus, if the cooperative increase their capital and become financially stable, the cooperative might purchase agricultural machinery and provide services on cultivation and/or harvesting.

Table II.2.2 Registration of Cooperatives by CD under 4 Irrigation Systems

Activity	Kanbalu TS	Khin-U TS	Shwebo TS	Wetlet TS	Taze TS	Ye-U TS	Tabayin TS	Budalin TS	Ayadaw TS
Production									
Farm/General	22	6	59	59	54	53	48	58	50
Agriculture/General	222	98	68	145	173	102	129	92	101
Agriculture/Production	42	38	4	7	5	0	2	10	10
Industry and handiwork	5	0	11	0	0	0	1	6	3
Livestock	1	0	1	0	1	0	0	0	1
Fishery	0	0	0	0	0	0	0	0	0
Sewing (Production)	0	0	1	0	0	0	0	0	0
Agricultural Production (Organize)	0	0	0	1	1	1	0	1	1
Sub-Total	292	142	144	212	234	156	180	167	166
Trading									
Union of Cooperative Syndicates	0	0	0	0	0	0	0	0	0
Cooperative Society Syndicate	1	1	1	1	1	1	1	1	1
Gems & Jewelry	0	0	0	0	0	0	0	0	0
GEC* Multi Level Government Staffs(Organize)	0	0	0	0	0	0	0	0	0
GEC Township Education (Organize)	0	0	1	0	0	0	0	0	0
GEC Staff Member	0	0	1	0	0	0	0	0	0
General/Business	0	1	3	1	0	2	0	0	1
Trading	5	6	10	0	3	5	2	2	0
GEC Township Education	1	1	1	1	1	1	1	1	1
GEC University	0	0	2	0	0	0	0	0	0
Retail	0	0	1	0	0	0	0	0	0
Convenience Store	0	0	1	0	0	0	0	0	0
Sub-Total	7	9	21	3	5	9	4	4	3
Service									
Credit Society	0	0	0	0	0	0	0	0	0
Microfinance	3	6	6	3	1	6	1	1	1
Transportation	0	0	3	0	1	0	0	0	0
Market Cooperative Society	1	1	3	3	1	1	1	1	1
Myit Tar Shin	0	0	1	0	0	0	0	0	0
Service for Health	0	0	1	0	0	0	0	0	0
Service for Education	0	0	0	0	0	0	0	0	0
Construction	0	0	0	0	0	0	0	0	0
Sub-Total	4	7	14	6	3	7	2	2	2
Total	303	158	179	221	242	172	186	173	171

* GEC：Government Employee Cooperative

Source: CD, Sagaing Region

II.1.3 Informal Organization by Farmers

As it is mentioned in 'II.2.2. 1) Organization under MOHA (Ministry of Home Affairs),' most of the social organizations are related to funeral or patient transportation. These activities can be conducted informally without registration. This section provides some examples of these informal group activities confirmed in Nagabo Village. In this village there are two informal group activities. One is related to transportation for funeral and patients and the other is related to religious activities.

1) An Example of Transportation Service for Funeral and/or Patients

In Nagabo Village, there is a group for transportation service since 2014. The name of organization is called *Ar Yu Par La* which means *Par la* (name) good health for life. The members are about 20 people and there are chairman and treasurer among them. Their activities are mainly conducted within the Village, but they can do their service also outside of the area based upon requests.

Before 2014, there were no such service in this village, but the similar informal group was in Sai Pyin Gyi Village where it takes 3 hours walking distance from Nagabo Village. At that time, Nagabo villagers had requested to the group in Sai Pyin Gyi Village in case they needed emergent transportation for patients. But most of the time, the patients could not survive until arrival to a hospital.

Therefore, the villagers established this group for transportation. Now the group has 3 cars. One is by donation from similar organization in Mandalay, and the other two is by donation from a person whose hometown is this village and who became rich.

Currently they provide transportation service mainly for patient and funeral transportation using these 3 cars. The group members have a meeting every month. The group funds are mainly based on monthly donation from the villagers including the members. The 20 members separately collect the donation depending on their availability. The collected money is recorded in their record book. The treasurer keeps the money in his/her house. The estimated monthly donation amount is about 200,000 to 300,000 kyats.

The group is now considering about their formal registration of the group, and collecting information about registration from the other large-scale group.

2) An Example of Religious Organization

In this village, there are also a religious group called *Da Ma Pi Ti* since 2015. *Da Ma* means a sutra, and *Pi Ti* means satisfaction after reciting a sutra. This kind of religious groups are mostly organized by women and can be found several part of the country. In *Da Ma Pi Ti*, there are about 30 female members and 4 male members.

This group just has one leader to organize the members. All the members are villagers of Nagabo village. For the activities, they can go to any places based on requests. The members recite a sutra weekly in monastery or some other places. There is no special meetings except this weekly gathering and no money collection.

The main objective of the group is to reduce people's anxiety and sorrow after funeral, and to encourage some religious ceremony by praising the Buddha's dignity. In 2015, there was a ceremony to replace the top part of the pagoda, and it requires to recite a sutra. Before 2015, they had been calling groups for this from the other villages, but the Nagabo villagers organized the group in their village in response to the opportunity in 2015.

II.2 Images of 'Leader' in the Local Context

In the long lasted era of Burmese way to socialism and military regime, the role and image of leader seems to have created as a person who receive and implement the order from the top of hierarchy. This is a different picture of leader compared to the one proposed in the WUA structure whose role is to facilitate other members' discussions and activities rather than absolute decision making power or information communicator. This chapter present the characteristics of existing leaders in the rural community.

II.2.1 Village Tract Leader

The end leader of the administrative office is a village tract leader. Village tract is an administrative division which consists of about 2 - 8 villages. He/she is the closest administrative staff to residents of rural community selected from the representative villagers. The village tract leader get 120,000 kyats/month from the government composed of a salary of 70,000 kyats/month and 50,000 kyats/month for official expenditure in their activities. The tenure of village tract leader is determined as 5 years, although there are some cases that they hold office for two or three consecutive terms based on the re-election by the representative villagers.

When there are some issues which have to be spread to residents, village tract leader convey this to the residents in his/her area using a speaker or by other methods. Village tract leader also tend to have a role to mobilize residents when there are meetings, tax collection, or sometimes for small canal maintenance and so on. For example, a canal repair mobilized by village tract leader was confirmed in Han Gyi village. One day, a farmer realized small damage in a distributary canal. And the farmer reported to the village tract leader and the village tract leader collected farmers for voluntary rehabilitation activity. In the day of activity, cumulative about 100 farmers came during the half day work to put mud, timbers and sand bags to the broken part.

Currently, a village tract leader functions as a responsible actor who can deliver information from the top, mobilize residents and solve problems among individuals in the village tract. In other words, one village tract leader take all the responsibility and have a power in that area, and the rest residents are the passive followers of these leaders.

II.2.2 Conflict Resolver

For the farmers' collective action and group activities, it is essential to solve the conflicts or quarrels among individuals or group of people by themselves. However these conflict solving commonly have been conducted by an authoritative third party in rural society of Myanmar.

Table II.3.1 shows the summary of information about conflict resolvers obtained from the farmers in each irrigation systems. According to the interviews, persons who solve the conflicts in the rural community are mostly village tract leaders in all area, although sometimes there are cases that elder villagers or individuals solve small conflicts among themselves.

In case of conflicts related to water distribution, there were no such serious conflicts raised from the respondents. But for the small quarrels between individual farmers who have near plots, they negotiate each other. Or if they have canal leaders in their canal, they request to the canal leaders to solve the conflicts. For the issues which is related to water distribution to turnouts from a distributary canal, there was a case that the upstream farmers and downstream farmers under one distributary canal of SMC have been requested to IWUMD officers separately to solve the issue of water allocation rather than discussion among themselves.

The farmers have experiences to discuss about their water distribution issues among farmers who cultivate near plots. However, it is not common for them to discuss among geographically scattered

upstream farmers and downstream farmers under the same distributary canal, or raise, share and negotiate the water distribution problems to the farmers who are not surrounding their own plots.

Table II.3.1 Conflict Resolvers in Each Irrigation System

	RMC	YMC	SMC	OMC
Conflict Resolver in Community	▪ VT* leader ▪ Elder villager ▪ Individual villagers	▪ VT leader ▪ Individual villagers	▪ VT leader	▪ VT leader
Conflict Resolver for conflicts of water distribution	▪ No serious conflict	▪ Negotiation among farmers	▪ No serious conflict ▪ Negotiate among farmers ▪ Request to IWUMD	▪ Canal leaders (not water course leaders)

* VT leader stands for village tract leader

Source: JICA Survey Team

II.2.3 Water-course Leader

As it mentioned in '5.4.6 IMT and Water Users Association Establishment' of main text, there tend to be water course leaders especially in YMC, SMC, and OMC. And in some cases, there were also canal leaders for a minor canal or distributary canal though it was not observed frequently. Table II.3.2 shows the summary of water course leaders' characteristics by irrigation systems based on the information from the farmers in each area.

It seems to be highly depending on the farmers' willingness whether each turnout has water course leader or not. As an overall tendency, water course leaders are still active in minor and/or distributary canals under YMC, SMC and OMC. However, it cannot be applicable to all the minor and/or distributary canals. Even under the same distributary canal, there might be a case that some turnout have water course leaders and the other turnout have no water course leader. Or once a water course leader passed away, no other successor is to be selected among the water users.

The water course leaders are usually elder farmers. Although the interviewed farmers are limited, most of the time their ages are around 50s – 60s, and it was rare to find the one who is younger age than 40s. The water course leader who has clear tenure for his position was not found. For example, some water course leaders have been in his position for 5 or less years (they have a plan to continue more), and some are more than 10 years.

For the selection of the water course leaders, there is no decisive methods or criteria. The farmers tend to choose the one who is active and can voluntarily work for others rather than their plot location or size. But still, especially middle to downstream farmers and the farmers who have a lots of plots or acre tend to be selected as a water course leader.

Furthermore, the style of discussion varies depending on the cases. There is no election by votes, but they have informal and verbal discussion sometimes by gathering some of the relevant water users and sometimes just through discussion in various places such as fields, a farmer's house or a village tract leader's house. There are also cases that water users who belong to one water course are living in different villages. According to a farmer, in his turnout most of the water users came from one villages and he was a minority who came from the other villages. Therefore he was not invited to the selection of water course leader.

Usually there are no incentive given to the water course leaders. They rarely have some preferential treatments to the leaders such as prior water distribution than others or exception from the money collection.

The collaboration or communication among water course leaders are quite limited. It is not often found but sometimes water course leaders have a meeting to discuss about small canal maintenance such as weeding or un-siltation, or joint field observation to check water conditions. In a distributary canal in OMC where there are both water course leaders and canal leaders, communication between canal leaders and water course leaders was observed. However, it was mainly information transfer from the canal leader to water course leaders on behalf of the government officers.

Non-irrigation activities led by the water course leaders could not be found in any of the irrigation systems. This indicates that water course leaders do not function for comprehensive agricultural development of the area and their main concerns are water distribution and canal maintenance at present.

Table II.3.2 Features of Water-course Leaders

	RMC	YMC	SMC	OMC
Existence of WC*[1] leader	No	Yes	Yes (1 case: No)	Yes
< Reference > Existence of canal leader	No (1 case: Yes → 2 canal leaders for a minor canal)	No	No (1 case: Yes → 2 canal leaders for a minor canal)	Yes (1 - 4 canal leaders for a distributary canal)
Age	N/A*[2]	50s - 60s	50s – 60s (1 case: No)	30s - 50s
Tenure	N/A (1 case: No tenure)	No tenure	No tenure	No tenure
Method of selection	N/A (1 case: Downstream farmers)	Differ by each case e.g.) ▪ Active ▪ Can assign to others ▪ Down or middle stream ▪ Have lots of plots	Differ by each case e.g.) ▪ Those who can voluntarily act for others ▪ Downstream ▪ Have many acre	Differ by each case e.g.) ▪ Informal discussion and recommendation from other farmers (no meeting) ▪ Down or middle stream
Incentive	N/A (1 case: Prior water distribution)	No incentive	▪ No incentive ▪ Prior water distribution ▪ Exception from money contribution	No incentive
Collaboration among leaders	N/A	No	▪ No ▪ Meeting ▪ Checking water conditions	No (Only report between canal leaders and WC leaders)
Non-irrigation activities under WC leader	N/A	No	No	No

*1) WC stands for water course. *2) N/A stands for not applicable.

Source: JICA Survey Team

II.2.4 Potential Leaders

For the future WUG and WUA establishment and farmers' own management and facilitation of the group, existence of potential leaders were asked. Table II.3.3 shows the summary of farmers' answers about potential leaders by irrigation system.

In all areas, they replied that they have potential leaders to lead and facilitate collective activities

among farmers. Age of these potential leaders covers wide range of generations from around 20s – 50s. A farmer raised members of youth group in the community as potential leaders for the future WUA activities. These suggested potential leaders were relatively younger than the current water course leaders' age shown in Table II.3.2 of the above section. This may imply that farmers think youth forth is required for voluntary and collective activities by the farmers.

The suggested gender and occupation of the potential leaders were male farmers in their major answers. This may indicate that the WUA activities, which mainly deal with irrigation issues, are highly related to male. Or male might be fundamentally better to lead group activities in their local contexts.

The required educational background for the potential leaders ranges from no education to above university, although above middle or high school were often heard comparatively from their responses. A farmer showed his feeling that higher education such as above university is essential for the leaders from the perspective to accept new ideas like WUA.

Table II.3.3 Potential Leaders

	RMC	YMC	SMC	OMC
Existence of potential leaders	Yes	Yes	Yes	Yes
Age	17 – 50	20 – 40 (1 case: youth group)	25 – 50	50
Gender	Male	Male	▪ Male ▪ Male & Female	Male
Occupation	Farmer	Farmer	Farmer	Farmer
Education	Above mid or high school	Above mid school	▪ None ▪ Above high school or University	-

Source: JICA Survey Team

APPENDIX-III

AGRICULTURE

APPENDIX III: AGRICULTURE

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III.1 Extension Camp in the 9 Townships

1. Kanbalu Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Koe Htaung Boe	0	0	1	1	1	Kya Khat Aice					√
						2	Zee Ka Nar					√
						3	Thin Taw					√
						4	Out Tell					√
						5	Mait Tha Lin Kone					√
						6	Koe Htuang Boe					√
2	Chat Thin	1	2	0	3	7	Sar Kyin					√
						8	Zee Kone Ma					√
						9	Pint Thar Gyi					√
						10	Chat Gyi					√
						11	Nyaung Kan Thar					√
						12	Nyo Pin Shoe					√
						13	Zinn					√
						14	Pay Kone (North)					√
						15	Hin Thaw					√
						16	Naga Paw					√
						17	Kan Gyi					√
						18	Tin Maw					√
						19	Chat Thin					√
3	Chat Thin	0	1	0	1	20	Quarter (1)	√				√
						21	Quarter (2)	√				√
						22	Quarter (3)	√				√
						23	Quarter (4)	√				√
						24	Quarter (5)	√				√
						25	Myay Htoo	√				√
						26	Late Tuu	√				√
						27	Boat Taw	√				√
						28	Nat Pay	√				√
						29	Kan Phyu	√				√
						30	Tauk Ka Shut	√				√
4	Htan Kone	0	1	0	1	31	Htan Kone	√				
						32	Wat Toe (North)	√				
						33	Khar Tout Yin	√				
						34	Nyaung Pin Gyi	√				
						35	Kyoe Kyar	√				
						36	Oat Pho	√				
						37	Khaw Tha Ni	√				
						38	Ywet Kyan	√				
						39	Dan Pin	√				
						40	Tha Boot Kone	√				
						41	Tin Kote Gyi	√				
5	Tal Pin	0	1	0	1	42	Thin Pan Taw					√
						43	Pay Kone (South)					√
						44	Inn Ma					√
						45	Nyaung Kone					√
						46	Tal Pin					√
6	Tha Yet Khaung	0	1	0	1	47	Kyun Pin Kone	√			√	
						48	Mae Thae	√			√	
						49	Kai Yoe	√			√	
						50	Zee Phyu Kone	√			√	
						51	Nyaung Zin	√			√	
						52	Tha Yet Khaung	√			√	
						53	Sue Boat Kone	√			√	
						54	Htein Taw	√			√	
						55	Inn Lae Gyi	√			√	
7	Zee Kone	1	1	1	3	56	Zee Kone (South)	√				
						57	See Sone Gyi	√				
						58	Ngar Yar Nae	√				
						59	Tha Pyay Thar	√				
						60	Poppa	√				
						61	Tha Ya Kan Gyi	√				
						62	Chaung Kan	√				
						63	Boat Kone	√				
						64	Tha Lae Oo	√				
						65	Htan Ta Pin	√				
						66	Hta Naung Kai	√				
						67	Kyauk Se Kan	√				
						68	Ngar Myaung	√				
						69	Buu Gyi	√				
						70	Wat Toe (South)	√				

8	Ka Boe	0	1	0	1	71	Ka Boe	√	√			
						72	Kyi Su	√	√			
						73	Aung Chan Thar	√	√			
						74	Kyee Kone	√	√			
						75	Chin Myit Kyin	√	√			
						76	Nyaung Pin Seik	√	√			
9	Ma Lae	0	1	0	1	77	Ma Lae					√
						78	Htan Taw					√
						79	Nyaung Shae					√
						80	Pa Zee Gyi					√
						81	Mal Za Taw					√
						82	Myay Mon					√
						83	Hnet Pyaw Tai					√
						84	Kha Tone Ah					√
						85	Buu Kone					√
						86	Gar Htar					√
						87	Sabae Nan Thar					√
						88	Ya Thar					√
						89	Ba Thout Kan					√
						90	Yay Shin					√

2. Kin-U Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Myin Daung	1	1	1	3	1	Mone Hla		√			√
						2	Thar Wut Hti		√			√
						3	Ma Gyi Oat		√			√
						4	Inn Pat		√			√
						5	In Taing Lay		√			√
						6	Sae Gyi		√			√
						7	Mone Taw (North)		√			√
						8	Mya Kan		√			√
						9	Mu Thar		√			√
						10	That Pay		√			√
						11	Yone Su		√			√
						12	Kyun Lae		√			√
2	Gway Kone	1	0	1	2	13	Thayet Kone	√	√			√
						14	King Pyit	√	√			√
						15	Pyin Htaung	√	√			√
						16	In Taing Gyi	√	√			√
						17	Gway Kone	√	√			√
						18	Myo Thit	√	√			√
						19	Shin Min Dway	√	√			√
						20	Ngar Yone Gyi	√	√			√
						21	Paung Hle Kone	√	√			√
						22	Kan Thit	√	√			√
						23	Ta Pin Kaung	√	√			√
						24	Tal Bo Pin	√	√			√
3	Myo Ma - 1	1	1	1	3	25	Kyi Kan	√				√
						26	Ywar Than	√				√
						27	Latt Pan Hla	√				√
						28	Long Shae	√				√
						29	Kan Thar Yar	√				√
						30	Ma Gyi Tone	√				√
						31	Than Bo	√				√
						32	Latt Pan Gyi	√				√
						33	Aung Mingalar	√				√
						34	Aung Thiri	√				√
						35	Mya Kan Thar	√				√
						36	Oat Sar Twin	√				√
4	Myo Ma - 2	1	0	1	2	37	Ma Daung Hla	√				√
						38	Patauk Kone	√				√
						39	Saw Gyi	√				√
						40	Ah Le Shoe	√				√
						41	Ja Poat	√				√
						42	Si Poat Tara	√				√
						43	Ba Ao	√				√
						44	Ma Daung Gyi	√				√
						45	Pin Tin	√				√
						46	Kyum Taing	√				√
						47	Nyaung Kan	√				√
						48	Ai Pauk Gyi	√				√
5	Kyun Pin Kan	1	0	1	2	49	Kyoe Kan					√
						50	Kyun Pin Kan					√
						51	Ywar Sin					√
						52	Shar Lwin					√
						53	Ngar Tin Gyi					√
						54	Hta Naung Kai Gyi					√
						55	Yout Thwar Kai					√
						56	Kone Gyi					√
						57	Ywar Thit					√
						58	Ywar Thar					√
						59	Sue Tut					√
						60	Ka Book					√
						61	Kote Tat					√
						62	Thin Paung					√

3. Shwebo Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Ta Ka Nan	0	4	3	7	1	Ta Ka Nan		√			
						2	Zee Taw		√			
						3	Shar Taw		√			
						4	Aung Chan Thar		√			
						5	Yin Mar		√			
						6	Bhone Bwet		√			
						7	Ta Kun Taing		√			
						8	Kan Bhyu		√			
						9	Thit Cho Pin		√			
						10	Pauk Tone		√			
						11	Chaung Sone		√			
						12	Min Kone		√			
						13	Myo Ma		√			
						14	Taunt Tin		√			
						15	Pan Taung		√			
2	Ta Ohn	1	0	1	2	16	Ta Ohn					√
						17	Tha Pyay Thit					√
						18	Kyoe Kyar					√
						19	Ta Kan Thar					√
						20	Kawt Ywar					√
						21	Bole Taw Tall					√
						22	Pate Tall					√
						23	Sin Kook					√
						24	Min Kyaung					√
3	Zee Kone	2	0	2	4	25	Myin Chin	√	√			
						26	U Shitt Kan	√	√			
						27	Tint Tal	√	√			
						28	Thee Lone	√	√			
						29	Pan Yan	√	√			
						30	Ywar Taw	√	√			
						31	Late Chin	√	√			
						32	Khun Taung Gyi	√	√			
						33	Nyaung Kan	√	√			
4	Mahar Nandar	1	1	1	3	34	Si Thar	√	√			
						35	Sint Tone	√	√			
						36	Kyat Tat	√	√			
						37	Khun Taung Nge	√	√			
						38	Patauk Khong	√	√			
						39	Hta Naung Wun	√	√			
5	Seik Khon	1	1	2	4	40	Seik Khon		√			
						41	Htan Zin		√			
						42	Chi Par		√			
						43	Soung Tan		√			
						44	Tal Pin		√			
						45	Ywar Soe		√			
						46	Zee Phyu Kone		√			
						47	Hna Ma Sar Yit		√			
						48	Nyaung Kai		√			
						49	Yone Tall		√			
6	Pa Line	1	1	1	3	50	Pa Line		√			
						51	Tat Tu		√			
						52	War Yone Kan		√			
						53	Wun Si		√			
						54	Kun Seik		√			
						55	Lone Taw		√			
7	Nyaung Pin Thar	1	1	-	2	56	Sin Inn		√			
						57	Myin See		√			
						58	Ku Toe Seik		√			
						59	Tha Put Taw		√			
						60	Tha Yat Pin Wun		√			
						61	Nyaung Pin Thar		√			
						62	Kyar Ywar		√			

4. Wetlet Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Shwe Pan Kone	0	1	0	1	1	Shwe Pan Kone		√			√
						2	Tha Ma Yoe		√			√
						3	Kai Ywar		√			√
						4	Hla Twe		√			√
						5	Swal Kwase		√			√
2	Ywar Thar Gyi	0	2	1	3	6	Ywar Thar Gyi		√			√
						7	Tha Yet Gyi		√			√
						8	Pauk Taw		√			√
						9	Ma Gyi Phyu		√			√
						10	Ta Kaung Taunt		√			√
						11	Pha Yar Pyan		√			√
3	Hla Taw	2	0	1	3	12	Hla Taw		√			√
						13	Shwe Kyin		√			√
						14	Sint Par		√			√
						15	Hta Nin Thar		√			√
						16	Mae Kone		√			√
						17	Ta Kuang Min		√			√
						18	Tha Man Thar		√			√
						19	Kyi Kan		√			√
						20	Yay Hwet		√			√
						21	Mout Kyoe		√			√
4	Myo Ma	1	2	0	3	22	Myin Taw		√			√
						23	Tha Khout Taw		√			√
						24	Kyi Pin Kan		√			√
						25	Khaw Tall		√			√
						26	Mu Gyi		√			√
						27	Lein Pin		√			√
						28	Pin Zin		√			√
						29	Ma Gyi Tone		√			√
						30	Yone Thar		√			√
5	Pauk Kan	0	1	0	1	31	Pauk Kan					√
						32	Htan Gyi					√
						33	Kan Pauk					√
						34	Thar Hlaing					√
						35	Ywar Nan					√
						36	Ku Kaung					√
						37	Nyaung Pin Gyi Taw					√
						38	Ta Chan Thar					√
						39	Sin Ma Kwat					√
6	Sai Naing	1	0	0	1	40	Sai Naing Gyi		√			√
						41	Sai Naing Lay		√			√
						42	Oat Pone		√			√
						43	Kywal Zin		√			√
						44	Myin Thi		√			√
						45	Kyauk Tai		√			√
						46	Min Kyi		√			√
						47	Thar Nar		√			√
7	Mote Soe Chone	1	0	0	1	48	Mote Soe Chone		√			√
						49	Yin Mar Kan		√			√
						50	Min Thar Kan		√			√
						51	Pwint Hlaing		√			√
						52	Sin Ta Wal		√			√
						53	Yin Taw		√			√
						54	Han Lin		√			√
8	Min Kone	1	0	0	1	55	Thit Sient					√
						56	Shar Kwal					√
						57	Min Kone					√
						58	Tha Yai					√
						59	Min Ywar					√
						60	In Gin Pin					√
						61	Kan Phyu					√
9	Shein Ma Kar	1	0	0	1	62	Shein Ma Kar					√
						63	In Doung					√
						64	Yone Pin Kone					√
						65	Tat Ywar					√
						66	Inn Bal Gyi					√
						67	Bu Ba Kan					√

5. Taze Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Myo Ma (1)	2	0	1	3	1	Tote Ta Lote				√	√
						2	Nyan Thar				√	√
						3	Nga Tan				√	√
						4	At Taw				√	√
						5	Paw U				√	√
						6	Bo Mya				√	√
						7	Myitta Myaing Ward				√	√
						8	Maha Myaing Ward				√	√
						9	Dal Yout				√	√
						10	Chaung Yoe				√	√
						11	Shwe Ta Kyay				√	√
						12	Ka La Zin				√	√
2	Myo Ma (2)	2	3	3	8	13	Kha Paung Chai				√	√
						14	Kone Yoe				√	√
						15	Ywar Shae (South)				√	√
						16	In Tai				√	√
						17	Shwe Ka Taw				√	√
						18	War Ya Nge				√	√
						19	Chaung U				√	√
						20	Nga Nu Chaung				√	√
						21	Kan Gyi Kone				√	√
						22	Ywar Thar Yar				√	√
3	Ywar Shae (North)	0	2	0	2	23	Ywar Shae (North)				√	√
						24	Kha Paung Kya				√	√
						25	Chaung Sone (North)				√	√
						26	Aung Swar				√	√
						27	Na Noon Taw				√	√
						28	Pa Tee				√	√
						29	Site Kwin				√	√
4	Kan Htoo Ma	1	0	1	2	30	Kan Htoo Ma				√	√
						31	Kha Yan Chan				√	√
						32	San Sweal				√	√
						33	Lat Tee				√	√
						34	Ywar Mone Taung				√	√
						35	Kyaung Sing Ai				√	√
						36	Zee Pauk				√	√
						37	Sein Nan				√	√
						38	Pa Kar				√	√
						39	Mouk Tat				√	√
						40	Shwe Ku				√	√
						41	Nyaung Zee Kone				√	√
						42	Kone Swar				√	√
						43	Ywar Ma				√	√
5	Na Bat Gyi	2	2	0	4	44	Na Bat Gyi				√	√
						45	Na Bat Nge				√	√
						46	Chaung Sone (South)				√	√
						47	Pha Lan Chai				√	√
						48	Ye U Kone				√	√
						49	Daungt Gyi				√	√
						50	Bill Yin				√	√
						51	Kyun Le				√	√
						52	Thit Taw Pauk				√	√
						53	Ta Poe				√	√
						54	Pay Kone				√	√
						55	Thit Say Kone				√	√
						56	Thae Sar				√	√
						57	Sin Nge				√	√
						58	In Kote Kar				√	√
						59	Kyun Taw Kone				√	√
						60	Oat Pho Ai				√	√

6. Ye-U Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Mote Si	4	1	2	7	1	Ywar Mate Thar			√	√	
						2	Aye Kone			√	√	
						3	Htan Taw			√	√	
						4	Nga Yote Tone			√	√	
						5	Mote Si			√	√	
						6	Ma Gyi Taw			√	√	
						7	Kote Ko Su			√	√	
						8	Aung Thar			√	√	
						9	Zeint Zune			√	√	
						10	Kone Thar			√	√	
						11	Ywar Thit			√	√	
						12	Chone Ywar			√	√	
2	Ye U Kone	4	2	2	8	13	Ye U Kone			√	√	
						14	Kyar Pan Nyo			√	√	
						15	Lay Ywar			√	√	
						16	Phain Kar			√	√	
						17	In Taw			√	√	
						18	Mone Tai Pin			√	√	
						19	In Pin			√	√	
						20	Ywar Su Kyi			√	√	
						21	Kan Pauk			√	√	
						22	Than The			√	√	
						23	Myin Pauk			√	√	
						24	Pone Na Tar			√	√	
						25	Tu Maung			√	√	
						26	Wa Thae			√	√	
						27	Pha Lan Khone			√	√	
						28	Si Thar Myay			√	√	
						29	Phan Khar Zin			√	√	
						30	Mae Oh			√	√	
3	Chan Thar	1	1	2	4	31	Kyaung Pan Taw			√	√	
						32	Tinn Tain Yan			√	√	
						33	Myo Gyi			√	√	
						34	Htan Gyi			√	√	
						35	Mate Hti Lar			√	√	
						36	Zay Ya Waddy			√	√	
						37	Khaung Nwet			√	√	
						38	Shaw Phyu			√	√	
						39	Chan Thar			√	√	
						40	Taung Kwin			√	√	
						41	Win Wa			√	√	
						42	Kwan Ohn			√	√	
						43	Chaung Sone			√	√	
						44	Ma Gyi Ni			√	√	
4	Ta Mar Taw	1	3	0	4	45	Ywar Nge			√	√	
						46	Khin Pin			√	√	
						47	In Gyi			√	√	
						48	Pa Lu Za Wa			√	√	
						49	Taung Pyin Nge			√	√	
						50	Nyaung Ni Kan			√	√	
						51	Tar Tai			√	√	
						52	Aung Tae Zin			√	√	
						53	Lin Phyu			√	√	
						54	Nay Pu Kone			√	√	
						55	Nyaung Le			√	√	
						56	Yay Myat			√	√	
						57	Lein Taw			√	√	
						58	Pay Gyi			√	√	
						59	Boat Ywar			√	√	
						60	Ta Mar Taw			√	√	
						61	Chaung Shae			√	√	
						62	Oat Pho			√	√	

7. Tabayin Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Myo Ma	2	1	1	4	1	Tabayin			√	√	√
						2	Thaung Pyin			√	√	√
						3	Wa Bar			√	√	√
						4	Taw Kyaung			√	√	√
						5	Yin Twe			√	√	√
						6	Latt Tee			√	√	√
						7	Bagan			√	√	√
						8	Ywar Shae			√	√	√
						9	Khun Taung			√	√	√
						10	Ta Nal			√	√	√
						11	Pauk Taw			√	√	√
						12	In Tai Lay			√	√	√
						13	Paung Kaung Ku			√	√	√
						14	Na Gar Twin			√	√	√
						15	In Tai Gyi			√	√	√
						16	Tha Yat Kyin			√	√	√
2	Nyaung Hla	1	1	1	3	17	Nyaung Hla			√		√
						18	Lat Yet Kone			√		√
						19	Tha Yat Taw			√		√
						20	Mae Oh			√		√
						21	Na Myar			√		√
						22	Ma Ya Kan			√		√
						23	Daing Net			√		√
3	Tha Yet Kan	1	1	0	2	24	Tha Yet Kan			√		√
						25	Tal Taw			√		√
						26	Mee Kyaung Ai			√		√
						27	Sue Tat			√		√
						28	Tike Ywar			√		√
						29	Mu Kan			√		√
						30	Latt Tee			√		√
4	In Pin	1	0	1	2	31	In Pin			√	√	√
						32	Htone Pho			√	√	√
						33	Na Ga Bo			√	√	√
						34	Ohn Ta Pin			√	√	√
						35	Tat Khaung			√	√	√
						36	Tauk Ka Shut			√	√	√
						37	Taw Tan			√	√	√
						38	Ma Gyi Oat			√	√	√
						39	Kai Kan			√	√	√
						40	Htan Ta Pin			√	√	√
						41	Eain Yar			√	√	√
						42	Tha Pate Le			√	√	√
5	Aye Thar Yar	3	0	2	5	43	Aye Thar Yar			√	√	√
						44	Kyi			√	√	√
						45	Kya Khat			√	√	√
						46	Min Swe Hnit			√	√	√
						47	Ma Gyi Sout			√	√	√
						48	Sai Pyin			√	√	√
						49	Min Tae Kone			√	√	√
						50	Thein Mar			√	√	√
						51	In Boat			√	√	√
						52	Chone Ywar			√	√	√
						53	Sat Pyar Kyin			√	√	√
						54	In Gyin Pin			√	√	√
						55	In Gyin Tha Poe			√	√	√
						56	Thit Yar Aice			√	√	√
						57	Si Taw			√	√	√
						58	Sut Lue			√	√	√

8. Budalin Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Nyaung Kan	3	1	0	4	1	Myauk Taw					√
						2	Taung Kone					√
						3	Khoe Chaung					√
						4	Nyaung Kan					√
						5	Yay Budalin					√
						6	Tha Khut Ta Ne					√
						7	Gway Pin Chaung					√
2	Nyaung Pin Kan	2	1	2	5	8	Htan Taw					√
						9	Kun Chan					√
						10	Kan Swae					√
						11	Zee Taw					√
						12	Hta Naung Kone					√
						13	Yone Hlay Kone					√
						14	Sone Kone					√
						15	Lay Myay					√
						16	Wun Bo					√
3	Sae Wa	3	0	2	5	17	Sae Wa				√	√
						18	Maung Htaung				√	√
						19	Si Par				√	√
						20	Ngar Yay Win				√	√
						21	Kyaung Ywa				√	√
						22	Ka Toe				√	√
						23	King San				√	√
						24	Sin Yan				√	√
						25	Ye Htwat				√	√
						26	Nga Pa Yin				√	√
						27	Sae Gyi				√	√

9. Ayadaw Township

No.	Name of Extension Camp	Extension Workers Allocated				No.	Name of Village Tract Covered	Irrigation System (checked available system)				
		AO	DAO	Daily Wage	Total			OMC	SMC	YMC	RMC	None
1	Kyun Pho Pin	1	0	0	1	1	War Tan					√
2	Myo Ma	2	2	1	5	2	Waryoung					√
						3	Kan Phyu					√
						4	Ma Lae Thar					√
						5	Min					√
						6	Tha Kut Pin Lae					√
						7	Ayadaw (1)					√
						8	Ayadaw (2)					√
						9	Ayadaw (3)					√
						10	Kan Thar					√
						11	War Taw Ma					√
						12	Kyauk Pyaut					√
3	Naung Gyi Aing	1	2	3	6	13	Naung Gyi Ai					√
						14	Ya Thit	√			√	
						15	Nget Paw Gyan	√			√	
						16	Oat Shitt Kyi	√		√		
						17	Lain Hla	√		√		
						18	Yee Chin					√
						19	Ma Gyi Kan					√
						20	Thit Kyin Gyi					√
						21	Mhaw Taw					√
						22	Yay Yo					√
						23	Chin Pin					√
4	Kye	1	2	1	4	24	Kye	√		√		
						25	Khin Thar			√		
						26	Bawn Kya			√		
						27	Oat Shin Gyi			√		
						28	Shar Gone	√		√		
						29	Kyun Taw	√		√		
						30	Nay Yar Khin	√		√		
5	Za Yit	2	1	4	7	31	Za Yit		√			
						32	Ma Gyi Zawd		√			
						33	Myay Nod		√			
						34	Taung Mwa					√
						35	Aung Thar					√
						36	Sin Ta Lae					√
						37	Tha Lae Bar					√
						38	Done Di					√
						39	Wat Kae					√
						40	Ngwe Twin		√			
						41	Nyawng Kyaw Tauk					√

Source: 9 Township DOA Offices Concerned

III.2 Extension Programs (Demonstration & Trial Plots) in the 9 TS of the Project Area

1. Kanbalu Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					
1	Paddy GAP Promotion	100	5	✔	
< Monsoon Season in 2016 >					
1	Paddy GAP Promotion	50	1		✔
2	Paddy Seed Production (Ayeyarmin)	30	1	✔	
3	Paddy Seed Production (Shwebo Pawsan)	5	1	✔	
4	Maize Cultivation Technique Test	10	1		✔
5	Pigeon Pea Seed Production	10	1		✔
< Winter Season in 2016/2017, Provisional >					
1	Groundnuts Variety Comparision	50	1		✔
2	Chick Pea Seed Production	30	2		✔
3	Seasame Variety Comparision	25	2		✔
4	Green Gram Variety Comparision	20	2		✔
5	Black-gram Seed Production	50	2		✔
	Total	**380**			

2. Khin-U Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					
1	Paddy GAP Promotion	25	1		✔
< Monsoon Season in 2016 >					
1	Paddy Seed Production (Shwebo Pawsan)	50	1		✔
< Winter Season in 2016/2017, Provisional >					
1	Groundnuts GAP Promotion	10	1		✔
	Total	**85**			

3. Shwebo Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					
1	Paddy GAP Promotion	70	2		✔
2	Paddy Drum Seeder Demonstration	10	1		✔
< Monsoon Season in 2016 >					
1	Paddy GAP Promotion	50	3		✔
2	Paddy Seed Production (Shwebo Pawsan)	50	1	✔	
3	Paddy Cultivation Technique Comparison	1	1	✔	
< Winter Season in 2016/2017, Provisional >					
1	Chick Pea Seed Production	20	1		✔
	Total	**201**			

4. Wetlet Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					
1	Paddy GAP Promotion	30	1		✔
< Monsoon Season in 2016 >					
1	Paddy Seed Production (Shwebo Pawsan)	12	2		✔
2	Paddy Seed Production (Shwebo Pawsan)	38	2	✔	
3	Pigeon Pea GAP Promotion	25	3		✔
4	Pigeon Pea Seed Production	7	2		✔
< Winter Season in 2016/2017, Provisional >					
1	Chick Pea Seed Production	20	1		✔
2	Chick Pea Varity Test	1	1		✔
2	Seasame Seed Production	20	1		✔
3	Black Gram Variety Test	10	1		✔
4	Wheat Variety Test	10	1		✔
5	Groundnuts GAP promotion	20	1		✔
	Total	**193**			

5. Taze Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					
1	Paddy GAP Promotion	20	1		✔
< Monsoon Season in 2016 >					
1	Paddy GAP Promotion	20	1		✔
2	Paddy Cultivation Technique Comparison	1	1	✔	
< Winter Season in 2016/2017, Provisional >					
1	Groundnuts Seed Production	20	1		✔
2	Chick Pea Seed Production	20	1		✔
	Total	**81**			

6. Ye-U Township DOA

	Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
				Union	Region
< Summer Season in 2016 >					

1	Paddy GAP Promotion	25	1		✔
2	Cropping Pattern Demonstration	1	1	✔	
< Monsoon Season in 2016 >					
1	Paddy GAP Promotion	20	2		✔
2	Seed Production (Shwebo Pawsan)	38	5	✔	
< Winter Season in 2016/2017, Provisional >					
1	Chick Pea Seed Production	30	2		✔
2	Black Gram Variety Comparison	2	1	✔	
3	Groundnuts Cultivation Technique Demonstratio	1	1		✔
	Total	**117**			

7. Tabeyin Township DOA

Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
			Union	Region
< Summer Season in 2016 >				
1 Paddy GAP Promotion	25	1		✔
2 Seasame GAP Promotion	10	1		✔
3 Green Gram GAP Promotion	10	1		✔
< Monsoon Season in 2016 >				
1 Shwebo Pawsan Seed Production	12	1		✔
2 Shwebo Pawsan Seed Production	38	1	✔	
3 Paddy GAP Promotion	20	1		✔
< Winter Season in 2016/2017, Provisional >				
1 Groundnuts Seed Production	20	1		✔
2 Chick Pea Seed Production	20	1		✔
3 Black Gram GAP	20	1		✔
Total	**175**			

8. Budalin Township DOA

Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
			Union	Region
< Summer Season in 2016 >				
1 Paddy GAP Promotion	20	1		✔
< Monsoon Season in 2016 >				
1 Pigeon Pea Seed Production	15	1		✔
Total	**35**			

9. Ayadaw Township DOA

Extension Program (Demonstration & Trial Plots)	Acerage (Acre)	No. of Villages	Budget Source	
			Union	Region
< Summer Season in 2016 >				
1 Paddy GAP Promotion	100	2		✔
< Monsoon Season in 2016 >				
1 Pigeon Pea GAP Promotion	50	1		✔
< Winter Season in 2016/2017, Provisional >				
1 Groundnuts GAP Promotion	10	1		✔
Total	**160**			

Source: DOA Shwebo District, DOA Budalin TS and DOA Ayadaw TS

III.3 2010/11-2014/15 Crop Production in 9 TS

Crop Production in Kanbalu Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	57,844	4.16	240,770	6,386	4.55	29,035	64,230	4.20	269,805
2	Wheat	0	0.00	0	0	0.00	0	0	0.00	0
3	Maize (grain)	38,954	2.99	116,641	713	2.95	2,104	39,667	2.99	118,745
4	Pigeon pea	47,582	1.62	76,960	0	0.00	0	47,582	1.62	76,960
5	Green gram	24,438	1.29	31,514	9,918	1.46	14,461	34,356	1.34	45,975
6	Black gram	864	1.41	1,214	10,787	1.49	16,068	11,651	1.48	17,282
7	Chick pea	0	0.00	0	1,328	1.88	2,498	1,328	1.88	2,498
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	14,017	1.18	16,510	24,697	1.82	44,983	38,714	1.59	61,493
10	Sesame	0	0.00	0	36,485	0.88	32,035	36,485	0.88	32,035
11	Sunflower	88	0.83	73	10,275	0.93	9,559	10,363	0.93	9,632
12	Mustard	0	0.00	0	61	0.05	3	61	0.05	3
13	Cotton	113	1.87	211	151	1.91	289	264	1.89	500
14	Sugarcane	10,078	56.56	569,988	0	0.00	0	10,078	56.56	569,988
15	Cattle feed (in bandles)	1,468	3,475	5,100,679	2,513	4,099	10,300,662	3,981	3,869	15,401,341
16	Maize (fresh cob in pcs)	174	36,010	6,265,752	594	55,383	32,897,480	768	50,994	39,163,232
17	Onion	0	0.00	0	64	16.72	1,070	64	16.72	1,070
18	Garlic	0	0.00	0	0	0.00	0	0	0.00	0
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	0	0.00	0	0	0.00	0	0	0.00	0
21	Vegetables	549	NA	NA	1,744	NA	NA	2,293	NA	NA

Source: DOA District Shwebo

Crop Production in Kin-U Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	39,994	4.48	179,190	12,290	4.81	59,066	52,284	4.56	238,256
2	Wheat	0	0.00	0	882	1.60	1,409	882	1.60	1,409
3	Maize (grain)	441	3.05	1,346	0	0.00	0	441	3.05	1,346
4	Pigeon pea	15,076	1.63	24,573	0	0.00	0	15,076	1.63	24,573
5	Green gram	19,690	1.31	25,848	3,044	1.48	4,513	22,734	1.34	30,361
6	Black gram	0	0.00	0	2,484	1.60	3,985	2,484	1.60	3,985
7	Chick pea	0	0.00	0	4,338	1.99	8,622	4,338	1.99	8,622
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	11,393	1.17	13,325	11,894	1.83	21,803	23,287	1.51	35,128
10	Sesame	24	0.71	17	3,803	0.89	3,394	3,827	0.89	3,411
11	Sunflower	341	0.93	318	426	0.95	404	767	0.94	722
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	153	1.97	302	289	2.00	578	442	1.99	880
14	Sugarcane	4,929	62.94	310,216	0	0.00	0	4,929	62.94	310,216
15	Cattle feed (in bandles)	1,748	3,490	6,099,996	1,530	4,135	6,325,881	3,278	3,791	12,425,877
16	Maize (fresh cob in pcs)	1,823	35,215	64,197,254	1,326	56,473	74,882,700	3,149	44,166	139,079,954
17	Onion	0	0.00	0	1,116	17.26	19,258	1,116	17.26	19,258
18	Garlic	0	0.00	0	304	11.60	3,527	304	11.60	3,527
19	Potato	0	0.00	0	743	18.62	13,834	743	18.62	13,834
20	Chili	49	3.55	174	146	4.08	596	195	3.95	770
21	Vegetables	1,862	NA	NA	3,378	NA	NA	5,240	NA	NA

Source: DOA Shwebo District

Crop Production in Shwebo Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	43,764	4.86	212,505	22,115	5.14	113,769	65,879	4.95	326,274
2	Wheat	0	0.00	0	828	1.54	1,275	828	1.54	1,275
3	Maize (grain)	0	0.00	0	0	0.00	0	0	0.00	0
4	Pigeon pea	3,126	1.63	5,110	0	0.00	0	3,126	1.63	5,110
5	Green gram	1,980	1.37	2,705	132	1.45	192	2,112	1.37	2,897
6	Black gram	475	1.41	668	1,793	1.52	2,725	2,268	1.50	3,393
7	Chick pea	0	0.00	0	6,794	1.90	12,884	6,794	1.90	12,884
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	4,535	1.11	5,046	3,349	1.78	5,959	7,884	1.40	11,005
10	Sesame	335	0.74	247	5,329	0.99	5,300	5,664	0.98	5,547
11	Sunflower	1	1.00	1	316	0.95	300	317	0.95	301
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	198	2.11	418	208	2.28	474	406	2.20	892
14	Sugarcane	603	55.28	33,336	0	0.00	0	603	55.28	33,336
15	Cattle feed (in bandles)	1,701	3,363	5,720,016	1,406	3,833	5,388,904	3,107	3,575	11,108,920
16	Maize (fresh cob in pcs)	1,495	41,322	61,776,182	2,876	64,013	184,102,543	4,371	56,252	245,878,725
17	Onion	0	0.00	0	74	16.96	1,255	74	16.96	1,255
18	Garlic	0	0.00	0	17	11.12	189	17	11.12	189
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	11	3.73	41	22	4.00	88	33	3.91	129
21	Vegetables	1,740	NA	NA	1,446	NA	NA	3,186	NA	NA

Source: DOA Shwebo District

Crop Production in Wetlet Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	55,218	4.62	254,925	10,932	4.91	53,655	66,150	4.66	308,580
2	Wheat	0	0.00	0	8,219	1.65	13,552	8,219	1.65	13,552
3	Maize (grain)	0	0.00	0	0	0.00	0	0	0.00	0
4	Pigeon pea	7,950	1.57	12,507	0	0.00	0	7,950	1.57	12,507
5	Green gram	14,880	1.32	19,673	723	1.37	993	15,603	1.32	20,666
6	Black gram	10	1.50	15	631	1.45	916	641	1.45	931
7	Chick pea	0	0.00	0	20,720	1.87	38,667	20,720	1.87	38,667
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	1,644	1.19	1,950	2,828	1.84	5,193	4,472	1.60	7,143
10	Sesame	7,484	0.71	5,293	24,582	0.92	22,721	32,066	0.87	28,014
11	Sunflower	0	0.00	0	2,135	0.93	1,976	2,135	0.93	1,976
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	52	2.00	104	16	2.38	38	68	2.09	142
14	Sugarcane	339	57.44	19,473	0	0.00	0	339	57.44	19,473
15	Cattle feed (in bandles)	11,396	3,458	39,411,248	5,372	3,921	21,066,026	16,768	3,607	60,477,274
16	Maize (fresh cob in pcs)	0	0	0	5,261	55,944	294,321,685	5,261	55,944	294,321,685
17	Onion	0	0.00	0	1,029	16.93	17,421	1,029	16.93	17,421
18	Garlic	0	0.00	0	1,302	11.40	14,842	1,302	11.40	14,842
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	4	3.50	14	74	4.03	298	78	4.00	312
21	Vegetables	153	NA	NA	766	NA	NA	919	NA	NA

Source: DOA Shwebo District

Crop Production in Taze Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	39,869	4.25	169,363	9,908	4.49	44,531	49,777	4.30	213,894
2	Wheat	0	0.00	0	0	0.00	0	0	0.00	0
3	Maize (grain)	6,355	3.00	19,055	166	2.79	463	6,521	2.99	19,518
4	Pigeon pea	1,699	1.59	2,694	0	0.00	0	1,699	1.59	2,694
5	Green gram	5,739	1.28	7,364	829	1.43	1,184	6,568	1.30	8,548
6	Black gram	1,296	1.39	1,798	15,962	1.51	24,107	17,258	1.50	25,905
7	Chick pea	0	0.00	0	10,886	2.04	22,157	10,886	2.04	22,157
8	Soy bean	20	1.10	22	0	0.00	0	20	1.10	22
9	Groundnut	12,048	1.19	14,313	11,750	1.80	21,099	23,798	1.49	35,412
10	Sesame	318	0.69	218	529	0.89	473	847	0.82	691
11	Sunflower	1,229	0.84	1,037	2,212	0.89	1,977	3,441	0.88	3,014
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	31	1.94	60	17	1.76	30	48	1.88	90
14	Sugarcane	23	57.48	1,322	0	0.00	0	23	57.48	1,322
15	Cattle feed (in bandles)	1,278	3,513	4,489,582	1,174	4,001	4,697,139	2,452	3,747	9,186,721
16	Maize (fresh cob in pcs)	1,274	32,739	41,710,020	1,004	55,002	55,221,846	2,278	42,551	96,931,866
17	Onion	0	0.00	0	10	16.60	166	10	16.60	166
18	Garlic	0	0.00	0	4	10.75	43	4	10.75	43
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	0	0.00	0	0	0.00	0	0	0.00	0
21	Vegetables	493	NA	NA	445	NA	NA	938	NA	NA

Source: DOA Shwebo District

Crop Production in Ye-U Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	34,984	4.83	168,893	12,376	4.86	60,149	47,360	4.84	229,042
2	Wheat	0	0.00	0	502	1.48	743	502	1.48	743
3	Maize (grain)	910	3.01	2,739	0	0.00	0	910	3.01	2,739
4	Pigeon pea	1,950	1.58	3,075	0	0.00	0	1,950	1.58	3,075
5	Green gram	1,741	1.31	2,282	368	1.42	523	2,109	1.33	2,805
6	Black gram	0	0.00	0	8,407	1.56	13,110	8,407	1.56	13,110
7	Chick pea	0	0.00	0	3,913	1.83	7,150	3,913	1.83	7,150
8	Soy bean	86	1.10	95	108	1.25	135	194	1.19	230
9	Groundnut	1,312	1.19	1,560	2,395	1.86	4,465	3,707	1.63	6,025
10	Sesame	1,300	0.75	974	1,778	0.85	1,517	3,078	0.81	2,491
11	Sunflower	257	0.82	210	1,732	0.96	1,659	1,989	0.94	1,869
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	22	2.05	45	13	1.85	24	35	1.97	69
14	Sugarcane	47	58.66	2,757	0	0.00	0	47	58.66	2,757
15	Cattle feed (in bandles)	656	3,424	2,246,050	793	4,082	3,236,639	1,449	3,784	5,482,689
16	Maize (fresh cob in pcs)	367	34,912	12,812,804	389	54,655	21,260,785	756	45,071	34,073,589
17	Onion	0	0.00	0	654	17.49	11,437	654	17.49	11,437
18	Garlic	0	0.00	0	293	11.72	3,434	293	11.72	3,434
19	Potato	0	0.00	0	87	18.91	1,645	87	18.91	1,645
20	Chili	23	3.52	81	187	4.05	758	210	4.00	839
21	Vegetables	819	NA	NA	1,119	NA	NA	1,938	NA	NA

Source: DOA Shwebo District

Crop Production in Tabayin Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	49,675	4.72	234,473	18,079	4.87	88,082	67,754	4.76	322,555
2	Wheat	0	0.00	0	911	1.47	1,342	911	1.47	1,342
3	Maize (grain)	0	0.00	0	0	0.00	0	0	0.00	0
4	Pigeon pea	11,085	1.51	16,756	0	0.00	0	11,085	1.51	16,756
5	Green gram	10,986	1.27	13,910	2,968	1.39	4,137	13,954	1.29	18,047
6	Black gram	1,508	1.39	2,101	5,016	1.50	7,508	6,524	1.47	9,609
7	Chick pea	0	0.00	0	6,322	1.96	12,362	6,322	1.96	12,362
8	Soy bean	0	0.00	0	85	1.21	103	85	1.21	103
9	Groundnut	7,927	1.16	9,229	7,256	1.79	12,994	15,183	1.46	22,223
10	Sesame	5,750	0.67	3,870	5,766	1.03	5,921	11,516	0.85	9,791
11	Sunflower	1,957	0.81	1,580	2,932	0.89	2,619	4,889	0.86	4,199
12	Mustard	0	0.00	0	17	0.06	1	17	0.06	1
13	Cotton	98	1.78	174	74	1.88	139	172	1.82	313
14	Sugarcane	1	45.00	45	0	0.00	0	1	45.00	45
15	Cattle feed (in bandles)	4,243	3,296	13,986,699	2,776	3,827	10,622,682	7,019	3,506	24,609,381
16	Maize (fresh cob in pcs)	0	0	0	3,734	55,104	205,757,340	3,734	55,104	205,757,340
17	Onion	0	0.00	0	3	17.67	53	3	17.67	53
18	Garlic	0	0.00	0	0	0.00	0	0	0.00	0
19	Potato	0	0.00	0	9	17.67	159	9	17.67	159
20	Chili	19	3.63	69	170	3.96	673	189	3.93	742
21	Vegetables	420	NA	NA	1,598	NA	NA	2,018	NA	NA

Source: DOA Shwebo Office

Crop Production in Budalin Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	17,968	4.13	74,294	556	4.49	2,496	18,524	4.15	76,790
2	Wheat	0	0.00	0	8,023	1.02	8,213	8,023	1.02	8,213
3	Maize (grain)	0	0.00	0	212	2.22	471	212	2.22	471
4	Pigeon pea	22,173	0.89	19,838	0	0.00	0	22,173	0.89	19,838
5	Green gram	3,587	0.80	2,864	3,298	0.84	2,776	6,885	0.82	5,640
6	Black gram	0	0.00	0	1,368	0.79	1,085	1,368	0.79	1,085
7	Chick pea	0	0.00	0	13,482	0.99	13,315	13,482	0.99	13,315
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	7,035	2.37	16,660	5,196	3.37	17,520	12,231	2.79	34,180
10	Sesame	13,348	0.36	4,750	11,427	0.63	7,150	24,775	0.48	11,900
11	Sunflower	9,547	1.22	11,632	24,764	1.32	32,795	34,311	1.29	44,427
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	3,712	1.91	7,081	0	0.00	0	3,712	1.91	7,081
14	Sugarcane	4	48.75	195	0	0.00	0	4	48.75	195
15	Cattle feed (in bandles)	8,410	4,033	33,918,427	6,246	4,085	25,514,629	14,656	4,055	59,433,056
16	Maize (fresh cob in pcs)	0	0	0	1,991	28,972	57,683,938	1,991	28,972	57,683,938
17	Onion	0	0.00	0	461	18.68	8,612	461	18.68	8,612
18	Garlic	0	0.00	0	0	0.00	0	0	0.00	0
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	0	0.00	0	23	3.26	75	23	3.26	75
21	Other vegetables	1,138	NA	NA	2,332	NA	NA	3,470	NA	NA
22	Other crops	10,275	NA	NA	7,855	NA	NA	18,130	NA	NA

Source: DOA Budalin Township

Crop Production in Ayadaw Township (Ave. of 2010/11-2014/15)

No.	Crop Name	Moonsoon Season			Winter/Summer Season			Total		
		Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)	Harvest (ha)	Yied (ton/ha)	Production (ton)
1	Paddy	9,678	3.83	37,074	938	4.64	4,357	10,616	3.90	41,431
2	Wheat	0	0.00	0	1,454	1.06	1,545	1,454	1.06	1,545
3	Maize (grain)	0	0.00	0	0	0.00	0	0	0.00	0
4	Pigeon pea	17,317	0.87	15,122	0	0.00	0	17,317	0.87	15,122
5	Green gram	7,928	0.80	6,357	1,832	0.79	1,454	9,760	0.80	7,811
6	Black gram	437	0.79	344	1,110	0.85	944	1,547	0.83	1,288
7	Chick pea	0	0.00	0	7,014	0.97	6,801	7,014	0.97	6,801
8	Soy bean	0	0.00	0	0	0.00	0	0	0.00	0
9	Groundnut	3,060	2.13	6,529	6,097	3.42	20,863	9,157	2.99	27,392
10	Sesame	24,412	0.26	6,324	13,575	0.61	8,303	37,987	0.39	14,627
11	Sunflower	515	1.15	591	1,623	1.18	1,921	2,138	1.17	2,512
12	Mustard	0	0.00	0	0	0.00	0	0	0.00	0
13	Cotton	6,552	1.65	10,838	0	0.00	0	6,552	1.65	10,838
14	Sugarcane	25	49.80	1,245	0	0.00	0	25	49.80	1,245
15	Cattle feed (in bandles)	0	0	0	0	0	0	0	0	0
16	Maize (fresh cob in pcs)	0	0	0	2,154	48,302	104,041,653	2,154	48,302	104,041,653
17	Onion	0	0.00	0	0	0.00	0	0	0.00	0
18	Garlic	0	0.00	0	0	0.00	0	0	0.00	0
19	Potato	0	0.00	0	0	0.00	0	0	0.00	0
20	Chili	0	0.00	0	0	0.00	0	0	0.00	0
21	Other vegetables	0	NA	NA	0	NA	NA	0	NA	NA
22	Other crops	25,563	NA	NA	8,992	NA	NA	34,555	NA	NA

Source: DOA Ayadaw District

III.4 Farmers' Needs and Possible Countermeasures by Extension Workers

Crops/Varieties	Farmers' Need	Possible Countermeasures by Extension Workers/Remarks
I. Monsoon Paddy		
1. General	1) Quality seeds	Providing technical support to seed growers
		Matching seed growers and paddy farmers
		Carrying out strict field inspection of seed farms
		Introduction of appropriate seed dosage and salt water selection technique of seeds
	2) Controlling stem borers	Educating basic physiology of stem borers
		Instructing appropriate use of agri. chemicals for controlling stem borers
		Forecasting and announcing outbreak of stem borers by enhancing on-going early warning system
		lintroducing promising varieties to have resistance against stem borers
	3) Controlling brown plant hoppers	-Ditto -
	4) Proper fertilizer use (dosage and timing)	Educating basic physiology of paddy
		Instructing appropriate dosage and timing of fertilizer use in accordance with the plant growth and soil condition
		Introducing practical method to judge an appropriate timing for using fertilizers
		Instructing soil improvement technology including organic manuring
		Providing soil test service
		Educating laws and regulations to control fertilizers
	5) Proper agri. chemicals use	Educating basic physiology of major pests and diseases and their controlling technique
		Educating IPM concept and technologies
		Educating the concept of early warning system
		Educating laws and regulations to control agri. chemicals
		Instructing safety use technique of agri. chemicals
2. Specific		
a. Shwebo Powsan	1) Controlling lodging	Educating basic physiology of Shwebo Powsan
		Instructing appropriate dosage and timing of top-dressing
	2) Proper cropping time	Educating relation between planting time and crop productivity by break-downing yield components
b. Ayeyarmin	1) Controlling lodging	As same as I.2.a.1)
c. Shwe ThweYin & Shawe Sae Yin	1) Controlling weeds (direct sowing)	Educating basic physiology of major weeds
		Instructing appropriate use of herbicides for controlling weeds
		Introducing line sowing practice
	2) Appropriate top-dressing technique	As same as I.2.a.1)
	3) Young seedling transplanting	Educating relation between seedling age and crop productivity by break-downing yield components
II. Summer Paddy		
1. General	1) Controlling weeds (direct sowing)	As same as I.2.c.1)
	2) Proper fertilizer use (dosage and timing)	As same as I.1.4)
	3) Controlling stem borers	As same as I.1.2)
	4) Controlling brown plant hoppers	As same as I.1.2)
2. Specific		
a. Shwe ThweYin & Shawe Sae Yin	As same as monsoon season	As same as I.2.c
b. IR-747	1) Controlling bacterial leaf bright (BLB)	Educating basic physiology of the bacteria causing this disease and its controlling technique
		Forecasting and announcing outbreak of BLB by enhancing on-going early warning system

III. Summer Upland Crops		
1. Sesame	1) Quality seeds	Providing technical support to seed growers
		Matching seed growers and paddy farmers
		Carrying out strict field inspection of seed farms
	2) New variety (high market value)	Introducing promising varieties (in cooperation with DRA)
	3) Stable water supply	NA
	4) Proper fertilizer use (dosage and timing)	As same as I.1.4)
2. Green gram	1) Controlling yellow mosaic virus (YMV) disease	Controlling aphid (see III.2.2))
		Educating typical symptom of YMV and discipline to take out YMV infected plants
		Introducing YMV resistant varieties (in cooperation with DRA)
	2) Controlling thrips and aphid	Educating basic physiology of thrips and aphid
		Instructing appropriate use of agri. chemicals for controlling thrips and aphid
		Educating IPM concept and technologies
	3) Labor saving for harvesting (3 harvestings)	Introducing promising varieties that can mature beans at once (in cooperation with DRA)

APPENDIX-IV

AGRICULTURE MECHANIZATION AND SEED CENTERS

APPENDIXES IV: AGRICULTURAL MECHANIZATION AND SEED CENTERS

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APPENDIX IV AGRICULTURAL MECHANIZATION AND SEED CENTERS

IV.1 Present and Future situation of AMD

IV.1.1 Organization and Demarcation in AMD

The following figure shows the organization chart of AMD. With regard to Agricultural Machineries Testing Center, it will be managed under Research and Technology Section, though it will be installed in the compound of Mandalay Regional Office. Concerning Maintenance Workshops, they will be located in AMSs (Shwebo, Wetlet, Ye-U, Kanbalu, and Budalin) and run under AMD District Office (Shwebo, Kanbalu, and Monywa). Sub-AMS under each AMS is a supplementary base of the services by AMS. Usually no staffs and no machineries are posted in Sub-AMS. In the busy season of agricultural machineries, AMS places their machineries in Sub-AMS. In the Project, Sub-AMS may function as a sub-base of maintenance work.

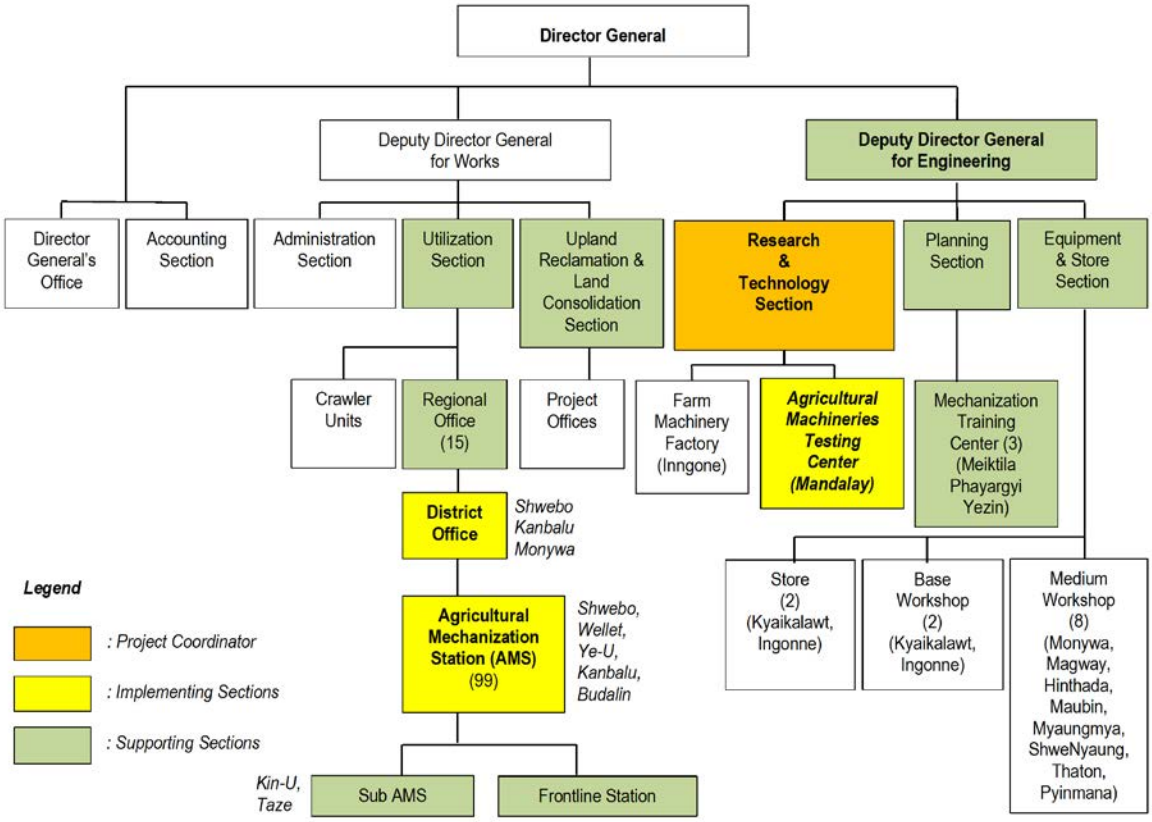


Figure IV.1.1 Organization Chart of AMD

Source: AMD

The table below shows the summary of tasks which each institutions will bear in the project.

Table IV.1.1 Summery of Each Instruction's Task

Institution / Facility	Tasks
Agricultural Machineries Testing Center @ AMD Mandalay Regional Office	1) AMD sets the test code which follows OECD code and suits for Myanmar meteorological conditions. 2) The Center tests 4-wheel tractor which is applied by manufactures or dealers. The test is conducted on the sample tractor of one model which is selected by manufacturers. 3) The Center release the test results to the users and Agricultural Economic Bank, and public in order to show the quality of the tractor.
Maintenance Workshop	
Maintenance Workshop @Shwebo AMS	1) The workshop will be the core of agricultural machinery maintenance in the Project area. 2) The workshop completes the overhaul and the rebuilding of engine and gearbox
Small Workshop @ Wetlet, Ye-U, Kanbalu, Budalin AMS	The workshop supports the users at the maintenance level of spare parts replacement and minor repair

Source: JICA Survey Team

IV.1.2 Target of Tilling and Harvesting Services

The table below shows the potential village tract on tilling and harvesting service by AMS in Shwebo district and Kanbalu district. AMD has a plan to establish "Flontline Station" in the villages as mentioned on Table3.5.5 in the Main Report and lease their machineries to the farmers. AMD will train farmers to operate machineries for Flontline Station. According to the interview to AMD Shwebo District Office by the Survey Team, AMS selects the village tracts below based on the criteria, i.e. 1) Limited numbers of agricultural service providers, 2) Farmers' intension on farming, and 3) Number of small-scale farmers (less than 3 ac). Tilling and harvesting services are now being transferred from AMD's direct service to farmers.

Table IV.1.2 Target Village of Tilling and Harvesting Service

T/S	Village Tract	Area, ha	T/S	Village Tract	Area, ha
Shwebo	Minkone	121 (300acre)	Taze	PawU	61 (150acre)
	Shartaw	162 (400acre)		Chaung U	81 (200acre)
	Lonetaw	202 (500acre)		Khayanchan	32 (80acre)
	KonSeik	202 (500acre)		Aungswa	49 (120acre)
	Payan	202 (500acre)		Nanwintaw	142 (350acre)
	Leikchin	162 (400acre)		Bayyin	101 (250acre)
	Taungtin	121 (300acre)		Kyunlae	61 (150acre)
	Sinyon	121 (300acre)		Inndie	61 (150acre)
	Total	1,295 (3200acre)		Shwekataw	61 (150acre)
Kin-U	Myakan	202 (500acre)		Kadoma	81 (200acre)
	Gwekone	202 (500acre)		Kyungsineyin	101 (250acre)
	Magyiton	162 (400acre)		DaungKwe	121 (300acre)
	Aungmaingalar	162 (400acre)		Ngatan	81 (200acre)
	Total	728 (1800acre)		Phalanchai	81 (200acre)
Wetlet	Pinzin	121 (300acre)		Ywashae(South)	101 (250acre)
	Khawtaw	121 (300acre)		Ywashae (North)	61 (150acre)
	Leinpin	101 (250acre)		Tottalop	162 (400acre)
	Kyipinkan	202 (500acre)		Paesar	81 (200acre)
	Sintpar	162 (400acre)		Total	1,518 (3750acre)
	Thaying	121 (300acre)	Tabayin	WaBar	81 (200acre)
	WetletYwe	81 (200acre)		Nyunghla	121 (300acre)
	Thalai	162 (400acre)		Namya	142 (350acre)
	Kanpyu	202 (500acre)		Latyetkone	121 (300acre)
	Yinmataw	162 (400acre)		Nayacan	142 (350acre)
	Htanintha	121 (300acre)		Muuown	40 (100acre)
	Mogyi	121 (300acre)		Taltaw	73 (180acre)
	Ownnaebok	142 (350acre)		Myintankye	89 (220acre)
	Seinnainglay	81 (200acre)		Dynet	142 (350acre)
	Thatyetgyi	121 (300acre)		Lette	81 (200acre)
	Total	2,023 (5000acre)		Total	1,032 (2550acre)
YeU	Myinpouk	73 (180acre)	Kanbalu	Innlaegyi	263 (650acre)
	Magyitaw	81 (200acre)		Paykone	101 (250acre)
	Hteinkar	101 (250acre)		Latehto	162 (400acre)
	Inntaw	49 (120acre)		Zegon	142 (350acre)
	Ponnaka	40 (100acre)		Chatgyi	162 (400acre)

	Kyaepannyo	142 (350acre)		Htintaw	121 (300acre)
	Total	486 (1200acre)		Nyaungone	142 (350acre)
Kyunhla	Innkaung	142 (350acre)		Nyaungpyigyi	81 (200acre)
	Tintainyan	162 (400acre)		Sabaenatar	121 (300acre)
	Laiksintaung	61 (150acre)		Pintaw	121 (300acre)
	Kokkogone	162 (400acre)		Pinnma	101 (250acre)
	Ywarthi	243 (600acre)		Taukkashit	142 (350acre)
	Nyaungkaing	243 (600acre)		Yedo	162 (400acre)
	Magyiinn	121 (300acre)		Maethae	81 (200acre)
	Total	1,133 (2800acre)		Total	1,902 (4700acre)

Source: AMD Shwebo District Office 2016

IV.2 Maintenance Workshops in AMS

IV.2.1 Outline of Workshops

1) Maintenance Workshop in Shwebo AMS

Shwebo AMS will function as a core workshop in the Project area at the level of complete overhauling and rebuilding of engines and transmissions like AMD Medium Workshop No.6 in Monywa City.

2) Small Workshops in Wetlet, Ye-U, Kanbalu, and Budalin AMS

The small workshops in Kanbalu, Ye-U, Wetlet, and Butalin AMS will support the machine users at the maintenance level of spare parts replacement and simple repairs. If the machinery need to be restored, it must be carried to the maintenance workshop in Shwebo AMS.

IV.2.2 Site Plan of Workshops

All workshops will be constructed in AMSs' compound. The following figures show the compound of each AMS and the proposed site for the workshops.

1) Maintenance Workshop at AMS No.3 (Shwebo): 60mL x 24mW x 10mH

With regard to the present situation of the proposed location for installing the workshop, the height of the land is lower than that of Sake Khon – Shwebo Road. 3-foot land filling is needed in order to prevent the flooding in the rainy season. The road and gate for the workshop should be also constructed.

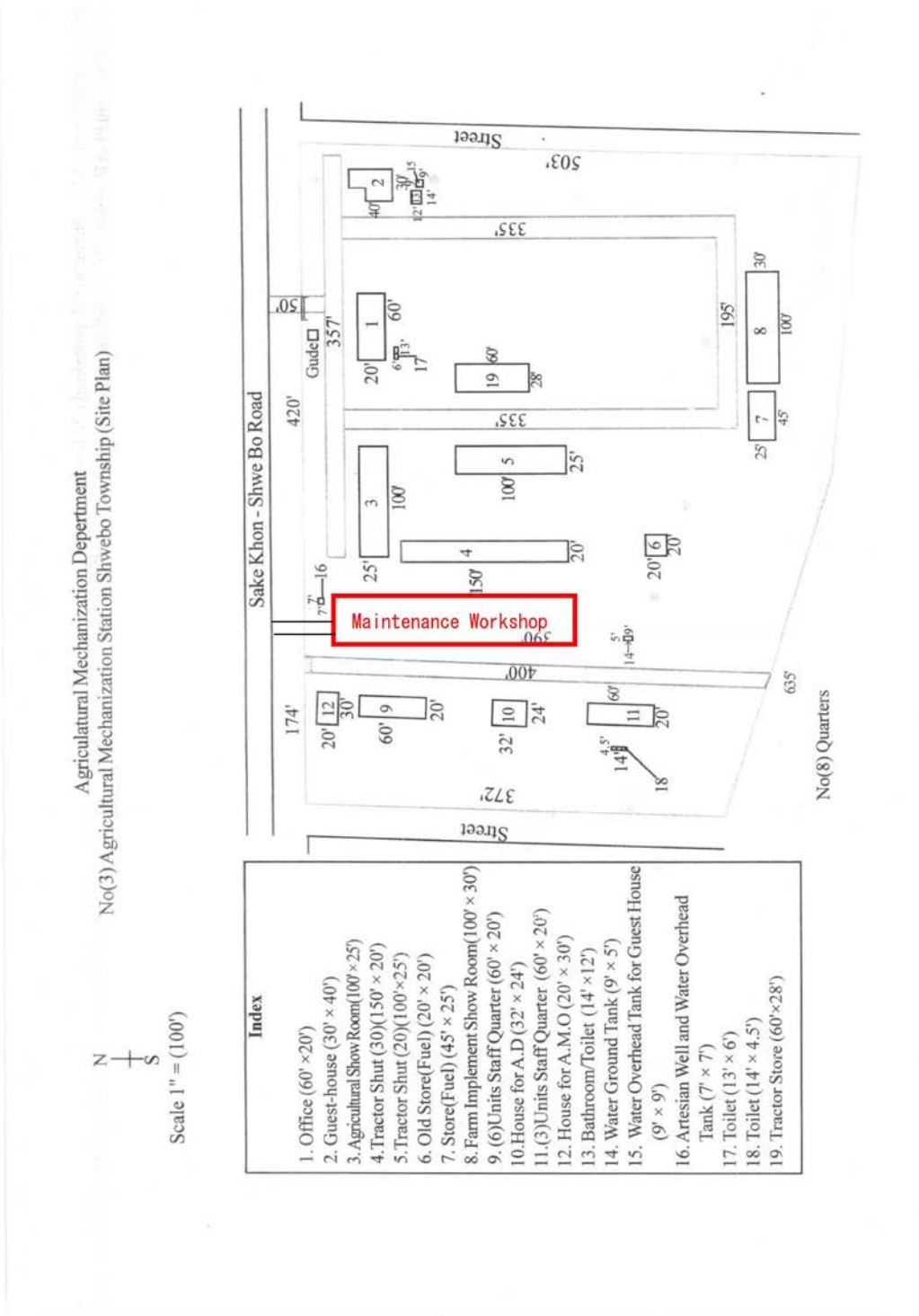


Figure IV.2.1 Site Plan of Maintenance Workshop at AMS No.3 (Shwebo)

Source: AMD

2) Small Workshop at AMS No.61 (Wetlet): 30mL x 16mW x 7.5mH

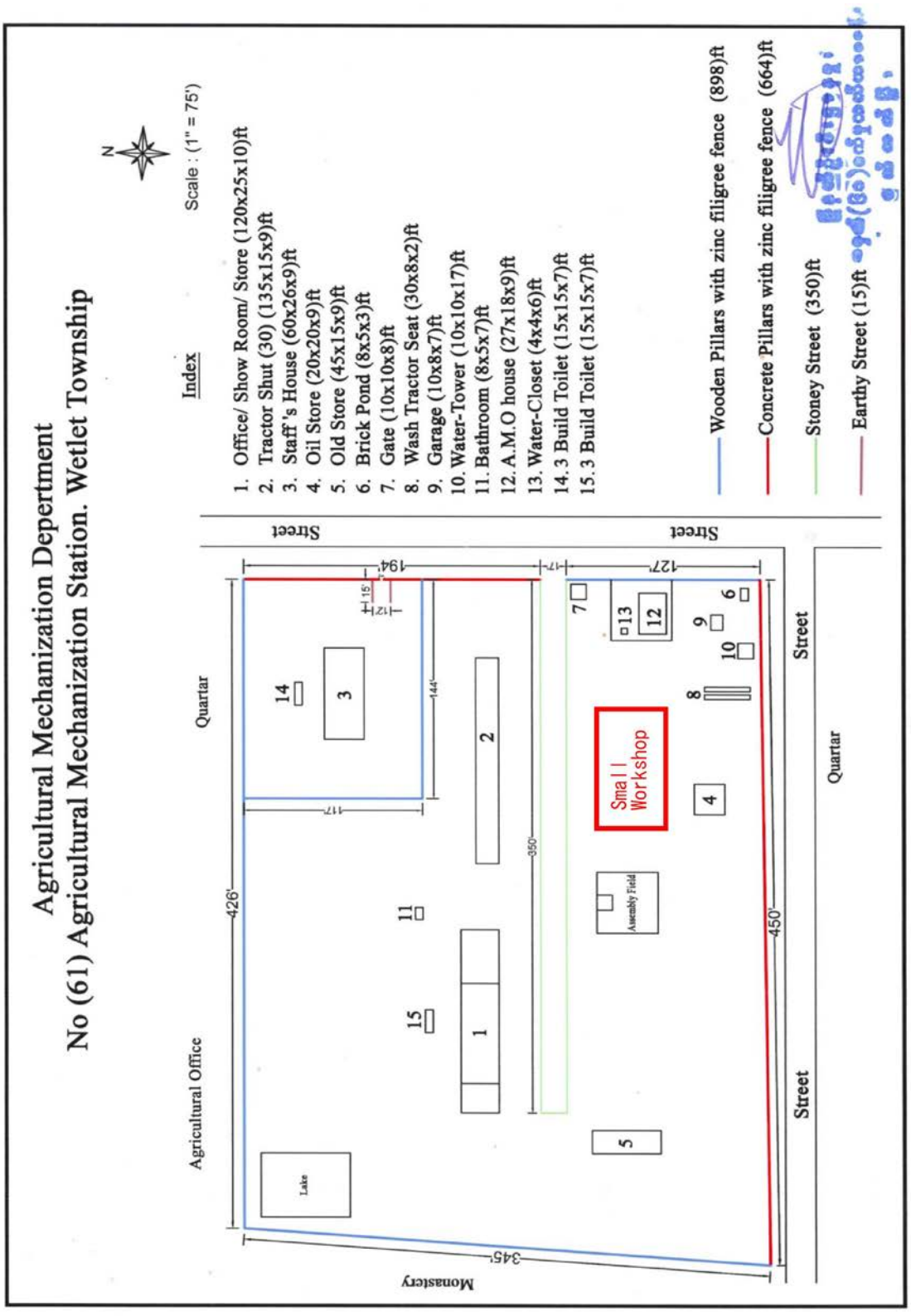


Figure IV.2.2 Site Plan of Small Workshop at AMS No.61 (Wetlet)

Source: AMD

3) Small Workshop at AMS No.21 (Ye-U): 30mL x 16mW x 7.5mH

In the current condition, the proposed site for the workshop is paddy. For installing the workshop, the land filling is needed.

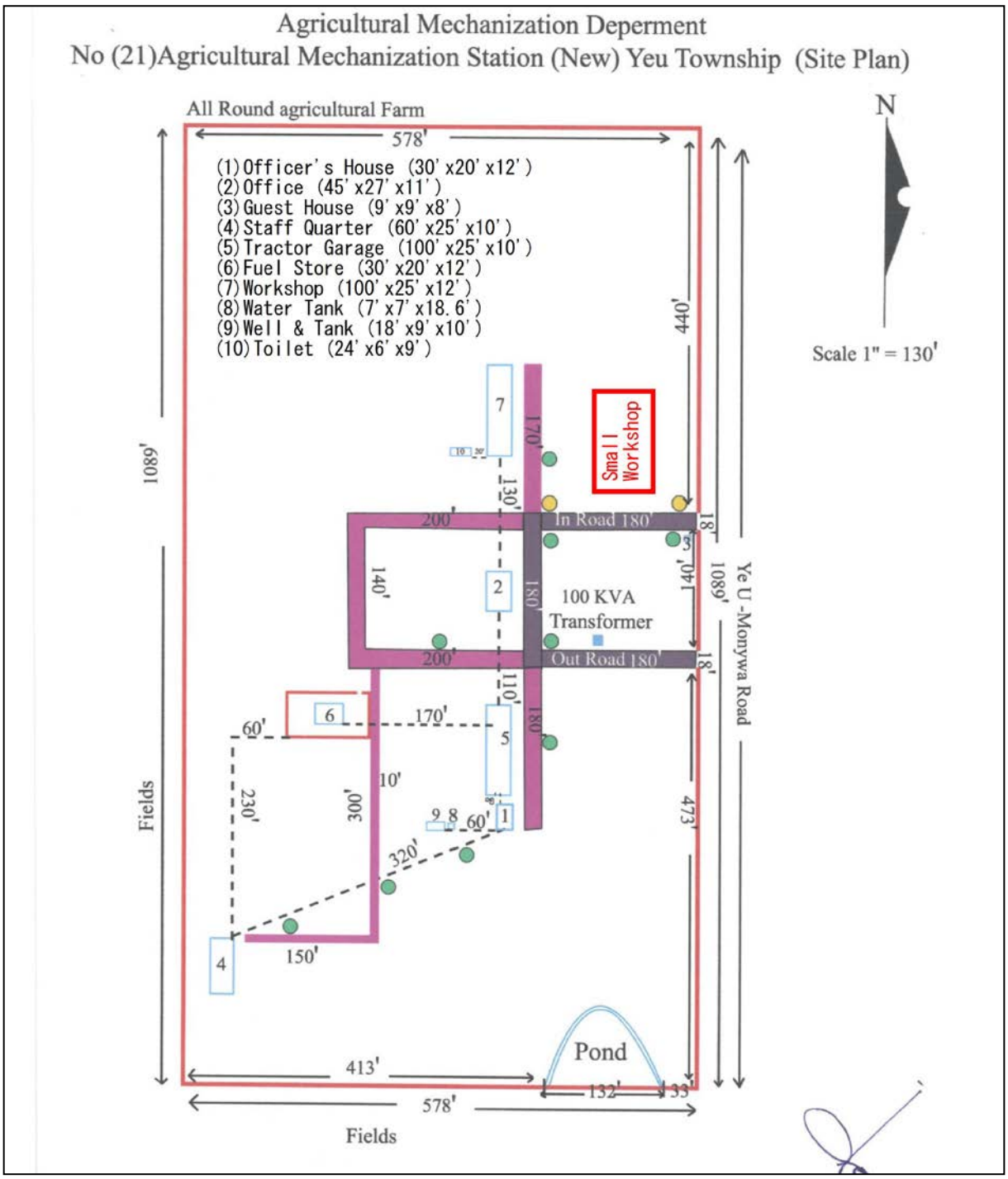


Figure IV.2.3 Site Plan of Small Workshop at AMS No.21 (Ye-U)

Source: AMD

4) Small Workshop at AMS No.40 (Kanbalu): 30mL x 16mW x 7.5mH

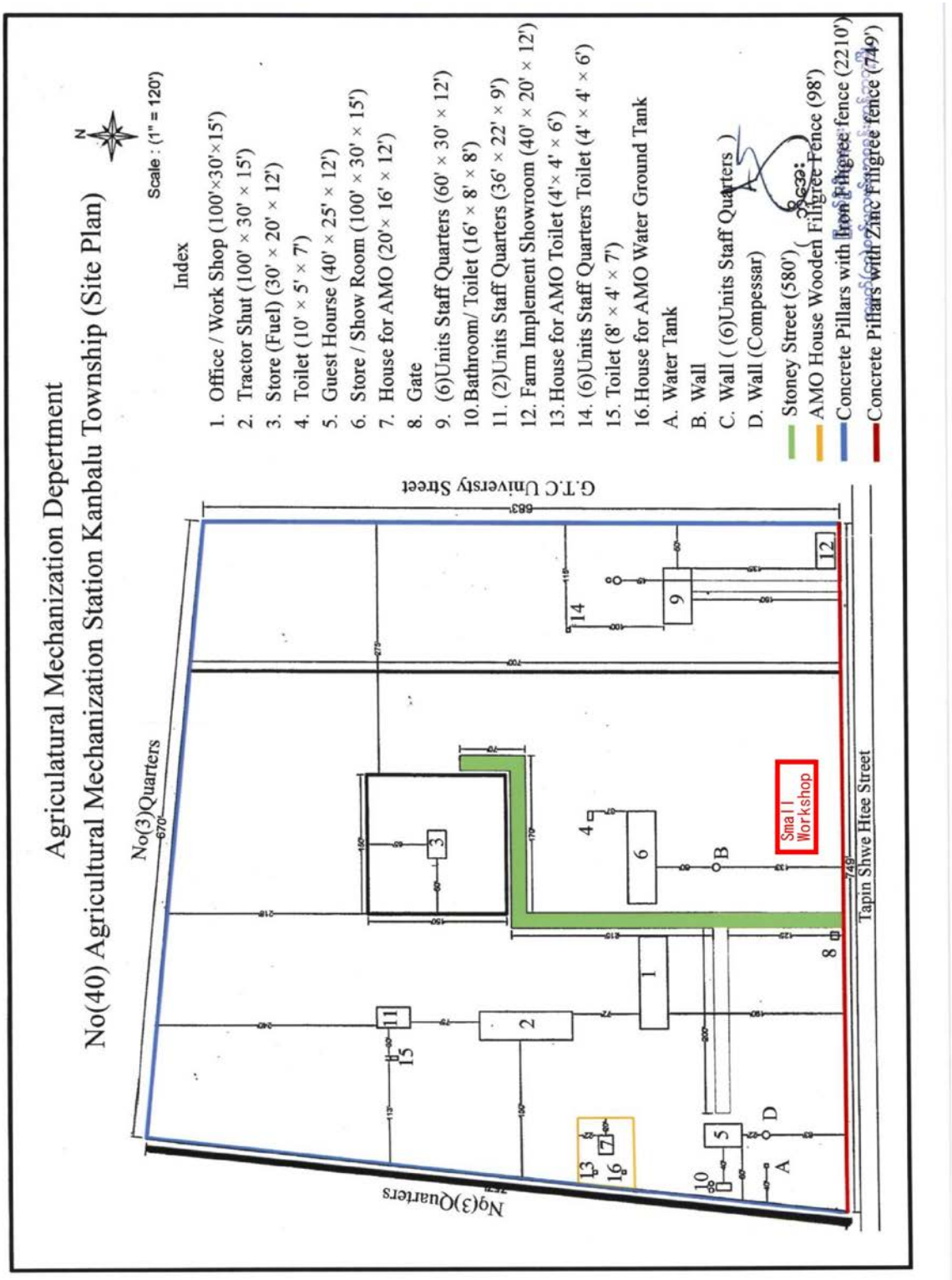


Figure IV.2.4 Site Plan of Small Workshop at AMS No.40 (Kanbalu)

Source: AMD

5) Small Workshop at AMS No.62 (Budalin): 30mL x 16mW x 7.5mH

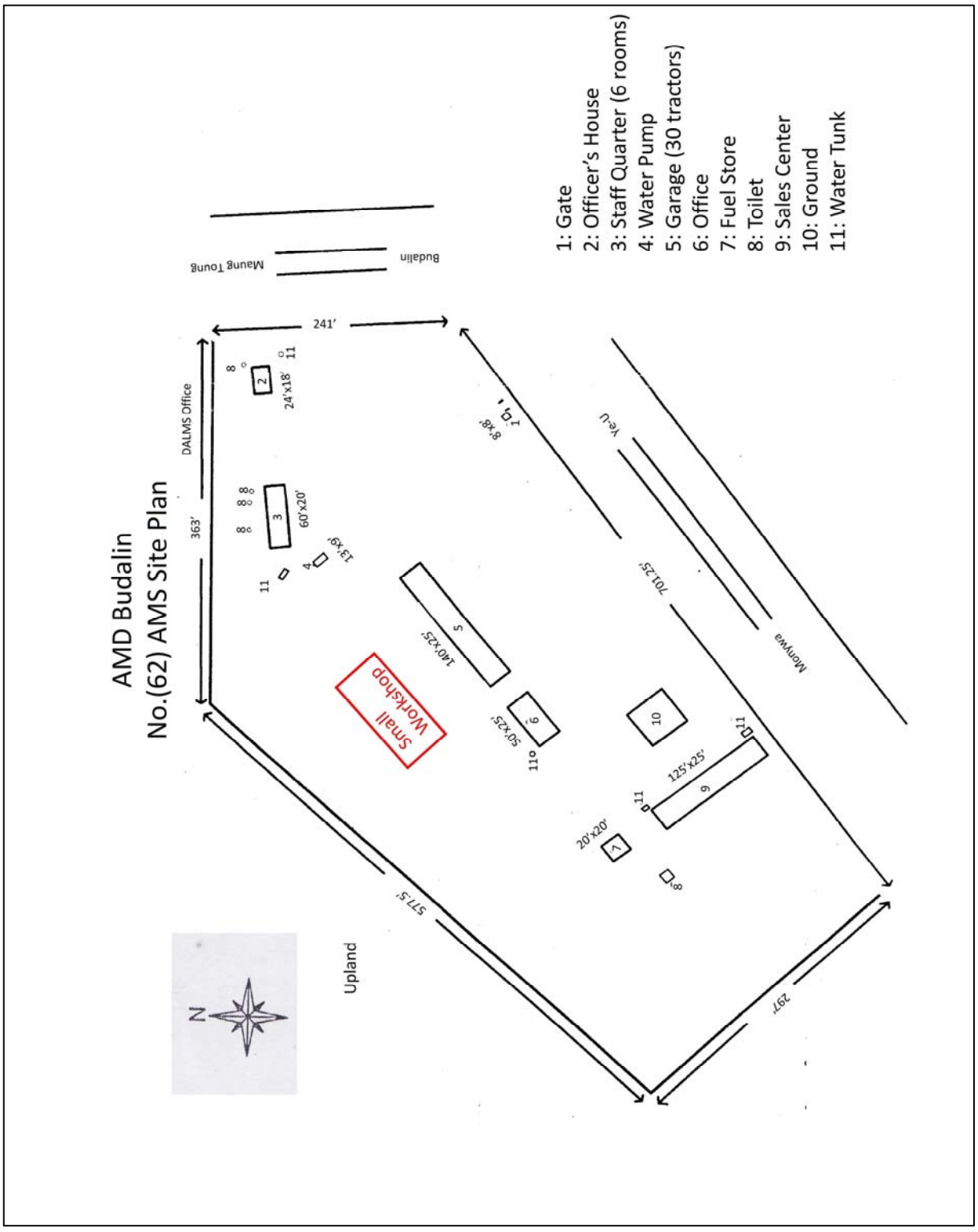


Figure IV.2.5 Site Plan of Small Workshop at AMS No.62 (Budalin)

Source: AMD

IV.3 Land Consolidation by AMD

IV.3.1 AMD's Target of Land Consolidation

The following table shows the target village of Land Consolidation selected by AMSs in Shwebo district and Kanbalu district. AMD will be able to conduct the land consolidation in these villages after the Project. AMS chose the villages below based on the criteria, i.e. 1) potential area to acquire the agreement among farmers, 2) access to the irrigation water, and 3) road accessibility.

Table IV.3.1 Target Village of Land Consolidation by AMD

T/S	Village	Area, ha	T/S	Village	Area, ha
Shwebo	Leik Chin	263 (650acre)	Tabayin	Kya Khat	121 (300acre)
	Khun Taung Gyi	263 (650acre)		Aye Thar Yar	81 (200acre)
	Thae Lone	142 (350acre)		Wa Bar	121 (300acre)
	Chipa	142 (350acre)		Nyaung Hla	81 (200acre)
	Sub Total	809 (2000acre)		Sub Total	405 (1000acre)
Kin-U	Myin Dong	40 (100acre)	Wetlet	Tha Na	121 (300acre)
	Mya Kan	40 (100acre)		Ywar Taw Kone	81 (200acre)
	Gway Kone	61 (150acre)		Htone Bo	81 (200acre)
	Kan Thit	61 (150acre)		Ywar Thar Gyi	81 (200acre)
	Ya Than	81 (200acre)		Tha Yet Gyi	121 (300acre)
	Laung Shey	81 (200acre)		Khaw Taw	121 (300acre)
	Min Kan Gyi	121 (300acre)		Lein Pin	121 (300acre)
	Sub Total	486 (1200acre)		Tha Khut Taw	81 (200acre)
Ye-U	Aung Thar	81 (200acre)		Sub Total	809 (2000acre)
	Moke Si	81 (200acre)	Kanbalu	Kha Htouk Yin	40 (100acre)
	Ma Gyi Taw	121 (300acre)		Nyaung Pin Gyi	40 (100acre)
	Than Thae	202 (500acre)		Kan Phyu	81 (200acre)
	Ywar Thit	81 (200acre)		Tin Kuk Gyi	81 (200acre)
	In Taw	121 (300acre)		Nyaung Zin	81 (200acre)
	Pone Ta Kar(East)	121 (300acre)		Htan Kone	40 (100acre)
	Sub Total	809 (2000acre)		Zephyu Kone	40 (100acre)
Taze	Sin Nga	121 (300acre)		Sub Total	405 (1000acre)
	Hpa Lan Chaing	81 (200acre)			
	In Daing	202 (500acre)			
	Sub Total	405 (1000acre)			
			Total		4,128(10200acre)

Source: AMD Shwebo District Office 2016

IV.4 Agricultural Machineries Testing Center in Mandalay City

IV.4.1 Site Plan of Agricultural Machineries Testing Center

Agricultural Machineries Testing Center will consist of following facilities.

- ✓ Testing Building (52mL x 20mL x 15mL)
- ✓ Office Building (30mL x 12mL x 7.5mH)
- ✓ Garage (20mL x 10mW)
- ✓ Testing Track (500m x 12feet W)

The figure below shows the draft site plan of Agricultural Machineries Testing Center in AMD Mandalay Regional Office Compound, Mandalay City.

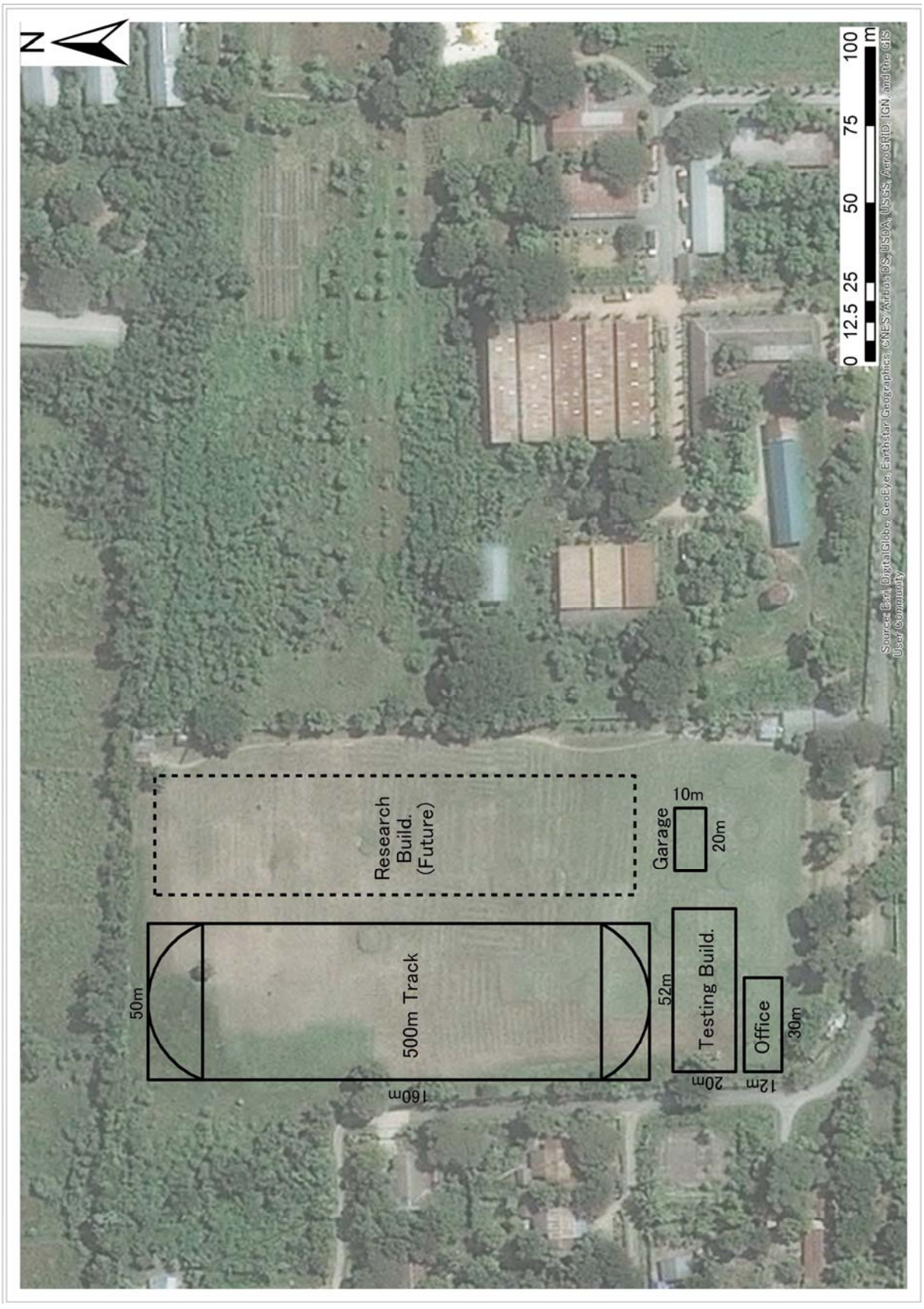


Figure IV.4.1 Draft Site Plan of Agricultural Machineries Testing Center in AMD Mandalay Regional Office Compound

Source: JICA Survey Team

IV.5 Operation and Maintenance of Land Consolidation Equipment

Following tables show the breakdown of the income, variable cost and fixed cost described in Table 5.2.11 in Main Report.

Table IV.5.1 Breakdown of Financial Balance for Operation and Maintenance of Land Consolidation Equipment

Detail Descriptions of Operation and Maintenance Financial Balance for Land Consolidation Equipment (1)

Item No.	Equipment	Main Specifications	Q'ty	Prerequisite Condition: After 4 years: Residual Ratio (w/o accidents)	Prerequisite Condition: After 4 years: Operable Units	Prerequisite Condition: Leasing Units except Land Consol. Period	Annual Incomes: Land Consolidation Service: Target Area	Land Consolidation Service: Contract Unit Cost	Land Consolidation Service: Amount	Tillage Service: Target Area	Tillage Service: Contract Unit Cost	Tillage Service: Amount	Lease Service: Leasing Items	Lease Service: Tilling Area	Lease Service: Contract Unit Cost	Lease Service: Amount	Total Amount of Income
				%	unit	unit	ha	MMK/ha	MMK	ha	MMK/ha	MMK		ha/unit	MMK/ha	MMK	MMK
1	90 HP Tractor	4WD, diesel engine	75 units	95	71 units	20 units							lease	80	50,000	80,000,000	
2	50 HP Tractor	4WD, diesel engine	25 units	95	24 units												
3	Rotavator	Attachment, for 50 HP, side gear system	25 units	100	25 units					960	32,500	31,200,000					
4	Plough type Disc Harrow	Attachment, 6 disc for 50 HP	15 units	100	15 units					1,152	32,500	37,440,000					
5	Plough type Disc Harrow	Attachment, 7 disc for 90 HP	40 units	100	40 units	20 units				3,060	32,500	99,450,000	lease				
6	Disc Plough	Attachment, 4 disc for 90 HP	25 units	100	25 units	20 units				2,040	16,250	33,150,000	lease				
7	Rear Blade Leveller	Attachment, for 90 HP	50 units	100	50 units												
8	Front Blade Leveller (Front Dozer)	Attachment, for 90 HP	75 units	100	75 units	20 units	400	2,375,000	950,000,000				lease				
9	Front Blade Leveller (Front Dozer)	Attachment, for 50 HP	25 units	100	25 units												
10	Ridge Plastering Machine	Attachment, for 90 HP	15 units	100	15 units												
11	Total Station		5 sets	100	5 sets												
12	Auto Level Instrument	28×	10 sets	100	10 sets												
13	Mini Hydraulic Excavator	5 ton	10 units	95	10 units												
14	Tipper Truck	4-5 Ton	10 units	90	9 units												
15	Transporter (Truck)	20-30 ton	5 units	100	5 units												
Total									① 950,000,000	7,212		② 201,240,000				③ 80,000,000	①+②+③ 1,231,240,000

Detail Descriptions of Operation and Maintenance Financial Balance for Land Consolidation Equipment (2)

Item No.	Equipment	Expenditure on Variable Costs															Personnel Costs					Other Expenditure		Expenditure on Variable Costs
		Fuel and Lubrication Costs															Land Consolidation		Tillage Service					
		Land Consolidation (January - March)							Tillage Service (April-May $ September-October)								Per Itemized Unit		Per Tractor Unit					
		Per Itemized Unit							Per Tractor Unit															
		Annual Working Days	Daily Working Hours	Annual Working Hours	Fuel Consump. Ratio	Engine Output	Fuel Consump. Volume	Fuel Consump. Volume	Annual Working Days	Daily Working Hours	Annual Working Hours	Fuel Consump. Ratio	Engine Output	Fuel Consump. Volume	Fuel Consump. Volume	Total Fuel Consump. Amount	Skilled Operators	Ordinary Labour	Skilled Operators	Ordinary Labour	Total Fuel Consump. Amount	Percent. against Costs	Amount	
		days	hr/day	hr/year	lit/kW･hr	kW	lit/unit	lit	days	hr/day	hr/year	lit/kW･hr	kW	lit/unit	lit	MMK	man-day	man-day	man-day	man-day	MMK	%	MMK	MMK
1	90 HP Tractor	50	8	400	by work	63.385	3,902	277,022	90	8	630	by work	63.385	7,066	360,355	599,134,103	50	50	90	90	214,200,000	1.00	8,133,341	
2	50 HP Tractor	45	8	360	by work	33.557	1,819	43,655	90	8	630	by work	33.557	3,576	85,831	121,716,976	45	45	90	90	97,200,000	1.00	2,189,170	
3	Rotavator	30	7	210	0.1750	33.557	1,233	—	60	7	420	0.1750	33.557	2,466	0	0	0	0	0	0	0	0.00		
4	Plough type Disc Harrow	10	7	70	0.1575	33.557	370	—	30	7	210	0.1575	33.557	1,110	0	0	0	0	0	0	0	0.00		
5	Plough type Disc Harrow	10	7	70	0.1575	63.385	699	—	40	7	280	0.1575	63.385	2,795	0	0	0	0	0	0	0	0.00		
6	Disc Plough	25	7	175	0.1925	63.385	2,135	—	50	7	350	0.1925	63.385	4,271	0	0	0	0	0	0	0	0.00		
7	Rear Blade Leveller	5	7	35	0.1400	63.385	311	—	—	—	—	—	—	—	0	0	0	0	0	0	0	0.00		
8	Front Blade Leveller (Front Dozer)	5	7	35	0.1838	63.385	408	—	—	—	—	—	—	—	0	0	0	0	0	0	0	0.00		
9	Front Blade Leveller (Front Dozer)	5	7	35	0.1838	33.557	216	—	—	—	—	—	—	—	0	0	0	0	0	0	0	0.00		
10	Ridge Plastering Machine	5	7	35	0.1575	63.385	349	—	—	—	—	—	—	—	0	0	0	0	0	0	0	0.00		
11	Total Station	50	10	500	—		—	—	—	—	—	—	—	—	0	0	0	150	0	0	7,500,000	0.00		
12	Auto Level Instrument	50	10	500	—		—	—	—	—	—	—	—	—	0	0								
13	Mini Hydraulic Excavator	20	10	200	0.1530	28.187	863	8,625	—	—	—	—	—	—	0	8,107,841	10	10	0	0	3,000,000	1.00	111,078	
14	Tipper Truck	30	6	180	0.0430	155.000	1,200	10,797	—	—	—	—	—	—	0	10,149,462	30	0	0	0	5,400,000	0.50	77,747	
15	Transporter (Truck)	10	10	100	0.0430	155.000	667	3,333	20	10	200	0.0430	155.000	1,333	6,665	9,397,650	10	0	20	0	3,000,000	0.50	61,988	
	Total							343,432							452,851	④ 748,506,032	145	255	200	180	⑤ 330,300,000		⑥ 10,573,325	④＋⑤＋⑥ 1,089,379,356

Calculation Methods:

1) Fuel Consumption Volume per Unit = Fuel Consumption Ratio × Engine Output × Working Hours

2) Variable Costs per Unit = Fuel Consumption Volume (including lubricant) × Diesel Unit Price + Skilled Operator No. × man-day × Unit Wage + Ordinary Labour × man-day × Unit Wage × Other Expenses

Remarks:

The figures indicated in red colour for the tractor attachments are integrated to 90 or 50 hp tractor.

Diesel 1lit =	940 MMK

Detail Descriptions of Operation and Maintenance Financial Balance for Land Consolidation Equipment (3)

Item No.	Equipment	Expenditure on Fixed Costs									
		Depreciation Expense						Repair Costs			
		Per Itemized Unit					Total Annual Depreci. Expense	Percent. Against Basic Price	Total Repair Cost	Tax	Total Expenditure on Fixed Costs
		Legal Durable Years	Residual Value Ratio	Basic Price		Annual Depreci. Expense					
		Years	%	JYE	m.MMK	MMK	MMK	%	MMK	MMK	MMK
1	90 HP Tractor	8	30	3,500,000	40.650	3,556,911	252,540,650	1.00	28,861,789	0	
2	50 HP Tractor	8	30	1,400,000	16.260	1,422,764	34,146,341	1.00	3,902,439	0	
3	Rotavator	8	30	400,000	4.646	406,504	10,162,602	0.50	580,720	0	
4	Plough type Disc Harrow	8	30	300,000	3.484	304,878	4,573,171	0.10	52,265	0	
5	Plough type Disc Harrow	8	30	300,000	3.484	304,878	12,195,122	0.10	139,373	0	
6	Disc Plough	8	30	400,000	4.646	406,504	10,162,602	0.10	116,144	0	
7	Rear Blade Leveller	8	30	600,000	6.969	609,756	30,487,805	0.10	348,432	0	
8	Front Blade Leveller (Front Dozer)	8	30	600,000	6.969	609,756	45,731,707	0.10	522,648	0	
9	Front Blade Leveller (Front Dozer)	8	30	300,000	3.484	304,878	7,621,951	0.10	87,108	0	
10	Ridge Plastering Machine	8	30	3,000,000	34.843	3,048,780	45,731,707	0.10	522,648	0	
11	Total Station	10	50	1,900,000	22.067	1,103,368	5,516,841	0.00	0	0	
12	Auto Level Instrument	10	50	200,000	2.323	116,144	1,161,440	0.00	0	0	
13	Mini Hydraulic Excavator	8	30	400,000	4.646	406,504	4,065,041	1.00	464,576	0	
14	Tipper Truck	6	20	8,400,000	97.561	13,008,130	117,073,171	0.50	4,390,244	0	
15	Transporter (Truck)	6	50	16,800,000	195.122	16,260,163	81,300,813	0.50	4,878,049	0	
	Total						⑦ 662,470,964		⑧ 44,866,434	⑨ 0	⑦+⑧+⑨ 707,337,398

Calculation Methods:

3) Fixed Costs per Unit = Basic Price in CIP × (1—Residual Value Ratio) ÷ Legal Durable Years + Repair Cost + Tax

Exchange Rate : 0.0861 MMK/JYE

Source: AMD and JICA Survey Team

IV.6 Seed Centers in Shwebo District (DOA)

IV.6.1 Related Organizations

To run the Seed Centers successfully, the collaboration between DOA, farmers, and private sectors, e.g. rice millers, is really essential. Following associations in Shwebo District are the keys of its operation.

1) Seed Growers Association

The members of Seed Growers Association consist of paddy seed growers who were selected by DOA in June 2016. In case of Shwebo township, DOA chose 33 farmers. The average owned area among members in Shwebo township is about 225 acre. Seed Growers Association will be requested to provide high quality CS to the Seed Centers.

2) Rice Millers Association

Rice Millers Association is nationwide association in Myanmar. Over 1,000 rice millers in Sagain Region and about 200 rice millers in Shwebo township are registered. Actually it doesn't have the group activities in the Project area, but the members are slightly united. The members in Shwebo district warry that the quality and the price of Shwebo Pawsan is declining and showed their interest to the Survey team in operating the Seed Center in Shwebo area.

3) Shwebo Pawsan Association

Shwebo Pawsan Association was established in order to obtain GI (Geographical Indications) of

Shwebo Pawsan under the ADB project with Ministry of Commerce and Trade and MOALI. At the present, the association try to promote the Shwebo Pawsan bland in Myanmar and the export of Shwebo Pawsan. This association was registered in the government in 2014 and submit its activity report every month to Department of Consumer Affairs, Ministry of Commerce and Trade. It comprises Shwebo District members and each TS members. One of the members, who is a rice miller, has commenced to run the seed business in Wetlet TS. He purchases RS from the private company in Magway and consign the seed to his own contract farmers to grow CS. After the production of CS by contract farmers, he receives it, process it, and sell it to grain farmers.

IV.6.2 Target of Processing Volume

1) Type A

The target output of this Center is 400 ton/season (20,000 basket/season). 400 ton of the processed seed covers about 8,000 ha (20,000 acre) in the Project area. The table below shows the summary of processing amount.

Table IV.6.1 Target of Processing Volume by Seed Center - Type A

Process		Amount				Remark
Receiving	Average Yield	3,132	kg/ha	60	basket/ac	
	Harvested Area	160	ha	400	ac	
	Receiving (Yearly)	501,120	kg/season	24,000	basket/season	
	(Daily)	8,352	kg/day	400	basket/day	Working days: 60
Processing	Drying	7,350	kg/day			25% to 13% by drying equipment
	Processing Capacity	1	ton/hr			
	Recovery Rate (95%)	418,936	kg/season	22,800	basket/season	
	Certified (90%)	377,043	kg/season	20,520	basket/season	
Packaging	Packaging Bags	20,064	bag			1bag=20.88kg
Storage	Storage Bags	40	unit			20ton: 30units. 5ton: 10units
	Necessary Storage Space	800	m2			Total Space of Storage Bag * 1.5
Coverage Area by Processed Seed		8,208	ha	20,520	ac	

Source: JICA Survey Team

2) Type B

The target output of this Center is 200 ton/season (10,000 basket/season). 200 ton of the processed seed covers about 4,000 ha (10,000 acre) in the Project area. The table below shows the summary of processing amount.

Table IV.6.2 Target of Processing Volume by Seed Center – Type B

Process		Amount				Remark
Receiving	Average Yield	3,132	kg/ha	60	basket/ac	
	Harvested Area	80	ha	200	ac	
	Receiving (Yearly)	250,560	kg/season	12,000	basket/season	
	(Daily)	4,176	kg/day	200	basket/day	Working days: 60
Processing	Drying	3,675	kg/day			25% to 13% by sun drying
	Processing Capacity	0.37	ton/hr			
	Recovery Rate (95%)	209,468	kg/season	11,400	basket/season	
	Certified (90%)	188,521	kg/season	10,260	basket/season	
Packaging	Packaging Bags	10,032	bag			1bag=20.88kg
Storage	Storage Bags	20	unit			20ton: 15units, 5ton: 5units
	Necessary Storage Space	400	m2			Pallet:1.5m x 1.5m, Double Stack
Coverage Area by Processed Seed		4,104	ha	10,260	ac	Total Space of Storage Bag * 1.5

Source: JICA Survey Team

3) Type C

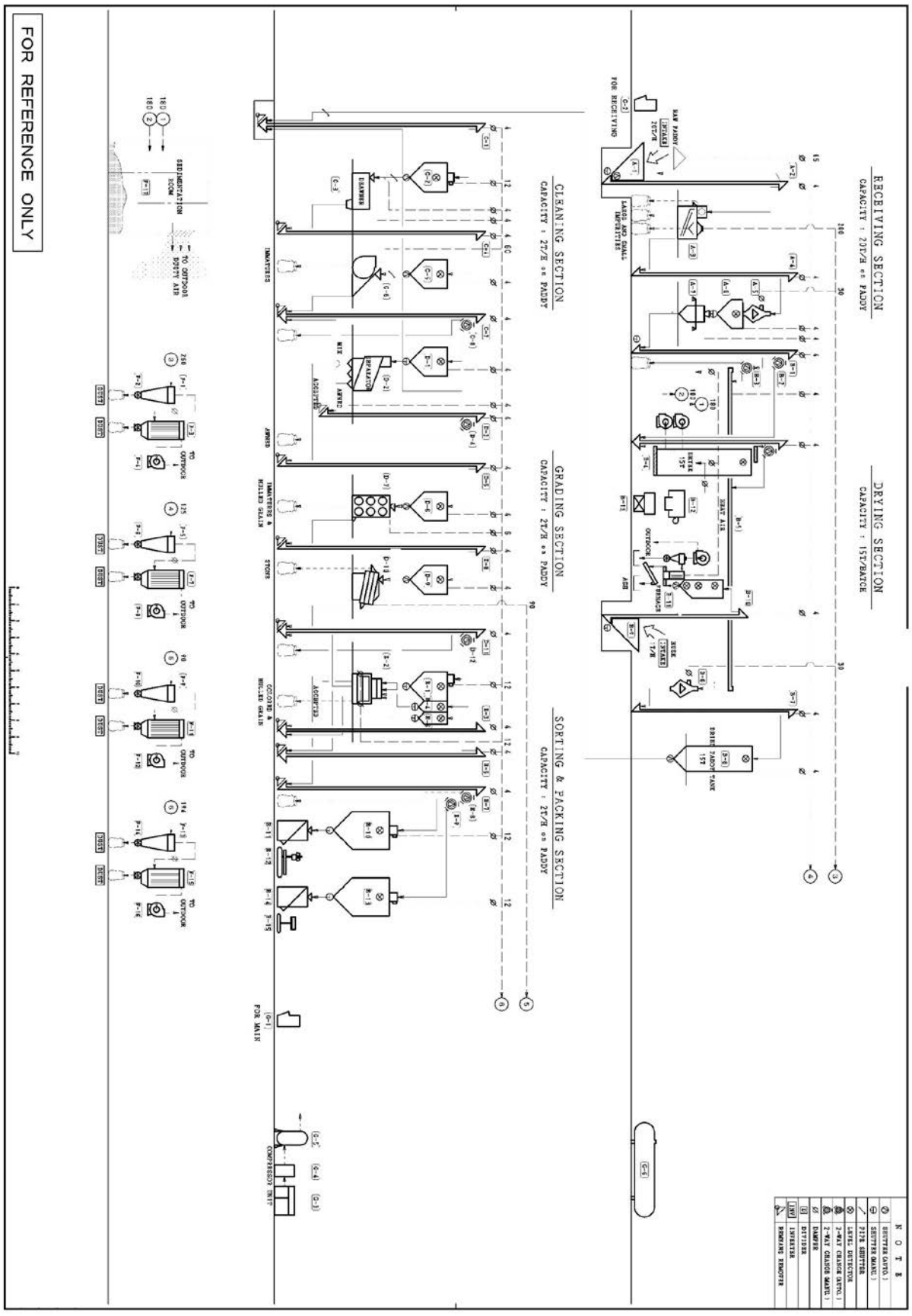
The target output of this Center is 100 ton/season (5,000 basket/season). 100 ton of the processed seed covers about 2,000 ha (5,000 acre) in the Project area. The table below shows the summary of processing amount.

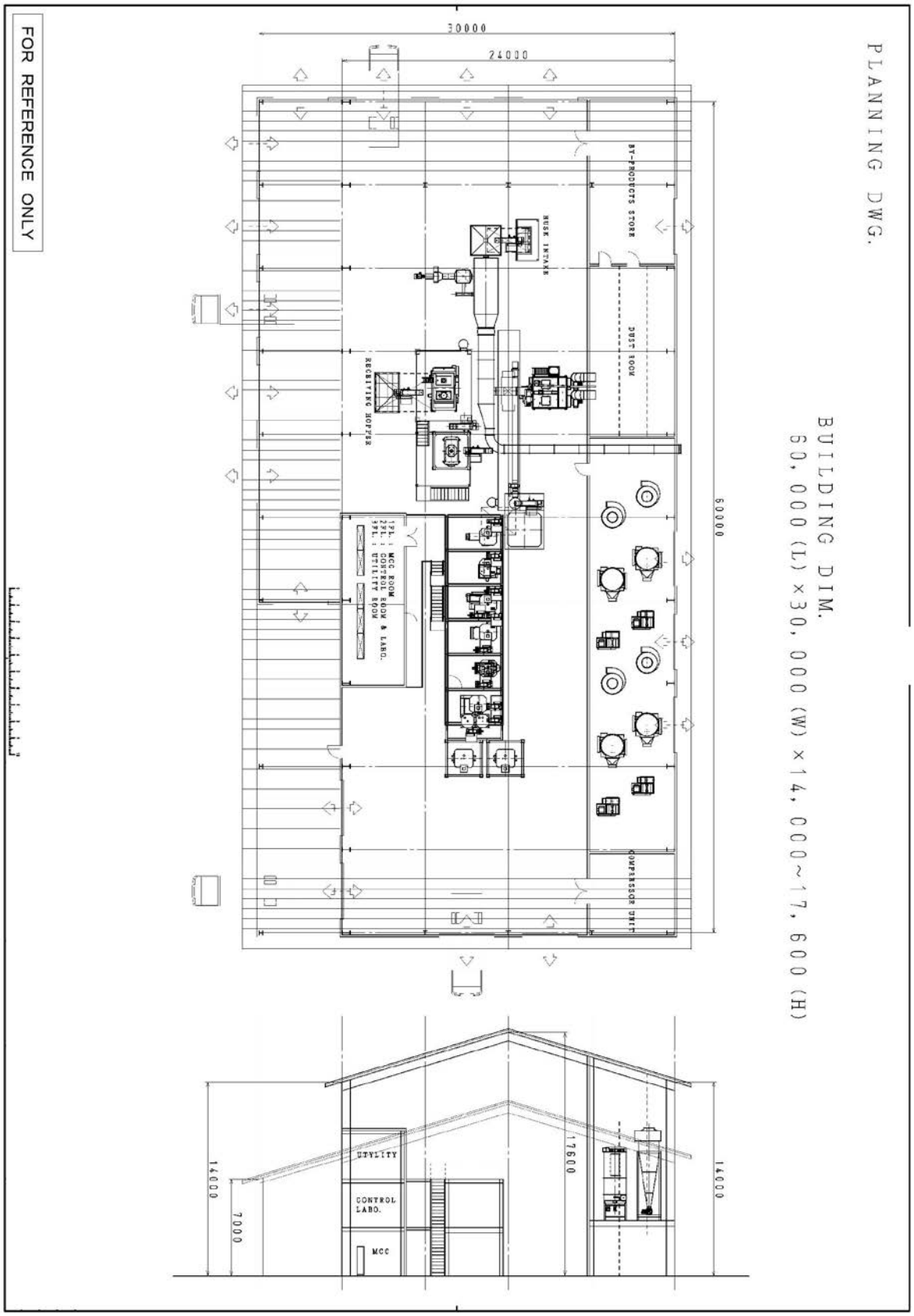
Table IV.6.3 Target of Processing Volume by Seed Center in The-lone Village, Shwebo TS – Type C

Process		Amount				Remark
Receiving	Average Yield	3,132	kg/ha	60	basket/ac	
	Harvested Area	40	ha	100	ac	
	Receiving (Yearly)	125,280	kg/season	6,000	basket/season	
	(Daily)	2,088	kg/day	100	basket/day	Working days: 60
Processing	Drying	1,837	kg/day			25% to 13% in the farmers' field
	Processing Capacity	0.18	ton/hr			
	Recovery Rate (95%)	104,734	kg/season	5,700	basket/season	
	Certified (90%)	94,261	kg/season	5,130	basket/season	
Packaging	Packed Bags	5,016	bag			1bag=20.88kg
Storage	Necessary Storage Space	188	m2			1bag=0.375m2, Decuple Stack, ※if required
Coverage Area by Processed Seed		2,052	ha	5,130	ac	

Source: JICA Survey Team

IV.6.3 Design of Seed Center (Type-A)




FOR REFERENCE ONLY
PLANNING DWG.
BUILDING DIM.
60,000 (L) × 30,000 (W) × 14,000~17,600 (H)
30000
24000
60000
UTILITY
CONTROL LABO.
MCC
14000
7000
17600
14000

APPENDIX-V

IRRIGATION AND DRANAGE, FLOOD MONITORING

APPENDIXES V: IRRGATION AND DRANAGE, FLOOD MONITORING

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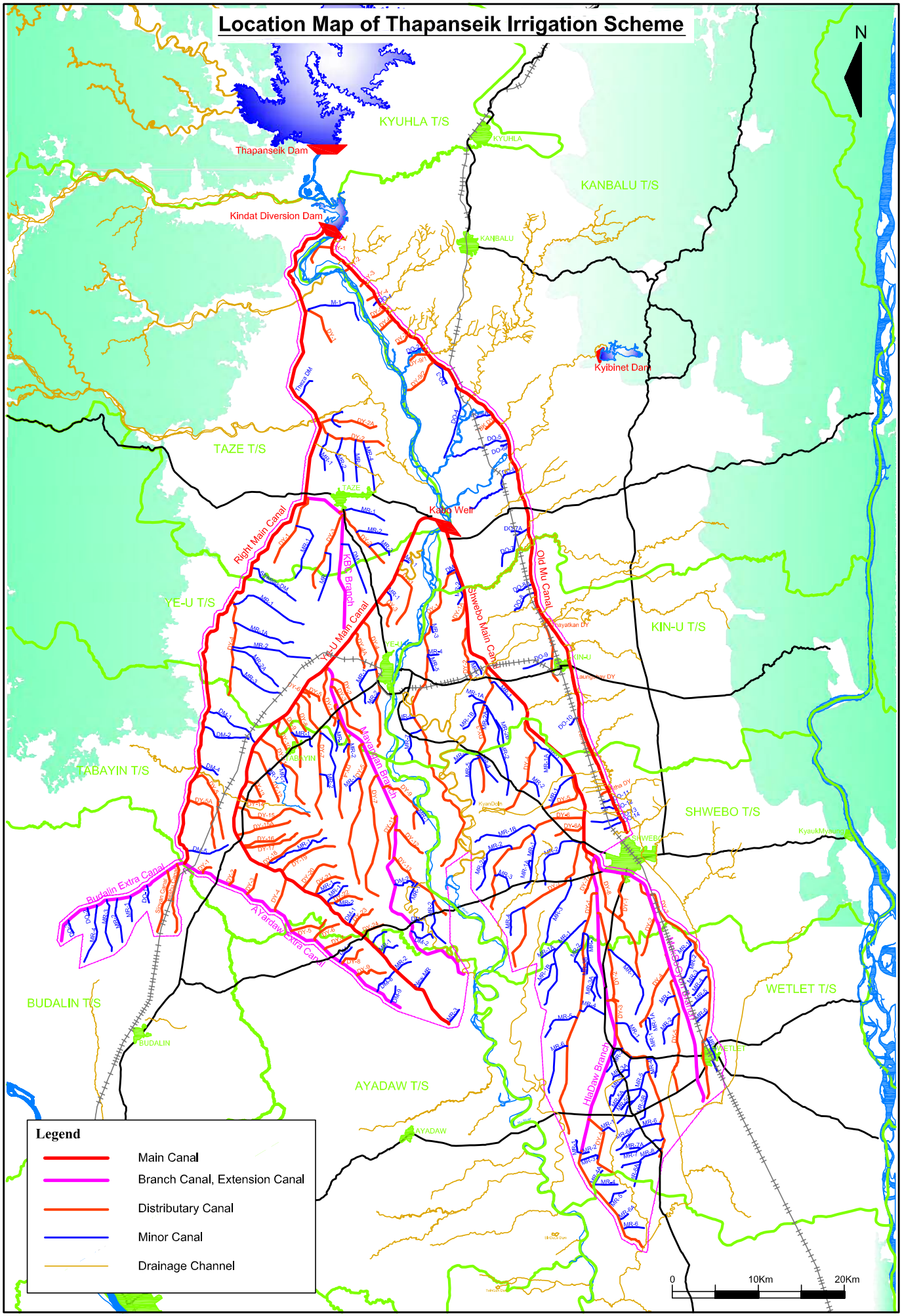
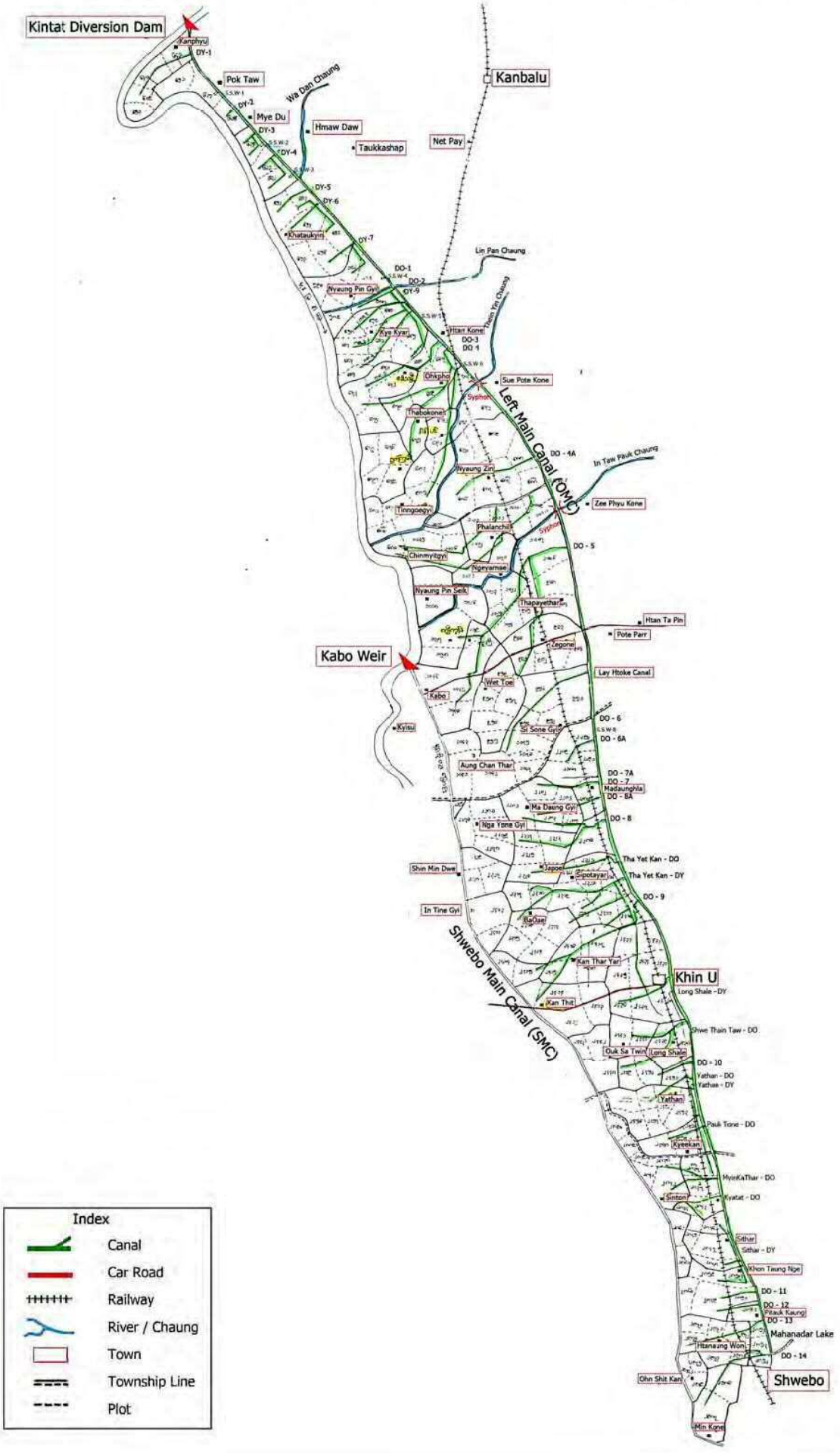
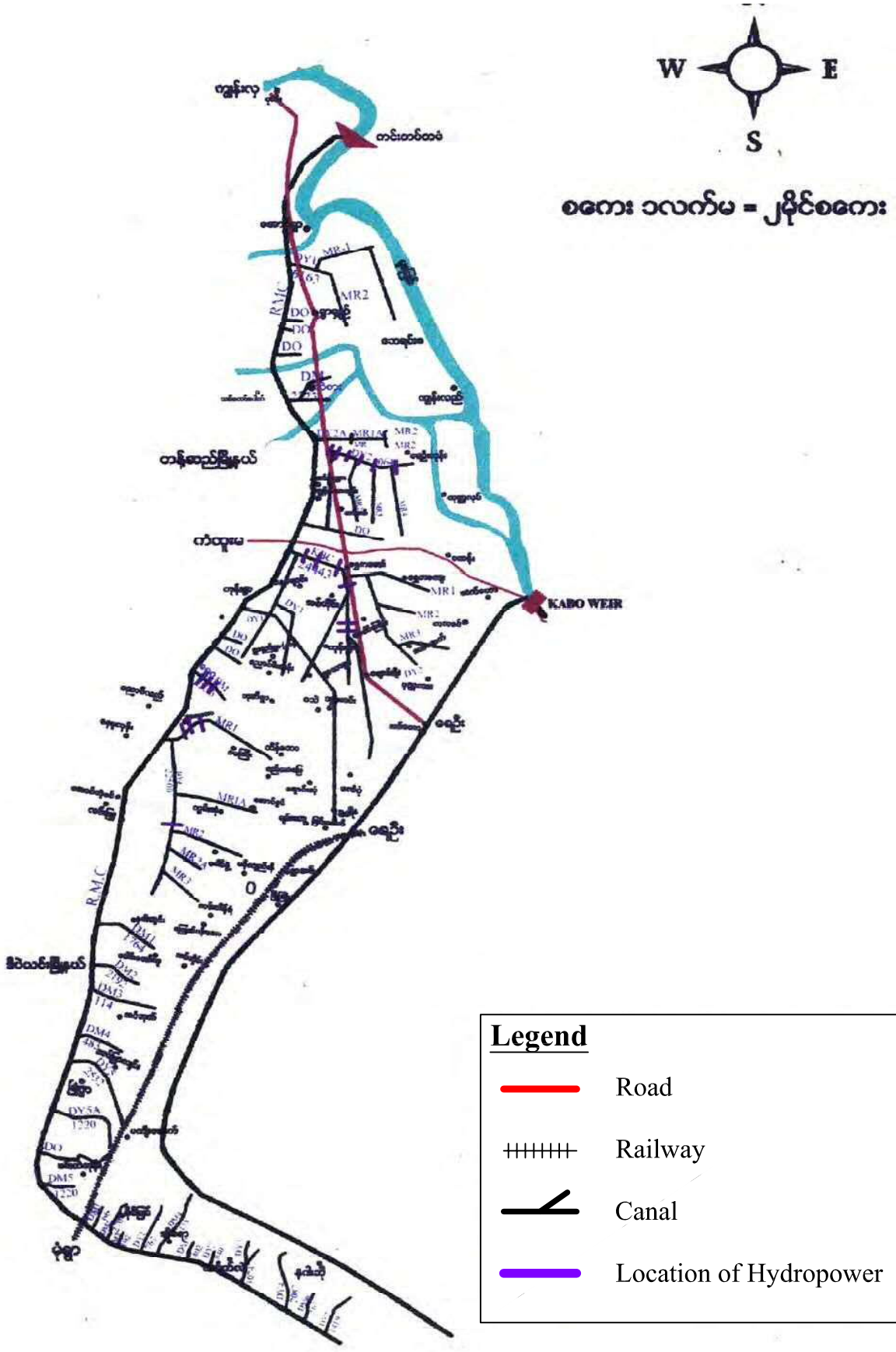

Location Map of Thapanseik Irrigation Scheme
N
KYUHLA T/S
KYUHLA
Thapanseik Dam
KANBALU T/S
Kindat Diversion Dam
KANBALU
Kyibinet Dam
TAZE T/S
TAZE
Kabo Weir
Right Main Canal
KBU Branch
YE-U Main Canal
Shwebo Main Canal
Old Mu Canal
YE-U T/S
KIN-U T/S
KIN-U
TABAYIN T/S
TABAYIN
Mayogaing Branch
SHWEBO T/S
SHWEBO
Budalin Extra Canal
Ayardaw Extra Canal
WETLET T/S
WETLET
BUDALIN T/S
BUDALIN
Hladaw Branch
AYADAW T/S
AYADAW
Legend
Main Canal
Branch Canal, Extension Canal
Distributary Canal
Minor Canal
Drainage Channel
0
10Km
20Km

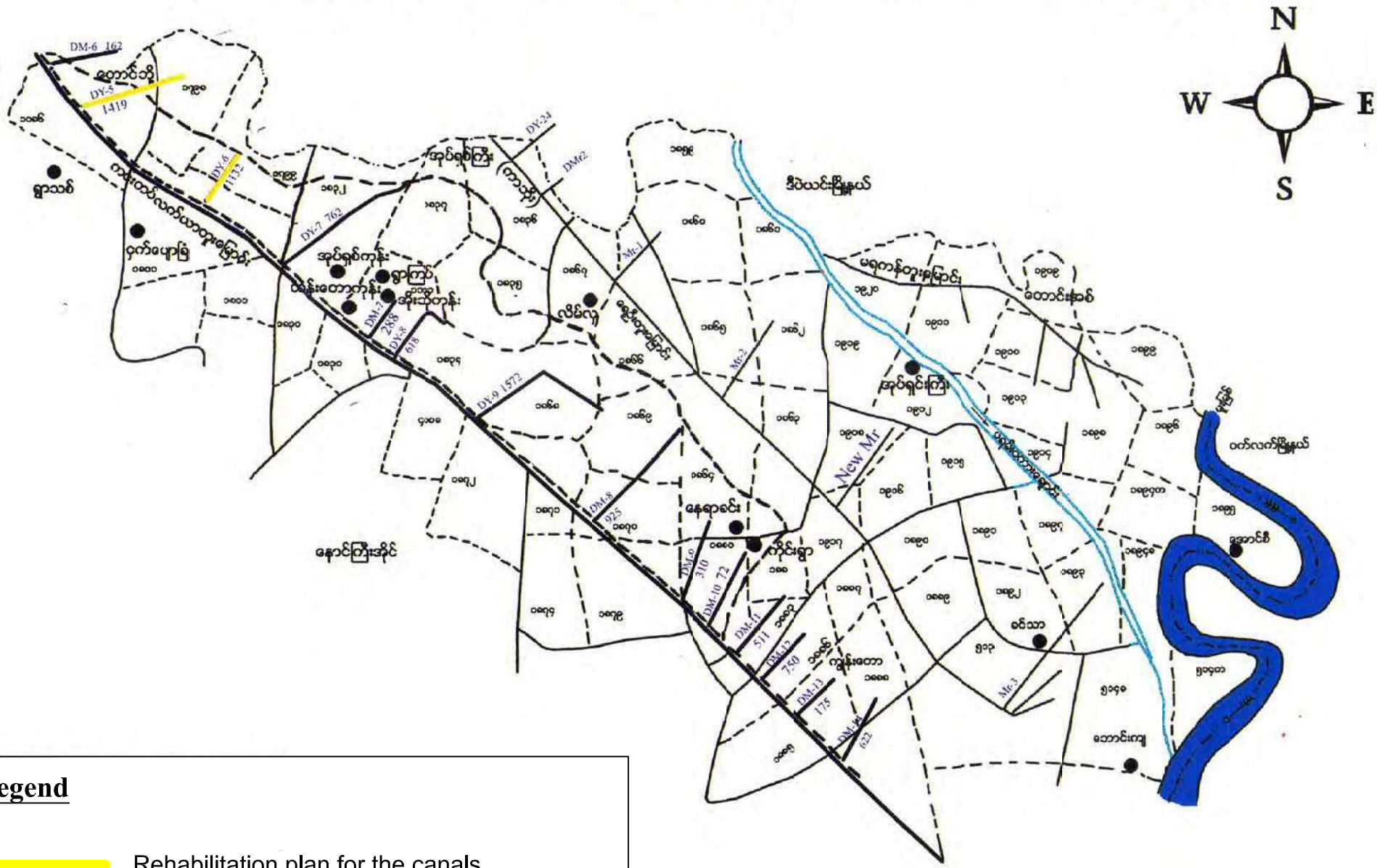
Location Map of Old MU Canal (OMC) Irrigation System



Location Map of Irrigable Area from Kindat Right Main Canal



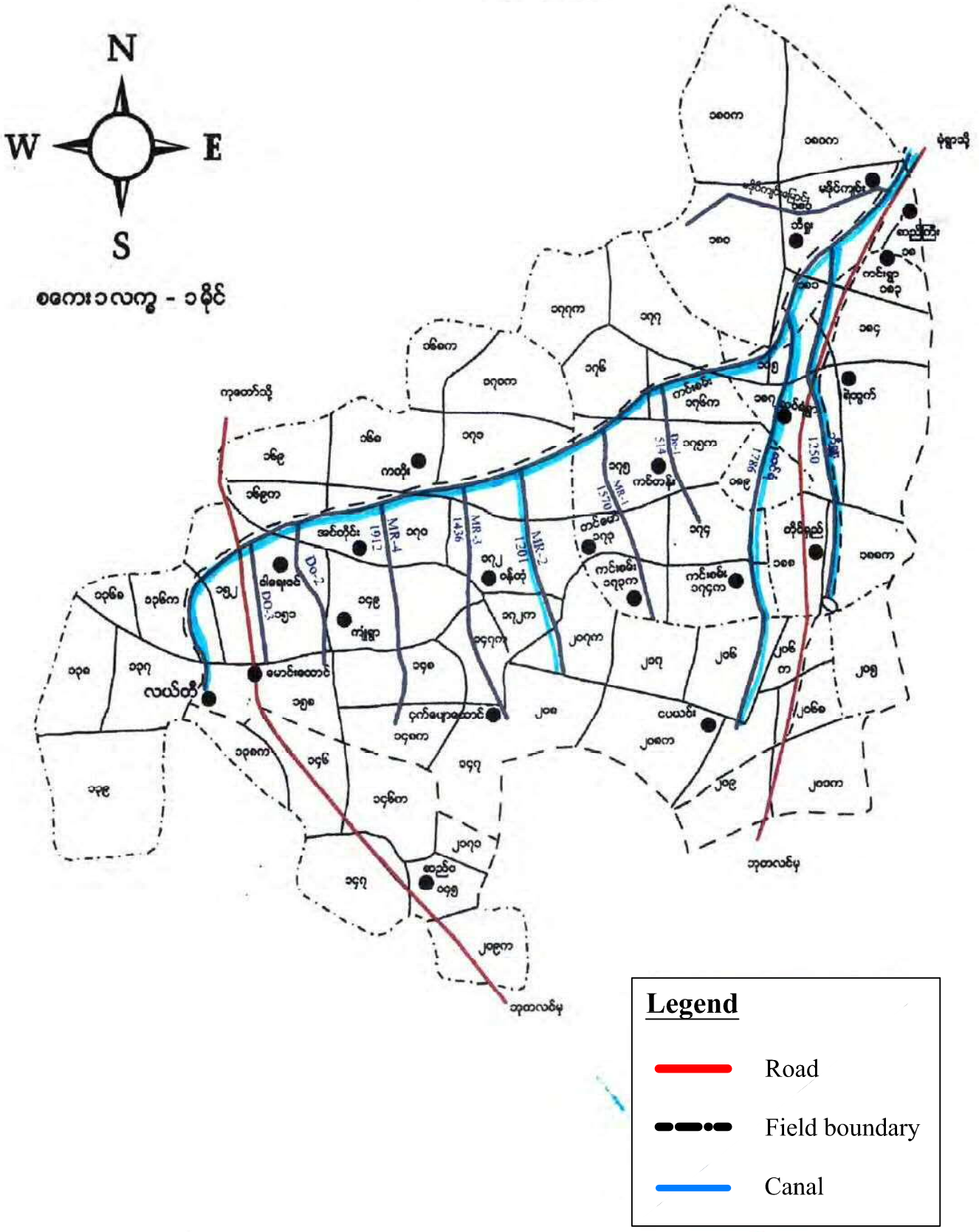
Location Map of Irrigable Area from Ayadaw Extension Canal (Ayadaw Township)



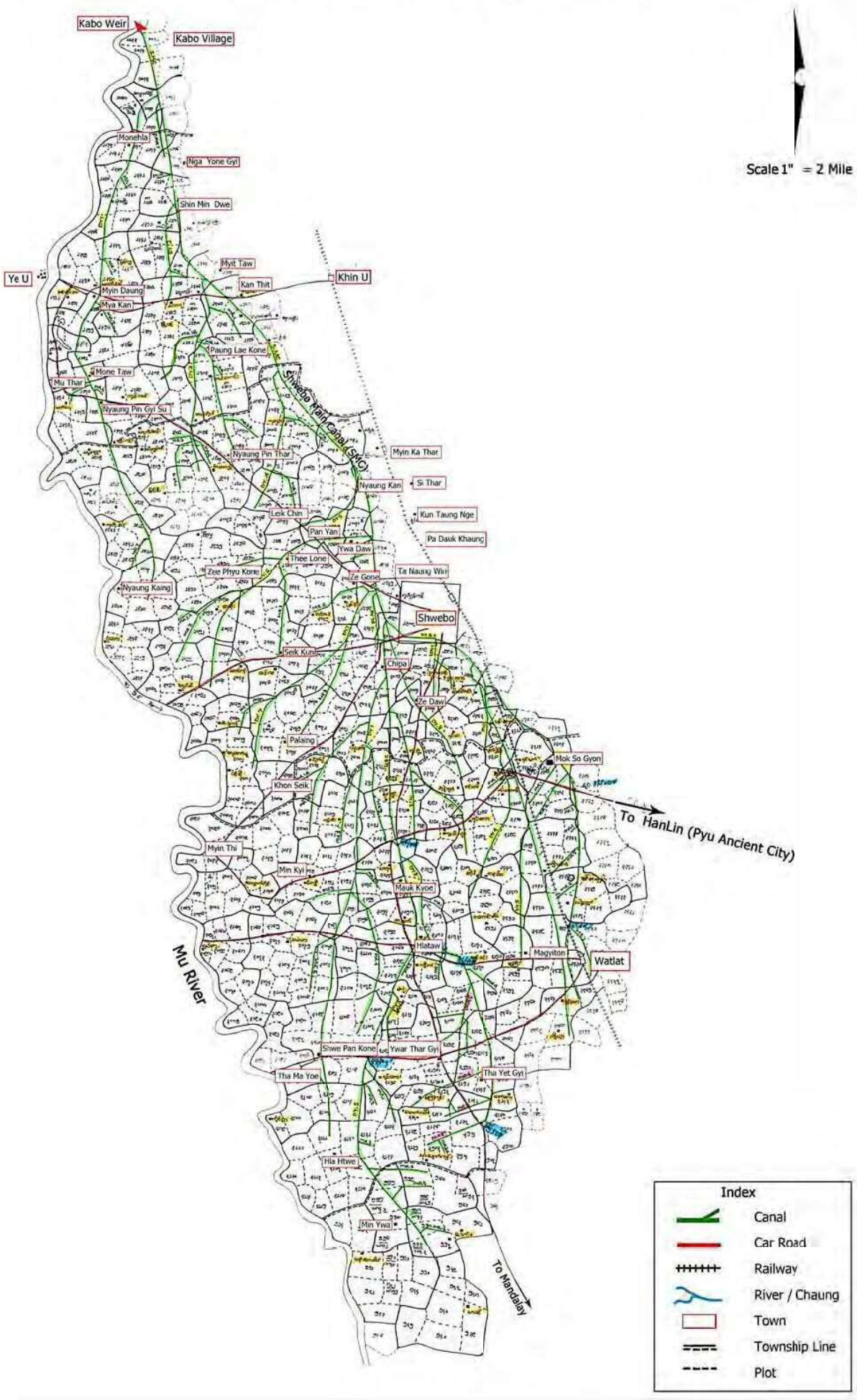
Legend

Rehabilitation plan for the canals which is no water supply for summer paddy

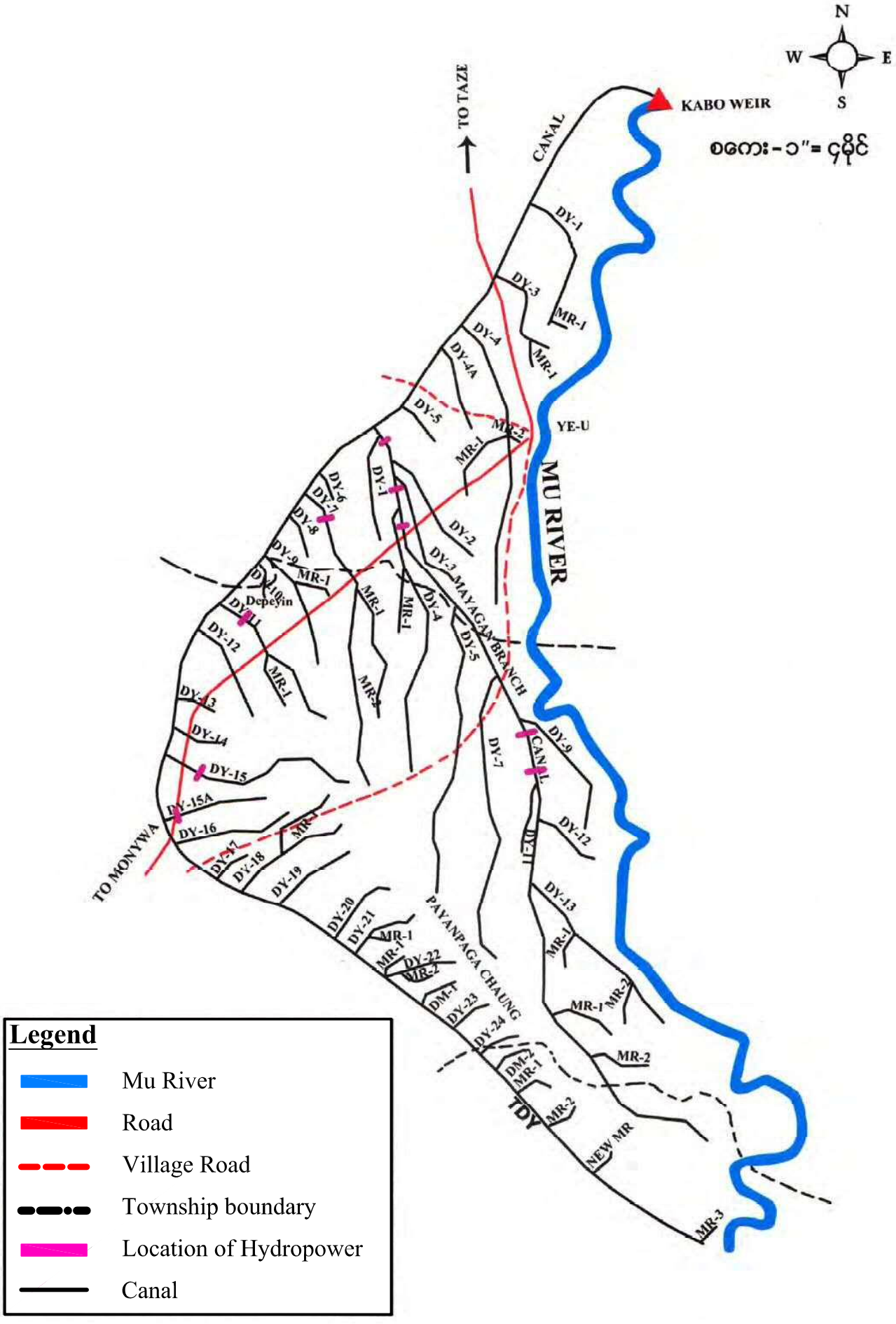
Location Map of Irrigable Area from Budalin Extension Canal (Budalin Township)



Location Map of Shwebo Main Canal (SMC) Irrigation System



Irrigation System Map of Ye-U Main Canal



List of Canal and Irrigable Area

Old Mu Canal (OMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	OMC Irrigation System	**1,000.00**	**28.32**	**1,040,579**	**318**					**917**	**65,105**	**26,347.1**	Total irrigable area under OMC system
1	**OMC**	1,000.00	28.32	250,000	76.2	40.0	12.2	6.0	1.8	0	0	0.0	No small outlet from main canal directly
2	OMC DY (1)	25.29	0.72	12,500	3.8	4.0	1.2	2.0	0.6	22	465	188.2	Total 956 acre under this Dy canal
3	OMC DY-1A		(0.11)	3,500	1.1					6	145	58.7	
4	OMC DY-1B		(0.26)	6,100	1.9					20	346	140.0	
5	OMC DY (2)	5.60	0.16	1,300	0.4	3.0	0.9	1.1	0.3	7	296	119.8	
6	OMC DY (3)	8.20	0.23	1,800	0.5	2.0	0.6	1.2	0.4	6	188	76.1	Total 371 acre under this Dy canal
7	OMC DY-3A		(0.11)	4,900	1.5					9	183	74.1	
8	OMC DY (4)	13.20	0.37	3,600	1.1	3.0	0.9	1.9	0.6	8	344	139.2	Total 792 acre under this Dy canal
9	OMC DY-4A		(0.21)	6,200	1.9					11	448	181.3	
10	OMC DY (5)	13.71	0.39	5,400	1.6	3.0	0.9	2.0	0.6	9	536	216.9	
11	OMC DY (6)	10.60	0.30	6,300	1.9	3.0	0.9	2.0	0.6	10	316	127.9	Total 613 acre under this Dy canal
12	OMC DY-6A		(0.11)	5,300	1.6					12	229	92.7	
13	OMC DY-6B		(0.03)	3,300	1.0					5	68	27.5	
14	OMC DY (7)	13.43	0.38	5,700	1.7	3.0	0.9	2.0	0.6	12	492	199.1	Total 679 acre under this Dy canal
15	OMC DY-7A		(0.10)	8,200	2.5					8	187	75.7	
16	OMC DO (1)	7.86	0.22	3,000	0.9	2.5	0.8	1.0	0.3	-	290	117.4	
17	OMC DO (2)	20.82	0.59	8,000	2.4	4.0	1.2	1.5	0.5	9	734	297.0	
18	OMC DY (9)	89.42	2.53	3,800	1.2	12.0	3.7	3.6	1.1	-	0	0.0	Total 2,904 acre under this Dy canal
19	OMC DY (9), Minor 1		(0.34)	7,600	2.3					7	389	157.4	
20	OMC DY (9), Minor 2		(0.38)	14,000	4.3					15	438	177.3	
21	OMC DY (9), Minor 3		(0.42)	11,000	3.4					15	480	194.2	
22	OMC DY (9), Minor 4		(0.84)	14,700	4.5					15	968	391.7	
23	OMC DY (9), Minor 5		(0.55)	10,200	3.1					5	629	254.5	
24	OMC DO (3)	34.42	0.97	17,900	5.5	6.0	1.8	3.0	3.0	11	1,750	708.2	
25	OMC DO (4)	65.10	1.84	30,700	9.4	7.0	2.1	6.5	3.0	12	5,213	2,109.6	
26	OMC ThinPayungkyin DY Canal		(0.00)	7,500	2.3	5.0	1.5	3.0	3.0	10	0	0.0	for village water
27	OMC DO (4-A)	25.00	0.71	10,010	3.1	10.0	3.0	2.5	3.0	5	974	394.2	
28	OMC SSW (7) (Side Spill Water)	74.00	2.10	37,500	11.4	10.0	3.0	4.5	3.0	15	515	208.4	Total 4,209 acre under this Dy canal
29	OMC SSW (7), Minor 1		(1.07)	9,370	2.9					7	2,149	869.7	
30	OMC SSW (7), Minor 2		(0.38)	3,000	0.9					3	760	307.6	
31	OMC SSW (7), Minor 3		(0.39)	9,300	2.8					4	785	317.7	
32	OMC DO (5)	111.14	3.15	38,000	11.6	7.0	2.1	4.0	1.2	38	3,754	1,519.2	Total 5,680 acre under this Dy canal
33	OMC DO (5), Minor 1		(0.57)	22,000	6.7					17	1,035	418.9	
34	OMC DO (5), Minor 2		(0.49)	21,500	6.6					13	891	360.6	
35	OMC LayHtoke DY	70.00	1.98	23,500	7.2	10.0	3.0	3.5	1.1	39	3,704	1,499.0	Total 4,851 acre under this Dy canal
36	OMC LayHtoke DY, Minor 1		(0.47)	15,000	4.6					37	1,147	464.2	
37	OMC DO (6) (YinTite Weir)	25.00	0.71	13,200	4.0	15.0	4.6	2.5	0.8	12	1,174	475.1	Total 1,877 acre under this Dy canal
38	OMC DO (6) (SharTaw Weir)		(0.27)	4,200	1.3					5	703	284.5	
39	OMC DO (6-A)	5.00	0.14	3,300	1.0	5.0	1.5	2.0	0.6	10	294	119.0	
40	OMC DO (7-A)	10.00	0.28	4,203	1.3	5.0	1.5	2.0	0.6	5	571	231.1	
41	OMC DO (7)	30.00	0.85	7,300	2.2	12.0	3.7	3.0	0.9	8	692	280.0	

List of Canal and Irrigable Area

(Kindat) Right Main Canal (RMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	RMC Irrigation System	**1,835**	**51.96**	**1,562,600**	**476.4**					**857**	**107,115**	**43347.9**	**Total irrigable area under RMC**
1	RMC	**1,835.00**	**51.96**	**275,650**	**84.0**	**50.0**	**15.2**	**9.5**	**2.9**	**65**	**19,201**	**7,770.4**	Irrigable area is only area irrigated by DO
2	RMC DY (1)	182.00	5.15	18,600	5.7	8.0	2.4	6.0	1.8	18	1,445	584.8	Total 4,191 acre under this Dy canal
3	RMC DY (1) Minor (1)	89.00	2.52	17,500	5.3	6.0	1.8	5.5	1.7	11	2,202	891.1	
4	RMC DY (1) Minor (2)	40.00	1.13	9,000	2.7	4.5	1.4	1.5	0.5	8	544	220.1	
5	RMC Thae Sar Direct Minor	50.00	1.42	15,000	4.6	5.0	1.5	2.0	0.6		2,925	1,183.7	
6	RMC DY (2)	350.00	9.91	30,800	9.4	23.0	7.0	4.5	1.4	19	955	386.5	Total 10,242 acre under this Dy canal
7	RMC DY (2) Minor (1)	60.00	1.70	23,600	7.2	11.0	3.4	1.8	0.5	5	854	345.6	
8	RMC DY (2) Minor (2)	67.00	1.90	20,100	6.1	12.0	3.7	2.0	0.6	4	1,252	506.7	
9	RMC DY (2) Minor (3)	46.00	1.30	19,000	5.8	10.0	3.0	1.5	0.5	10	339	137.2	
10	RMC DY (2) Minor (4)	73.00	2.07	19,000	5.8	12.0	3.7	2.0	0.6	15	220	89.0	
11	RMC DY (2-A)	120.00	3.40	22,200	6.8	14.0	4.3	2.5	0.8	15	597	241.6	
12	RMC DY (2-A) Minor (1)	16.00	0.45	10,000	3.0	6.0	1.8	1.0	0.3	2	247	100.0	
13	RMC DY (2-A) Minor (1-A)	31.00	0.88	6,000	1.8	3.0	0.9	1.0	0.3	3	1,143	462.6	
14	RMC DY (2-A) Minor (2)	28.00	0.79	10,000	3.0	3.0	0.9	1.0	0.3	3	3,552	1,437.4	
15	RMC DY (2-A) Minor (2-A)	21.00	0.59	7,000	2.1	6.5	2.0	1.0	0.3	2	1,083	438.3	
	Kha Pung Kyaing Branch Canal (KI	**560.00**	**15.86**	**234,400**	**71.5**					**99**	**22,278**	**9,015.6**	**Total irrigable area under KBC**
16	KBC	560.00	15.86	58,700	17.9	26.0	7.9	7.0	2.1	37	8,731	3,533.3	Irrigable area is only area irrigated by DO
17	KBC DY (1)	165.00	4.67	30,500	9.3	10.0	3.0	5.5	1.7	8	3,610	1,460.9	Total 5,851 acre under this Dy canal
18	KBC DY (1) Minor (1)	100.00	2.83	26,000	7.9	8.0	2.4	5.5	1.7	2	2,241	906.9	
19	KBC DY (2)	182.00	5.15	27,850	8.5	11.0	3.4	4.5	1.4	18	2,451	991.9	
20	KBC DY (2) Minor (1)	50.00	1.42	16,500	5.0	8.0	2.4	2.0	0.6	16	2,305	932.8	
21	KBC DY (2) Minor (2)	36.00	1.02	11,350	3.5	6.0	1.8	2.0	0.6	7	1,097	443.9	
22	KBC DY (2) Minor (3)	26.00	0.74	12,000	3.7	6.0	1.8	1.5	0.5	8	148	59.9	
23	KBC DY (3)	140.00	3.96	29,850	9.1	10.0	3.0	3.0	0.9	3	782	316.5	
24	KBC Direct Minor	50.00	1.42	21,650	6.6	8.0	2.4	3.0	0.9		913	369.5	
25	RMC Shwegu Direct Minor	40.00	1.13	10,000	3.0	5.0	1.5	2.0	0.6		1,771	716.7	
26	RMC DY (4)	400.00	11.33	35,750	10.9	18.0	5.5	5.0	1.5	8	2,559	1,035.6	Total 20,859 acre under this Dy canal
27	RMC DY (4) Minor (1)	100.00	2.83	30,500	9.3	8.0	2.4	5.1	1.6	13	5,682	2,299.4	
28	RMC DY (4) Minor (1-A)		0.00	23,500	7.2	6.5	2.0	1.5	0.5		4,252	1,720.7	
29	RMC DY (4) Minor (2)	100.00	2.83	30,500	9.3	8.0	2.4	5.0	1.5	12	2,589	1,047.7	
30	RMC DY (4) Minor (2-A)		0.00	24,000	7.3	6.5	2.0	1.5	0.5		1,928	780.2	
31	RMC DY (4) Minor (3)	100.00	2.83	21,750	6.6	8.0	2.4	5.0	1.5	10	3,849	1,557.6	
32	RMC Direct Minor (1)	30.00	0.85	22,250	6.8	3.0	0.9	1.3	0.4	25	1,913	774.2	
33	RMC Direct Minor (2)	30.00	0.85	20,250	6.2	3.0	0.9	2.5	0.8	24	1,998	808.6	
34	RMC Direct Minor (3)	25.00	0.71	3,000	0.9	5.0	1.5	2.5	0.8	3	236	95.5	
35	RMC Direct Minor (4)	35.00	0.99	4,500	1.4	5.0	1.5	2.5	0.8	8	1,276	516.4	
36	RMC DY (5)	50.00	1.42	29,500	9.0	5.0	1.5	1.4	0.4	34	1,989	804.9	
37	RMC DY (5-A)	83.00	2.35	25,900	7.9	7.0	2.1	1.8	0.5	18	1,156	467.8	
38	RMC Direct Minor (5)	30.00	0.85	29,500	9.0	6.0	1.8	1.8	0.5	22	1,114	450.8	
39	RMC Ma Dine Gyin Canal		0.00	11,600	3.5	5.0	1.5	3.0	0.9		0	0.0	only for village

List of Canal and Irrigable Area

Old Mu Canal (OMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
42	OMC DO (8-A)	20.00	0.57	9,800	3.0	6.0	1.8	3.0	0.9	9	1,033	418.0	
43	OMC DO (8)	41.00	1.16	11,350	3.5	15.0	4.6	2.8	0.9	17	2,267	917.4	
44	OMC Tha Yatkan Sluice		(0.44)	13,500	4.1					4	1,409	570.2	
45	OMC Tha Yatkan DY	90.00	2.55	21,450	6.5	12.0	3.7	3.0	0.9	25	1,106	447.6	Total 8,913 acre under this Dy canal
46	OMC Tha Yatkan DY, Minor 1		(0.46)	14,300	4.4					11	1,591	643.9	
47	OMC Tha Yatkan DY, Minor 2		(0.44)	10,800	3.3					10	1,536	621.6	
48	OMC Tha Yatkan DY, Minor 2A		(0.31)	8,250	2.5					13	1,082	437.9	
49	OMC Tha Yatkan DY, Minor 2B		(0.21)	3,600	1.1					13	720	291.4	
50	OMC Tha Yatkan DY, Minor 3		(0.18)	6,500	2.0					9	628	254.1	
51	OMC Tha Yatkan DY, Minor 4		(0.22)	5,800	1.8					9	784	317.3	
52	OMC Tha Yatkan DY, Minor 5		(0.12)	5,500	1.7					14	422	170.8	
53	OMC,ShwePhaung Uo		(0.30)	16,000	4.9					9	1,044	422.5	
54	OMC DO (9)	40.36	1.14	14,800	4.5	10.0	3.0	2.5	0.8	12	655	265.1	Total 3,992 acre under this Dy canal
55	OMC DO (9), Minor 1		(0.35)	14,200	4.3					11	1,230	497.8	
56	OMC DO (9), Minor 2		(0.16)	10,350	3.2					9	568	229.9	
57	OMC DO (9), Minor 3		(0.19)	6,500	2.0					8	668	270.3	
58	OMC DO (9), Minor 3A		(0.25)	13,200	4.0					8	871	352.5	
59	OMC LaungShae DY	25.00	0.71	2,500	0.8	10.0	3.0	2.5	0.8	4	462	187.0	Total 2,613 acre under this Dy canal
60	OMC LaungShae DY, Minor 1		(0.36)	14,800	4.5					12	1,333	539.4	
61	OMC LaungShae DY, Minor 1A		(0.22)	8,800	2.7					9	818	331.0	(ShweTheinTaw Do)
62	OMC DO (10)	21.00	0.59	2,800	0.9	5.0	1.5	1.5	0.5	6	639	258.6	
63	OMC YwaThan DY	44.94	1.27	12,500	3.8	10.0	3.0	2.5	0.8	15	1,471	595.3	Total 4,363 acre under this Dy canal
64	OMC YwaThan DY, Minor 1		(0.13)	7,800	2.4					10	436	176.4	
65	OMC YwaThan DY, Minor 1A		(0.14)	10,700	3.3					12	495	200.3	
66	OMC YwaThan DY, Minor 1B		(0.17)	5,800	1.8					8	596	241.2	
67	OMC YwaThan DY, Minor 2		(0.23)	8,200	2.5					14	775	313.6	
68	OMC YwaThan DY, Minor 3		(0.17)	6,300	1.9					15	590	238.8	
69	OMC SiThar DY	21.15	0.60	270	0.1	8.0	2.4	3.0	0.9	0	0	0.0	Total 1,964 acre under this Dy canal
70	OMC SiThar DY, Minor 1		(0.33)	9,500	2.9					17	1,066	431.4	
71	OMC SiThar DY, Minor 2		(0.21)	9,200	2.8					17	693	280.4	
72	OMC SiThar DY, Minor 3		(0.06)	3,550	1.1					9	205	83.0	
73	OMC DO (11)	5.52	0.16	11,676	3.6	7.0	2.1	2.5	0.8	18	503	203.6	
74	OMC DO (12)	7.31	0.21	9,100	2.8	6.0	1.8	2.5	0.8	14	424	171.6	Total 691 acre under this Dy canal
75	OMC DO 12A		(0.08)	8,500	2.6					18	267	108.1	
76	OMC DO (13)	11.08	0.31	11,000	3.4	6.0	1.8	3.5	1.1	13	1,037	419.7	
77	OMC DO (14)	14.19	0.40	10,000	3.0			2.5	0.8	0	0	0.0	Total 1,399 acre under this Dy canal
78	OMC DO (14), Minor 1		(0.13)	15,000	4.6					10	453	183.3	
79	OMC DO (14), Minor 2		(0.10)	7,300	2.2					14	342	138.4	
80	OMC DO (14), Minor 3		(0.17)	5,500	1.7					29	604	244.4	

List of Canal and Irrigable Area

(Kindat) Right Main Canal (RMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	Ayardaw Extension Canal (AEC)	**335.70**	**9.51**	**309,100**	**94.5**					**222**	**7,747**	**3,135.1**	**Total irrigable area under AEC**
40	AEC	335.70	9.51	122,000	37.2	20.0	6.1	5.0	1.5	19	1,985	803.3	Including newly identified irrigable area 550 acre
41	AEC Direct Minor (1)	1.32	0.04	3,170	1.0	1.0	0.3	0.8	0.2	3	254	102.8	
42	AEC Direct Minor (2)	5.40	0.15	5,970	1.8	2.0	0.6	1.1	0.3	4	55	22.3	
43	AEC Direct Minor (3)	3.84	0.11	4,430	1.4	1.5	0.5	1.1	0.3	6	359	145.3	
44	AEC DY (1)	15.24	0.43	5,280	1.6	3.5	1.1	1.9	0.6	6	273	110.5	Including newly identified irrigable area 205 acre
45	AEC Diret Minor (4)	2.76	0.08	3,800	1.2	1.5	0.5	0.9	0.3	4	35	14.2	
46	AEC Diret Minor (5)	8.04	0.23	3,850	1.2	2.8	0.8	1.5	0.5	6	210	85.0	Including newly identified irrigable area 40 acre
47	AEC DY (2)	16.80	0.48	9,500	2.9	3.8	1.1	2.0	0.6	33	246	99.6	Including newly identified irrigable area 101 acre
48	AEC DY (3)	30.36	0.86	11,000	3.4	4.8	1.4	2.5	0.8	19	366	148.1	Including newly identified irrigable area 225 acre
49	AEC DY (4)	52.80	1.50	13,300	4.1	6.0	1.8	3.1	0.9	38	455	184.1	Including newly identified irrigable area 345 acre
50	AEC Direct Minor (6)	3.24	0.09	6,180	1.9	2.8	0.8	0.9	0.3	17	126	51.0	Including newly identified irrigable area 50 acre
51	AEC DY (5)	39.00	1.10	14,780	4.5	5.0	1.5	2.8	0.9	15	433	175.2	Including newly identified irrigable area 127 acre
52	AEC DY (6)	22.86	0.65	13,730	4.2	4.0	1.2	3.3	1.0	24	350	141.6	Including newly identified irrigable area 50 acre
53	AEC DY (7)	15.24	0.43	12,990	4.0	3.5	1.1	2.0	0.6	12	507	205.2	Including newly identified irrigable area 277 acre
54	AEC Direct Minor (7)	5.76	0.16	7,600	2.3	2.0	0.6	1.1	0.3	1	203	82.2	Including newly identified irrigable area 103 acre
55	AEC DY (8)	12.36	0.35	9,500	2.9	3.3	1.0	1.8	0.6	4	337	136.4	Including newly identified irrigable area 127 acre
56	AEC DY (9)	32.04	0.91	12,670	3.9	4.8	1.4	2.6	0.8	4	697	282.1	
57	AEC Direct Minor (8)	19.20	0.54	10,140	3.1	3.8	1.1	2.2	0.7	-	458	185.3	
58	AEC Direct Minor (9)	7.68	0.22	6,020	1.8	2.8	0.8	1.5	0.5	3	70	28.3	
59	AEC Direct Minor (10)	2.04	0.06	3,590	1.1	1.0	0.3	0.9	0.3	-	13	5.3	
60	AEC Direct Minor (11)	9.72	0.28	9,200	2.8	3.0	0.9	1.7	0.5	-	185	74.9	
61	AEC Direct Minor (12)	14.70	0.42	8,200	2.5	3.8	1.1	2.1	0.6	-	80	32.4	
62	AEC Direct Minor (13)	4.40	0.12	4,700	1.4	2.0	0.6	1.1	0.3	2	50	20.2	
63	AEC Direct Minor (14)	10.90	0.31	7,500	2.3	3.3	1.0	1.9	0.6	2			
	Budalin Extension Canal (BEC)	**208.00**	**5.89**	**193,150**	**58.8**					**179**	**8,219**	**3,326.1**	**Total irrigable area under BEC**
64	BEC	208.00	5.89	60,000	18.3	20.0	6.1	3.8	1.2	19	333	134.8	Irrigable area is only area irrigated by DO
65	BEC Beru Branch Canal	26.00	0.74	24,800	7.6	6.0	1.8	2.5	0.7	13	784	317.3	
66	BEC Sin Yan Branch Canal	36.00	1.02	24,300	7.4	6.0	1.8	2.5	0.7	24	1,786	722.8	
67	BEC Direct Outlet	11.00	0.31	9,000	2.7	3.0	0.9	1.7	0.5	25	514	208.0	
68	BEC Direct Minor (1)	33.00	0.93	13,200	4.0	5.0	1.5	2.5	0.8	17	1,570	635.4	
69	BEC Direct Minor (2)	26.00	0.74	18,100	5.5	4.0	1.2	2.4	0.7	27	708	286.5	
70	BEC Direct Minor (3)	53.00	1.50	20,800	6.3	6.0	1.8	3.0	0.9	27	1,110	449.2	
71	BEC Direct Minor (4)	49.00	1.39	22,950	7.0	6.0	1.8	2.9	0.9	27	1,414	572.2	

List of Canal and Irrigable Area

Shwebo Main Canal (SMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	SMC Irrigation System	**2,800**	**79.29**	**2,036,405**	**620.3**					**1,726**	**206,638**	**83,623.5**	**Total irrigable area under SMC**
1	**SMC**	2,800.00	79.29	143,400	43.7	100.0	30.5	8.7	2.7	60	6,449	2,609.8	Irrigable area is only area irrigated by DO
2	SMC Shwetamin Direct Minor	14.00	0.40	2,500	0.8	6.0	1.8	1.5	0.5	10	1,017	411.6	
3	SMC DY (1)	314.00	8.89	123,500	37.6	34.0	10.4	5.2	1.6	134	10,473	4,238.3	Total 16,286 acre under this Dy canal
4	SMC DY (1), Minor (2)	23.70	0.67	9,360	2.9	8.0	2.4	1.4	0.4	10	1,488	602.2	
5	SMC DY (1), Minor (3)	7.00	0.20	1,500	0.5	4.0	1.2	1.3	0.4	3	481	194.7	
6	SMC DY (1), Minor (4)	16.90	0.48	3,400	1.0	8.0	2.4	2.6	0.8	6	1,445	584.8	
7	SMC DY (1), Minor (5)	18.10	0.51	3,800	1.2	6.0	1.8	1.1	0.3	11	1,205	487.6	
8	SMC DY (1), Minor (6)	2.70	0.08	4,290	1.3	3.0	0.9	2.0	0.6	2	206	83.4	
9	SMC DY (1), Minor (7)	15.00	0.42	10,000	3.0	7.0	2.1	1.4	0.4	19	988	399.8	
10	SMC DY (1-A)	11.40	0.32	4,005	1.2	7.0	2.1	1.6	0.5	7	830	335.9	
11	SMC DY (2)	42.10	1.19	21,000	6.4	16.0	4.9	1.9	0.6	22	4,195	1,697.7	Total 4,558 acre under this Dy canal
12	SMC DY (2), Minor (1)	4.70	0.13	6,300	1.9	4.5	1.4	1.0	0.3	5	363	146.9	
13	SMC DY (3)	206.00	5.83	47,345	14.4	22.0	6.7	4.2	1.3	40	6,064	2,454.0	Total 16,917 acre under this Dy canal
14	SMC DY (3), Minor (1)	8.20	0.23	11,000	3.4	7.0	2.1	1.6	0.5	8	700	283.3	
15	SMC DY (3), Minor (1-A)	8.90	0.25	6,000	1.8	6.0	1.8	2.8	0.9	11	830	335.9	
16	SMC DY (3), Minor (1-B)	11.80	0.33	15,600	4.8	6.0	1.8	2.7	0.8	14	1,138	460.5	
17	SMC DY (3), Monir (2)	55.25	1.56	31,090	9.5	11.5	3.5	2.7	0.8	18	2,754	1,114.5	
18	SMC DY (3), Monir (2-A)	10.60	0.30	4,000	1.2	5.0	1.5	1.1	0.3	5	857	346.8	
19	SMC DY (3), Monir (2-B)	7.00	0.20	6,500	2.0	3.0	0.9	1.6	0.5	5	594	240.4	
20	SMC DY (3), Minor (3)	14.10	0.40	4,000	1.2	6.0	1.8	1.6	0.5	6	1,133	458.5	
21	SMC DY (3), Minor (4)	11.30	0.32	7,000	2.1	6.0	1.8	1.2	0.4	9	856	346.4	
22	SMC DY (3), Minor (5)	24.40	0.69	12,500	3.8	7.0	2.1	2.0	0.6	5	1,991	805.7	
23	SMC DY (4)	107.00	3.03	29,500	9.0	23.0	7.0	2.6	0.8	22	4,661	1,886.2	Total 8,062 acre under this Dy canal
24	SMC DY (4), Minor (1)	23.20	0.66	17,000	5.2	13.0	4.0	1.0	0.3	7	1,412	571.4	
25	SMC DY (4), Minor (1-A)	6.70	0.19	4,600	1.4	4.0	1.2	2.0	0.6	5	617	249.7	
26	SMC DY (4), Minor (2)	17.50	0.50	7,200	2.2	7.0	2.1	1.7	0.5	9	1,372	555.2	
27	SMC DY (5)	40.00	1.13	22,700	6.9	9.5	2.9	2.4	0.7	19	2,937	1,188.6	
28	SMC DY (6)	193.70	5.48	52,800	16.1	16.0	4.9	5.0	1.5	60	7,358	2,977.7	Total 15,118 acre under this Dy canal
29	SMC DY (6), Minor (1)	20.00	0.57	18,920	5.8	7.0	2.1	2.5	0.8	21	1,581	639.8	
30	SMC DY (6), Minor (1-A)	9.20	0.26	2,700	0.8	2.5	0.8	2.0	0.6	6	467	189.0	
31	SMC DY (6), Minor (1-B)	45.00	1.27	22,000	6.7	14.0	4.3	2.1	0.6	33	2,665	1,078.5	
32	SMC DY (6),Minor (2)	30.00	0.85	25,800	7.9	9.0	2.7	2.0	0.6	27	1,704	689.6	
33	SMC DY (6),Minor (2-A)	3.80	0.11	2,500	0.8	3.7	1.1	1.3	0.4	5	253	102.4	
34	SMC DY (6), Minor (3)	15.30	0.43	9,300	2.8	6.0	1.8	2.1	0.6	14	1,090	441.1	
35	SMC DY (6-A)	13.14	0.37	7,850	2.4	6.0	1.8	1.5	0.5	11	941	380.8	
36	SMC DY (7)	203.00	5.75	53,380	16.3	28.0	8.5	3.3	1.0	42	10,143	4,104.7	Total 18,066 acre under this Dy canal
37	SMC DY (7), Minor (2)	38.40	1.09	23,000	7.0	11.0	3.4	1.4	0.4	24	2,913	1,178.9	
38	SMC DY (7), Minor (3)	40.00	1.13	23,600	7.2	7.3	2.2	0.6	0.2	16	3,141	1,271.1	
39	SMC DY (7), Minor (4)	21.90	0.62	10,515	3.2	8.5	2.6	1.1	0.3	10	1,869	756.4	
40	SMC DY (7-A)	17.48	0.49	16,760	5.1	7.0	2.1	1.7	0.5	15	1,341	542.7	
41	SMC DY (8)	76.54	2.17	43,660	13.3	16.0	4.9	2.7	0.8	39	5,048	2,042.9	

List of Canal and Irrigable Area

Shwebo Main Canal (SMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	Mode Soe Chone Branch Canal (MBC)			**407,280**	**124.1**					**348**	**38,060**	**15,402.3**	**Total irrigable area under MBC**
42	**MBC**	500.00	14.16	108,000	32.9	30.0	9.1	5.5	1.7	61	5,095	2,061.9	Irrigable area is only area irrigated by DO
43	MBC DY (1)	40.00	1.13	13,800	4.2	10.0	3.0	2.4	0.7	13	1,763	713.5	Total 2,843 acre under this Dy canal
44	MBC DY (1), Minor (1)	16.20	0.46	12,850	3.9	5.5	1.7	2.4	0.7	11	1,080	437.1	
45	MBC DY (2)	48.00	1.36	23,300	7.1	12.0	3.7	2.2	0.7	19	2,902	1,174.4	
46	MBC DY (3)	165.00	4.67	84,000	25.6	19.1	5.8	3.9	1.2	79	7,320	2,962.3	Total 13,257 acre under this Dy canal
47	MBC DY (3), Minor (1)	11.00	0.31	11,700	3.6	3.5	1.1	2.1	0.6	11	819	331.4	
48	MBC DY (3), Minor (2)	15.41	0.44	20,000	6.1	4.0	1.2	3.0	0.9	14	1,117	452.0	
49	MBC DY (3), Minor (3)	7.20	0.20	2,400	0.7	3.5	1.1	1.5	0.5	2	638	258.2	
50	MBC DY (3), Minor (4)	11.10	0.31	1,860	0.6	3.0	0.9	2.0	0.6	5	900	364.2	
51	MBC DY (3), Minor (5)	10.10	0.29	9,000	2.7	5.0	1.5	1.6	0.5	8	770	311.6	
52	MBC DY (3), Minor (6)	6.20	0.18	6,400	2.0	3.0	0.9	1.6	0.5	3	432	174.8	
53	MBC DY (3), Minor (7)	25.00	0.71	12,000	3.7	9.0	2.7	1.9	0.6	22	1,261	510.3	
54	MBC DY (4)	79.10	2.24	42,600	13.0	16.0	4.9	2.7	0.8	42	5,465	2,211.6	
55	MBC DY (4), Minor (1)	17.50	0.50	7,350	2.2	13.0	4.0	1.8	0.5	6	1,131	457.7	Total 1,684 acre under this Dy canal
56	MBC DY (4), Minor (1-A)	6.50	0.18	4,000	1.2	5.0	1.5	1.8	0.5	4	553	223.8	
57	MBC DY (5)	48.00	1.36	32,300	9.8	10.0	3.0	2.8	0.9	26	4,289	1,735.7	Total 6,814 acre under this Dy canal
58	MBC Direct Minor (1)	9.50	0.27	5,020	1.5	5.0	1.5	2.1	0.6	9	929	376.0	
59	MBC Direct Minor (2)	1.20	0.03	10,700	3.3	6.5	2.0	2.3	0.7	13	1,596	645.9	
	Hla Daw Branch Canal (HBC)			**757,250**	**230.4**					**583**	**71,008**	**28,735.9**	**Total irrigable area under HBC**
60	**HBC**	900.00	25.49	100,500	30.6	36.0	11.0	7.0	2.1	16	1,728	699.3	Irrigable area is only area irrigated by DO
61	HBC DY (1)	430.00	12.18	93,000	28.3	30.0	9.1	5.4	1.6	53	10,906	4,413.5	Total 29,490 acre under this Dy canal
62	HBC DY (1), Minor (1)	86.00	2.44	32,850	10.0	13.0	4.0	3.2	1.0	27	3,621	1,465.4	
63	HBC DY (1), Minor (1-A)	12.00	0.34	6,300	1.9	5.0	1.5	1.6	0.5	6	729	295.0	
64	HBC DY (1), Minor (1-B)	17.00	0.48	7,750	2.4	7.5	2.3	1.5	0.5	8	653	264.3	
65	HBC DY (1), Minor (2)	33.00	0.93	24,500	7.5	7.5	2.3	2.5	0.8	22	2,409	974.9	
66	HBC DY (1), Minor (3)	34.00	0.96	13,250	4.0	5.0	1.5	2.6	0.8	12	2,378	962.3	
67	HBC DY (1), Minor (3-A)	24.50	0.69	10,000	3.0	8.0	2.4	2.0	0.6	12	982	397.4	
68	HBC DY (1), Minor (3-B)	6.20	0.18	2,500	0.8	5.0	1.5	1.4	0.4	3	198	80.1	
69	HBC DY (1), Minor (4)	67.80	1.92	36,000	11.0	10.0	3.0	3.1	0.9	35	5,218	2,111.7	
70	HBC DY (1), Minor (5)	26.00	0.74	12,000	3.7	6.5	2.0	2.5	0.8	15	1,386	560.9	
71	HBC DY (1), Minor (6)	25.00	0.71	14,700	4.5	5.0	1.5	2.5	0.8	12	1,010	408.7	
72	HBC DY (2)	68.00	1.93	30,900	9.4	11.0	3.4	2.3	0.7	24	3,042	1,231.1	Total 5,857 acre under this Dy canal
73	HBC DY (2), Minor (1)	31.00	0.88	24,900	7.6	6.5	2.0	2.5	0.8	24	2,815	1,139.2	

List of Canal and Irrigable Area

Shwebo Main Canal (SMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
74	HBC DY (3)	220.00	6.23	67,700	20.6	26.5	8.1	4.1	1.2	38	5,947	2,406.7	Total 21,370 acre under this Dy canal
75	HBC DY (3), Minor (1)	14.00	0.40	9,500	2.9	4.0	1.2	2.0	0.6	8	1,044	422.5	
76	HBC DY (3), Minor (2)	10.10	0.29	10,600	3.2	4.6	1.4	1.5	0.5	13	751	303.9	
77	HBC DY (3), Minor (3)	16.00	0.45	9,700	3.0	5.5	1.7	1.8	0.5	8	1,202	486.4	
78	HBC DY (3), Minor (3-A)	4.00	0.11	6,300	1.9	3.5	1.1	1.0	0.3	3	327	132.3	
79	HBC DY (3), Minor (4)	9.40	0.27	7,600	2.3	5.0	1.5	1.5	0.5	7	847	342.8	
80	HBC DY (3), Minor (5)	52.00	1.47	20,000	6.1	14.0	4.3	2.3	0.7	21	2,627	1,063.1	
81	HBC DY (3), Minor (5-A)	12.90	0.37	11,250	3.4	5.0	1.5	1.5	0.5	7	1,117	452.0	
82	HBC DY (3), Minor (5-B)	13.20	0.37	13,300	4.1	6.0	1.8	1.6	0.5	12	1,077	435.8	
83	HBC DY (3), Minor (5-C)	8.00	0.23	4,800	1.5	4.5	1.4	2.3	0.7	10	766	310.0	
84	HBC DY (3), Minor (6)	19.00	0.54	18,050	5.5	5.0	1.5	2.1	0.6	18	1,503	608.2	
85	HBC DY (3), Minor (6-A)	4.20	0.12	4,000	1.2	4.0	1.2	1.3	0.4	6	427	172.8	
86	HBC DY (3), Minor (7)	18.40	0.52	10,000	3.0	5.5	1.7	1.3	0.4	11	1,091	441.5	
87	HBC DY (3), Minor (7-A)	5.60	0.16	4,000	1.2	5.0	1.5	1.0	0.3	5	412	166.7	
88	HBC DY (3), Minor (8)	36.00	1.02	15,800	4.8	8.0	2.4	2.5	0.8	15	1,906	771.3	
89	HBC DY (3), Minor (8-A)	16.00	0.45	8,300	2.5	4.8	1.4	2.0	0.6	8	326	131.9	
90	HBC DY (4)	23.60	0.67	17,000	5.2	15.0	4.6	1.8	0.5	15	1,295	524.1	Total 1,642 acre under this Dy canal
91	HBC DY (4), Minor (1)	5.70	0.16	3,000	0.9	3.5	1.1	1.5	0.5	5	347	140.4	
92	HBC DY (5)	157.00	4.45	50,000	15.2	28.0	8.5	3.5	1.1	50	4,981	2,015.7	Total 10,921 acre under this Dy canal
93	HBC DY (5), Minor (1)	24.50	0.69	17,800	5.4	6.0	1.8	2.5	0.8	14	1,901	769.3	
94	HBC DY (5), Minor (2)	14.70	0.42	6,000	1.8	5.0	1.5	2.2	0.7	11	1,121	453.7	
95	HBC DY (5), Minor (3)	12.40	0.35	7,000	2.1	3.5	1.1	2.4	0.7	8	943	381.6	
96	HBC DY (5), Minor (4)	18.00	0.51	7,500	2.3	5.0	1.5	2.0	0.6	8	553	223.8	
97	HBC DY (5), Minor (4-A)	6.30	0.18	4,100	1.2	3.0	0.9	1.5	0.5	3	493	199.5	
98	HBC DY (5), Minor (5)	8.70	0.25	8,000	2.4	2.5	0.8	2.0	0.6	5	592	239.6	
99	HBC DY (5), Minor (6)	14.00	0.40	6,000	1.8	5.0	1.5	2.0	0.6	5	337	136.4	
100	HBC DY (5), Minor (6-A)			800	0.2					-			

List of Canal and Irrigable Area

Ye-U Main Canal (YMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
	YMC Irrigation System	**1,750**	**49.55**	**1,307,540**	**398.6**					**1,286**	**115,029**	**46,551**	**Total irrigable area under YMC**
1	**YMC**	1,750.00	49.55	223,000	68.0	95.0	29.0	7.2	2.2	142	10,712	4,335.0	Irrigable area is only area irrigated by DO
2	DY (1)	30.00	0.85	23,000	7.0	10.0	3.0	2.9	0.9	27	1,509	611.0	Total 1,659 acre under this Dy canal
3	DY (1) Minor (1)	4.50	0.13	1,100	0.3	2.5	0.8	1.2	0.4	1	150	61.0	
4	DY (3)	24.20	0.69	19,100	5.8	7.5	2.3	3.0	0.9	31	1,464	592.0	Total 1,582 acre under this Dy canal
5	DY (3) Minor (1)	4.50	0.13	2,500	0.8	2.0	0.6	1.0	0.3	4	118	48.0	
6	DY (4)	121.60	3.44	44,050	13.4	15.0	4.6	4.5	1.4	51	5,362	2,170.0	Total 7,078 acre under this Dy canal
7	DY (4) Minor (1)	26.60	0.75	16,700	5.1	5.0	1.5	2.7	0.8	20	1,681	680.0	
8	DY (4) Minor (2)	3.80	0.11	4,200	1.3	5.0	1.5	1.8	0.5	2	35	14.0	
9	DY (4-A)	19.30	0.55	14,100	4.3	6.5	2.0	3.2	1.0	13	1,253	507.0	
10	DY (5)	18.90	0.54	7,500	2.3	5.0	1.5	1.8	0.5	9	1,216	492.0	
11	DY (6)	8.40	0.24	2,800	0.9	2.5	0.8	2.2	0.7	4	524	212.0	
12	DY (7)	98.00	2.78	47,900	14.6	16.0	4.9	3.4	1.0	32	5,104	2,066.0	Total 6,973 acre under this Dy canal
13	DY (7) Minor (1)	21.00	0.59	21,000	6.4	7.0	2.1	1.5	0.5	13	1,401	567.0	
14	DY (7) Minor (2)	6.90	0.20	5,500	1.7	4.0	1.2	1.5	0.5	4	468	189.0	
15	DY (8)	10.10	0.29	10,800	3.3	4.0	1.2	2.6	0.8	8	702	284.0	
16	DY (9)	38.00	1.08	20,500	6.2	9.0	2.7	2.6	0.8	15	1,948	788.0	Total 2,546 acre under this Dy canal
17	DY (9) Minor (1)	8.00	0.23	8,300	2.5	4.0	1.2	1.5	0.5	9	598	242.0	
18	DY (10)	6.00	0.17	5,200	1.6	3.0	0.9	2.4	0.7	9	569	230.0	
19	DY (11)	76.00	2.15	25,400	7.7	11.0	3.4	3.4	1.0	25	4,182	1,692.0	Total 4,575 acre under this Dy canal
20	DY (11) Minor (1)	15.20	0.43	9,800	3.0	5.0	1.5	2.3	0.7	9	393	159.0	
21	DY (12)	32.00	0.91	18,400	5.6	8.0	2.4	2.4	0.7	20	2,043	827.0	
22	Direct Minor (1-A)	5.70	0.16	700	0.2	4.0	1.2	1.8	0.5	3	375	152.0	
23	DY (13)	13.00	0.37	5,100	1.6	8.0	2.4	1.8	0.5	7	822	333.0	
24	DY (14)	9.90	0.28	7,000	2.1	3.5	1.1	1.6	0.5	7	653	264.0	
25	DY (15)	46.00	1.30	28,240	8.6	8.0	2.4	3.3	1.0	17	2,655	1,074.0	
26	DY (15-A)	28.00	0.79	15,200	4.6	20.0	6.1	2.0	0.6	16	1,722	697.0	
27	DY (16)	18.40	0.52	18,000	5.5	5.5	1.7	2.2	0.7	10	1,392	563.0	
28	DY (17)	9.50	0.27	4,500	1.4	3.5	1.1	1.7	0.5	6	597	242.0	
29	DY (18)	58.00	1.64	22,000	6.7	9.0	2.7	2.7	0.8	16	2,143	867.0	Total 3,446 acre under this Dy canal
30	DY (18) Minor (1)	20.00	0.57	18,000	5.5	6.5	2.0	2.0	0.6	8	1,303	527.0	
31	DY (19)	37.50	1.06	18,700	5.7	5.5	1.7	2.5	0.8	13	2,555	1,034.0	
32	DY (20)	35.00	0.99	14,800	4.5	5.5	1.7	2.2	0.7	14	1,617	654.0	
33	DY (21)	29.00	0.82	11,100	3.4	8.0	2.4	2.2	0.7	13	1,338	541.0	Total 1,747 acre under this Dy canal
34	DY (21) Minor (1)	6.90	0.20	6,400	2.0	1.5	0.5	1.0	0.3	7	409	166.0	
35	DY (22)	31.60	0.89	11,100	3.4	6.0	1.8	3.1	0.9	13	1,091	442.0	Total 1,918 acre under this Dy canal
36	DY (22) Minor (1)	8.50	0.24	5,500	1.7	2.5	0.8	1.7	0.5	6	520	210.0	
37	DY (22) Minor (2)	7.00	0.20	1,600	0.5	3.0	0.9	1.2	0.4	2	307	124.0	
38	Direct Minor (1)	10.00	0.28	3,750	1.1	3.0	0.9	1.8	0.5	7	554	224.0	
39	DY (23)	18.30	0.52	6,000	1.8	6.0	1.8	2.0	0.6	10	1,075	435.0	

List of Canal and Irrigable Area

Ye-U Main Canal (YMC) Irrigation System

No	Name of Canal	Water Discharge		Canal length		Canal Bed Width		Depth		Number of outlet	Irrigable Area		Remarks
		Cusec	m^3/s	ft	km	ft	m	ft	m		Acer	ha	
40	DY (24)	24.10	0.68	9,000	2.7	18.0	5.5	2.0	0.6	10	1,586	642.0	
41	Direct Minor (2)	6.00	0.17	4,100	1.2	4.0	1.2	1.8	0.5	7	416	168.0	
42	Tail DY	140.00	3.96	41,000	12.5	26.0	7.9	4.1	1.2	42	4,935	1,997.0	Total 7,325 acre under this Dy canal
43	Tail DY Minor (1)	20.70	0.59	7,500	2.3	5.0	1.5	1.8	0.5	6	707	286.0	
44	New Minor			6,700	2.0					10	629	255.0	
45	Tail DY Minor(2)	7.80	0.22	5,500	1.7	4.0	1.2	1.5	0.5	6	844	342.0	
46	Tail DY Minor (3)	12.00	0.34	6,400	2.0	5.0	1.5	1.7	0.5	9	210	85.0	
	Ma Ya Kan Branch Canal (MBC)			**498,800**	**152.1**					**573**	**43,142**	**17,459.0**	**Total irrigable area under MBC**
47	**MBC**	700.00	19.82	95,500	29.1	47.0	14.3	4.8	1.5	79	7,313	2,959.0	Irrigable area is only area irrigated by DO
48	MBC DY (1)	20.80	0.59	19,200	5.9	7.0	2.1	2.4	0.7	23	1,281	518.0	
49	MBC DY (2)	20.70	0.59	16,600	5.1	6.0	1.8	2.3	0.7	20	1,307	529.0	
50	MBC DY (3)	24.70	0.70	19,800	6.0	6.0	1.8	2.4	0.7	19	1,530	619.0	
51	MBC Dy (4)	71.00	2.01	44,900	13.7	12.0	3.7	4.0	1.2	38	3,324	1,345.0	Total 4,321 acre under this Dy canal
52	MBC DY (4) Minor (1)	10.30	0.29	12,000	3.7	3.5	1.1	1.4	0.4	9	664	269.0	
53	MBC DY (4) Minor (2)	5.60	0.16	3,950	1.2	1.0	0.3	1.2	0.4	5	333	135.0	
54	MBC DY (5)	119.00	3.37	49,500	15.1	18.5	5.6	3.4	1.0	58	7,185	2,908.0	
55	MBC Direct Minor (1)	8.00	0.23	4,500	1.4	4.0	1.2	1.4	0.4	9	419	170.0	
56	MBC DY (7)	99.90	2.83	45,300	13.8	12.0	3.7	2.7	0.8	54	6,657	2,694.0	
57	MBC DY (9)	28.00	0.79	25,000	7.6	8.0	2.4	1.5	0.5	46	1,557	630.0	Total 1,669 acre under this Dy canal
58	MBC DY (9) Minor (1)	2.00	0.06	5,000	1.5	4.0	1.2	1.4	0.4	4	112	45.0	
59	MBC DY (11)	21.70	0.61	12,050	3.7	6.0	1.8	2.6	0.8	17	1,410	571.0	
60	MBC DY (12)	15.90	0.45	11,500	3.5	6.5	2.0	3.0	0.9	22	932	377.0	
61	MBC DY (13)	102.20	2.89	48,000	14.6	16.0	4.9	2.9	0.9	43	3,001	1,214.0	Total 4,937 acre under this Dy canal
62	MBC DY (13) Minor (1)	15.30	0.43	7,900	2.4	4.0	1.2	2.1	0.6	15	892	361.0	
63	MBC DY (13) Minor (2)	32.10	0.91	16,000	4.9	4.0	1.2	2.1	0.6	25	1,044	422.0	
64	MBC Direct Minor (2)	10.00	0.28	1,400	0.4	4.0	1.2	1.7	0.5	4	514	208.0	
65	MBC Tail DY	81.00	2.29	42,500	13.0	15.0	4.6	3.2	1.0	54	2,888	1,169.0	Total 3,667 acre under this Dy canal
66	MBC Tail DY Minor (1)	6.00	0.17	7,900	2.4	2.5	0.8	1.6	0.5	13	310	125.0	
67	MBC Tail DY Minor (2)	7.90	0.22	10,300	3.1	4.0	1.2	2.0	0.6	16	469	190.0	

Summary of Canal by category

Number of Canal by category

	OMC	SMC	RMC	YMC	Total
Main Canal	1	1	1	1	4
Branch Canal/extension canal	0	2	3	1	6
Sub total	1	3	4	2	10
Dy Canal	21	21	21	38	101
Minor Canal	35	76	46	27	184
DO	23		0		
Sub total	79	97	67	65	285
Total	80	100	71	67	295

Note: 2 branch canal of AEC of RMC is too small, so categorized to Dy canal.

Total length of Canal (km) by category

	OMC	SMC	RMC	YMC	Total
Main Canal	76.2	43.7	84.0	68.0	271.9
Branch Canal/extension canal	0.0	63.5	73.4	29.1	166.0
Sub total	76.2	107.2	157.4	97.1	437.9
Dy Canal	44.4	267.1	125.8	241.7	679.0
Minor Canal	106.8	246.0	193.2	59.8	605.8
DO	90.4				90.4
Sub total	241.6	513.1	319.0	301.5	1,375.2
Total	317.8	620.3	476.4	398.6	1,813.1

Note: DO of OMC is quite different among other main canal and like Dy canal level. Accordingly only OMC's Dos are mentioned.

Number of Canal by category & length

	OMC	SMC	RMC	YMC	Total
Dy Canal	21	21	21	38	101
L< 3km	17	2	4	9	32
3km <= L< 6km	2	3	7	14	26
6km <= L< 9km	2	3	5	7	17
9km <= L< 12km	0	3	5	0	8
12km <= L< 15km	0	3	0	7	10
L> = 15km	0	7	0	1	8
Average length (km)	2.1	12.7	6.0	6.4	
Minor Canal	35	76	46	27	184
L< 1km	1	9	1	5	16
1km <= L< 2km	7	18	11	9	45
2km <= L< 3km	12	15	6	6	39
3km <= L< 4km	5	14	7	3	29
4km <= L< 5km	8	5	2	1	16
5km <= L< 10km	2	13	19	3	37
L> = 10km	0	2	0	0	2
Average length (km)	3.1	3.2	4.2	2.2	
DO	23	0	0	0	23
L< 1km	2				2
1km <= L< 2km	3				3
2km <= L< 3km	4				4
3km <= L< 4km	6				6
4km <= L< 5km	4				4
5km <= L< 10km	2				2
L> = 10km	2				2
Average length (km)	3.9				

Number of Canal & Total length of Canal (km) by category & discharge

	OMC		SMC		RMC		YMC		Total	
	Nos	km	Nos	km	Nos	km	Nos	km	Nos	km
Dy Canal	21	44.4	21	267.1	21	125.8	38	241.7	101	679.0
Q < 1 m3/s	17	25.7	4	13.9	9	33.2	25	96.1	55	168.9
1 m^3/s <= Q < 2 m^3/s	2	11.0	6	43.8	4	25.0	4	27.2	16	107.0
2 m^3/s <=Q < 3 m^3/s	2	7.7	2	26.3	1	7.9	6	77.4	11	119.3
3 m^3/s <= Q < 4 m^3/s	0	0.0	0	9.0	2	15.9	3	41.0	5	65.9
4 m^3/s <= Q < 5 m^3/s	0	0.0	3	40.8	1	9.3	0	0.0	4	50.1
Q >= 5 m^3/s	0	0.0	6	133.3	4	34.5	0	0.0	10	167.8
Minor Canal	35	106.8	76	246.0	46	193.2	27	59.8	184	605.8
Q < 0.5 m3/s	31	89.6	48	99.1	17	43.7	22	35.6	118	268.0
0.5 m^3/s <= Q < 1 m^3/s	3	14.3	20	84.6	12	47.5	5	24.2	40	170.6
1 m^3/s <= Q < 2 m^3/s	1	2.9	7	52.3	11	57.8	0	0.0	19	113.0
2 m^3/s <=Q < 3 m^3/s	0	0.0	1	10.0	6	44.2	0	0.0	7	54.2
3 m^3/s <= Q < 4 m^3/s	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4 m^3/s <= Q < 5 m^3/s	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Q >= 5 m^3/s	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
DO	23	90.4	0	0.0	0	0.0	0	0.0	23	90.4
Q < 0.5 m3/s	11	28.9							11	28.9
0.5 m^3/s <= Q < 1 m^3/s	7	21.1							7	21.1
1 m^3/s <= Q < 2 m^3/s	3	17.4							3	17.4
2 m^3/s <=Q < 3 m^3/s	1	11.4							1	11.4
3 m^3/s <= Q < 4 m^3/s	1	11.6							1	11.6
4 m^3/s <= Q < 5 m^3/s	0	0.0							0	0.0
Q >= 5 m^3/s	0	0.0							0	0.0

Distribution canal (DY, Minor) density

		OMC	SMC	RMC	YMC	Total
Total Irrigable Area	(Acre)	65,105	206,638	107,115	115,029	493,887
	(ha)	26,347	83,624	43,348	46,551	199,870
Total Irrigable Area (Acre) through DY, Minor	(Acre)	65,105	193,366	89,090	84,779	432,340
	(ha)	26,347	78,253	36,054	34,309	174,963
Total length of DY, Minor & DO	(mile)	150.1	318.8	198.2	187.3	854.4
	(km)	241.6	513.1	319.0	301.5	1,375.2
DY & Minor canal length per 1 km^2 (100ha) irrigable area (m/km^2)		917	656	885	879	786
average Irrigable area per 200m DY & Minor & DO canal (ha/200m)		21.8	30.5	22.6	22.8	25.4

Note: DO of OMC is quite different among other main canal and like Dy canal level. Accordingly only OMC's DOs are included.

Irrigable Area categorized by TS and Canal (SMC, OMC, RMC, YMC)

Main Canal	Irrigable Area, acre	Irrigable Area, ha	Share, %
Kindat Right Main Canal,	107,115	43,347	22
Kindat Left Main Canal (Old Mu Canal: OMC)	65,105	26,347	13
Kabo Right Main Canal (Ye-U canal)	115,029	46,550	23
Kabo Left Main Canal (Shwebo Main Canal: SMC)	206,638	83,622	42
Total	**493,887**	**199,866**	**100**

District	Irrigable Area, acre					
	Township	OMC	SMC	RMC	YMC	Total
Kanbalu	Kanbalu	32,022	700			32,722
Shwebpo	Khin U	25,750	29,489			55,239
	Shwebo	7,333	76,863			84,196
	Wetlet		95,567			95,567
Sagaing	Sagaing		4,019			4,019
Shwebo	Taze			43,242		43,242
	Ye-U			32,300	26,222	58,522
	Tabayin			18,058	79,948	98,006
Monywa	Ayadaw			5,296	8,859	14,155
	Budalin			8,219		8,219
Total		65,105	206,638	107,115	115,029	493,887

District	Irrigable Area, ha					
	Township	OMC	SMC	RMC	YMC	Total
Kanbalu	Kanbalu	12,959	283			13,242
Shwebpo	Khin U	10,421	11,934			22,354
	Shwebo	2,968	31,105			34,072
	Wetlet		38,674			38,674
Sagaing	Sagaing		1,626			1,626
Shwebo	Taze			17,499		17,499
	Ye-U			13,071	10,612	23,683
	Tabayin			7,308	32,353	39,661
Monywa	Ayadaw			2,143	3,585	5,728
	Budalin			3,326		3,326
Total		26,347	83,622	43,347	46,550	199,866

Irrigable area

Intake location	Kindat Diversion Dam		Kabo Weir		Total (Acre)
Irrigation System	OMC	RMC	SMC	YMC	
Irrigable Area	65,105	107,115	206,638	115,029	493,887

Monsoon and Summer Paddy Yearly Cultivated Area by (4) Main Canals of Thapanzeik Dam

No	Year	Noon Soon Paddy (Acre)					Water volume of dam before summer paddy (Acre･ft) & % of dam storage Capacity	Summer Paddy (Acre) & % of irrigable area					Total Cultivated Acre & % of irrigable area
		OMC	RMC	SMC	YMC	Total		OMC	RMC	SMC	YMC	Total	
1	2001-02	52,972	79,856	200,661	119,002	452,491	2,836,144 (98%)	5,724 (8.8%)	17,602 (16.4%)	89,469 (43.3%)	58,364 (50.7%)	171,159 (34.7%)	623,650 (126.3%)
2	2002-03	61,443	93,113	207,172	110,920	472,648	2,139,220 (74%)	30,478 (46.8%)	53,737 (50.2%)	120,241 (58.2%)	73,775 (64.1%)	278,231 (56.3%)	750,879 (152.0%)
3	2003-04	60,720	96,943	200,114	113,691	471,468	938,808 (33%)	15,469 (23.8%)	39,188 (36.6%)	87,750 (42.5%)	54,476 (47.4%)	196,883 (39.9%)	668,351 (135.3%)
4	2004-05	63,941	102,191	213,461	115,622	495,215	2,638,661 (92%)	35,269 (54.2%)	58,884 (55.0%)	130,511 (63.2%)	80,292 (69.8%)	304,956 (61.7%)	800,171 (162.0%)
5	2005-06	63,298	105,316	213,861	116,313	498,788	1,243,500 (43%)	38,764 (59.5%)	60,104 (56.1%)	129,729 (62.8%)	77,890 (67.7%)	306,487 (62.1%)	805,275 (163.0%)
6	2006-07	65,151	112,357	220,191	116,467	514,166	2,806,541 (97%)	46,310 (71.1%)	71,750 (67.0%)	128,682 (62.3%)	86,727 (75.4%)	333,469 (67.5%)	847,635 (171.6%)
7	2007-08	67,475	102,297	214,724	113,249	497,745	2,825,180 (98%)	49,919 (76.7%)	72,052 (67.3%)	130,803 (63.3%)	84,818 (73.7%)	337,592 (68.4%)	835,337 (169.1%)
8	2008-09	64,699	99,345	208,703	114,089	486,836	2,880,000 (100%)	49,491 (76.0%)	75,255 (70.3%)	139,646 (67.6%)	85,980 (74.7%)	350,372 (70.9%)	837,208 (169.5%)
9	2009-10	63,798	95,499	202,635	114,153	476,085	2,774,746 (96%)	51,562 (79.2%)	74,179 (69.3%)	146,894 (71.1%)	90,846 (79.0%)	363,481 (73.6%)	839,566 (170.0%)
10	2010-11	63,849	95,976	204,509	114,619	478,953	2,819,698 (98%)	53,099 (81.6%)	74,772 (69.8%)	149,953 (72.6%)	91,561 (79.6%)	369,385 (74.8%)	848,338 (171.8%)
11	2011-12	64,461	99,234	205,941	115,520	485,156	2,822,987 (98%)	48,391 (74.3%)	63,733 (59.5%)	134,413 (65.0%)	73,581 (64.0%)	320,118 (64.8%)	805,274 (163.0%)
12	2012-13	65,815	100,748	205,800	115,861	488,224	1,121,154 (39%)	7,241 (11.1%)	25,401 (23.7%)	44,051 (21.3%)	24,498 (21.3%)	101,191 (20.5%)	589,415 (119.3%)
13	2013-14	65,773	100,696	206,042	116,054	488,565	2,002,636 (70%)	45,093 (69.3%)	57,237 (53.4%)	122,074 (59.1%)	70,250 (61.1%)	294,654 (59.7%)	783,219 (158.6%)
Average		63,338	98,736	207,986	115,043	485,103	2,296,098 (80%)	36,678 (56.3%)	57,223 (53.4%)	119,555 (57.9%)	73,312 (63.7%)	286,768 (58.1%)	771,871 (156.3%)
Max		67,475	112,357	220,191	119,002	514,166	2,880,000 (100%)	53,099 (81.6%)	75,255 (70.3%)	149,953 (72.6%)	91,561 (79.6%)	369,385 (74.8%)	848,338 (172%)
Min		52,972	79,856	200,114	110,920	452,491	938,808 (33%)	5,724 (8.8%)	17,602 (16.4%)	44,051 (21.3%)	24,498 (21.3%)	101,191 (20.5%)	589,415 (119%)

No	Year	Noon Soon Paddy (Acre)					Water volume of dam before summer paddy (Acre･ft) & % of dam storage Capacity	Summer Crop (Paddy & Sesame & GG) (Acre) & % of irrigable area					
								OMC			RMC		
		OMC	RMC	SMC	YMC	Total		Paddy	Sesame/GG	Total	Paddy	Sesame/GG	Total
14	2014-15	67,120	99,810	205,650	115,834	488,414	1,422,901 (49%)	309 (0.5%)	7,326 (11.3%) 3,362 (5.2%)	10,997 (16.9%)	16,189 (15.1%)	170 (0.2%) 1,517 (1.4%)	17,876 (16.7%)
15	2015-16	67,206	100,508	206,475	115,812	490,001	2,611,926 (91%)	51,801 (79.6%)	327 (0.5%) 1,422 (2.2%)	53,550 (82.3%)	63,421 (59.2%)	9 (0.0%) 279 (0.3%)	63,709 (59.5%)
16	2016-17	67,272	100,411	206,115	115,795	489,593							

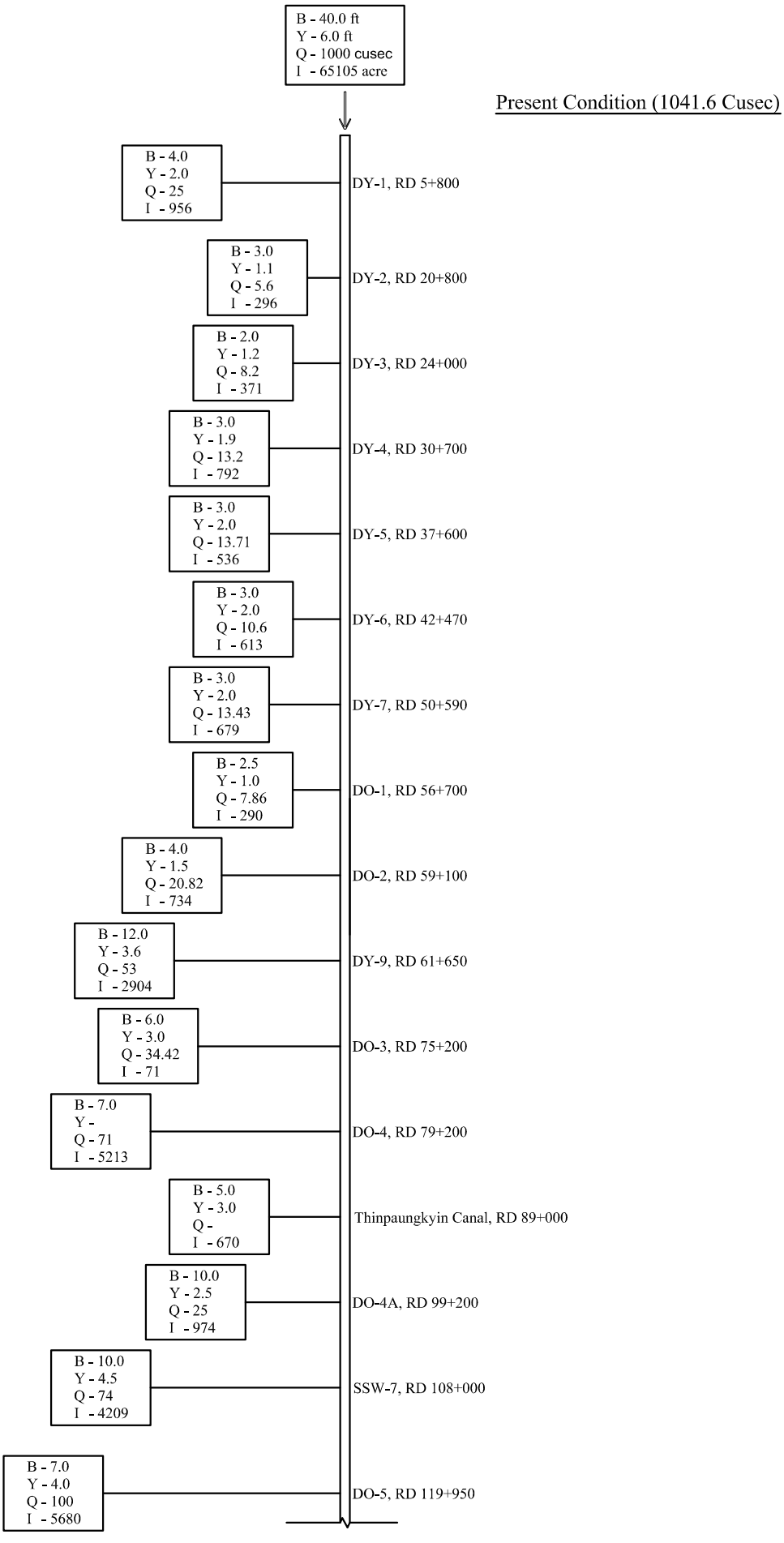
Year	SMC			YMC		
	Paddy	Sesame/GG	Total	Paddy	Sesame/GG	Total
2014-15	49,308 (23.9%)	54,742 (26.5%) 12,844 (6.2%)	116,894 (56.6%)	41,657 (36.2%)	5,559 (4.8%) 17 (0.0%)	47,233 (41.1%)
2015-16	96,358 (46.6%)	51,048 (24.7%) 16,790 (8.1%)	164,196 (79.5%)	55,636 (48.4%)	16,937 (14.7%) 6,336 (5.5%)	78,909 (68.6%)

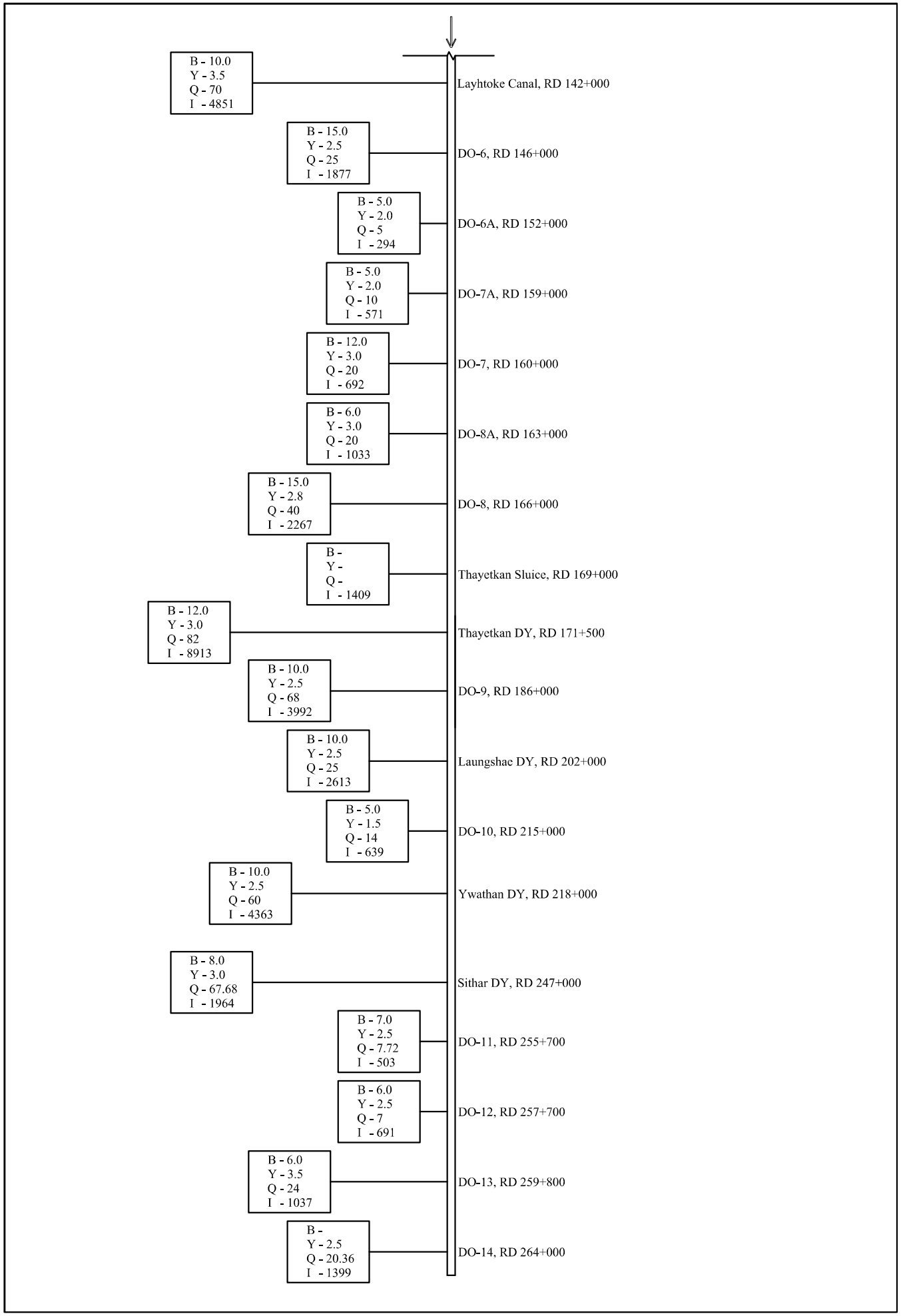
Year	Total of Summer Crop (Acre) & % of irrigable area			Total Cultivated Acre & % of irrigable area		
	Paddy	Sesame/GG	Total	Paddy	Sesame/GG	Total
2014-15	107,463 (21.8%)	67,797 (13.7%) 17,740 (3.6%)	193,000 (39.1%)	595,877 (120.7%)	85,537 (17.3%)	681,414 (138.0%)
2015-16	267,216 (54.1%)	68,321 (13.8%) 24,827 (5.0%)	360,364 (73.0%)	757,217 (153.3%)	93,148 (18.9%)	850,365 (172.2%)

Note:

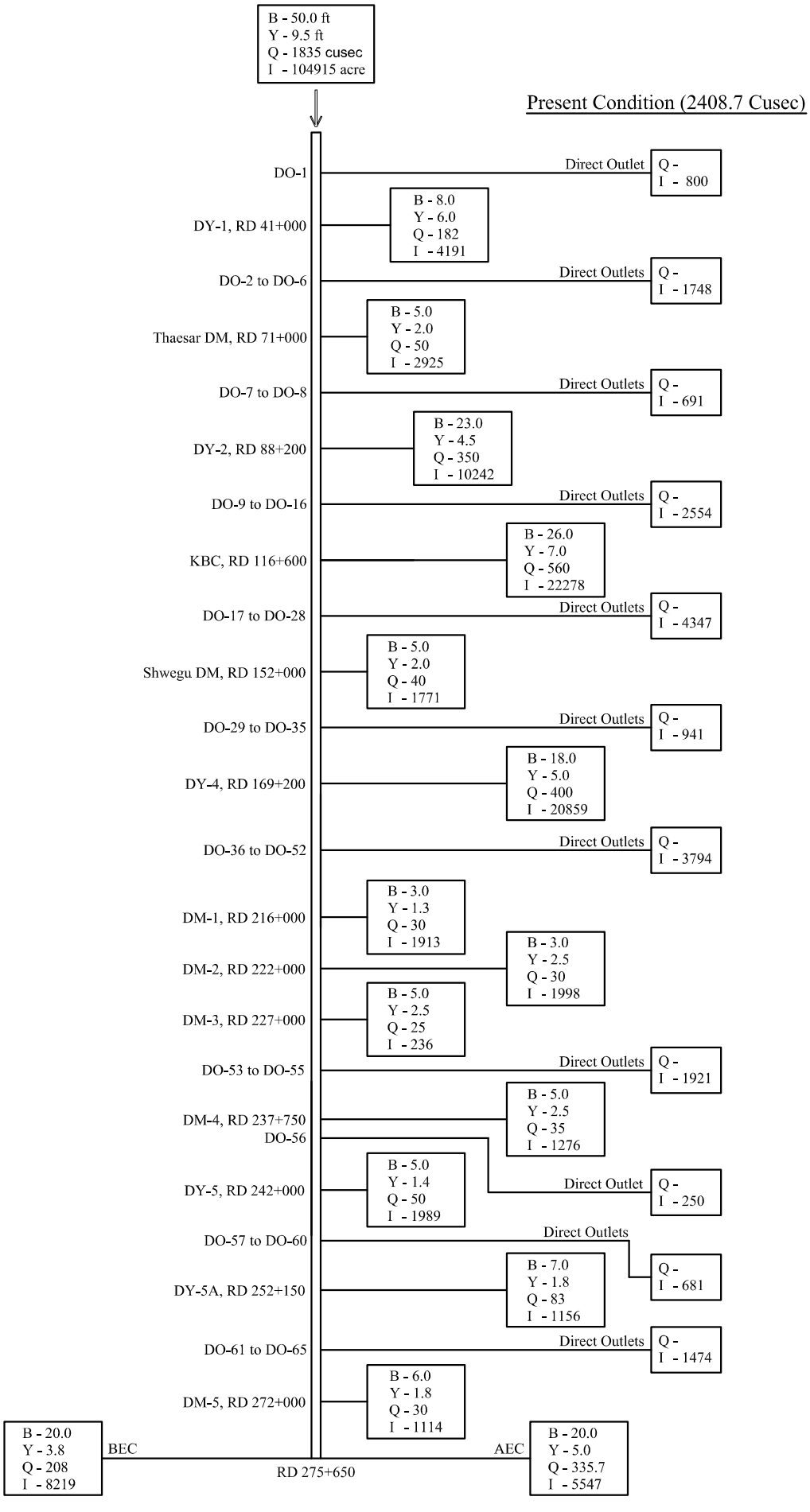
Irrigation for Monsoon Paddy is from middle of July (for preparation) to end of November.
Irrigation for summer paddy is from February to Middle of June.
Irrigable area for summer cop is estimated based on the water volume at end of December before summer paddy.
dam storage Capacity is 2,880,000 acre-ft.

FLOW CHART OF KINDAT LEFT MAIN CANAL (OMC)

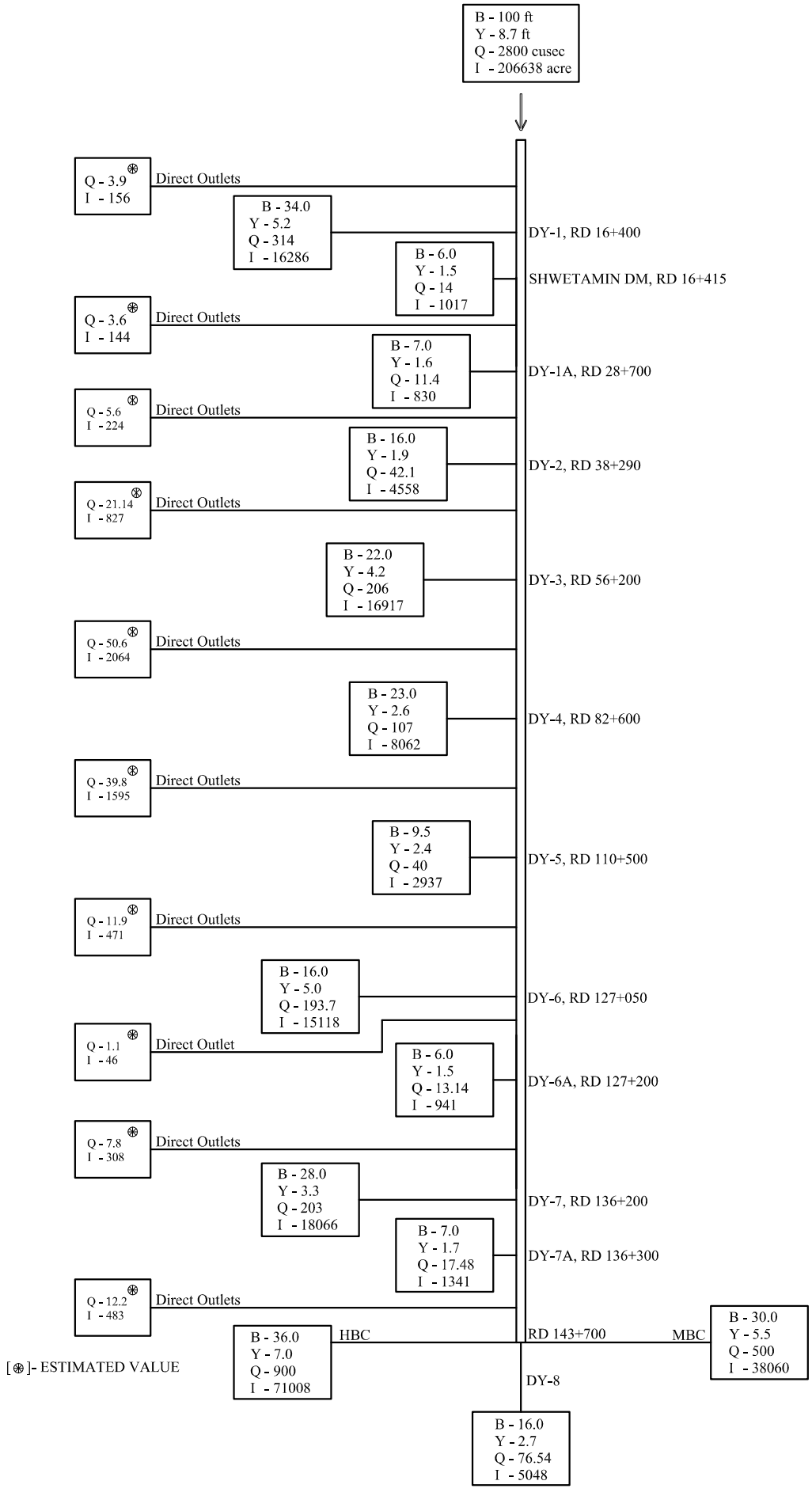



B - 10.0
Y - 3.5
Q - 70
I - 4851
Layhtoke Canal, RD 142+000
B - 15.0
Y - 2.5
Q - 25
I - 1877
DO-6, RD 146+000
B - 5.0
Y - 2.0
Q - 5
I - 294
DO-6A, RD 152+000
B - 5.0
Y - 2.0
Q - 10
I - 571
DO-7A, RD 159+000
B - 12.0
Y - 3.0
Q - 20
I - 692
DO-7, RD 160+000
B - 6.0
Y - 3.0
Q - 20
I - 1033
DO-8A, RD 163+000
B - 15.0
Y - 2.8
Q - 40
I - 2267
DO-8, RD 166+000
B -
Y -
Q -
I - 1409
Thayetkan Sluice, RD 169+000
B - 12.0
Y - 3.0
Q - 82
I - 8913
Thayetkan DY, RD 171+500
B - 10.0
Y - 2.5
Q - 68
I - 3992
DO-9, RD 186+000
B - 10.0
Y - 2.5
Q - 25
I - 2613
Laungshae DY, RD 202+000
B - 5.0
Y - 1.5
Q - 14
I - 639
DO-10, RD 215+000
B - 10.0
Y - 2.5
Q - 60
I - 4363
Ywathan DY, RD 218+000
B - 8.0
Y - 3.0
Q - 67.68
I - 1964
Sithar DY, RD 247+000
B - 7.0
Y - 2.5
Q - 7.72
I - 503
DO-11, RD 255+700
B - 6.0
Y - 2.5
Q - 7
I - 691
DO-12, RD 257+700
B - 6.0
Y - 3.5
Q - 24
I - 1037
DO-13, RD 259+800
B -
Y - 2.5
Q - 20.36
I - 1399
DO-14, RD 264+000

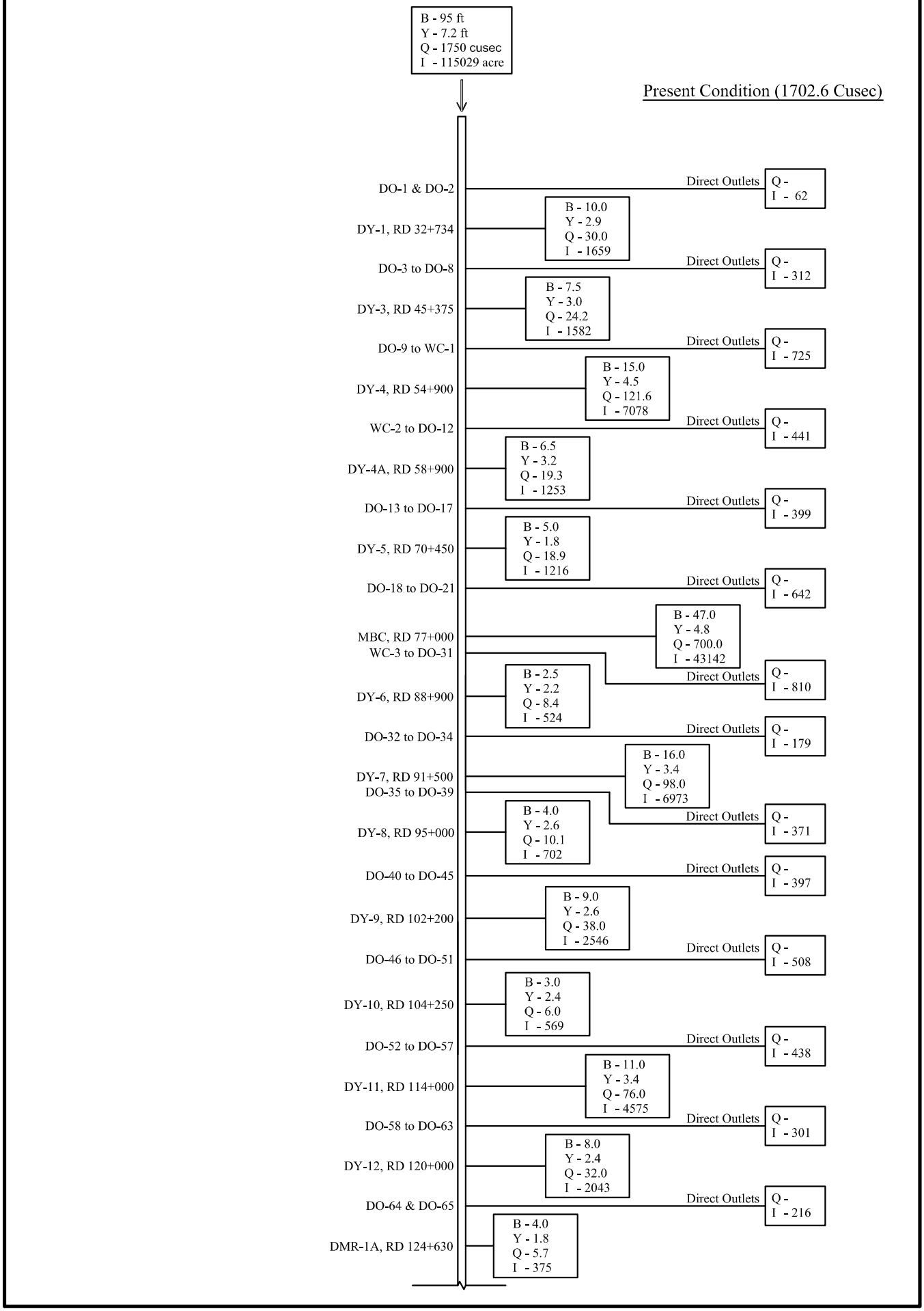
FLOW CHART OF KINDAT RIGHT MAIN CANAL (RMC)

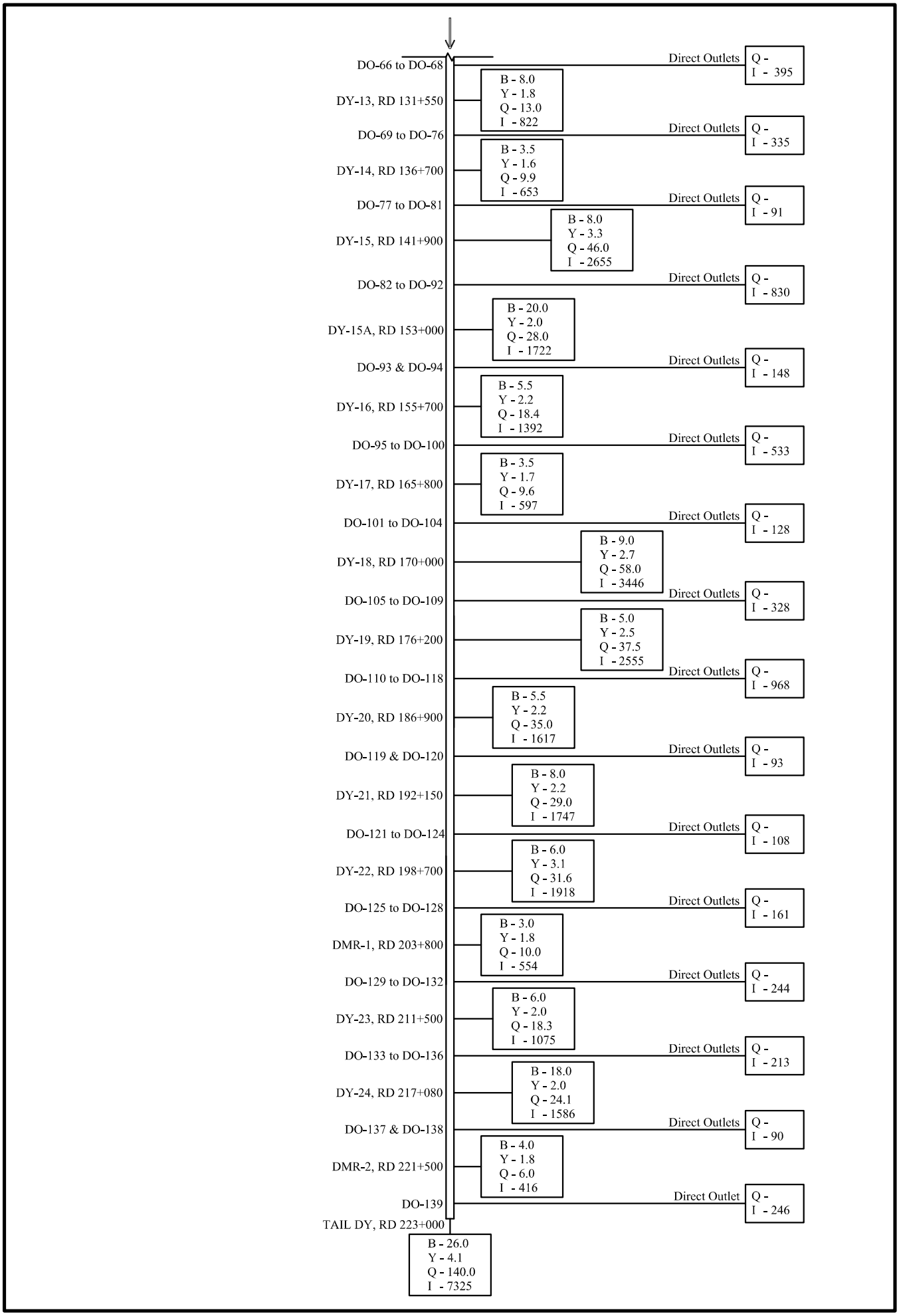


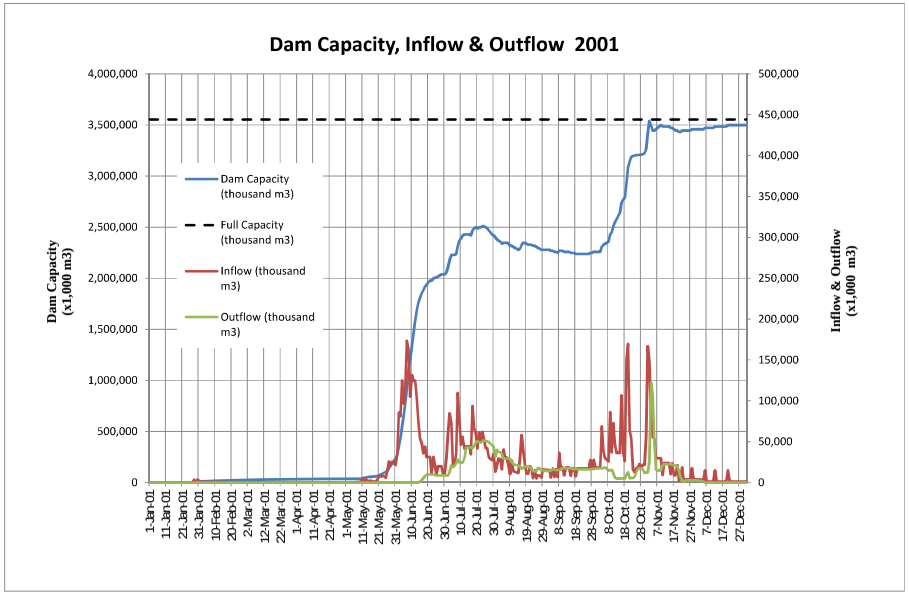
FLOW CHART OF SHWEBO MAIN CANAL (SMC)

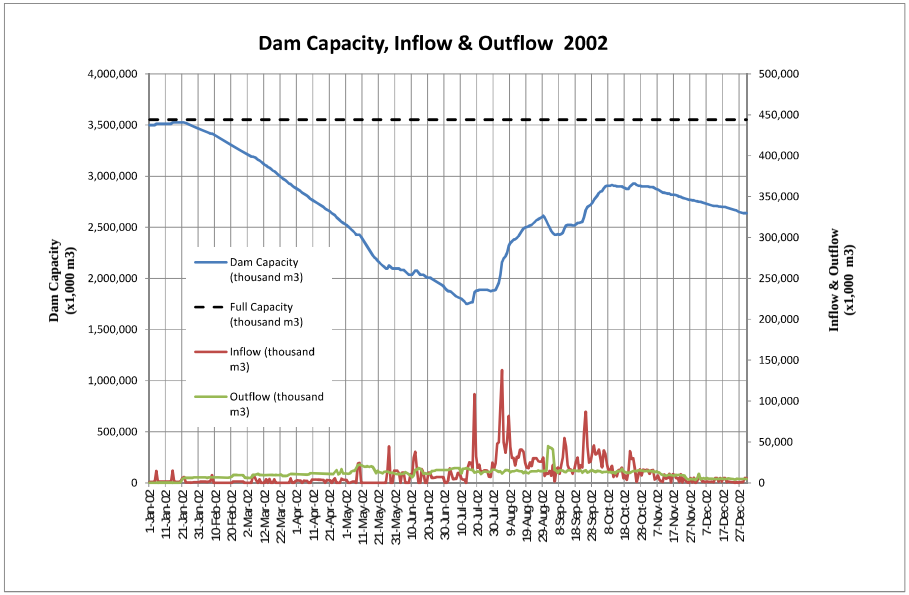


FLOW CHART OF YE-U MAIN CANAL (YMC)




DO-66 to DO-68
Direct Outlets
Q -
I - 395
DY-13, RD 131+550
B - 8.0
Y - 1.8
Q - 13.0
I - 822
DO-69 to DO-76
Direct Outlets
Q -
I - 335
DY-14, RD 136+700
B - 3.5
Y - 1.6
Q - 9.9
I - 653
DO-77 to DO-81
Direct Outlets
Q -
I - 91
DY-15, RD 141+900
B - 8.0
Y - 3.3
Q - 46.0
I - 2655
DO-82 to DO-92
Direct Outlets
Q -
I - 830
DY-15A, RD 153+000
B - 20.0
Y - 2.0
Q - 28.0
I - 1722
DO-93 & DO-94
Direct Outlets
Q -
I - 148
DY-16, RD 155+700
B - 5.5
Y - 2.2
Q - 18.4
I - 1392
DO-95 to DO-100
Direct Outlets
Q -
I - 533
DY-17, RD 165+800
B - 3.5
Y - 1.7
Q - 9.6
I - 597
DO-101 to DO-104
Direct Outlets
Q -
I - 128
DY-18, RD 170+000
B - 9.0
Y - 2.7
Q - 58.0
I - 3446
DO-105 to DO-109
Direct Outlets
Q -
I - 328
DY-19, RD 176+200
B - 5.0
Y - 2.5
Q - 37.5
I - 2555
DO-110 to DO-118
Direct Outlets
Q -
I - 968
DY-20, RD 186+900
B - 5.5
Y - 2.2
Q - 35.0
I - 1617
DO-119 & DO-120
Direct Outlets
Q -
I - 93
DY-21, RD 192+150
B - 8.0
Y - 2.2
Q - 29.0
I - 1747
DO-121 to DO-124
Direct Outlets
Q -
I - 108
DY-22, RD 198+700
B - 6.0
Y - 3.1
Q - 31.6
I - 1918
DO-125 to DO-128
Direct Outlets
Q -
I - 161
DMR-1, RD 203+800
B - 3.0
Y - 1.8
Q - 10.0
I - 554
DO-129 to DO-132
Direct Outlets
Q -
I - 244
DY-23, RD 211+500
B - 6.0
Y - 2.0
Q - 18.3
I - 1075
DO-133 to DO-136
Direct Outlets
Q -
I - 213
DY-24, RD 217+080
B - 18.0
Y - 2.0
Q - 24.1
I - 1586
DO-137 & DO-138
Direct Outlets
Q -
I - 90
DMR-2, RD 221+500
B - 4.0
Y - 1.8
Q - 6.0
I - 416
DO-139
Direct Outlet
Q -
I - 246
TAIL DY, RD 223+000
B - 26.0
Y - 4.1
Q - 140.0
I - 7325


Dam Capacity, Inflow & Outflow 2001
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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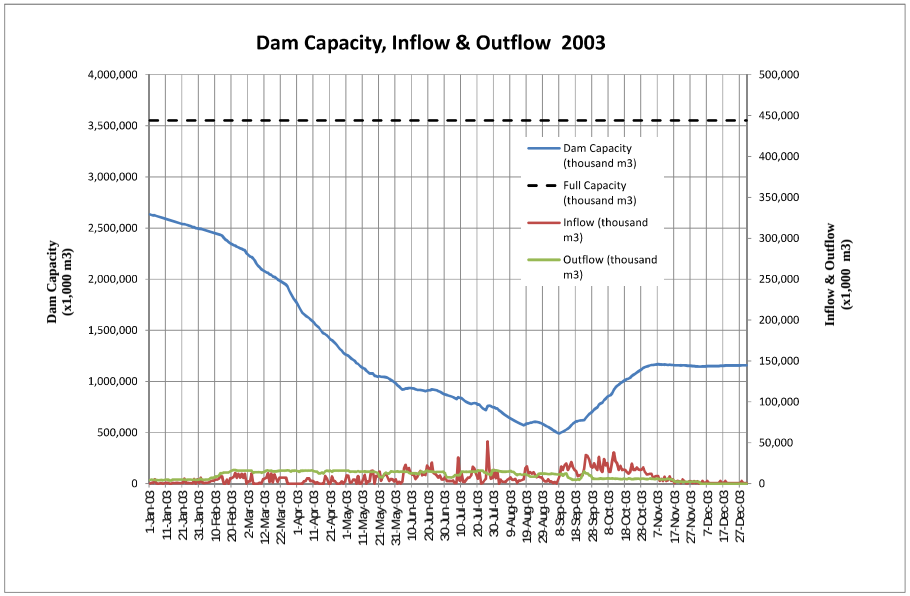
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Dam Capacity (x1,000 m3)
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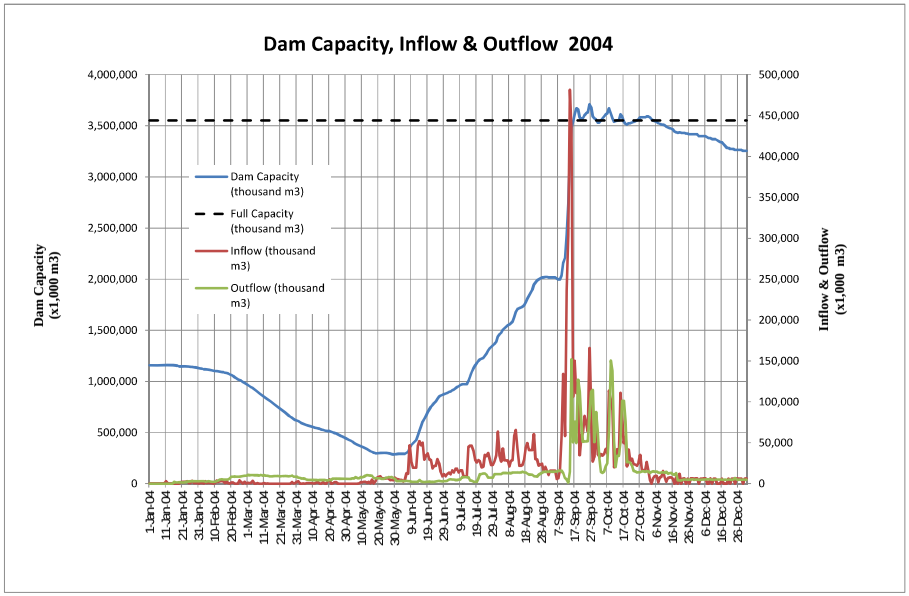
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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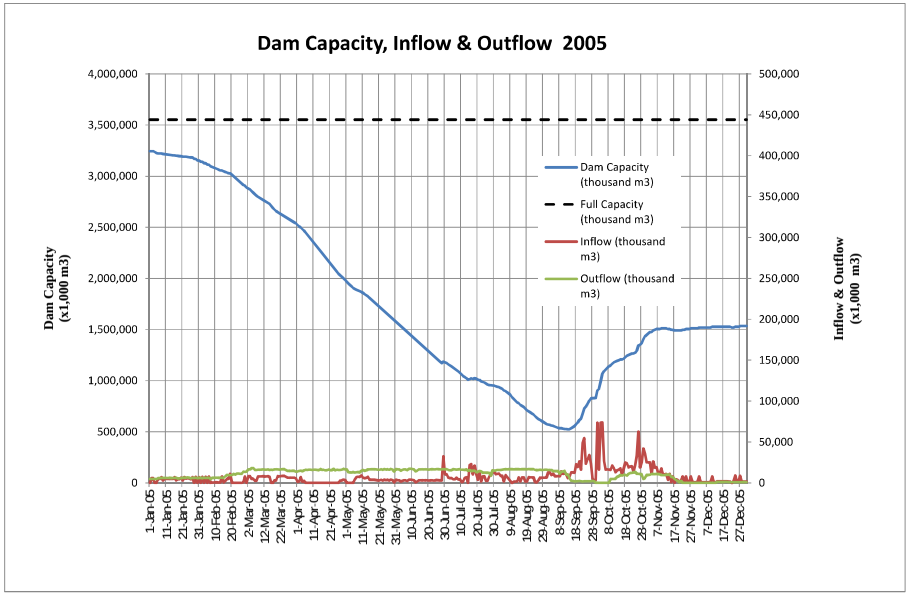
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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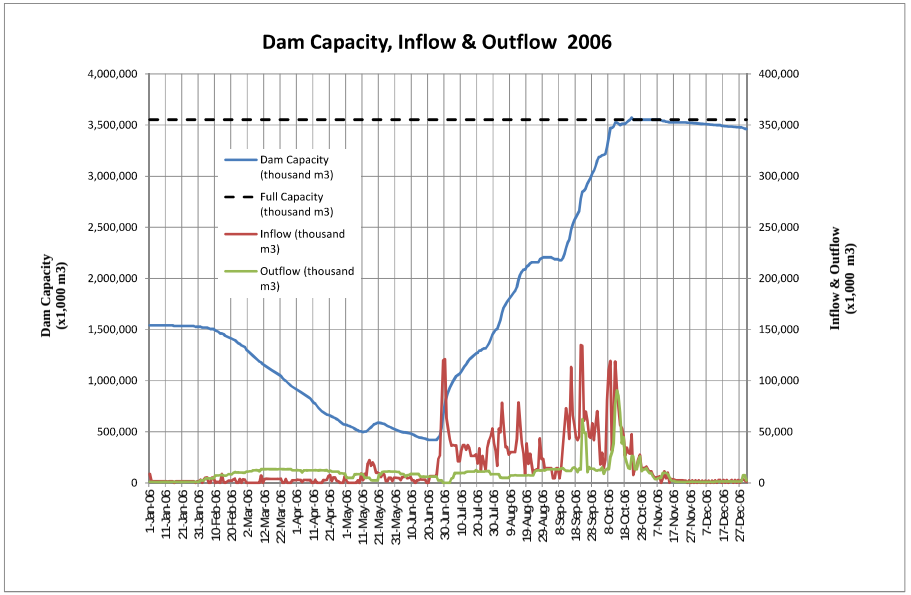
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Inflow & Outflow (x1,000 m3)
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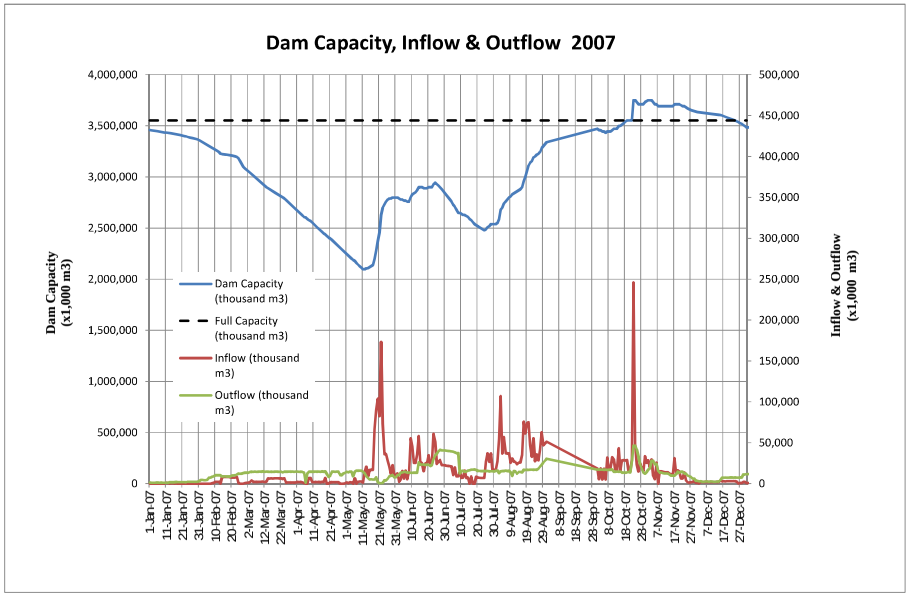
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Inflow & Outflow (x1,000 m3)
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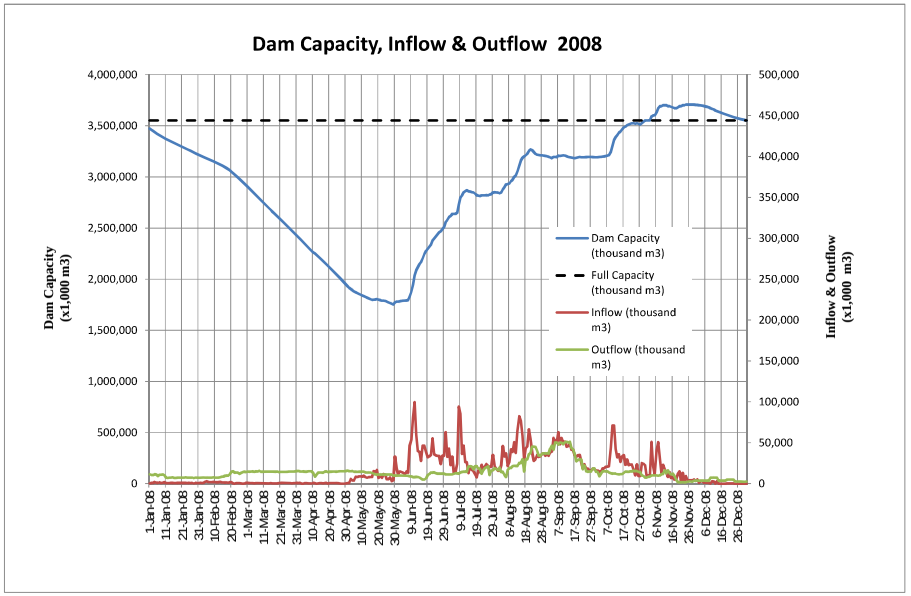
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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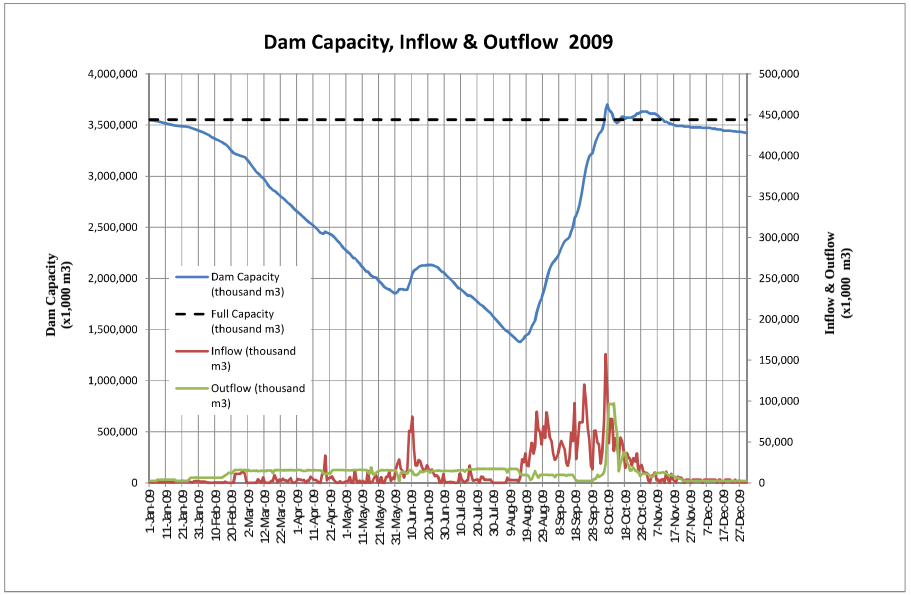
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Inflow & Outflow (x1,000 m3)
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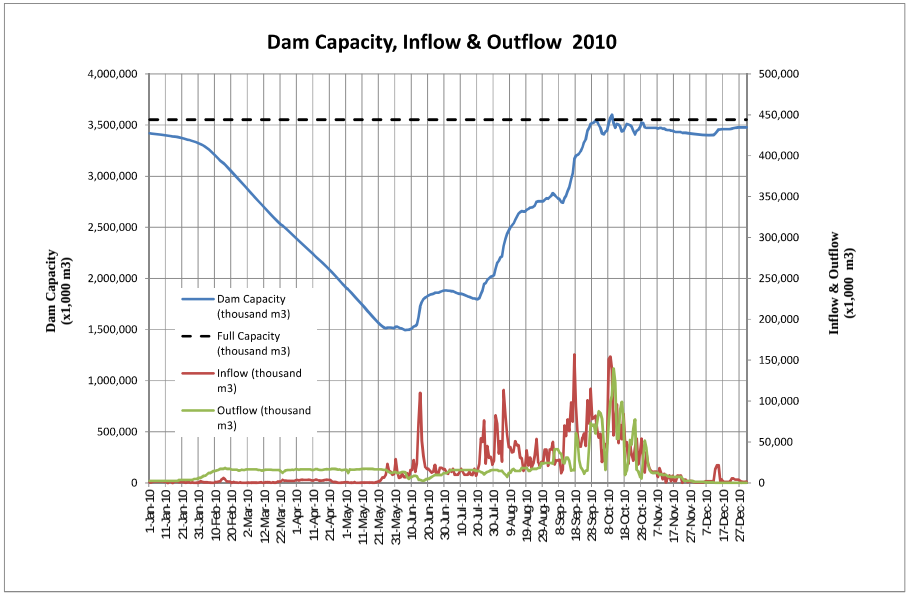
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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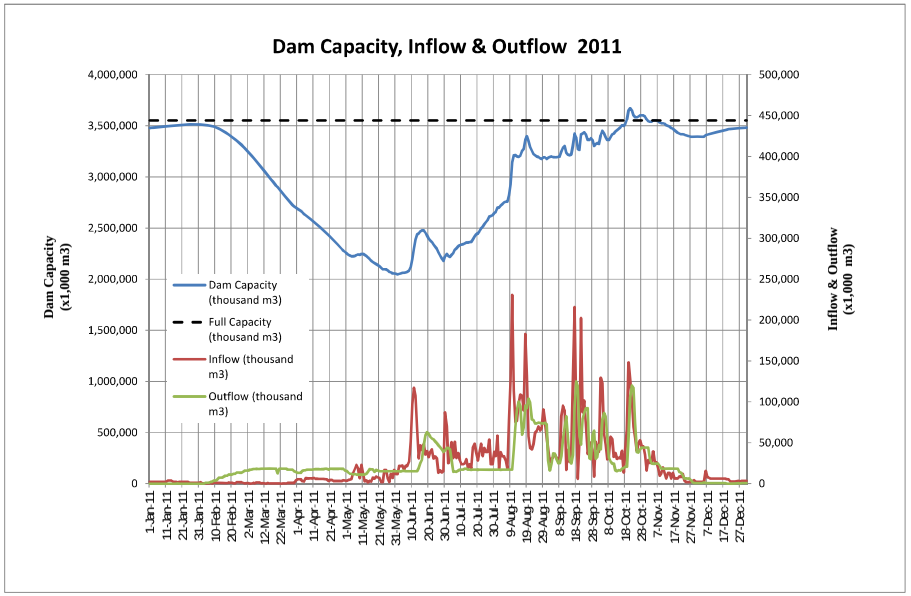
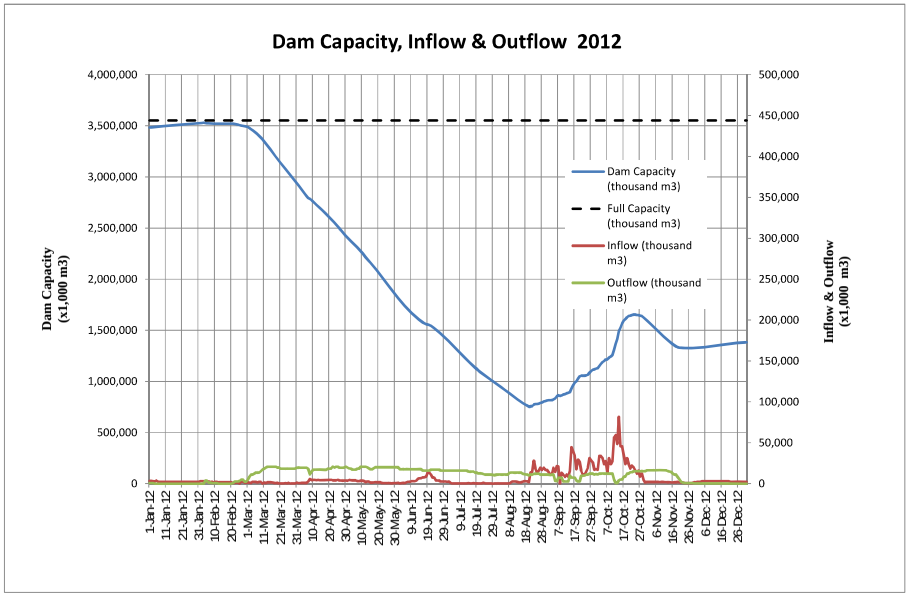
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)


Dam Capacity, Inflow & Outflow 2011
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Dam Capacity (x1,000 m3)
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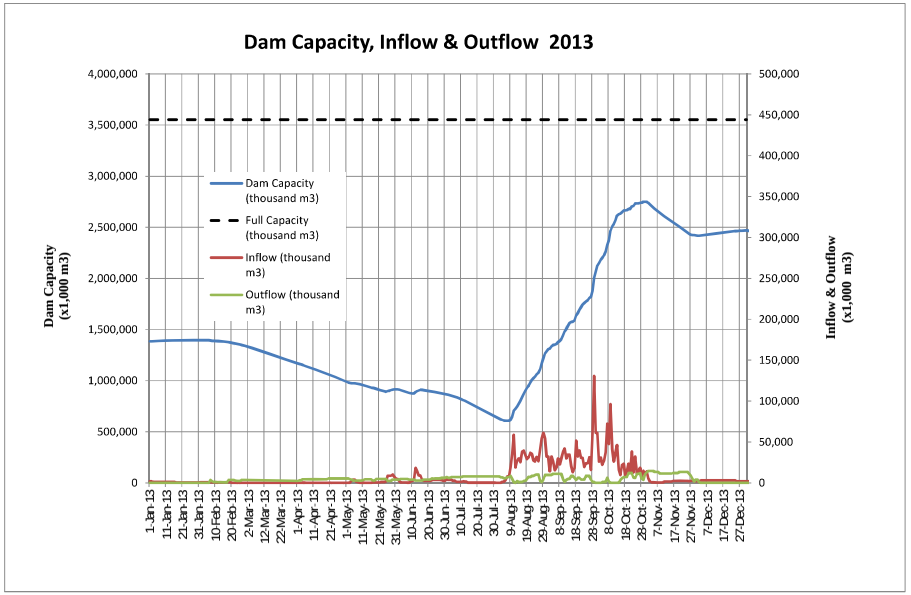
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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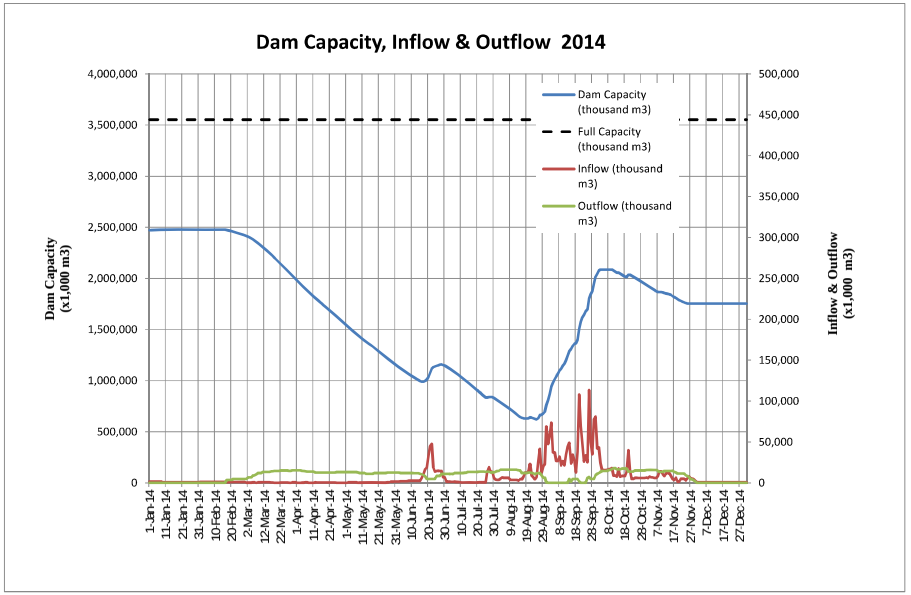
Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)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Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
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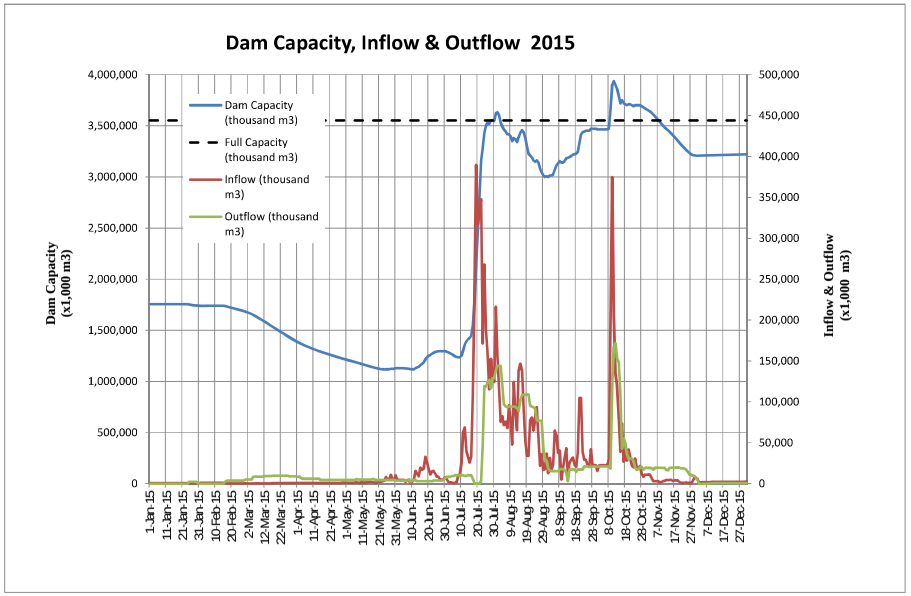
Inflow (thousand m3)
Outflow (thousand m3)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Inflow (thousand m3)
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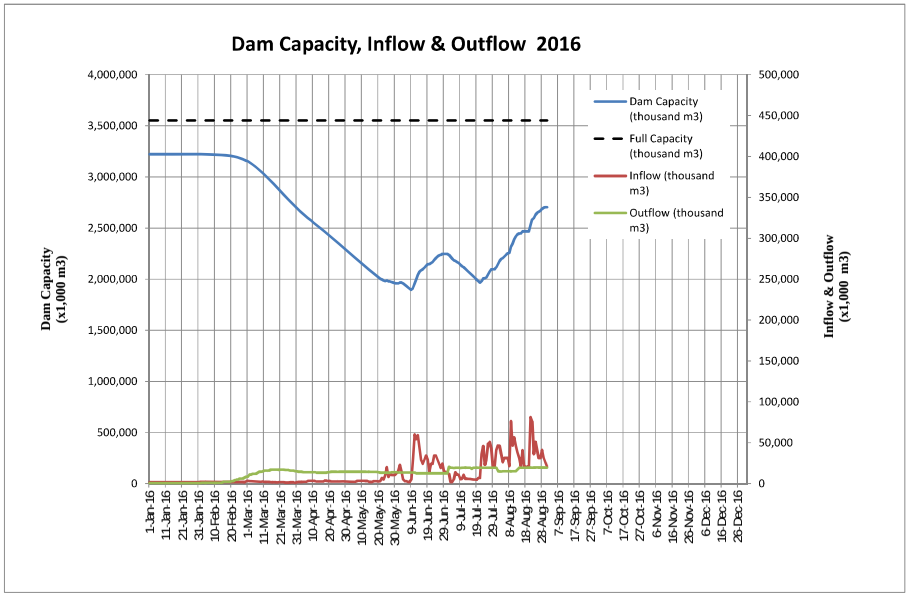
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Dam Capacity (x1,000 m3)
Inflow & Outflow (x1,000 m3)
Dam Capacity (thousand m3)
Full Capacity (thousand m3)
Inflow (thousand m3)
Outflow (thousand m3)

Estimation on Water Saving Resulted from the Canal Rehabilitation

In the process to estimate the rice-cropping area after the project, the following are assumed: (a) canal rehabilitation saves water by 3%, and (b) water management improvement after the rehabilitation saves water by 2%. Those percentages are estimated from the way mentioned below.

The table below shows irrigation depths and water intake volumes of the 4 main canals. The irrigation depth required in the monsoon season is 75% of that in the summer season. Water intake volume in the monsoon season is 1,788,404,806 m^3, and annual water intake volume is 3,186,264,746 m^3.

Water Intake Volume after 2001/02

Main Canal	Avg. Irrigated Area (ha)		Irrigtaion Depth Avg. Before Rehab.			(6) Avg. Water Intake in Monsoon	(7) Avg. Water Intake in Summer	(8) Avg. Annual Water Intake
	(1) Monsoon (ha)	(2) Summer (ha)	(3) Monsoon (mm)	(4) Summer (mm)	(5) Rate (3) / (4) (%)	(m3)	(m3)	(6) + (7) (m3)
OMC	25,945	14,854	891	1,423	63	231,077,087	211,440,973	442,518,060
RMC	40,103	23,175	910	1,308	70	364,870,062	303,214,900	668,084,962
SMC	84,089	48,420	917	1,142	80	771,489,852	553,122,156	1,324,612,008
YMC	46,651	29,691	902	1,112	81	420,967,805	330,081,911	751,049,716
Total or Weighed Avg.	196,788	116,141	909	1,206	75	1,788,404,806	1,397,859,940	3,186,264,746

(6) = (1)*10000*(3)/1000
(7) = (2)*10000*(4)/1000

(1) Water Saving by Water Management Improvement

The water intake capacity of the field diversion work (outlet for watercourse, and pipe outlet) is designed so as to cope with the summer paddy. Since the irrigation depth of the monsoon paddy is satisfactory at 75% of the summer cops, water can be taken excessively by 33% (= 1/0.75) in the monsoon season when water is not controlled by gate at the field diversion work.

If 10 to 15% of outlet in mainly the upstream of the canals can be controlled, it means that 178, 840, 480 to 268,260,720 m^3 can be controlled. The excessive water is estimated to be 590,173,586 to 885,260,379 m^3, which is 33% of 178, 840, 480 to 268,260,720 m^3, this water volume will be saved after the project. The 590,173,586 to 885,260,379 m^3, average 73,771,698 m^3 is 2.32% of the annual water intake volume, 3,186,264,746 m^3. Thus, annual average water saving rate by water management improvement is set as 2%.

(2) Water Saving by Lining Works

The table below shows the seepage-loss reduced rate through lining works of the 4 main canals. The seepage-loss rate of unlined and concrete-lined canals employed in the calculation is those of the Philippines. However, it is regarded common and applicable in Myanmar because it depends on the soil texture. Lining works saves 96,523,429 m^3 of water assuming water is delivered 270days (9 months) a year. The 96,523,429 m^3 is equal to 3.03% of 3,186,264,746 m^3. Thus, water saving by canal rehabilitation including lining works is set as 3%.

Water Saving by Lining Works

Main Canal	(9) Canal Length (km)	(10) Wetted Perimeter Area (m2)	(11) Lined Area by the Project (m2)	Annual Seepage Volume (Water Delivery: 270 days/year)		(14) Seepage Loss Reduced	(15) Seepage-Loss Reduced Rate
				(12) Before Lining (m3 / yr)	(13) After Lining (m3 / yr)	(12) - (13) (m3 / yr)	(14) / (8) (%)
OMC	319	3,311,095	339,077	162,206,554	149,550,572	12,655,982	2.86
RMC	481	5,488,178	855,201	268,859,253	236,939,033	31,920,220	4.78
SMC	621	7,350,409	962,286	360,087,705	324,170,585	35,917,120	2.71
YMC	399	5,612,085	429,476	274,929,318	258,899,211	16,030,107	2.13
Overall	1,820	21,761,767	2,586,040	1,066,082,829	969,559,401	96,523,429	3.03

(12) = (11)*(16)*3600*24*270/10^6

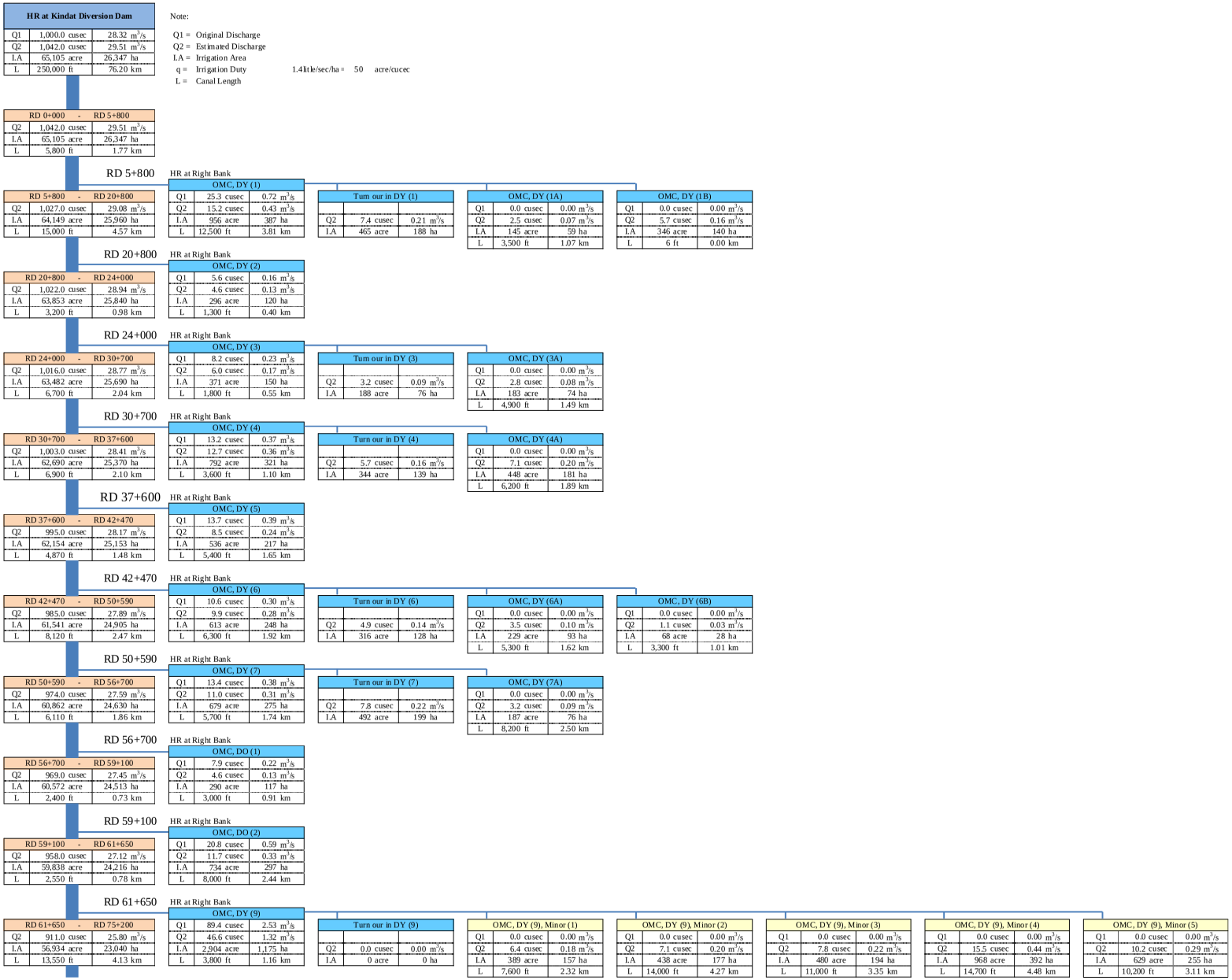
(13) = (((10)-(11))*(16)+(11)*(17))*3600*24*270/10^6

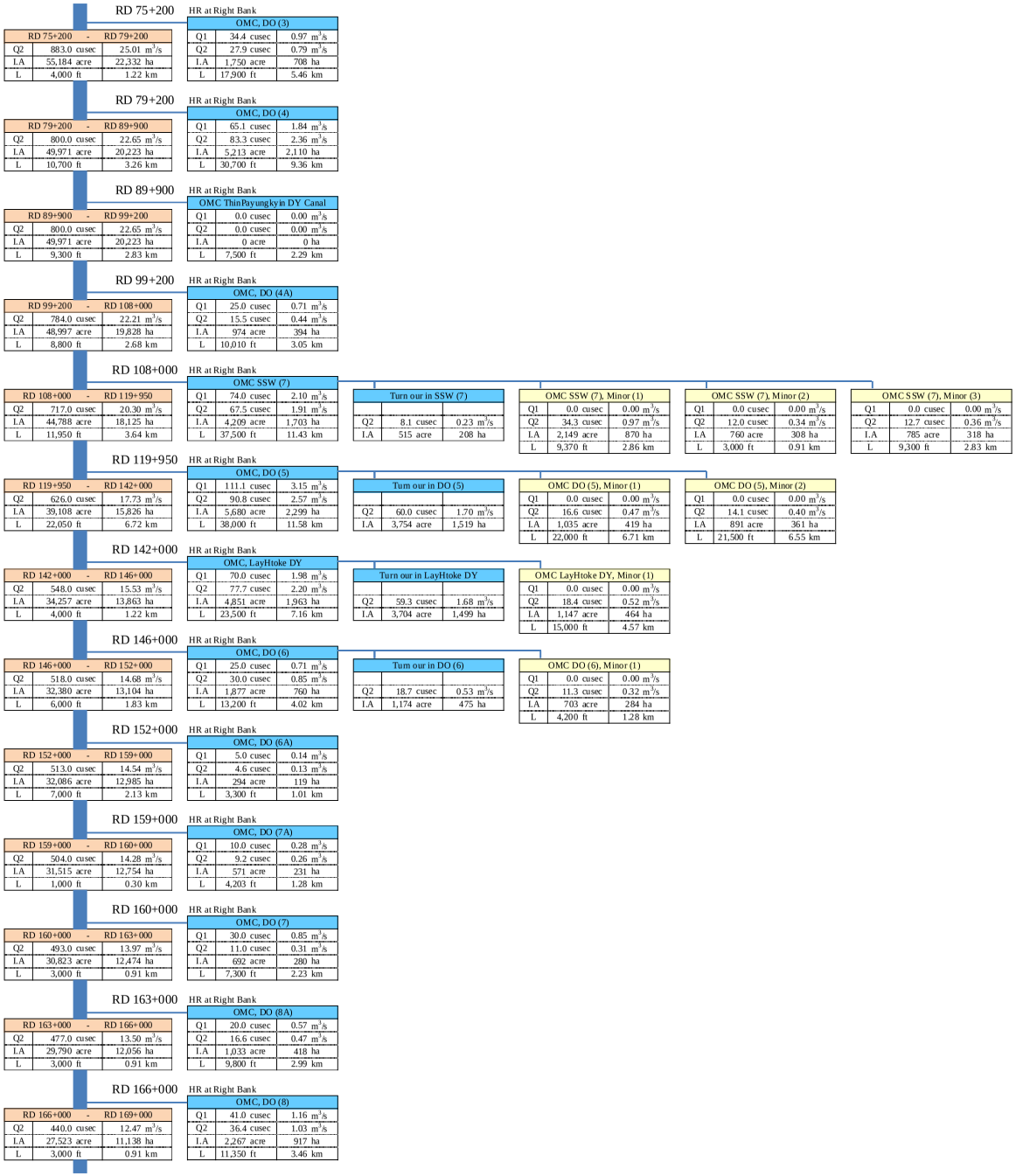
Seepage Loss Rate (m^3/sec./million m^2)

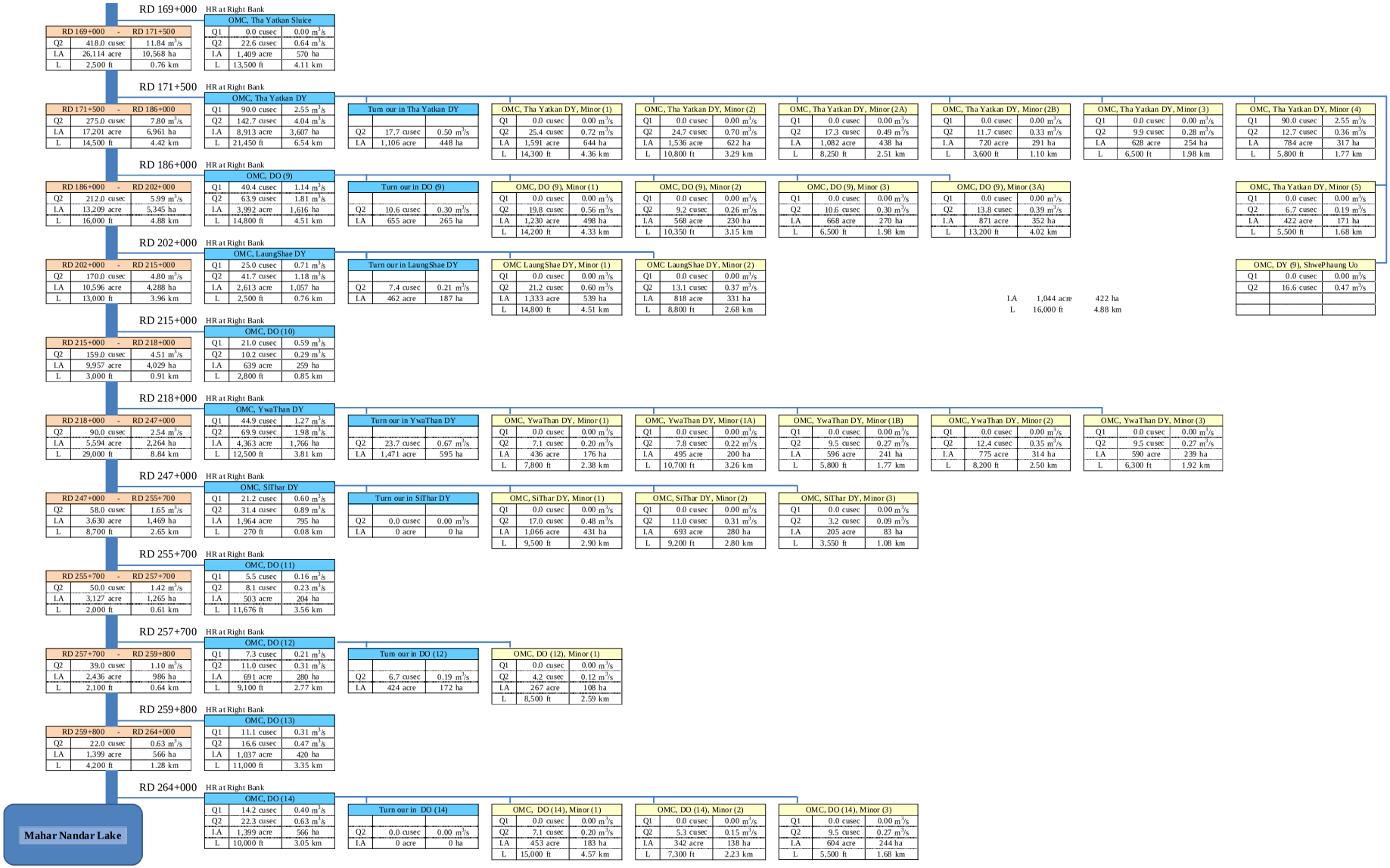
Canal Type	Seepage Loss Rate	Remarks
(16) Unlined Canal	2.1	Sandy Loam
(17) Concrete-Lined Canal	0.5	

(Source: National Irrigation Admnistration, the Philippines)

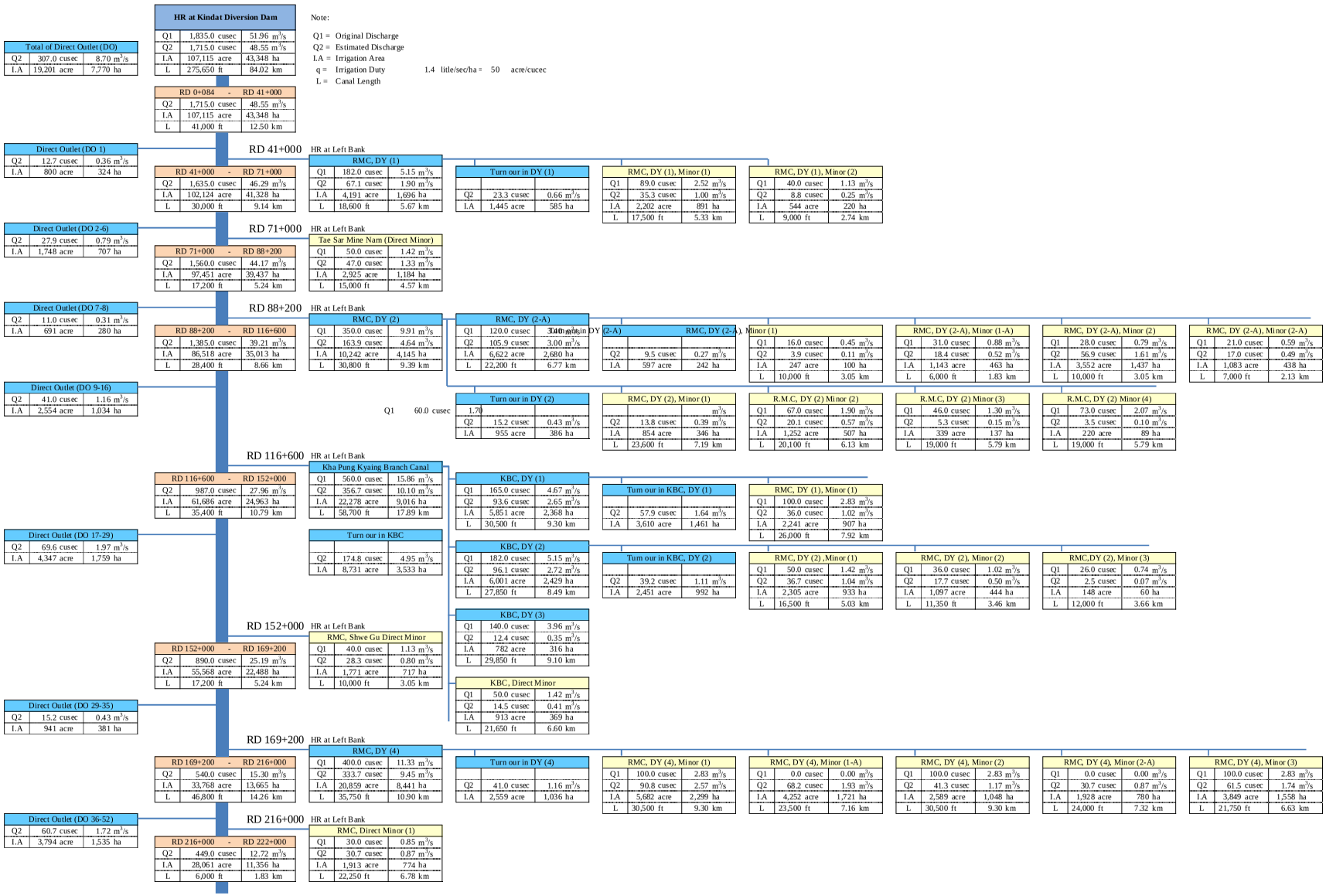
SCHEMATIC LAYOUT DRAWING OF OLD MU CANAL (OMC) IRROGATION SYSTEM

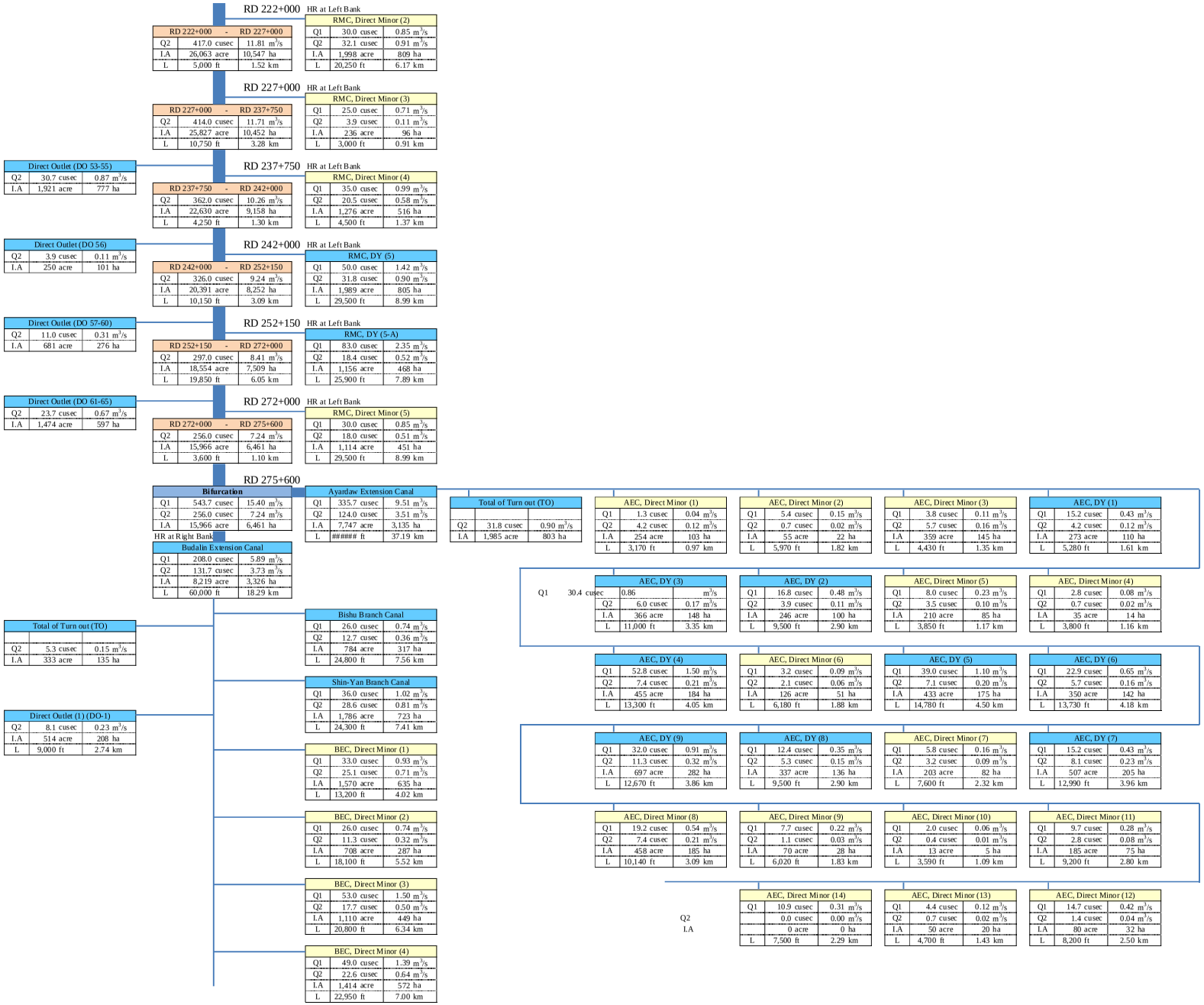



RD 75+200
HR at Right Bank
OMC, DO (3)
RD 75+200 - RD 79+200
Q2 883.0 cusec 25.01 m³/s
I.A 55,184 acre 22,332 ha
L 4,000 ft 1.22 km
Q1 34.4 cusec 0.97 m³/s
Q2 27.9 cusec 0.79 m³/s
I.A 1,750 acre 708 ha
L 17,900 ft 5.46 km
RD 79+200
HR at Right Bank
OMC, DO (4)
RD 79+200 - RD 89+900
Q2 800.0 cusec 22.65 m³/s
I.A 49,971 acre 20,223 ha
L 10,700 ft 3.26 km
Q1 65.1 cusec 1.84 m³/s
Q2 83.3 cusec 2.36 m³/s
I.A 5,213 acre 2,110 ha
L 30,700 ft 9.36 km
RD 89+900
HR at Right Bank
OMC ThinPayungkyin DY Canal
RD 89+900 - RD 99+200
Q2 800.0 cusec 22.65 m³/s
I.A 49,971 acre 20,223 ha
L 9,300 ft 2.83 km
Q1 0.0 cusec 0.00 m³/s
Q2 0.0 cusec 0.00 m³/s
I.A 0 acre 0 ha
L 7,500 ft 2.29 km
RD 99+200
HR at Right Bank
OMC, DO (4A)
RD 99+200 - RD 108+000
Q2 784.0 cusec 22.21 m³/s
I.A 48,997 acre 19,828 ha
L 8,800 ft 2.68 km
Q1 25.0 cusec 0.71 m³/s
Q2 15.5 cusec 0.44 m³/s
I.A 974 acre 394 ha
L 10,010 ft 3.05 km
RD 108+000
HR at Right Bank
OMC SSW (7)
RD 108+000 - RD 119+950
Q2 717.0 cusec 20.30 m³/s
I.A 44,788 acre 18,125 ha
L 11,950 ft 3.64 km
Q1 74.0 cusec 2.10 m³/s
Q2 67.5 cusec 1.91 m³/s
I.A 4,209 acre 1,703 ha
L 37,500 ft 11.43 km
Turn our in SSW (7)
Q2 8.1 cusec 0.23 m³/s
I.A 515 acre 208 ha
OMC SSW (7), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 34.3 cusec 0.97 m³/s
I.A 2,149 acre 870 ha
L 9,370 ft 2.86 km
OMC SSW (7), Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 12.0 cusec 0.34 m³/s
I.A 760 acre 308 ha
L 3,000 ft 0.91 km
OMC SSW (7), Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 12.7 cusec 0.36 m³/s
I.A 785 acre 318 ha
L 9,300 ft 2.83 km
RD 119+950
HR at Right Bank
OMC, DO (5)
RD 119+950 - RD 142+000
Q2 626.0 cusec 17.73 m³/s
I.A 39,108 acre 15,826 ha
L 22,050 ft 6.72 km
Q1 111.1 cusec 3.15 m³/s
Q2 90.8 cusec 2.57 m³/s
I.A 5,680 acre 2,299 ha
L 38,000 ft 11.58 km
Turn our in DO (5)
Q2 60.0 cusec 1.70 m³/s
I.A 3,754 acre 1,519 ha
OMC DO (5), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,035 acre 419 ha
L 22,000 ft 6.71 km
OMC DO (5), Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 14.1 cusec 0.40 m³/s
I.A 891 acre 361 ha
L 21,500 ft 6.55 km
RD 142+000
HR at Right Bank
OMC, LayHtoke DY
RD 142+000 - RD 146+000
Q2 548.0 cusec 15.53 m³/s
I.A 34,257 acre 13,863 ha
L 4,000 ft 1.22 km
Q1 70.0 cusec 1.98 m³/s
Q2 77.7 cusec 2.20 m³/s
I.A 4,851 acre 1,963 ha
L 23,500 ft 7.16 km
Turn our in LayHtoke DY
Q2 59.3 cusec 1.68 m³/s
I.A 3,704 acre 1,499 ha
OMC LayHtoke DY, Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 18.4 cusec 0.52 m³/s
I.A 1,147 acre 464 ha
L 15,000 ft 4.57 km
RD 146+000
HR at Right Bank
OMC, DO (6)
RD 146+000 - RD 152+000
Q2 518.0 cusec 14.68 m³/s
I.A 32,380 acre 13,104 ha
L 6,000 ft 1.83 km
Q1 25.0 cusec 0.71 m³/s
Q2 30.0 cusec 0.85 m³/s
I.A 1,877 acre 760 ha
L 13,200 ft 4.02 km
Turn our in DO (6)
Q2 18.7 cusec 0.53 m³/s
I.A 1,174 acre 475 ha
OMC DO (6), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 11.3 cusec 0.32 m³/s
I.A 703 acre 284 ha
L 4,200 ft 1.28 km
RD 152+000
HR at Right Bank
OMC, DO (6A)
RD 152+000 - RD 159+000
Q2 513.0 cusec 14.54 m³/s
I.A 32,086 acre 12,985 ha
L 7,000 ft 2.13 km
Q1 5.0 cusec 0.14 m³/s
Q2 4.6 cusec 0.13 m³/s
I.A 294 acre 119 ha
L 3,300 ft 1.01 km
RD 159+000
HR at Right Bank
OMC, DO (7A)
RD 159+000 - RD 160+000
Q2 504.0 cusec 14.28 m³/s
I.A 31,515 acre 12,754 ha
L 1,000 ft 0.30 km
Q1 10.0 cusec 0.28 m³/s
Q2 9.2 cusec 0.26 m³/s
I.A 571 acre 231 ha
L 4,203 ft 1.28 km
RD 160+000
HR at Right Bank
OMC, DO (7)
RD 160+000 - RD 163+000
Q2 493.0 cusec 13.97 m³/s
I.A 30,823 acre 12,474 ha
L 3,000 ft 0.91 km
Q1 30.0 cusec 0.85 m³/s
Q2 11.0 cusec 0.31 m³/s
I.A 692 acre 280 ha
L 7,300 ft 2.23 km
RD 163+000
HR at Right Bank
OMC, DO (8A)
RD 163+000 - RD 166+000
Q2 477.0 cusec 13.50 m³/s
I.A 29,790 acre 12,056 ha
L 3,000 ft 0.91 km
Q1 20.0 cusec 0.57 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,033 acre 418 ha
L 9,800 ft 2.99 km
RD 166+000
HR at Right Bank
OMC, DO (8)
RD 166+000 - RD 169+000
Q2 440.0 cusec 12.47 m³/s
I.A 27,523 acre 11,138 ha
L 3,000 ft 0.91 km
Q1 41.0 cusec 1.16 m³/s
Q2 36.4 cusec 1.03 m³/s
I.A 2,267 acre 917 ha
L 11,350 ft 3.46 km

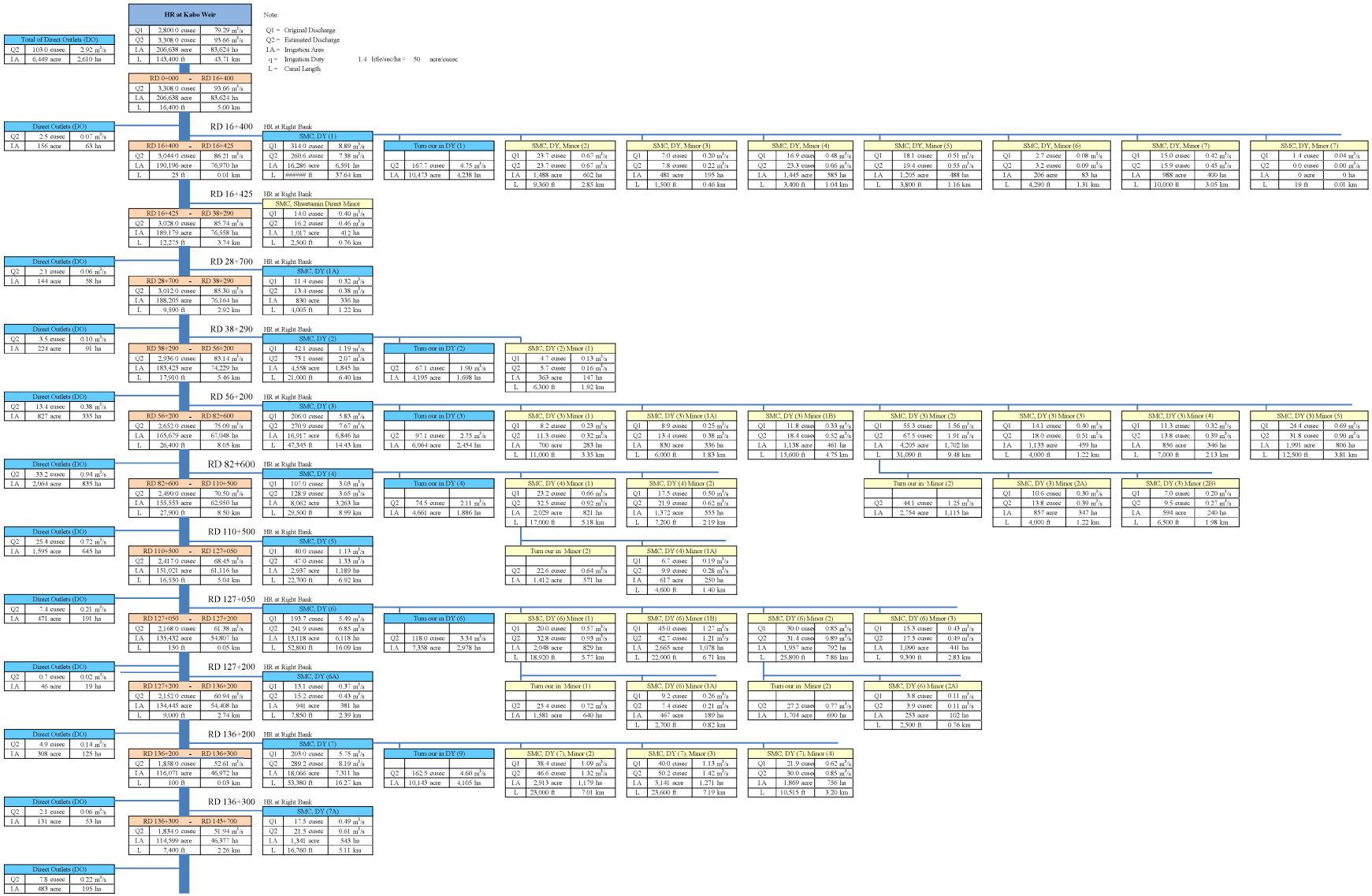

RD 169+000
HR at Right Bank
OMC, Tha Yatkan Sluice
Q1 0.0 cusec 0.00 m³/s
Q2 22.6 cusec 0.64 m³/s
I.A 1,409 acre 570 ha
L 13,500 ft 4.11 km
RD 169+000 - RD 171+500
Q2 418.0 cusec 11.84 m³/s
I.A 26,114 acre 10,568 ha
L 2,500 ft 0.76 km
RD 171+500
HR at Right Bank
OMC, Tha Yatkan DY
Q1 90.0 cusec 2.55 m³/s
Q2 142.7 cusec 4.04 m³/s
I.A 8,913 acre 3,607 ha
L 21,450 ft 6.54 km
Turn our in Tha Yatkan DY
Q2 17.7 cusec 0.50 m³/s
I.A 1,106 acre 448 ha
OMC, Tha Yatkan DY, Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 25.4 cusec 0.72 m³/s
I.A 1,591 acre 644 ha
L 14,300 ft 4.36 km
OMC, Tha Yatkan DY, Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 24.7 cusec 0.70 m³/s
I.A 1,536 acre 622 ha
L 10,800 ft 3.29 km
OMC, Tha Yatkan DY, Minor (2A)
Q1 0.0 cusec 0.00 m³/s
Q2 17.3 cusec 0.49 m³/s
I.A 1,082 acre 438 ha
L 8,250 ft 2.51 km
OMC, Tha Yatkan DY, Minor (2B)
Q1 0.0 cusec 0.00 m³/s
Q2 11.7 cusec 0.33 m³/s
I.A 720 acre 291 ha
L 3,600 ft 1.10 km
OMC, Tha Yatkan DY, Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 9.9 cusec 0.28 m³/s
I.A 628 acre 254 ha
L 6,500 ft 1.98 km
OMC, Tha Yatkan DY, Minor (4)
Q1 90.0 cusec 2.55 m³/s
Q2 12.7 cusec 0.36 m³/s
I.A 784 acre 317 ha
L 5,800 ft 1.77 km
OMC, Tha Yatkan DY, Minor (5)
Q1 0.0 cusec 0.00 m³/s
Q2 6.7 cusec 0.19 m³/s
I.A 422 acre 171 ha
L 5,500 ft 1.68 km
OMC, DY (9), ShwePhaung Uo
Q1 0.0 cusec 0.00 m³/s
Q2 16.6 cusec 0.47 m³/s
RD 171+500 - RD 186+000
Q2 275.0 cusec 7.80 m³/s
I.A 17,201 acre 6,961 ha
L 14,500 ft 4.42 km
RD 186+000
HR at Right Bank
OMC, DO (9)
Q1 40.4 cusec 1.14 m³/s
Q2 63.9 cusec 1.81 m³/s
I.A 3,992 acre 1,616 ha
L 14,800 ft 4.51 km
Turn our in DO (9)
Q2 10.6 cusec 0.30 m³/s
I.A 655 acre 265 ha
OMC, DO (9), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 19.8 cusec 0.56 m³/s
I.A 1,230 acre 498 ha
L 14,200 ft 4.33 km
OMC, DO (9), Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 9.2 cusec 0.26 m³/s
I.A 568 acre 230 ha
L 10,350 ft 3.15 km
OMC, DO (9), Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 10.6 cusec 0.30 m³/s
I.A 668 acre 270 ha
L 6,500 ft 1.98 km
OMC, DO (9), Minor (3A)
Q1 0.0 cusec 0.00 m³/s
Q2 13.8 cusec 0.39 m³/s
I.A 871 acre 352 ha
L 13,200 ft 4.02 km
RD 186+000 - RD 202+000
Q2 212.0 cusec 5.99 m³/s
I.A 13,209 acre 5,345 ha
L 16,000 ft 4.88 km
RD 202+000
HR at Right Bank
OMC, LaungShae DY
Q1 25.0 cusec 0.71 m³/s
Q2 41.7 cusec 1.18 m³/s
I.A 2,613 acre 1,057 ha
L 2,500 ft 0.76 km
Turn our in LaungShae DY
Q2 7.4 cusec 0.21 m³/s
I.A 462 acre 187 ha
OMC LaungShae DY, Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 21.2 cusec 0.60 m³/s
I.A 1,333 acre 539 ha
L 14,800 ft 4.51 km
OMC LaungShae DY, Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 13.1 cusec 0.37 m³/s
I.A 818 acre 331 ha
L 8,800 ft 2.68 km
I.A 1,044 acre 422 ha
L 16,000 ft 4.88 km
RD 202+000 - RD 215+000
Q2 170.0 cusec 4.80 m³/s
I.A 10,596 acre 4,288 ha
L 13,000 ft 3.96 km
RD 215+000
HR at Right Bank
OMC, DO (10)
Q1 21.0 cusec 0.59 m³/s
Q2 10.2 cusec 0.29 m³/s
I.A 639 acre 259 ha
L 2,800 ft 0.85 km
RD 215+000 - RD 218+000
Q2 159.0 cusec 4.51 m³/s
I.A 9,957 acre 4,029 ha
L 3,000 ft 0.91 km
RD 218+000
HR at Right Bank
OMC, YwaThan DY
Q1 44.9 cusec 1.27 m³/s
Q2 69.9 cusec 1.98 m³/s
I.A 4,363 acre 1,766 ha
L 12,500 ft 3.81 km
Turn our in YwaThan DY
Q2 23.7 cusec 0.67 m³/s
I.A 1,471 acre 595 ha
OMC, YwaThan DY, Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 7.1 cusec 0.20 m³/s
I.A 436 acre 176 ha
L 7,800 ft 2.38 km
OMC, YwaThan DY, Minor (1A)
Q1 0.0 cusec 0.00 m³/s
Q2 7.8 cusec 0.22 m³/s
I.A 495 acre 200 ha
L 10,700 ft 3.26 km
OMC, YwaThan DY, Minor (1B)
Q1 0.0 cusec 0.00 m³/s
Q2 9.5 cusec 0.27 m³/s
I.A 596 acre 241 ha
L 5,800 ft 1.77 km
OMC, YwaThan DY, Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 12.4 cusec 0.35 m³/s
I.A 775 acre 314 ha
L 8,200 ft 2.50 km
OMC, YwaThan DY, Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 9.5 cusec 0.27 m³/s
I.A 590 acre 239 ha
L 6,300 ft 1.92 km
RD 218+000 - RD 247+000
Q2 90.0 cusec 2.54 m³/s
I.A 5,594 acre 2,264 ha
L 29,000 ft 8.84 km
RD 247+000
HR at Right Bank
OMC, SiThar DY
Q1 21.2 cusec 0.60 m³/s
Q2 31.4 cusec 0.89 m³/s
I.A 1,964 acre 795 ha
L 270 ft 0.08 km
Turn our in SiThar DY
Q2 0.0 cusec 0.00 m³/s
I.A 0 acre 0 ha
OMC, SiThar DY, Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 17.0 cusec 0.48 m³/s
I.A 1,066 acre 431 ha
L 9,500 ft 2.90 km
OMC, SiThar DY, Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 11.0 cusec 0.31 m³/s
I.A 693 acre 280 ha
L 9,200 ft 2.80 km
OMC, SiThar DY, Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 3.2 cusec 0.09 m³/s
I.A 205 acre 83 ha
L 3,550 ft 1.08 km
RD 247+000 - RD 255+700
Q2 58.0 cusec 1.65 m³/s
I.A 3,630 acre 1,469 ha
L 8,700 ft 2.65 km
RD 255+700
HR at Right Bank
OMC, DO (11)
Q1 5.5 cusec 0.16 m³/s
Q2 8.1 cusec 0.23 m³/s
I.A 503 acre 204 ha
L 11,676 ft 3.56 km
RD 255+700 - RD 257+700
Q2 50.0 cusec 1.42 m³/s
I.A 3,127 acre 1,265 ha
L 2,000 ft 0.61 km
RD 257+700
HR at Right Bank
OMC, DO (12)
Q1 7.3 cusec 0.21 m³/s
Q2 11.0 cusec 0.31 m³/s
I.A 691 acre 280 ha
L 9,100 ft 2.77 km
Turn our in DO (12)
Q2 6.7 cusec 0.19 m³/s
I.A 424 acre 172 ha
OMC, DO (12), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 4.2 cusec 0.12 m³/s
I.A 267 acre 108 ha
L 8,500 ft 2.59 km
RD 257+700 - RD 259+800
Q2 39.0 cusec 1.10 m³/s
I.A 2,436 acre 986 ha
L 2,100 ft 0.64 km
RD 259+800
HR at Right Bank
OMC, DO (13)
Q1 11.1 cusec 0.31 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,037 acre 420 ha
L 11,000 ft 3.35 km
RD 259+800 - RD 264+000
Q2 22.0 cusec 0.63 m³/s
I.A 1,399 acre 566 ha
L 4,200 ft 1.28 km
RD 264+000
HR at Right Bank
OMC, DO (14)
Q1 14.2 cusec 0.40 m³/s
Q2 22.3 cusec 0.63 m³/s
I.A 1,399 acre 566 ha
L 10,000 ft 3.05 km
Turn our in DO (14)
Q2 0.0 cusec 0.00 m³/s
I.A 0 acre 0 ha
OMC, DO (14), Minor (1)
Q1 0.0 cusec 0.00 m³/s
Q2 7.1 cusec 0.20 m³/s
I.A 453 acre 183 ha
L 15,000 ft 4.57 km
OMC, DO (14), Minor (2)
Q1 0.0 cusec 0.00 m³/s
Q2 5.3 cusec 0.15 m³/s
I.A 342 acre 138 ha
L 7,300 ft 2.23 km
OMC, DO (14), Minor (3)
Q1 0.0 cusec 0.00 m³/s
Q2 9.5 cusec 0.27 m³/s
I.A 604 acre 244 ha
L 5,500 ft 1.68 km
Mahar Nandar Lake

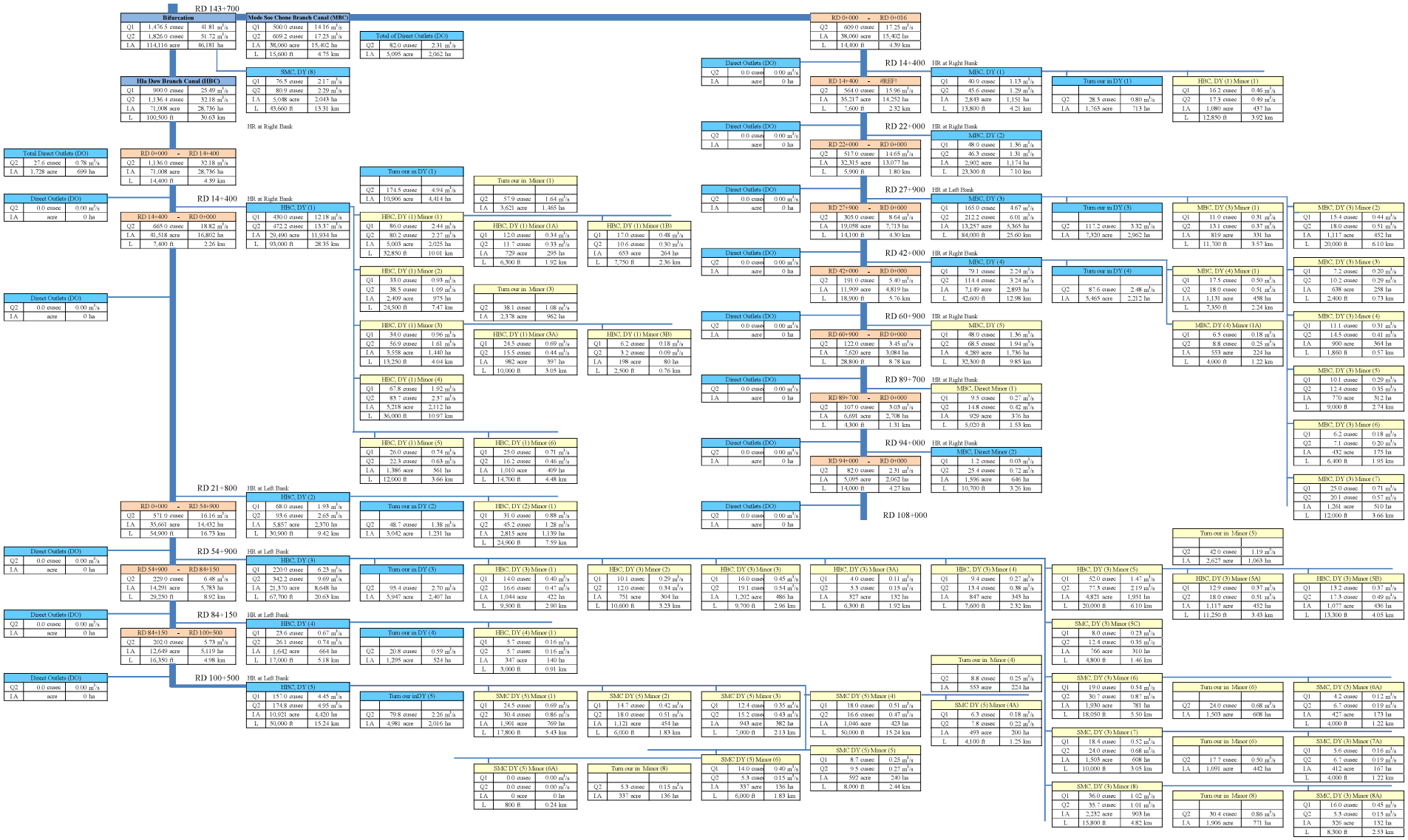
SCHEMATIC LAYOUT DRAWING OF RIGHT MAIN CANAL (RMC) IRROGATION SYSTEM



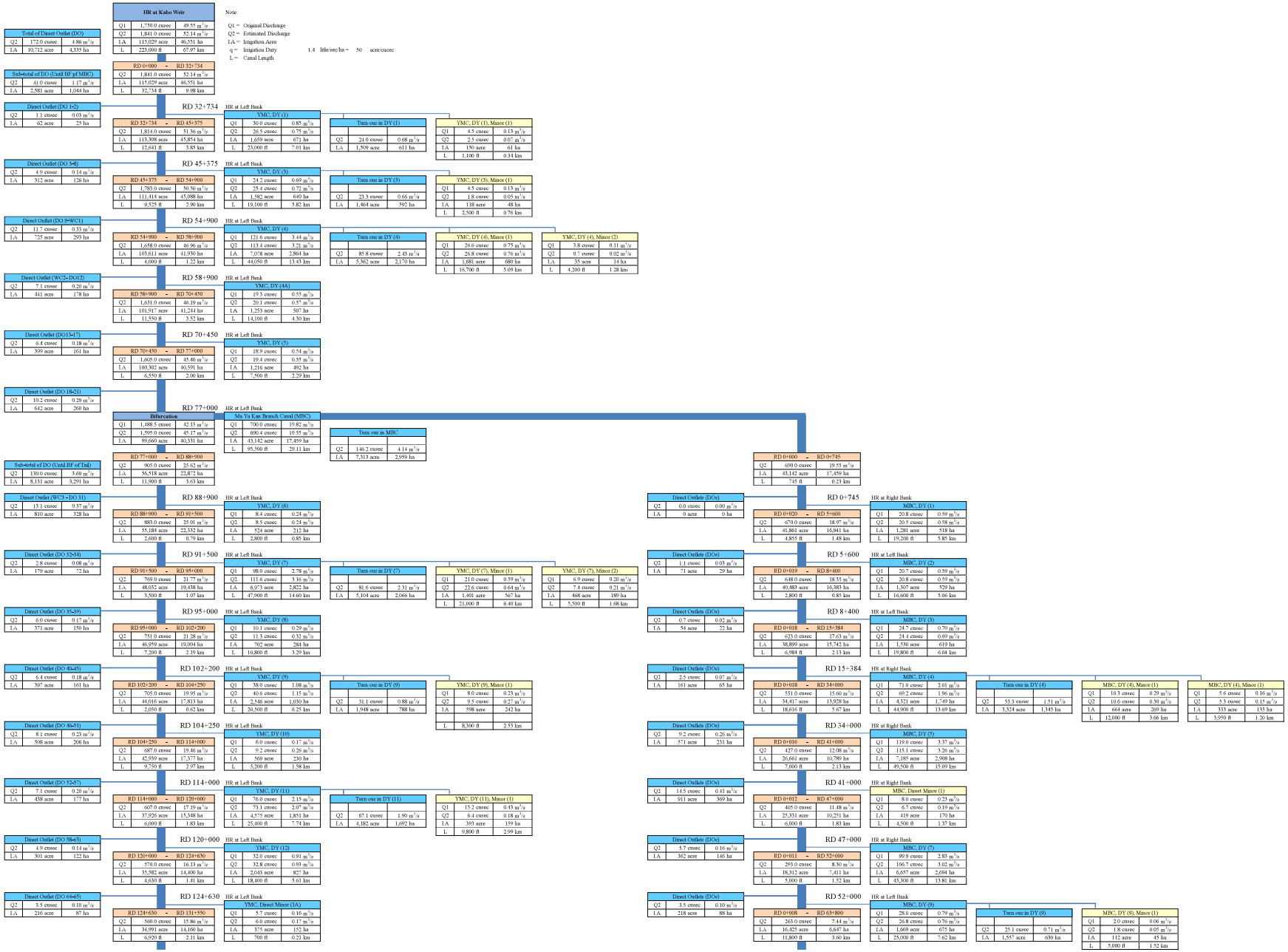

RD 222+000
HR at Left Bank
RD 222+000 - RD 227+000
Q2 417.0 cusec 11.81 m³/s
I.A 26,063 acre 10,547 ha
L 5,000 ft 1.52 km
RMC, Direct Minor (2)
Q1 30.0 cusec 0.85 m³/s
Q2 32.1 cusec 0.91 m³/s
I.A 1,998 acre 809 ha
L 20,250 ft 6.17 km
RD 227+000
HR at Left Bank
RD 227+000 - RD 237+750
Q2 414.0 cusec 11.71 m³/s
I.A 25,827 acre 10,452 ha
L 10,750 ft 3.28 km
RMC, Direct Minor (3)
Q1 25.0 cusec 0.71 m³/s
Q2 3.9 cusec 0.11 m³/s
I.A 236 acre 96 ha
L 3,000 ft 0.91 km
Direct Outlet (DO 53-55)
Q2 30.7 cusec 0.87 m³/s
I.A 1,921 acre 777 ha
RD 237+750
HR at Left Bank
RD 237+750 - RD 242+000
Q2 362.0 cusec 10.26 m³/s
I.A 22,630 acre 9,158 ha
L 4,250 ft 1.30 km
RMC, Direct Minor (4)
Q1 35.0 cusec 0.99 m³/s
Q2 20.5 cusec 0.58 m³/s
I.A 1,276 acre 516 ha
L 4,500 ft 1.37 km
Direct Outlet (DO 56)
Q2 3.9 cusec 0.11 m³/s
I.A 250 acre 101 ha
RD 242+000
HR at Left Bank
RD 242+000 - RD 252+150
Q2 326.0 cusec 9.24 m³/s
I.A 20,391 acre 8,252 ha
L 10,150 ft 3.09 km
RMC, DY (5)
Q1 50.0 cusec 1.42 m³/s
Q2 31.8 cusec 0.90 m³/s
I.A 1,989 acre 805 ha
L 29,500 ft 8.99 km
Direct Outlet (DO 57-60)
Q2 11.0 cusec 0.31 m³/s
I.A 681 acre 276 ha
RD 252+150
HR at Left Bank
RD 252+150 - RD 272+000
Q2 297.0 cusec 8.41 m³/s
I.A 18,554 acre 7,509 ha
L 19,850 ft 6.05 km
RMC, DY (5-A)
Q1 83.0 cusec 2.35 m³/s
Q2 18.4 cusec 0.52 m³/s
I.A 1,156 acre 468 ha
L 25,900 ft 7.89 km
Direct Outlet (DO 61-65)
Q2 23.7 cusec 0.67 m³/s
I.A 1,474 acre 597 ha
RD 272+000
HR at Left Bank
RD 272+000 - RD 275+600
Q2 256.0 cusec 7.24 m³/s
I.A 15,966 acre 6,461 ha
L 3,600 ft 1.10 km
RMC, Direct Minor (5)
Q1 30.0 cusec 0.85 m³/s
Q2 18.0 cusec 0.51 m³/s
I.A 1,114 acre 451 ha
L 29,500 ft 8.99 km
RD 275+600
Bifurcation
Q1 543.7 cusec 15.40 m³/s
Q2 256.0 cusec 7.24 m³/s
I.A 15,966 acre 6,461 ha
HR at Right Bank
Budalin Extension Canal
Q1 208.0 cusec 5.89 m³/s
Q2 131.7 cusec 3.73 m³/s
I.A 8,219 acre 3,326 ha
L 60,000 ft 18.29 km
Ayardaw Extension Canal
Q1 335.7 cusec 9.51 m³/s
Q2 124.0 cusec 3.51 m³/s
I.A 7,747 acre 3,135 ha
L ###### ft 37.19 km
Total of Turn out (TO)
Q2 31.8 cusec 0.90 m³/s
I.A 1,985 acre 803 ha
AEC, Direct Minor (1)
Q1 1.3 cusec 0.04 m³/s
Q2 4.2 cusec 0.12 m³/s
I.A 254 acre 103 ha
L 3,170 ft 0.97 km
AEC, Direct Minor (2)
Q1 5.4 cusec 0.15 m³/s
Q2 0.7 cusec 0.02 m³/s
I.A 55 acre 22 ha
L 5,970 ft 1.82 km
AEC, Direct Minor (3)
Q1 3.8 cusec 0.11 m³/s
Q2 5.7 cusec 0.16 m³/s
I.A 359 acre 145 ha
L 4,430 ft 1.35 km
AEC, DY (1)
Q1 15.2 cusec 0.43 m³/s
Q2 4.2 cusec 0.12 m³/s
I.A 273 acre 110 ha
L 5,280 ft 1.61 km
Q1 30.4 cusec
AEC, DY (3)
0.86 m³/s
Q2 6.0 cusec 0.17 m³/s
I.A 366 acre 148 ha
L 11,000 ft 3.35 km
AEC, DY (2)
Q1 16.8 cusec 0.48 m³/s
Q2 3.9 cusec 0.11 m³/s
I.A 246 acre 100 ha
L 9,500 ft 2.90 km
AEC, Direct Minor (5)
Q1 8.0 cusec 0.23 m³/s
Q2 3.5 cusec 0.10 m³/s
I.A 210 acre 85 ha
L 3,850 ft 1.17 km
AEC, Direct Minor (4)
Q1 2.8 cusec 0.08 m³/s
Q2 0.7 cusec 0.02 m³/s
I.A 35 acre 14 ha
L 3,800 ft 1.16 km
AEC, DY (4)
Q1 52.8 cusec 1.50 m³/s
Q2 7.4 cusec 0.21 m³/s
I.A 455 acre 184 ha
L 13,300 ft 4.05 km
AEC, Direct Minor (6)
Q1 3.2 cusec 0.09 m³/s
Q2 2.1 cusec 0.06 m³/s
I.A 126 acre 51 ha
L 6,180 ft 1.88 km
AEC, DY (5)
Q1 39.0 cusec 1.10 m³/s
Q2 7.1 cusec 0.20 m³/s
I.A 433 acre 175 ha
L 14,780 ft 4.50 km
AEC, DY (6)
Q1 22.9 cusec 0.65 m³/s
Q2 5.7 cusec 0.16 m³/s
I.A 350 acre 142 ha
L 13,730 ft 4.18 km
AEC, DY (9)
Q1 32.0 cusec 0.91 m³/s
Q2 11.3 cusec 0.32 m³/s
I.A 697 acre 282 ha
L 12,670 ft 3.86 km
AEC, DY (8)
Q1 12.4 cusec 0.35 m³/s
Q2 5.3 cusec 0.15 m³/s
I.A 337 acre 136 ha
L 9,500 ft 2.90 km
AEC, Direct Minor (7)
Q1 5.8 cusec 0.16 m³/s
Q2 3.2 cusec 0.09 m³/s
I.A 203 acre 82 ha
L 7,600 ft 2.32 km
AEC, DY (7)
Q1 15.2 cusec 0.43 m³/s
Q2 8.1 cusec 0.23 m³/s
I.A 507 acre 205 ha
L 12,990 ft 3.96 km
AEC, Direct Minor (8)
Q1 19.2 cusec 0.54 m³/s
Q2 7.4 cusec 0.21 m³/s
I.A 458 acre 185 ha
L 10,140 ft 3.09 km
AEC, Direct Minor (9)
Q1 7.7 cusec 0.22 m³/s
Q2 1.1 cusec 0.03 m³/s
I.A 70 acre 28 ha
L 6,020 ft 1.83 km
AEC, Direct Minor (10)
Q1 2.0 cusec 0.06 m³/s
Q2 0.4 cusec 0.01 m³/s
I.A 13 acre 5 ha
L 3,590 ft 1.09 km
AEC, Direct Minor (11)
Q1 9.7 cusec 0.28 m³/s
Q2 2.8 cusec 0.08 m³/s
I.A 185 acre 75 ha
L 9,200 ft 2.80 km
Q2
I.A
AEC, Direct Minor (14)
Q1 10.9 cusec 0.31 m³/s
0.0 cusec 0.00 m³/s
0 acre 0 ha
L 7,500 ft 2.29 km
AEC, Direct Minor (13)
Q1 4.4 cusec 0.12 m³/s
Q2 0.7 cusec 0.02 m³/s
I.A 50 acre 20 ha
L 4,700 ft 1.43 km
AEC, Direct Minor (12)
Q1 14.7 cusec 0.42 m³/s
Q2 1.4 cusec 0.04 m³/s
I.A 80 acre 32 ha
L 8,200 ft 2.50 km
Total of Turn out (TO)
Q2 5.3 cusec 0.15 m³/s
I.A 333 acre 135 ha
Direct Outlet (1) (DO-1)
Q2 8.1 cusec 0.23 m³/s
I.A 514 acre 208 ha
L 9,000 ft 2.74 km
Bishu Branch Canal
Q1 26.0 cusec 0.74 m³/s
Q2 12.7 cusec 0.36 m³/s
I.A 784 acre 317 ha
L 24,800 ft 7.56 km
Shin-Yan Branch Canal
Q1 36.0 cusec 1.02 m³/s
Q2 28.6 cusec 0.81 m³/s
I.A 1,786 acre 723 ha
L 24,300 ft 7.41 km
BEC, Direct Minor (1)
Q1 33.0 cusec 0.93 m³/s
Q2 25.1 cusec 0.71 m³/s
I.A 1,570 acre 635 ha
L 13,200 ft 4.02 km
BEC, Direct Minor (2)
Q1 26.0 cusec 0.74 m³/s
Q2 11.3 cusec 0.32 m³/s
I.A 708 acre 287 ha
L 18,100 ft 5.52 km
BEC, Direct Minor (3)
Q1 53.0 cusec 1.50 m³/s
Q2 17.7 cusec 0.50 m³/s
I.A 1,110 acre 449 ha
L 20,800 ft 6.34 km
BEC, Direct Minor (4)
Q1 49.0 cusec 1.39 m³/s
Q2 22.6 cusec 0.64 m³/s
I.A 1,414 acre 572 ha
L 22,950 ft 7.00 km

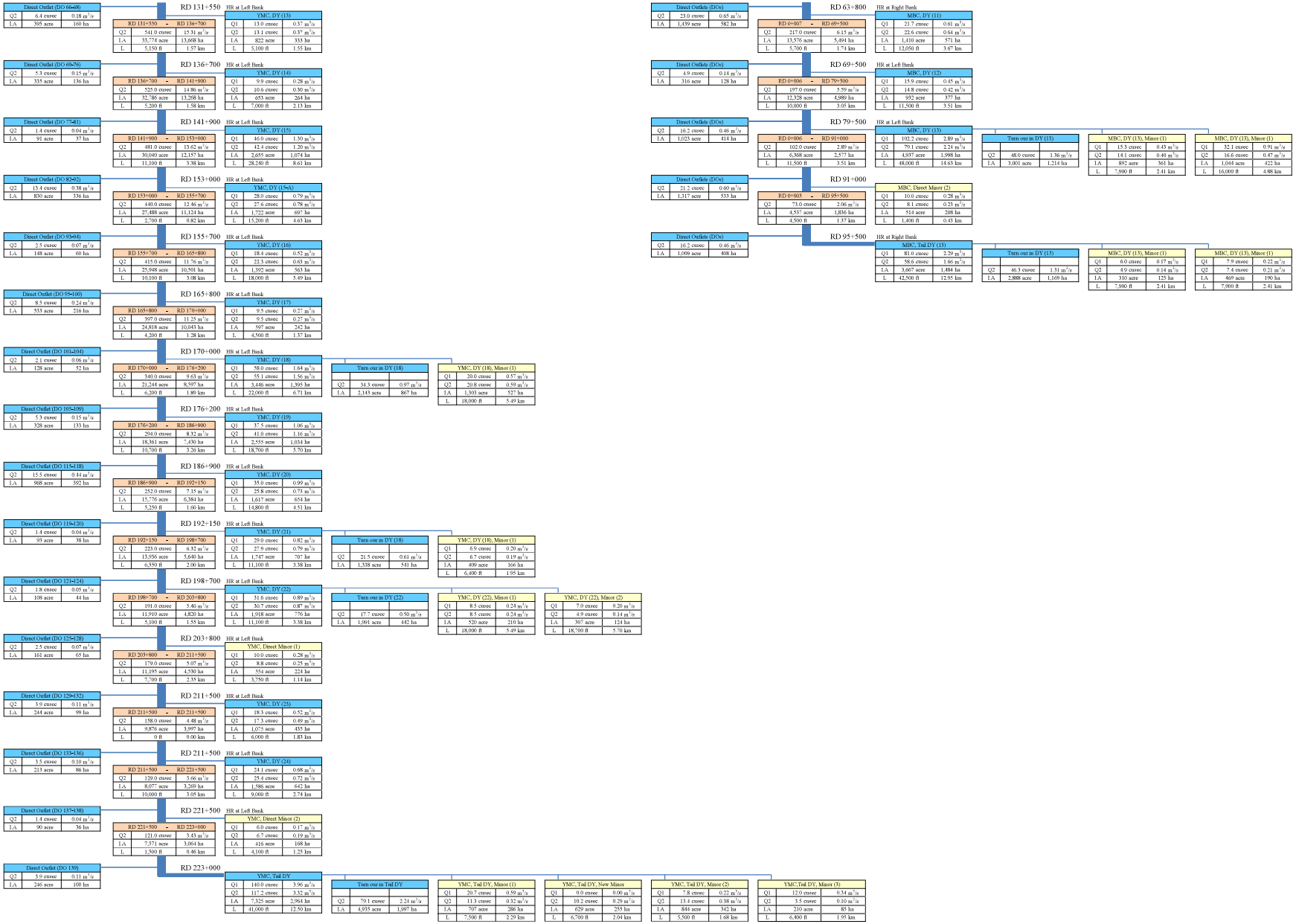
SCHEMATIC LAYOUT DRAWING OF SHWEBO MAIN CANAL (SMC) IRROGATION SYSTEM




RD 143+700
Bifurcation
Q1 1,476.5 cusec 41.81 m³/s
Q2 1,826.0 cusec 51.72 m³/s
I.A 114,116 acre 46,181 ha
Mode Soe Chone Branch Canal (MBC)
Q1 500.0 cusec 14.16 m³/s
Q2 609.2 cusec 17.25 m³/s
I.A 38,000 acre 15,402 ha
L 15,600 ft 4.75 km
Total of Direct Outlets (DO)
Q2 82.0 cusec 2.31 m³/s
I.A 5,095 acre 2,062 ha
Hla Daw Branch Canal (HBC)
Q1 900.0 cusec 25.49 m³/s
Q2 1,136.4 cusec 32.18 m³/s
I.A 71,008 acre 28,736 ha
L 100,500 ft 30.63 km
SMC, DY (8)
Q1 76.5 cusec 2.17 m³/s
Q2 80.9 cusec 2.29 m³/s
I.A 5,048 acre 2,043 ha
L 43,660 ft 13.31 km
HR at Right Bank
Total Direct Outlets (DO)
Q2 27.6 cusec 0.78 m³/s
I.A 1,728 acre 699 ha
RD 0+000 - RD 14+400
Q2 1,136.0 cusec 32.18 m³/s
I.A 71,008 acre 28,736 ha
L 14,400 ft 4.39 km
Turn our in DY (1)
Q2 174.5 cusec 4.94 m³/s
I.A 10,906 acre 4,414 ha
Turn our in Minor (1)
Q2 57.9 cusec 1.64 m³/s
I.A 3,621 acre 1,465 ha
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 14+400
HR at Right Bank
RD 14+400 - RD 0+000
Q2 665.0 cusec 18.82 m³/s
I.A 41,518 acre 16,802 ha
L 7,400 ft 2.26 km
HBC, DY (1)
Q1 430.0 cusec 12.18 m³/s
Q2 472.2 cusec 13.37 m³/s
I.A 29,490 acre 11,934 ha
L 93,000 ft 28.35 km
HBC, DY (1) Minor (1)
Q1 86.0 cusec 2.44 m³/s
Q2 80.2 cusec 2.27 m³/s
I.A 5,003 acre 2,025 ha
L 32,850 ft 10.01 km
HBC, DY (1) Minor (1A)
Q1 12.0 cusec 0.34 m³/s
Q2 11.7 cusec 0.33 m³/s
I.A 729 acre 295 ha
L 6,300 ft 1.92 km
HBC, DY (1) Minor (1B)
Q1 17.0 cusec 0.48 m³/s
Q2 10.6 cusec 0.30 m³/s
I.A 653 acre 264 ha
L 7,750 ft 2.36 km
HBC, DY (1) Minor (2)
Q1 33.0 cusec 0.93 m³/s
Q2 38.5 cusec 1.09 m³/s
I.A 2,409 acre 975 ha
L 24,500 ft 7.47 km
Turn our in Minor (3)
Q2 38.1 cusec 1.08 m³/s
I.A 2,378 acre 962 ha
HBC, DY (1) Minor (3)
Q1 34.0 cusec 0.96 m³/s
Q2 56.9 cusec 1.61 m³/s
I.A 3,558 acre 1,440 ha
L 13,250 ft 4.04 km
HBC, DY (1) Minor (3A)
Q1 24.5 cusec 0.69 m³/s
Q2 15.5 cusec 0.44 m³/s
I.A 982 acre 397 ha
L 10,000 ft 3.05 km
HBC, DY (1) Minor (3B)
Q1 6.2 cusec 0.18 m³/s
Q2 3.2 cusec 0.09 m³/s
I.A 198 acre 80 ha
L 2,500 ft 0.76 km
HBC, DY (1) Minor (4)
Q1 67.8 cusec 1.92 m³/s
Q2 83.7 cusec 2.37 m³/s
I.A 5,218 acre 2,112 ha
L 36,000 ft 10.97 km
HBC, DY (1) Minor (5)
Q1 26.0 cusec 0.74 m³/s
Q2 22.3 cusec 0.63 m³/s
I.A 1,386 acre 561 ha
L 12,000 ft 3.66 km
HBC, DY (1) Minor (6)
Q1 25.0 cusec 0.71 m³/s
Q2 16.2 cusec 0.46 m³/s
I.A 1,010 acre 409 ha
L 14,700 ft 4.48 km
RD 21+800
HR at Left Bank
HBC, DY (2)
Q1 68.0 cusec 1.93 m³/s
Q2 93.6 cusec 2.65 m³/s
I.A 5,857 acre 2,370 ha
L 30,900 ft 9.42 km
RD 0+000 - RD 54+900
Q2 571.0 cusec 16.16 m³/s
I.A 35,661 acre 14,432 ha
L 54,900 ft 16.73 km
Turn our in DY (2)
Q2 48.7 cusec 1.38 m³/s
I.A 3,042 acre 1,231 ha
HBC, DY (2) Minor (1)
Q1 31.0 cusec 0.88 m³/s
Q2 45.2 cusec 1.28 m³/s
I.A 2,815 acre 1,139 ha
L 24,900 ft 7.59 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 54+900
HR at Left Bank
HBC, DY (3)
Q1 220.0 cusec 6.23 m³/s
Q2 342.2 cusec 9.69 m³/s
I.A 21,370 acre 8,648 ha
L 67,700 ft 20.63 km
RD 54+900 - RD 84+150
Q2 229.0 cusec 6.48 m³/s
I.A 14,291 acre 5,783 ha
L 29,250 ft 8.92 km
Turn our in DY (3)
Q2 95.4 cusec 2.70 m³/s
I.A 5,947 acre 2,407 ha
HBC, DY (3) Minor (1)
Q1 14.0 cusec 0.40 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,044 acre 422 ha
L 9,500 ft 2.90 km
HBC, DY (3) Minor (2)
Q1 10.1 cusec 0.29 m³/s
Q2 12.0 cusec 0.34 m³/s
I.A 751 acre 304 ha
L 10,600 ft 3.23 km
HBC, DY (3) Minor (3)
Q1 16.0 cusec 0.45 m³/s
Q2 19.1 cusec 0.54 m³/s
I.A 1,202 acre 486 ha
L 9,700 ft 2.96 km
HBC, DY (3) Minor (3A)
Q1 4.0 cusec 0.11 m³/s
Q2 5.3 cusec 0.15 m³/s
I.A 327 acre 132 ha
L 6,300 ft 1.92 km
HBC, DY (3) Minor (4)
Q1 9.4 cusec 0.27 m³/s
Q2 13.4 cusec 0.38 m³/s
I.A 847 acre 343 ha
L 7,600 ft 2.32 km
RD 84+150
HR at Left Bank
HBC, DY (4)
Q1 23.6 cusec 0.67 m³/s
Q2 26.1 cusec 0.74 m³/s
I.A 1,642 acre 664 ha
L 17,000 ft 5.18 km
RD 84+150 - RD 100+500
Q2 202.0 cusec 5.73 m³/s
I.A 12,649 acre 5,119 ha
L 16,350 ft 4.98 km
Turn our in DY (4)
Q2 20.8 cusec 0.59 m³/s
I.A 1,295 acre 524 ha
HBC, DY (4) Minor (1)
Q1 5.7 cusec 0.16 m³/s
Q2 5.7 cusec 0.16 m³/s
I.A 347 acre 140 ha
L 3,000 ft 0.91 km
RD 100+500
HR at Left Bank
HBC, DY (5)
Q1 157.0 cusec 4.45 m³/s
Q2 174.8 cusec 4.95 m³/s
I.A 10,921 acre 4,420 ha
L 50,000 ft 15.24 km
Turn our inDY (5)
Q2 79.8 cusec 2.26 m³/s
I.A 4,981 acre 2,016 ha
SMC DY (5) Minor (1)
Q1 24.5 cusec 0.69 m³/s
Q2 30.4 cusec 0.86 m³/s
I.A 1,901 acre 769 ha
L 17,800 ft 5.43 km
SMC DY (5) Minor (2)
Q1 14.7 cusec 0.42 m³/s
Q2 18.0 cusec 0.51 m³/s
I.A 1,121 acre 454 ha
L 6,000 ft 1.83 km
SMC DY (5) Minor (3)
Q1 12.4 cusec 0.35 m³/s
Q2 15.2 cusec 0.43 m³/s
I.A 943 acre 382 ha
L 7,000 ft 2.13 km
SMC DY (5) Minor (4)
Q1 18.0 cusec 0.51 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,046 acre 423 ha
L 50,000 ft 15.24 km
SMC DY (5) Minor (5)
Q1 8.7 cusec 0.25 m³/s
Q2 9.5 cusec 0.27 m³/s
I.A 592 acre 240 ha
L 8,000 ft 2.44 km
SMC DY (5) Minor (6A)
Q1 0.0 cusec 0.00 m³/s
Q2 0.0 cusec 0.00 m³/s
I.A 0 acre 0 ha
L 800 ft 0.24 km
Turn our in Minor (8)
Q2 5.3 cusec 0.15 m³/s
I.A 337 acre 136 ha
SMC DY (5) Minor (6)
Q1 14.0 cusec 0.40 m³/s
Q2 5.3 cusec 0.15 m³/s
I.A 337 acre 136 ha
L 6,000 ft 1.83 km
Turn our in Minor (4)
Q2 8.8 cusec 0.25 m³/s
I.A 553 acre 224 ha
SMC DY (5) Minor (4A)
Q1 6.3 cusec 0.18 m³/s
Q2 7.8 cusec 0.22 m³/s
I.A 493 acre 200 ha
L 4,100 ft 1.25 km
RD 0+000 - RD 0+016
Q2 609.0 cusec 17.25 m³/s
I.A 38,000 acre 15,402 ha
L 14,400 ft 4.39 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 14+400
HR at Right Bank
RD 14+400 - #REF!
Q2 564.0 cusec 15.96 m³/s
I.A 35,217 acre 14,252 ha
L 7,600 ft 2.32 km
MBC, DY (1)
Q1 40.0 cusec 1.13 m³/s
Q2 45.6 cusec 1.29 m³/s
I.A 2,843 acre 1,151 ha
L 13,800 ft 4.21 km
Turn our in DY (1)
Q2 28.3 cusec 0.80 m³/s
I.A 1,763 acre 713 ha
HBC, DY (1) Minor (1)
Q1 16.2 cusec 0.46 m³/s
Q2 17.3 cusec 0.49 m³/s
I.A 1,080 acre 437 ha
L 12,850 ft 3.92 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 22+000
HR at Right Bank
RD 22+000 - RD 0+000
Q2 517.0 cusec 14.65 m³/s
I.A 32,315 acre 13,077 ha
L 5,900 ft 1.80 km
MBC, DY (2)
Q1 48.0 cusec 1.36 m³/s
Q2 46.3 cusec 1.31 m³/s
I.A 2,902 acre 1,174 ha
L 23,300 ft 7.10 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 27+900
HR at Left Bank
RD 27+900 - RD 0+000
Q2 305.0 cusec 8.64 m³/s
I.A 19,058 acre 7,713 ha
L 14,100 ft 4.30 km
MBC, DY (3)
Q1 165.0 cusec 4.67 m³/s
Q2 212.2 cusec 6.01 m³/s
I.A 13,257 acre 5,365 ha
L 84,000 ft 25.60 km
Turn our in DY (3)
Q2 117.2 cusec 3.32 m³/s
I.A 7,320 acre 2,962 ha
MBC, DY (3) Minor (1)
Q1 11.0 cusec 0.31 m³/s
Q2 13.1 cusec 0.37 m³/s
I.A 819 acre 331 ha
L 11,700 ft 3.57 km
MBC, DY (3) Minor (2)
Q1 15.4 cusec 0.44 m³/s
Q2 18.0 cusec 0.51 m³/s
I.A 1,117 acre 452 ha
L 20,000 ft 6.10 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 42+000
HR at Right Bank
RD 42+000 - RD 0+000
Q2 191.0 cusec 5.40 m³/s
I.A 11,909 acre 4,819 ha
L 18,900 ft 5.76 km
MBC, DY (4)
Q1 79.1 cusec 2.24 m³/s
Q2 114.4 cusec 3.24 m³/s
I.A 7,149 acre 2,893 ha
L 42,600 ft 12.98 km
Turn our in DY (4)
Q2 87.6 cusec 2.48 m³/s
I.A 5,465 acre 2,212 ha
MBC, DY (4) Minor (1)
Q1 17.5 cusec 0.50 m³/s
Q2 18.0 cusec 0.51 m³/s
I.A 1,131 acre 458 ha
L 7,350 ft 2.24 km
MBC, DY (3) Minor (3)
Q1 7.2 cusec 0.20 m³/s
Q2 10.2 cusec 0.29 m³/s
I.A 638 acre 258 ha
L 2,400 ft 0.73 km
MBC, DY (4) Minor (1A)
Q1 14.5 cusec 0.41 m³/s
Q2 8.8 cusec 0.25 m³/s
I.A 553 acre 224 ha
L 4,000 ft 1.22 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 60+900
HR at Right Bank
RD 60+900 - RD 0+000
Q2 122.0 cusec 3.45 m³/s
I.A 7,620 acre 3,084 ha
L 28,800 ft 8.78 km
MBC, DY (5)
Q1 48.0 cusec 1.36 m³/s
Q2 68.5 cusec 1.94 m³/s
I.A 4,289 acre 1,736 ha
L 32,300 ft 9.85 km
MBC, DY (3) Minor (4)
Q1 11.1 cusec 0.31 m³/s
Q2 14.5 cusec 0.41 m³/s
I.A 900 acre 364 ha
L 1,860 ft 0.57 km
MBC, DY (3) Minor (5)
Q1 10.1 cusec 0.29 m³/s
Q2 12.4 cusec 0.35 m³/s
I.A 770 acre 312 ha
L 9,000 ft 2.74 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 89+700
HR at Right Bank
RD 89+700 - RD 0+000
Q2 107.0 cusec 3.03 m³/s
I.A 6,691 acre 2,708 ha
L 4,300 ft 1.31 km
MBC, Direct Minor (1)
Q1 9.5 cusec 0.27 m³/s
Q2 14.8 cusec 0.42 m³/s
I.A 929 acre 376 ha
L 5,020 ft 1.53 km
MBC, DY (3) Minor (6)
Q1 6.2 cusec 0.18 m³/s
Q2 7.1 cusec 0.20 m³/s
I.A 432 acre 175 ha
L 6,400 ft 1.95 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 94+000
HR at Right Bank
RD 94+000 - RD 0+000
Q2 82.0 cusec 2.31 m³/s
I.A 5,095 acre 2,062 ha
L 14,000 ft 4.27 km
MBC, Direct Minor (2)
Q1 1.2 cusec 0.03 m³/s
Q2 25.4 cusec 0.72 m³/s
I.A 1,596 acre 646 ha
L 10,700 ft 3.26 km
MBC, DY (3) Minor (7)
Q1 25.0 cusec 0.71 m³/s
Q2 20.1 cusec 0.57 m³/s
I.A 1,261 acre 510 ha
L 12,000 ft 3.66 km
Direct Outlets (DO)
Q2 0.0 cusec 0.00 m³/s
I.A acre 0 ha
RD 108+000
Turn our in Minor (5)
Q2 42.0 cusec 1.19 m³/s
I.A 2,627 acre 1,063 ha
HBC, DY (3) Minor (5)
Q1 52.0 cusec 1.47 m³/s
Q2 77.3 cusec 2.19 m³/s
I.A 4,821 acre 1,951 ha
L 20,000 ft 6.10 km
HBC, DY (3) Minor (5A)
Q1 12.9 cusec 0.37 m³/s
Q2 18.0 cusec 0.51 m³/s
I.A 1,117 acre 452 ha
L 11,250 ft 3.43 km
HBC, DY (3) Minor (5B)
Q1 13.2 cusec 0.37 m³/s
Q2 17.3 cusec 0.49 m³/s
I.A 1,077 acre 436 ha
L 13,300 ft 4.05 km
SMC, DY (3) Minor (5C)
Q1 8.0 cusec 0.23 m³/s
Q2 12.4 cusec 0.35 m³/s
I.A 766 acre 310 ha
L 4,800 ft 1.46 km
SMC, DY (3) Minor (6)
Q1 19.0 cusec 0.54 m³/s
Q2 30.7 cusec 0.87 m³/s
I.A 1,930 acre 781 ha
L 18,050 ft 5.50 km
Turn our in Minor (6)
Q2 24.0 cusec 0.68 m³/s
I.A 1,503 acre 608 ha
SMC, DY (3) Minor (6A)
Q1 4.2 cusec 0.12 m³/s
Q2 6.7 cusec 0.19 m³/s
I.A 427 acre 173 ha
L 4,000 ft 1.22 km
SMC, DY (3) Minor (7)
Q1 18.4 cusec 0.52 m³/s
Q2 24.0 cusec 0.68 m³/s
I.A 1,503 acre 608 ha
L 10,000 ft 3.05 km
Turn our in Minor (6)
Q2 17.7 cusec 0.50 m³/s
I.A 1,091 acre 442 ha
SMC, DY (3) Minor (7A)
Q1 5.6 cusec 0.16 m³/s
Q2 6.7 cusec 0.19 m³/s
I.A 412 acre 167 ha
L 4,000 ft 1.22 km
SMC, DY (3) Minor (8)
Q1 36.0 cusec 1.02 m³/s
Q2 35.7 cusec 1.01 m³/s
I.A 2,232 acre 903 ha
L 15,800 ft 4.82 km
Turn our in Minor (8)
Q2 30.4 cusec 0.86 m³/s
I.A 1,906 acre 771 ha
SMC, DY (3) Minor (8A)
Q1 16.0 cusec 0.45 m³/s
Q2 5.3 cusec 0.15 m³/s
I.A 326 acre 132 ha
L 8,300 ft 2.53 km

SCHEMATIC LAYOUT DRAWING OF YE-U MAIN CANAL (YMC) IRROGATION SYSTEM




Direct Outlet (DO 66-68)
Q2 6.4 cusec 0.18 m³/s
I.A 395 acre 160 ha
RD 131+550
HR at Left Bank
RD 131+550 - RD 136+700
Q2 541.0 cusec 15.31 m³/s
I.A 33,774 acre 13,668 ha
L 5,150 ft 1.57 km
YMC, DY (13)
Q1 13.0 cusec 0.37 m³/s
Q2 13.1 cusec 0.37 m³/s
I.A 822 acre 333 ha
L 5,100 ft 1.55 km
Direct Outlet (DO 69-76)
Q2 5.3 cusec 0.15 m³/s
I.A 335 acre 136 ha
RD 136+700
HR at Left Bank
RD 136+700 - RD 141+900
Q2 525.0 cusec 14.86 m³/s
I.A 32,786 acre 13,268 ha
L 5,200 ft 1.58 km
YMC, DY (14)
Q1 9.9 cusec 0.28 m³/s
Q2 10.6 cusec 0.30 m³/s
I.A 653 acre 264 ha
L 7,000 ft 2.13 km
Direct Outlet (DO 77-81)
Q2 1.4 cusec 0.04 m³/s
I.A 91 acre 37 ha
RD 141+900
HR at Left Bank
RD 141+900 - RD 153+000
Q2 481.0 cusec 13.62 m³/s
I.A 30,040 acre 12,157 ha
L 11,100 ft 3.38 km
YMC, DY (15)
Q1 46.0 cusec 1.30 m³/s
Q2 42.4 cusec 1.20 m³/s
I.A 2,655 acre 1,074 ha
L 28,240 ft 8.61 km
Direct Outlet (DO 82-92)
Q2 13.4 cusec 0.38 m³/s
I.A 850 acre 336 ha
RD 153+000
HR at Left Bank
RD 153+000 - RD 155+700
Q2 440.0 cusec 12.46 m³/s
I.A 27,488 acre 11,124 ha
L 2,700 ft 0.82 km
YMC, DY (15-A)
Q1 28.0 cusec 0.79 m³/s
Q2 27.6 cusec 0.78 m³/s
I.A 1,722 acre 697 ha
L 15,200 ft 4.63 km
Direct Outlet (DO 93-94)
Q2 2.5 cusec 0.07 m³/s
I.A 148 acre 60 ha
RD 155+700
HR at Left Bank
RD 155+700 - RD 165+800
Q2 415.0 cusec 11.76 m³/s
I.A 25,948 acre 10,501 ha
L 10,100 ft 3.08 km
YMC, DY (16)
Q1 18.4 cusec 0.52 m³/s
Q2 22.3 cusec 0.63 m³/s
I.A 1,392 acre 563 ha
L 18,000 ft 5.49 km
Direct Outlet (DO 95-100)
Q2 8.5 cusec 0.24 m³/s
I.A 533 acre 216 ha
RD 165+800
HR at Left Bank
RD 165+800 - RD 170+000
Q2 397.0 cusec 11.25 m³/s
I.A 24,818 acre 10,043 ha
L 4,200 ft 1.28 km
YMC, DY (17)
Q1 9.5 cusec 0.27 m³/s
Q2 9.5 cusec 0.27 m³/s
I.A 597 acre 242 ha
L 4,500 ft 1.37 km
Direct Outlet (DO 101-104)
Q2 2.1 cusec 0.06 m³/s
I.A 128 acre 52 ha
RD 170+000
HR at Left Bank
RD 170+000 - RD 176+200
Q2 340.0 cusec 9.63 m³/s
I.A 21,244 acre 8,597 ha
L 6,200 ft 1.89 km
YMC, DY (18)
Q1 58.0 cusec 1.64 m³/s
Q2 55.1 cusec 1.56 m³/s
I.A 3,446 acre 1,395 ha
L 22,000 ft 6.71 km
Turn out in DY (18)
Q2 34.3 cusec 0.97 m³/s
I.A 2,143 acre 867 ha
YMC, DY (18), Minor (1)
Q1 20.0 cusec 0.57 m³/s
Q2 20.8 cusec 0.59 m³/s
I.A 1,303 acre 527 ha
L 18,000 ft 5.49 km
Direct Outlet (DO 105-109)
Q2 5.3 cusec 0.15 m³/s
I.A 328 acre 133 ha
RD 176+200
HR at Left Bank
RD 176+200 - RD 186+900
Q2 294.0 cusec 8.32 m³/s
I.A 18,361 acre 7,430 ha
L 10,700 ft 3.26 km
YMC, DY (19)
Q1 37.5 cusec 1.06 m³/s
Q2 41.0 cusec 1.16 m³/s
I.A 2,555 acre 1,034 ha
L 18,700 ft 5.70 km
Direct Outlet (DO 115-118)
Q2 15.5 cusec 0.44 m³/s
I.A 968 acre 392 ha
RD 186+900
HR at Left Bank
RD 186+900 - RD 192+150
Q2 252.0 cusec 7.15 m³/s
I.A 15,776 acre 6,384 ha
L 5,250 ft 1.60 km
YMC, DY (20)
Q1 35.0 cusec 0.99 m³/s
Q2 25.8 cusec 0.73 m³/s
I.A 1,617 acre 654 ha
L 14,800 ft 4.51 km
Direct Outlet (DO 119-120)
Q2 1.4 cusec 0.04 m³/s
I.A 93 acre 38 ha
RD 192+150
HR at Left Bank
RD 192+150 - RD 198+700
Q2 223.0 cusec 6.32 m³/s
I.A 13,936 acre 5,640 ha
L 6,550 ft 2.00 km
YMC, DY (21)
Q1 29.0 cusec 0.82 m³/s
Q2 27.9 cusec 0.79 m³/s
I.A 1,747 acre 707 ha
L 11,100 ft 3.38 km
Turn out in DY (18)
Q2 21.5 cusec 0.61 m³/s
I.A 1,338 acre 541 ha
YMC, DY (18), Minor (1)
Q1 6.9 cusec 0.20 m³/s
Q2 6.7 cusec 0.19 m³/s
I.A 409 acre 166 ha
L 6,400 ft 1.95 km
Direct Outlet (DO 121-124)
Q2 1.8 cusec 0.05 m³/s
I.A 108 acre 44 ha
RD 198+700
HR at Left Bank
RD 198+700 - RD 203+800
Q2 191.0 cusec 5.40 m³/s
I.A 11,910 acre 4,820 ha
L 5,100 ft 1.55 km
YMC, DY (22)
Q1 31.6 cusec 0.89 m³/s
Q2 30.7 cusec 0.87 m³/s
I.A 1,918 acre 776 ha
L 11,100 ft 3.38 km
Turn out in DY (22)
Q2 17.7 cusec 0.50 m³/s
I.A 1,091 acre 442 ha
YMC, DY (22), Minor (1)
Q1 8.5 cusec 0.24 m³/s
Q2 8.5 cusec 0.24 m³/s
I.A 520 acre 210 ha
L 18,000 ft 5.49 km
YMC, DY (22), Minor (2)
Q1 7.0 cusec 0.20 m³/s
Q2 4.9 cusec 0.14 m³/s
I.A 307 acre 124 ha
L 18,700 ft 5.70 km
Direct Outlet (DO 125-128)
Q2 2.5 cusec 0.07 m³/s
I.A 161 acre 65 ha
RD 203+800
HR at Left Bank
RD 203+800 - RD 211+500
Q2 179.0 cusec 5.07 m³/s
I.A 11,195 acre 4,530 ha
L 7,700 ft 2.35 km
YMC, Direct Minor (1)
Q1 10.0 cusec 0.28 m³/s
Q2 8.8 cusec 0.25 m³/s
I.A 554 acre 224 ha
L 3,750 ft 1.14 km
Direct Outlet (DO 129-132)
Q2 3.9 cusec 0.11 m³/s
I.A 244 acre 99 ha
RD 211+500
HR at Left Bank
RD 211+500 - RD 211+500
Q2 158.0 cusec 4.48 m³/s
I.A 9,879 acre 3,997 ha
L 0 ft 0.00 km
YMC, DY (23)
Q1 18.3 cusec 0.52 m³/s
Q2 17.3 cusec 0.49 m³/s
I.A 1,075 acre 435 ha
L 6,000 ft 1.83 km
Direct Outlet (DO 133-136)
Q2 3.5 cusec 0.10 m³/s
I.A 213 acre 86 ha
RD 211+500
HR at Left Bank
RD 211+500 - RD 221+500
Q2 129.0 cusec 3.66 m³/s
I.A 8,077 acre 3,269 ha
L 10,000 ft 3.05 km
YMC, DY (24)
Q1 24.1 cusec 0.68 m³/s
Q2 25.4 cusec 0.72 m³/s
I.A 1,586 acre 642 ha
L 9,000 ft 2.74 km
Direct Outlet (DO 137-138)
Q2 1.4 cusec 0.04 m³/s
I.A 90 acre 36 ha
RD 221+500
HR at Left Bank
RD 221+500 - RD 223+000
Q2 121.0 cusec 3.43 m³/s
I.A 7,571 acre 3,064 ha
L 1,500 ft 0.46 km
YMC, Direct Minor (2)
Q1 6.0 cusec 0.17 m³/s
Q2 6.7 cusec 0.19 m³/s
I.A 416 acre 168 ha
L 4,100 ft 1.25 km
Direct Outlet (DO 139)
Q2 3.9 cusec 0.11 m³/s
I.A 246 acre 100 ha
RD 223+000
YMC, Tail DY
Q1 140.0 cusec 3.96 m³/s
Q2 117.2 cusec 3.32 m³/s
I.A 7,325 acre 2,964 ha
L 41,000 ft 12.50 km
Turn out in Tail DY
Q2 79.1 cusec 2.24 m³/s
I.A 4,935 acre 1,997 ha
YMC, Tail DY, Minor (1)
Q1 20.7 cusec 0.59 m³/s
Q2 11.3 cusec 0.32 m³/s
I.A 707 acre 286 ha
L 7,500 ft 2.29 km
YMC, Tail DY, New Minor
Q1 0.0 cusec 0.00 m³/s
Q2 10.2 cusec 0.29 m³/s
I.A 629 acre 255 ha
L 6,700 ft 2.04 km
YMC, Tail DY, Minor (2)
Q1 7.8 cusec 0.22 m³/s
Q2 13.4 cusec 0.38 m³/s
I.A 844 acre 342 ha
L 5,500 ft 1.68 km
YMC,Tail DY, Minor (3)
Q1 12.0 cusec 0.34 m³/s
Q2 3.5 cusec 0.10 m³/s
I.A 210 acre 85 ha
L 6,400 ft 1.95 km
Direct Outlets (DOs)
Q2 23.0 cusec 0.65 m³/s
I.A 1,439 acre 582 ha
RD 63+800
HR at Right Bank
RD 0+007 - RD 69+500
Q2 217.0 cusec 6.15 m³/s
I.A 13,576 acre 5,494 ha
L 5,700 ft 1.74 km
MBC, DY (11)
Q1 21.7 cusec 0.61 m³/s
Q2 22.6 cusec 0.64 m³/s
I.A 1,410 acre 571 ha
L 12,050 ft 3.67 km
Direct Outlets (DOs)
Q2 4.9 cusec 0.14 m³/s
I.A 316 acre 128 ha
RD 69+500
HR at Left Bank
RD 0+006 - RD 79+500
Q2 197.0 cusec 5.59 m³/s
I.A 12,328 acre 4,989 ha
L 10,000 ft 3.05 km
MBC, DY (12)
Q1 15.9 cusec 0.45 m³/s
Q2 14.8 cusec 0.42 m³/s
I.A 932 acre 377 ha
L 11,500 ft 3.51 km
Direct Outlets (DOs)
Q2 16.2 cusec 0.46 m³/s
I.A 1,023 acre 414 ha
RD 79+500
HR at Left Bank
RD 0+006 - RD 91+000
Q2 102.0 cusec 2.89 m³/s
I.A 6,368 acre 2,577 ha
L 11,500 ft 3.51 km
MBC, DY (13)
Q1 102.2 cusec 2.89 m³/s
Q2 79.1 cusec 2.24 m³/s
I.A 4,937 acre 1,998 ha
L 48,000 ft 14.63 km
Turn out in DY (13)
Q2 48.0 cusec 1.36 m³/s
I.A 3,001 acre 1,214 ha
MBC, DY (13), Minor (1)
Q1 15.3 cusec 0.43 m³/s
Q2 14.1 cusec 0.40 m³/s
I.A 892 acre 361 ha
L 7,900 ft 2.41 km
MBC, DY (13), Minor (1)
Q1 32.1 cusec 0.91 m³/s
Q2 16.6 cusec 0.47 m³/s
I.A 1,044 acre 422 ha
L 16,000 ft 4.88 km
Direct Outlets (DOs)
Q2 21.2 cusec 0.60 m³/s
I.A 1,317 acre 533 ha
RD 91+000
RD 0+003 - RD 95+500
Q2 73.0 cusec 2.06 m³/s
I.A 4,537 acre 1,836 ha
L 4,500 ft 1.37 km
MBC, Direct Minor (2)
Q1 10.0 cusec 0.28 m³/s
Q2 8.1 cusec 0.23 m³/s
I.A 514 acre 208 ha
L 1,400 ft 0.43 km
Direct Outlets (DOs)
Q2 16.2 cusec 0.46 m³/s
I.A 1,009 acre 408 ha
RD 95+500
HR at Right Bank
MBC, Tail DY (13)
Q1 81.0 cusec 2.29 m³/s
Q2 58.6 cusec 1.66 m³/s
I.A 3,667 acre 1,484 ha
L 42,500 ft 12.95 km
Turn out in DY (13)
Q2 46.3 cusec 1.31 m³/s
I.A 2,888 acre 1,169 ha
MBC, DY (13), Minor (1)
Q1 6.0 cusec 0.17 m³/s
Q2 4.9 cusec 0.14 m³/s
I.A 310 acre 125 ha
L 7,900 ft 2.41 km
MBC, DY (13), Minor (1)
Q1 7.9 cusec 0.22 m³/s
Q2 7.4 cusec 0.21 m³/s
I.A 469 acre 190 ha
L 7,900 ft 2.41 km

Detail Project Scope of Irrigation & Drainage Rehabilitation

Kindat Diversion Dam

No	Description	unit	Quantity
Ⅰ	**Rehabilitation of the Undersluice gate**		
1	Replacement of undersluice gate B 3.0 m x H 2.4 m (B 10 ft x H 8 ft) duplex stainless steel gate leaf of roller slide gate	nos	6
Ⅱ	**Rehabilitation of the gate of Head Regulator**		
1	Replacement of Intake gate for Head regulator of Right Main Canal (RMC) B 2.4 m x H 1.8 m (B 8 ft x H 6 ft) duplex stainless steel gate leaf of roller slide gate	nos	6
2	Replacement of Intake gate of I Head regulator of Old Mu Canal (OMC) B 2.4 m x H 1.8 m (B 8 ft x H 6 ft) duplex stainless steel gate leaf of roller slide gate	nos	4
Ⅲ	**Repair and maintenance of side drainage on dam**		
1	Maintenance of side drainage on surface of dam D/S slope	sq-ft	20,000
Ⅳ	**Upgrade of emergency spillway**		
1	Construction of the concrete crest (width 500ft) for the emergency spillway	LS	1
2	Construction of protection wall for inlet and outlet of the spillway	LS	1
3	Construction of riverbed protection at D/S of the spillway	LS	1
4	Excavation of spillway canal (L=approx.8,500 ft)	LS	1
Ⅴ	**Dredging of sedimentation for RMC Head Regulator**		
1	Dredging of Sedimentation for head-race canal	ft	1,800
2	Dredging of Sedimentation for RMC intake area:	Sq-ft	43,000

Kabo Weir

No	Description	unit	Quantity
Ⅰ	**Replacement of spillway gate**		
1	Procurement of the gate with operation device (hydraulic overturning gate: duplex stainless steel, spillway width 455 ft)	LS	1
2	Installation of gate and related facility construction	LS	1
Ⅱ	**Rehabilitation of the Undersluice gate & operation deck**		
1	Replacement of gate leaf of undersluice gate (in front of head regulator of SMC) with counterweight manual operation device, B 12.19 m x H 3.35 m (B 40 ft x H 11 ft), duplex stainless steel roller slide gate	nos	4
2	Replacement of gate leaf of undersluice gate (in front of head regulator of YMC) with counterweight manual operation device, B 9.14 m x B 3.65 m (B 30 ft x B 12 ft) duplex stainless steel roller slide gate	nos	2
Ⅲ	**Rehabilitation of the gate of head regulator**		
1	Rehabilitation of Intake Gate for Irrigation (Head regulator of SMC) B 5.79 m x B 2.29 m (B 19 ft x B 7.5 ft) radial gate with counterweight	nos	5
2	Rehabilitation of Intake Gate for water supply Irrigation (Head regulator of SMC) B 5.79 m x B 2.29 m (B 19 ft x B 7.5 ft) slide gate with counterweight	nos	2
3	Replacement of Intake Gate (Head regulator of YMC) to hydraulic overturning gate B 5.59 m x B 1.76 m (B 18.33 ft x B 5.8 ft) duplex stainless steel	nos	3
Ⅳ	**Protection of the bank at U/S of the weir**		
1	Raising of the right river bank at U/S of the weir	ft	1,100
2	Protection of the bank at U/S of the weir	ft	3,600
Ⅴ	**Removing of sand bank at U/S right side of the weir**		
1	Removing of sand bank at U/S right side of the weir	Sud	24,000
Ⅵ	**Protection of reverbed at D/S of the weir**		
1	Protection of reverbed at D/S of the weir	sq-ft	130,000

No	Description	unit	Quantity
Ⅶ	**Protection of right bank at D/S of the weir**		
1	Protection of right bank at D/S of the weir	ft	262

Summary on number of canal structure rehabilitation

Item		Unit	OMC	RMC	SMC	YMC	Total
Main canal	Rehabilitation of the Cross Regulator	Nos	13	6	6	7	32
	Rehabilitation of the Bifurcation	Nos	-	1	1	1	3
	Rehabilitation of the Head Regulator	Nos	40	14	15	29	88
	Rehabilitation of the Direct outlet	Nos	-	65	60	142	267
	Rehabilitation of the Drop Structure	Nos	1	-	-	-	1
	Rehabilitation of the Syphon	Nos	2	13	4	2	21
	Rehabilitation of the flume (canal bridge)	Nos	-	2	2	-	4
	Rehabilitation of the Spill-in structure	Nos	-	4	4	-	8
	Construction of the Spill-in structure	Nos	8	-	-	1	9
	Rehabilitation of the Spill-out structure	Nos	17	3	1	-	21
	Rehabilitation of the Cross Drainage	Nos	-	10	-	14	
	Rehabilitation of the Bridge	Nos	4	21	2	9	36
Branch & Extension canal	Rehabilitation of the Cross Regulator	Nos		11	-	-	11
	Rehabilitation of the Head Regulator	Nos		30	9	13	52
	Rehabilitation of the Direct outlet	Nos		75	77	79	231
	Rehabilitation of the Check Drop	Nos		10	25	8	43
	Rehabilitation of the Syphon	Nos		5	1	-	1
	Rehabilitation of the flume (canal bridge)	Nos		1	-	-	1
	Rehabilitation of the Spill-in structure	Nos		18	-	-	18
	Rehabilitation of the Spill-out structure	Nos		8	-	-	8
	Rehabilitation of the Cross Drainage	Nos		19	-	-	19
	Rehabilitation of the Bridge	Nos		9	9	8	26
Dy & Minor canal	Rehabilitation of the Check Structure	Nos	36	10	12	10	78
	Rehabilitation of the Head Regulator	Nos	39	29	75	23	166
	Rehabilitation of the Outlet (Turn-out)	Nos	917	717	1,589	1,065	4,288
	Rehabilitation of the Drop Structure	Nos	114	80	173	75	472
	Rehabilitation of the Syphon	Nos	1	1	5	-	7
	Rehabilitation of the flume (canal bridge)	Nos	2	-	-	-	2
	Rehabilitation of the Spill-in structure	Nos	3	-	-	-	3
	Rehabilitation of the Spill-out structure	Nos	-	-	-	-	-
	Rehabilitation of the Cross Drainage	Nos	10	3	9	17	39
	Rehabilitation of the Bridge	Nos	31	10	18	9	68

Canal structure: OMC Irrigation System

No	Description	unit	Quantity
Ⅰ	**Rehabilitation of Head Regulator for Branch & DY & minor canal**		
1	OMC, Repairing of H/R for Dy-1	nos	1
2	OMC, Repairing of H/R for Dy-2	nos	1
3	OMC, Repairing of H/R for Dy-3	nos	1
4	OMC, Repairing of H/R for Dy-4	nos	1

No	Description	unit	Quantity
5	OMC, Repairing of H/R for Dy-5	nos	1
6	OMC, Repairing of H/R for Dy-6	nos	1
7	OMC, Repairing of H/R for Dy-7	nos	1
8	OMC, Repairing of H/R for Dy-9	nos	1
9	OMC, Repairing of H/R for Direct Outlet No.1	nos	1
10	OMC, Repairing of H/R for Direct Outlet No.2	nos	1
11	OMC, Repairing of H/R for Direct Outlet No.3	nos	1
12	OMC, Repairing of H/R for Direct Outlet No.4	nos	1
13	OMC, Repairing of H/R for Direct Outlet No.4A	nos	1
14	OMC, Repairing of H/R for Direct Outlet No.6	nos	1
15	OMC, Repairing of H/R for Direct Outlet No.6A	nos	1
16	OMC, Repairing of H/R for Direct Outlet No.7	nos	1
17	OMC, Repairing of H/R for Direct Outlet No.7A	nos	1
18	OMC, Repairing of H/R for Direct Outlet No.8	nos	1
19	OMC, Repairing of H/R for Direct Outlet No.8A	nos	1
20	OMC, Repairing of H/R for Direct Outlet No.9	nos	1
21	OMC, Repairing of H/R for Thayetkan Direct Outlet	nos	1
22	OMC, Repairing of H/R for Shwe Phaung Oo Direct Outlet	nos	1
23	OMC, Repairing of H/R at Shwe Thein Taw Direct Outlet	nos	1
24	OMC, Repairing of H/R at Direct Outlet No.10	nos	1
25	OMC, Repairing of H/R at Ywa Than Direct Outlet	nos	1
26	OMC, Repairing of H/R for Kyee Kan Direct Outlet	nos	1
27	OMC, Repairing of H/R for Direct Outlet No.11	nos	1
28	OMC, Repairing of H/R for Direct Outlet No.12	nos	1
29	OMC, Repairing of H/R for Direct Outlet No.13	nos	1
30	OMC, Repairing of H/R for Direct Outlet No.14	nos	1
31	OMC, Si Pote-Tara Dy Canal, Repairing of HR of Minor No.2	nos	1
32	OMC, Tha Yet Kan Dy canal, Construction of lining Work at H/R of Minor No.2	nos	1
33	OMC, Tha Yet Kan Dy canal, Repairing of Shutters of Minor No.2	nos	1
34	OMC, Tha Yet Kan Dy canal, Repairing of HR for Minor No.3	nos	1
35	OMC, Tha Yet Kan Dy canal, Repairing of Bifurcation for Minor No.3	nos	1
36	Mainor repair woks for Head regulator	nos	44
37	Installation of the water measurement facilities (parshall flume, etc.)	nos	79
Ⅱ	**Rehabilitation of Outlet Structure for Water course & DO**		
1	Construction of pipe outlet	nos	44
2	Rehabilitation of Outlet Structutre and gate installation for water courses & DO	nos	873
Ⅲ	**Rehabilitation of Check Structure**		
1	OMC, Repairing of Check Structure (for Dy-2)	nos	1
2	OMC, Repairing of Check Structure (for Dy-3)	nos	1
3	OMC, Repairing of Check Structure (for Dy-4)	nos	1
4	OMC, Repairing of Check Structure (for Dy-6)	nos	1
5	OMC, Repairing of Check Structure (for Dy-7)	nos	1
6	OMC, Repairing of Check Structure near Lay Htoke Canal	nos	1
7	OMC, Repairing of Check Structure near DO-7	nos	1

No	Description	unit	Quantity
8	OMC, Repairing of Check Structure near Tha Yet Kan Canal	nos	1
9	OMC, Repairing of Check Structure near Lawn Shae Canal	nos	1
10	OMC, Repairing of Check Structure near Shwe Thein Taw Canal	nos	1
11	OMC, Repairing of Check Structure near Ywa Than Canal	nos	1
12	OMC, Repairing of Check Structure near Shwe Phaung Oo Canal	nos	1
13	OMC, DY-1, construction of Check Structure (RD 7+000 ' RD 8+500)	nos	2
14	OMC, DY-2, reparing of Check Structure (RD 1+000)	nos	1
15	OMC, ThinPayungkyin Canal, construction of Tail Structure	nos	1
16	OMC, DO-4, construction of Check Structure (RD 4+000, RD 6+000, 8+500)	nos	1
17	OMC, SSW-7 canal, construction of Check Structure (RD 6+000, RD 8+500, 15+500, 19+500, 21+000, 23+500, 25+000)	nos	7
18	OMC, LayHtoke DY canal, construction of Check Structure (RD 12+500, 16+200, 18+300, 20+800)	nos	4
19	Mainor repair woks for Check Structure	nos	37
Ⅳ	**Rehabilitation of Fall Structure**		
1	OMC, Tha Yet Kan Dy Canal, Minor No.3, Repairing of Fall Structure (2 Nos)	nos	2
2	OMC, Tha Yet Kan Dy Canal, Repairing of Fall Structure (RD 15+400)	nos	1
3	OMC, Shwe Thein Taw Dy canal, Repairing of Fall Structures (7 Nos)	nos	7
4	OMC, DO-8, Repairing of Fall Structure (7 Nos)	nos	7
5	OMC, DO-8A, Repairing of Fall Structure (7 Nos)	nos	7
6	OMC, DO-9 Repairing of Fall Structures (15 Nos)	nos	15
7	OMC, DY-4 Repairing of Fall Structures (4 Nos)	nos	4
8	OMC, DY-5 Repairing of Fall Structures (2 Nos)	nos	2
9	OMC, DY-6 Repairing of Fall Structures (2 Nos)	nos	2
10	OMC, DY-7A Construction of Fall Structures (1 Nos)	nos	1
11	OMC, DY-9, Minor 4 Repairing of Fall Structures (2 Nos)	nos	2
12	OMC, DY-9, Minor 5 Repairing of Fall Structures (2 Nos)	nos	1
13	OMC, DO-3 Construction of Fall Structures (3 Nos)	nos	3
14	OMC, DO-4 Construction of Fall Structures (5 Nos)	nos	5
15	OMC, DO-5 Construction of Fall Structures (4 Nos)	nos	4
16	OMC,ThinPayungkyin Canal, Construction of Fall Structures (3 Nos)	nos	5
17	Mainor repair woks for Fall Structure	nos	76
Ⅴ	**Rehabilitation of Syphon and flume (canal bridge)**		
1	OMC, Syphon No.1 (RD 85+500)	nos	1
2	OMC, Syphon No.2 (RD 113+000)	nos	1
3	OMC, Do-5, Minor 2, Syphon No.1 (RD 12+400)	nos	1
Ⅵ	**Rehabilitation of Spill-out & Spill-in facility**		
1	OMC, Repairing of SSW-7 (RD 108+000)	nos	1
2	OMC, Repairing of pauk Taw Sluice Gate	nos	1
3	OMC, Repairing of 6/6 Sluice (RD 238+900)	nos	1
4	OMC, Repairing of 3/3 Sluice (RD 257+500)	nos	1
5	OMC, DO-4, Construction of pipe spill-in (RD 6+500, RD 8+900)	nos	2
6	Mainor repair woks for Spill-out & Spill-in facility	nos	14

No	Description	unit	Quantity
Ⅶ	**Rehabilitation of Bridge**		
1	OMC, Repairing and lining Work of Boat Taw Bridge (RD 10+500)	nos	1
2	OMC, Repairing and lining Work of Kan Phyu Bridge (RD 15+350)	nos	1
3	OMC, Repairing and lining Work of Myoy Du Bridge (RD 21+900)	nos	1
4	OMC, Repairing and lining Work of Hmaw Taw Bridge (RD 24+180)	nos	1
5	OMC, Repairing and lining Work of Moe Kaung Bridge (RD 63+000)	nos	1
6	OMC, Repairing and lining Work of Htan Kone Bridge (RD 75+300)	nos	1
7	OMC, Repairing and lining Work of Su Poke Bridge (RD 87+100)	nos	1
8	OMC, Repairing and lining Work of Min Kone Bridge (RD 101+600)	nos	1
9	OMC, Repairing and lining Work of That Yat Gyi Bridge (RD124+000)	nos	1
10	OMC, Repairing and lining Work of Tee Kone Bridge (RD 134+000)	nos	1
11	OMC, Repairing and lining Work of Pi Tag Kone Bridge (RD 150+000)	nos	1
12	OMC, Repairing and lining Work of Hnae Twin Bridge (RD 154+000)	nos	1
13	OMC, Repairing and lining Work of Ma Down Hla Bridge	nos	1
14	OMC, Repairing and lining Work of Inn Gyie Pin Bridge (RD167+000)	nos	1
15	OMC, Repairing and lining Work of Tha Yat Kan Bridge (RD 177+500)	nos	1
16	OMC, Repairing and lining Work of Pin Din Bridge (RD 192+000)	nos	1
17	OMC, Repairing and lining Work of Kon Taing Bridge(196+500)	nos	1
18	OMC, Repairing and lining Work of Khin Oo Bridge (RD 198+000)	nos	1
19	OMC, Repairing and lining Work of Kyee Kan Bridge (RD 225+000)	nos	1
20	OMC, Repairing and lining extension Work of Mi Gyaung Pin Bridge (RD 231+000)	nos	1
21	OMC, DO-3 Construction cart bridge (RD8+500, 11+500)	nos	2
22	OMC, DO-4 Construction cart bridge (RD 6+000, 8+500, 18+000)	nos	3
23	OMC, ThinPayungkyin Canal Construction cart bridge (RD6+000, 11+500)	nos	2
24	OMC, DO-4A Construction cart bridge (RD 6+800)	nos	1
25	OMC, SSW-7 canal Construction cart bridge (RD 6+700, 9+000, 14+500, 21+300)	nos	3
26	OMC,LayHtoke DY canal, Construction cart bridge (RD 8+500, 15+500, 19+000)	nos	3
27	Mainor repair woks for Bridge	nos	15
Ⅷ	**Rehabilitation of Cross Drainage and drainage canal**		
1	OMC, DO-4, Construction of pipe CDC (RD 9+500)	nos	1
2	OMC, DO-5, Construction of CDC (RD 1+000, 4+000, 8+000)	nos	3
3	Mainor repair woks for Cross Drainage	nos	30
4	Improvement of drainage canals	lot	1
5	Improvement of facility for reuse of drainage water	lot	1

Canal structure: RMC Irrigation System

No	Description	unit	Quantity
Ⅰ	**Rehabilitation of Head Regulator for Branch & DY & minor canal**		
1	RMC, repair and maintenance of gate leaf of H/R (RD 0 - RD 200)	LS	1
2	RMC, repair and maintenance H/R of Direct Minor 1 (RD 216+000)	sq-ft	7.50
3	RMC, stone pitching at H/R of direct Minor 1 (RD 216+000)	sq-ft	31,500
4	RMC, repair and maintenance H/R of Direct Minor 2 (RD 222+000)	sq-ft	9.00
5	RMC, stone pitching at H/R of direct Minor 2 (RD 222+000)	sq-ft	31,500

No	Description	unit	Quantity
6	RMC, repair and maintenance H/R of Direct Minor 3 (RD 227+150)	sq-ft	6.25
7	RMC, stone pitching in main canal at HR of Direct Minor 3 (RD 227+150)	sq-ft	31,500
8	RMC, repair and maintenance H/R of Direct Minor 4 (RD 237+750)	sq-ft	9.00
9	RMC, stone pitching in main canal at HR of Direct Minor 4 (RD 237+750)	sq-ft	31,500
10	RMC, repair and maintenance H/R of Dy-5 (RD 242+000)	sq-ft	16.00
11	RMC, stone pitching in main canal at HR of Direct Dy-5 (RD 242+000)	sq-ft	31,500
12	RMC, stone pitching in main canal at HR of Direct Minor 5 (RD 251+000)	sq-ft	29,000
13	RMC, repair and maintenance H/R of Dy-5-A (RD 252+150)	sq-ft	16.00
14	RMC, repair and maintenance H/R of Direct Minor 5 (RD 272+000)	sq-ft	9.00
15	RMC, stone pitching in main canal at HR of Direct Minor 5 (RD 272+000)	sq-ft	29,000
16	RMC, repair and maintenance H/R of Ma Dine Kyin (RD 275+500)	sq-ft	12.50
17	RMC, stone pitching in main canal at HR of Pa Daing Kyin canal (RD 275+500)	sq-ft	29,000
18	RMC, Butalin Extension Canal (BEC), U/S & D/S stone pitching of H/R (RD 0+000)	sq-ft	17,000
19	RMC, BEC, repair and maintenance H/R (RD 0+000)	sq-ft	108.00
20	RMC, BEC, Stone pitching in front of main canal H/R (RD 5+000)	sq-ft	17,000
21	RMC, BEC, Stone pitching in front of main canal H/R (RD 7+500)	sq-ft	17,000
22	RMC, BEC, repair and maintenance H/R of Bi Shu Branch Canal (RD 5+000)	nos	1
23	RMC, BEC, repair and maintenance H/R of Sin Yan Branch Canal (RD 7+500)	nos	1
24	RMC, BEC, repair and maintenance H/R of Direct Minor 2 (RD 30+000)	nos	1
25	RMC, BEC, repair and maintenance H/R of U Nyan Win's tube (RD 31+500)	nos	1
26	RMC, BEC, repair and maintenance H/R of Direct Minor 3 (RD 33+800)	nos	1
27	RMC, BEC, repair and maintenance H/R of Direct Minor 4 (RD 38+300)	nos	1
28	RMC, AEC, repair and maintenance H/R of Direct Minor 1 (RD 5+719)	nos	1
29	RMC, AEC, repair and maintenance H/R of Direct Minor 2 (RD 8+114)	nos	1
30	RMC, AEC, repair and maintenance H/R of Direct Minor 3 (RD 11+000)	nos	1
31	RMC, AEC, repair and maintenance H/R of Dy-1 (RD 21+850)	nos	1
32	RMC, AEC, repair and maintenance H/R of Dy-2 (RD 23+600)	nos	1
33	RMC, AEC, repair and maintenance H/R of Direct Minor 5 (RD 25+630)	nos	1
34	RMC, AEC, repair and maintenance H/R of Dy-2 (RD 29+800)	nos	1
35	RMC, AEC, repair and maintenance H/R of Dy-3 (RD 38+050)	nos	1
36	RMC, AEC, repair and maintenance H/R of Dy-4 (RD 42+7009	nos	1
37	RMC, AEC, repair and maintenance H/R of Director Minor 6 (RD 50+300)	nos	1
38	RMC, AEC, repair and maintenance H/R of Dy -5 (RD 52+950)	nos	1
39	RMC, AEC, repair and maintenance H/R of Dy-7 (RD 68+200)	nos	1
40	RMC, AEC, repair and maintenance H/R of DO No 15 (RD 71+000)	nos	1
41	RMC, AEC, repair and maintenance H/R of Director Minor 7 (RD 75+500)	nos	1
42	RMC, AEC, repair and maintenance H/R of Dy-8 (RD 76+720)	nos	1
43	RMC, AEC, repair and maintenance H/R of Dy-9 (RD 83+900)	nos	1
44	RMC, AEC, repair and maintenance H/R of Director Minor 8 (RD 93+800)	nos	1
45	RMC, AEC, repair and maintenance H/R of Director Minor 9 (RD 100+200)	nos	1
46	RMC, AEC, repair and maintenance H/R of Director Minor 10 (RD 103+400)	nos	1
47	RMC, AEC, repair and maintenance H/R of Director Minor 11 (RD 106+800)	nos	1
48	RMC, AEC, repair and maintenance H/R of Director Minor 12 (RD 109+200)	nos	1
49	RMC, AEC, repair and maintenance H/R of Director Minor 13 (RD 112+200)	nos	1
50	RMC, AEC, repair and maintenance H/R of Director Minor 14 (RD 118+200)	nos	1
51	Mainor repair woks for Head regulator	nos	30

No	Description	unit	Quantity
52	Installation of the water measurement facilities (parshall flume, etc.)	nos	99
Ⅱ	**Rehabilitation of Outlet Structutre for Water course & DO**		
1	RMC, repair and maintenance H/R of DO No.49 (RD 204+500)	nos	1
2	RMC, repair and maintenance H/R of DO No.50 (RD 208+000)	nos	1
3	RMC, repair and maintenance H/R of DO No.51 (RD 209+500)	nos	1
4	RMC, repair and maintenance H/R of DO No.52 (RD 210+500)	nos	1
5	RMC, repair and maintenance H/R of DO No.53 (RD 232+500)	nos	1
6	RMC, repair and maintenance H/R of DO No.54 (RD 233+200)	nos	1
7	RMC, repair and maintenance H/R of DO No.55 (RD 235+900)	nos	1
8	RMC, repair and maintenance H/R of DO No.56 (RD 236+800)	nos	1
9	RMC, repair and maintenance H/R of DO No.57 (RD 244+100)	nos	1
10	RMC, repair and maintenance H/R of DO No.58 (RD 247+200)	nos	1
11	RMC, repair and maintenance H/R of DO No.59 (RD 249+900)	nos	1
12	RMC, repair and maintenance H/R of DO No.60 (RD 251+600)	nos	1
13	RMC, repair and maintenance H/R of DO No.61 (RD 255+900)	nos	1
14	RMC, Dy-1, repair and maintenance of D.O	nos	20
15	RMC, Dy-2, repair and maintenance of D.O	nos	15
16	RMC, Dy-2A, repair and maintenance of D.O	nos	18
17	RMC, KBC, repair and maintenance of D.O	nos	30
18	RMC, Dy-4 minor-1, repair and maintenance of D.O	nos	15
19	RMC, Dy-4, repair and maintenance of D.O	nos	20
20	RMC, Dy-4, Minor 1, repair and maintenance of D.O	nos	7
21	RMC, Dy-4, Minor 2, repair and maintenance of D.O	nos	15
22	RMC, Dy-4, Minor 2A, repair and maintenance of D.O	nos	10
23	RMC, Dy-4, Minor 3, repair and maintenance of D.O	nos	10
24	RMC, BEC, repair and maintenance H/R of Sae Gyi D.O (RD 3+000)	nos	1
25	RMC, BEC, repair and maintenance H/R of U Kyi Win D.O (RD 13+500)	nos	1
26	RMC, BEC, repair and maintenance H/R of D.O-1 (RD 17+200)	nos	1
27	RMC, BEC, repair and maintenance H/R of U Kyaw Myint D.O (RD 20+500)	nos	1
28	RMC, BEC, repair and maintenance H/R of U Than Aye D.O (RD 22+000)	nos	1
29	RMC, BEC, repair and maintenance H/R of U Than Aye D.O (RD 24+800)	nos	1
30	RMC, BEC, repair and maintenance H/R of Shar Taw D.O (RD 28+500)	nos	1
31	RMC, BEC, repair and maintenance H/R of D.O No.2 (RD 42+150)	nos	1
32	RMC, BEC, repair and maintenance H/R of D.O No.3 (RD 46+200)	nos	1
33	RMC, Ayartaw Extension Canal (AEC), repair and maintenance H/R of Sae Gyi DO (RD 2+650)	nos	1
34	RMC, AEC, repair and maintenance H/R of DO No.1 (RD 5+000)	nos	1
35	RMC, AEC, repair and maintenance H/R of DO No.2 (RD 9+500)	nos	1
36	RMC, AEC, repair and maintenance H/R of DO No.3 (RD 13+000)	nos	1
37	RMC, AEC, repair and maintenance H/R of DO No.4 (RD 18+000)	nos	1
38	RMC, AEC, repair and maintenance H/R of DO No 5 (RD 27+000)	nos	1
39	RMC, AEC, repair and maintenance H/R of DO No 6 (RD 33+000)	nos	1
40	RMC, AEC, repair and maintenance H/R of DO No 7 (RD 35+000)	nos	1
41	RMC, AEC, repair and maintenance H/R of DO No 8 (RD 36+000)	nos	1
42	RMC, AEC, repair and maintenance H/R of DO No 9 (RD 45+000)	nos	1
43	RMC, AEC, repair and maintenance H/R of DO No 10 (RD 45+700)	nos	1

No	Description	unit	Quantity
44	RMC, AEC, repair and maintenance H/R of DO No 11 (RD 54+000)	nos	1
45	RMC, AEC, repair and maintenance H/R of DO No 12 (RD 55+500)	nos	1
46	RMC, AEC, repair and maintenance H/R of DO No 13 (RD 60+500)	nos	1
47	RMC, AEC, repair and maintenance H/R of DO No 14 (RD 68+000)	nos	1
48	Rehabilitation of Outlet Structutre and gate installation for water courses & DO	nos	660
Ⅲ	**Rehabilitation of Check Structure**		
1	RMC, repair and maintenance of gate leaf of C/R (RD 0 - RD 200)	LS	1
2	RMC, repair and maintenance CR of Direct Minor 1 (RD 216+000)	sq-ft	216.00
3	RMC, repair and maintenance CR of Dy-5 (RD 242+000)	sq-ft	216.00
4	RMC, repair and maintenance CR of Dy-5-A (RD 252+250)	sq-ft	216
5	RMC, BEC, repair and maintenance CR of Sin Yan Branch Canal (RD 7+520)	sq-ft	108
6	RMC, BEC, repair and maintenance CR of Direct Minor 1 (RD 24+820)	sq-ft	48
7	RMC, BEC, repair and maintenance CR of Direct Minor 2 (RD 30+020)	sq-ft	25
8	RMC, BEC, repair and maintenance CR of Direct Minor 3 (RD 33+820)	sq-ft	25
9	RMC, BEC, repair and maintenance CR Direct Minor 4 (RD 38+320)	sq-ft	25
10	RMC, BEC, repair and maintenance CR of D.O NO.2 (RD 42+200)	sq-ft	18
11	RMC, BEC, repair and maintenance CR of D.O NO.3 (RD 46+250)	sq-ft	18
12	RMC, AEC, repair and maintenance CR (RD 2+650)	sq-ft	72
13	RMC, AEC, repair and maintenance CR of Dy-1 (RD 21+900)	sq-ft	108
14	RMC, AEC, repair and maintenance CR of Dy-3 (RD 38+100)	sq-ft	72
15	RMC, AEC, repair and maintenance CR of Dy-7 (RD 68+250)	sq-ft	72
16	RMC, AEC, repair and maintenance CR of Dy-9 (RD 83+980)	sq-ft	50
17	RMC, AEC, repair and maintenance CR of Director Minor 8 (RD 94+000)	sq-ft	25
18	Mainor repair woks for Check Structure	nos	10
Ⅳ	**Rehabilitation of Fall Structure**		
1	RMC, Dy-1, repair and maintenance of drops	nos	6
2	RMC, Dy-1, Minor 1, repair and maintenance of drops	nos	5
3	RMC, Kha Paung Kyaing Branch Canan (KBC), Dy-1, minor 1, repair and maintenance of drops	nos	3
4	RMC, Dy-4, Minor 1, repair and maintenance of drops	nos	5
5	RMC, Dy-4, Minor 1A, repair and maintenance of drops	nos	20
6	RMC, Dy-4, Minor 2A, repair and maintenance of drop	nos	5
7	RMC, Dy-4, Minor 3, repair and maintenance of drops	nos	5
8	RMC, BEC, stone pitching of U/S & D/S of drop structure (RD 11+600)	nos	1
9	Mainor repair woks for Check Structure	nos	30
Ⅴ	**Rehabilitation of Syphon and flume (canal bridge)**		
1	RMC, Rehabilitation of syphon (RD0+000 to 204+200)	nos	8
2	RMC, U/S & D/S lining of Fot Chaung flume (RD 64+200)	sq-ft	47,500
3	RMC, U/S & D/S lining of Aung Nage Zin flume (RD 185+950)	sq-ft	47,500
4	RMC, repair and maintenance of retain wall of paung Ka daung syphon (RD 36+000)	nos	1
5	RMC, Dy-4 , construction of Saw Mae syphon retaining wall (RD 13+250)	nos	1
6	RMC, Extension of Fot Chaung Flume (RD 64+200)	nos	1
7	RMC, Construction of Si Pa Done syphon retaining wall (RD 84+000)	nos	1

No	Description	unit	Quantity
8	RMC, U/S & D/S lining of Chaung Ma Gyi syphon (RD 213+300)	sq-ft	31,500
9	RMC, U/S & D/S lining of Tat Tae Syphon (RD 224+750)	sq-ft	31,500
10	RMC, U/S & D/S stone pitching Kone Yoe flume (RD 229+250)	sq-ft	31,500
11	RMC, U/S & D/S stone pitching of Ba Gar syphon (RD 234+000)	sq-ft	31,500
12	RMC, U/S & D/S stone pitching of Min Gan Boke syphon (RD 239+350)	sq-ft	31,500
13	RMC, U/S & D/S stone pitching kyat Chay Yar flume (RD 253+150)	sq-ft	29,000
14	RMC, U/S & D/S stone pitching of Pa Yar Gyi Syphon (RD 263+800)	sq-ft	29,000
VI	**Rehabilitation of Spill-out & Spill-in facility**		
1	RMC, BEC, stone pitching of spill in (RD 16+400)	sq-ft	17,000
VII	**Rehabilitation of Bridge**		
1	RMC, upstream and downstream lining of bridges (from RD 0+000 to 204+200)	sq-ft	1,377,500
2	RMC, Repair and maintenance of Aung Swar bridges (RD 29+800)	nos	1
3	RMC, Construction of bridge in Paung Ka Daung D.O (RD 36+500)	nos	1
4	RMC, Dy-1, repair and maintenance of bridges	nos	3
5	RMC, U/S & D/S lining of Kyat Taw Thar bridge (RD 204+200 RMC)	sq-ft	31,500
6	RMC, U/S & D/S lining of Lae Thit Taw bridge (RD 209+500)	sq-ft	31,500
7	RMC, upstream and downstream lining of Bos Gone bridge (RD 212+150)	sq-ft	31,500
8	RMC, U/S & D/S lining of Lae Pyin Gwat bridge (RD 214+000)	sq-ft	31,500
9	RMC, U/S & D/S lining of Tat Tae bridge (RD 225+075)	sq-ft	31,500
10	upstream and downstream stone pitching of Thein Win bridge	sq-ft	29,000
11	upstream and downstream stone pitching of Shan Taw bridge	sq-ft	29,000
12	RMC, U/S & D/S stone pitching of In Boke bridge (RD 234+000)	sq-ft	31,500
13	RMC, U/S & D/S stone pitching of Oh Htain bridge (RD 242+500)	sq-ft	29,000
14	RMC, U/S & D/S stone pitching of Boke Tan bridge (RD 249+150)	sq-ft	29,000
15	RMC, U/S & D/S stone pitching of Chone Ywa bridge (RD 251+000)	sq-ft	29,000
16	RMC, BEC, stone pitching in U/S & D/S of cart bridge (RD 12+500)	sq-ft	17,000
17	Mainor repair woks for Bridge	nos	15
VIII	**Rehabilitation of Cross Drainage and drainage canal**		
1	RMC, construction of Myin Pyaing drainage canal passing bridge (RD 84+000)	nos	1
2	RMC, stone pitching in main canal and upstream and downstream of C.D.C (RD 226+300)	sq-ft	31,500
3	RMC, stone pitching in main canal and U/S & D/S of C.D.C (RD 257+500)	sq-ft	29,000
4	RMC, U/S & D/S stone pitching of level crossing (RD 259+550)	sq-ft	29,000
5	RMC, stone pitching in main canal and U/S & D/S of Hnaw Gyin C.D.C (RD 266+800)	sq-ft	29,000
6	RMC, Dy-1, Minor 1, repair and maintenance of drainage structure (RD14+500)	nos	1
7	RMC, Dy-2, Minor 1, repair and maintenance of drainage structure (RD 8+500)	nos	1
8	RMC, Dy-4, Minor 1 Extension of I Wun Gyi drainage structure (RD 5+570)	nos	1
9	RMC, BEC, stone pitching of U/S & D/S of drainage structure and main canal (RD 3+200)	sq-ft	17,000
10	RMC, BEC, stone pitching of U/S & D/S of drainage structure and main canal	sq-ft	17,000
11	Mainor repair woks for Cross Drainage	nos	22
12	Improvement of drainage canals	lot	1
13	Improvement of facility for reuse of drainage water	lot	1

Canal structure: SMC Irrigation System

No	Description	unit	Quantity
Ⅰ	**Rehabilitation of Head Regulator for Branch & DY & minor canal**		
1	SMC, Repairing of Head Regulator of DY-7	nos	1
2	SMC, Repairing of Head Regulator of Dy-7A	nos	1
3	SMC, Dy-1, Gate Leaf repairing of Minors outlet	nos	6
4	SMC, Dy-2, Repairing of Gate Leaf and Structure	nos	1
5	SMC, Dy-3, Repairing of Head Regulator of Minors	nos	9
6	SMC, Dy-4, Repairing of Gate Leaf of Minor No-1	nos	1
7	SMC, Dy-6, Repairing of Outlet Structures of Minor 1B	nos	1
8	SMC, Dy-6, Repairing of Outlet Structures of Minor 3	nos	1
9	SMC, Dy-6, Repairing of stone pitching at outlet portion of Dy-6 H/R	nos	1
10	SMC, Dy-6, Repairing of Bifurcation Structure on Minor 1B	nos	1
11	SMC, Dy-7, Repairing of Head Regulator of Minor 3	nos	1
12	SMC, Dy-7, Repairing of Head Regulator of Minor 4	nos	1
13	SMC, Dy-7, Repairing of Head Regulator of Minor 7	nos	1
14	SMC, Repairing and installation of the gates for bifurcation	nos	1
15	SMC, HBC, repairing Gate Leaf for Head regulator of Dy Channels	nos	5
16	SMC, MBC, repairing Gate Leaf for Head regulator of Dy Channels	nos	5
17	SMC, MBC, DY-3, Construction of Inlet Structure (RD 2+800)	nos	1
18	Mainor repair woks for Head regulator	nos	62
19	Installation of the water measurement facilities (parshall flume, etc.)	nos	100
Ⅱ	**Rehabilitation of Outlet Structutre for Water course & DO**		
1	SMC, Dy-1, installation of Gate Leaf fixing woks of main water courses	nos	40
2	SMC, Dy-7, Repairing of WC-6 outlet Structure (RD 14+000)	nos	1
3	SMC, Dy-7, Repairing of WC-8 outlet Structure (RD 25+300)	nos	1
4	SMC, Dy-7, Repairing of WC-10 outlet Structure (RD 27+400)	nos	1
5	SMC, Dy-7, Repairing of WC-11 outlet Structure (RD 33+950)	nos	1
6	SMC, Dy-7, Repairing of WC-12 outlet Structure (RD 34+300)	nos	1
7	Rehabilitation of Outlet Structutre and gate installation for water courses & DO	nos	1,681
Ⅲ	**Rehabilitation of Check Structure**		
1	SMC, Upgrading of check Structure No (1)	nos	1
2	SMC, Upgrading of check Structure No (2)	nos	1
3	SMC, Upgrading of check Structure No (3)	nos	1
4	SMC, Upgrading of check Structure No (4)	nos	1
5	SMC, Upgrading of check Structure No (5)	nos	1
6	SMC, Upgrading of check Structure No (6)	nos	1
7	SMC, Dy-1, Repairing of Check Structures	nos	1
8	Mainor repair woks for Check Structure	nos	11
Ⅳ	**Rehabilitation of Fall Structure**		
1	SMC, Dy-1, Upgrading of Fall Structures	nos	9
2	SMC, Dy-2, Upgrading of fall Structures	nos	2
3	SMC, Dy-3, Upgrading of Fall Structures	nos	4

No	Description	unit	Quantity
4	SMC, Dy-4, Repairing of Fall Structure	nos	2
5	SMC, Dy-5, Repairing of Fall Structures	nos	2
6	SMC, Dy-3, Minor 2, Lining Extension Works of Falls & Bridges	nos	1
7	SMC, Dy-3, Minor 2, Repairing of Fall Structures	nos	1
8	SMC, Dy-6, Repairing of Fall Structure (RD 5+300)	nos	1
9	SMC, Dy-6, Repairing of Fall Structure (RD 22+000)	nos	1
10	SMC, Dy-6, Minor 1, Repairing of Fall Structure (RD 6+300)	nos	1
11	SMC, Dy-6, Minor 1, Repairing of Fall Structure (RD 11+000)	nos	1
12	SMC, Dy-6, Minor 1, Repairing of Fall Structure (RD 15+310)	nos	1
13	SMC, Dy-6, Minor 1, Repairing of Fall Structure(RD 20+000)	nos	1
14	SMC, Dy-6, Minor 3, Repairing of Fall Structure (RD 2+500)	nos	1
15	SMC, Dy-6A, Repairing of Fall Structures	nos	4
16	SMC, Dy-7, Repairing of Fall Structure (RD 2+650)	nos	1
17	SMC, Dy-7, Repairing of Fall Structure (RD 6+000)	nos	1
18	SMC, Dy-7, Repairing of Fall Structure (RD 10+000)	nos	1
19	SMC, Dy-7, Repairing of Fall Structure (RD 36+450)	nos	1
20	SMC, Dy-7, Repairing of Fall Structure (RD 39+800)	nos	1
21	SMC, Dy-7, Minor 2, Repairing of Fall Structure & (3 Nos;)	nos	3
22	SMC, Dy-7, Minor 3, Repairing of Fall Structure (RD 10+000)	nos	1
23	SMC, Dy-7, Minor 7, Repairing of Fall Structures	nos	1
24	SMC, Dy-8, Repairing of Fall Structures	nos	7
25	SMC, HBC, Repairing of Fall Structures	nos	10
26	SMC, HBC, Dy-1, Repairing of Falls Structures	nos	8
27	SMC, MBC, Dy-1, Repairing of Falls Structures	nos	5
28	SMC, MBC, Dy-2, Repairing of Fall Structure	nos	6
29	SMC, MBC, Dy-3, Repairing of Fall Structure	nos	8
30	SMC, MBC, Repairing of Fall Structure	nos	15
31	Mainor repair woks for Fall Structure	nos	72
V	**Rehabilitation of Syphon and flume (canal bridge)**		
1	SMC, Syphon No.1 (RD 28+500)	nos	1
2	SMC, Flume-No.2 (RD 36+000)	nos	1
3	SMC, Flume (RD 55+000)	nos	1
4	SMC, Syphon No.3 (RD 78+500)	nos	1
5	SMC, Syphon No.4 (RD 110+000)	nos	1
6	SMC, Syphon No.5 (RD 124+000)	nos	1
7	Mainor repair woks for Syphon	nos	30
VI	**Rehabilitation of Spill-out & Spill-in facility**		
1	SMC, Dy-1, Repairing of Spill-out Structure (RD 11+400)	nos	1
2	SMC, Dy-7, Construction of Spill-in Structure (RD 11+000)	nos	1
3	SMC, Dy-7, Construction of Spill-in Structure (RD 17+000)	nos	1
4	SMC, Dy-7, Minor 3, Lining works of Spill-in Structure	nos	1
5	Mainor repair woks for Spill-out & Spill-in facility	nos	3
VII	**Rehabilitation of Bridge**		

No	Description	unit	Quantity
1	SMC, Dy-2, Repairing of Bridges	nos	5
2	SMC, Dy-3, Upgrading of Bridges	nos	3
3	SMC, Dy-4, Repairing of Bridges	nos	3
4	SMC, Dy-5, Repairing of Bridges	nos	2
5	SMC, Dy-8, Repairing of Bridges	nos	4
6	SMC, HBC, Repairing of Bridges	nos	11
7	SMC, MBC, Repairing of Bridges	nos	9
8	Mainor repair woks for Bridge	nos	50
Ⅷ	**Rehabilitation of Cross Drainage and drainage canal**		
1	Mainor repair woks for Cross Drainage	nos	50
2	Excavation of Hnamazayit drainage channel	sud	49,000
3	Strengthening of embankment of Hnamazayit drainage channel	sud	20,000
4	Excavation of Nyaungpintha - Kyeekan drainage channel	sud	69,000
5	Excavation of Natkyitan drainage channel	sud	148,000
6	Excavation of Thabyetha – Zeetaw drainage channel	sud	30,000
7	Excavation of Repair of inside Thatkal chaung	sud	197,000
8	Excavation of drainage channel	sud	79,000
9	Construction of new bypass drainage channels	sud	108,000
10	Improvement of drainage canals	lot	1
11	Improvement of facility for reuse of drainage water	lot	1
Ⅸ	**Other works**		
1	Construction of Low Lift Pump Station from Mu River	nos	1
2	Construction of Won Si Village low lift Pump Station	nos	1
3	Construction of Seik Khon Weir	nos	1

Canal structure: YMC Irrigation System

No	Description	unit	Quantity
Ⅰ	**Rehabilitation of Head Regulator for Branch & DY & minor canal**		
1	YMC, U/S & D/S lining of Dy-1 HR (RD 32+734)	sq-ft	39,252
2	YMC, U/S & D/S lining of Dy-4 HR (RD 54+900)	sq-ft	38,544
3	YMC, U/S & D/S lining of Dy-4A HR (RD 59+919)	sq-ft	37,536
4	YMC, gate leaf installation of undersluice of cross regulator (1) & (2) and Dy, HR	LS	2
5	YMC, U/S & D/S lining of Chaungna bifurcation (RD 77+000)	sq-ft	75,600
6	YMC, gate leaf installation of Chaungna bifurcation	LS	1
7	YMC, gate leaf installation tof HR of Dy-1 3	LS	2
8	YMC, DY-4, gate leaf installation to HR of Minor 1	LS	1
9	YMC, U/S & D/S lining of HR of Dy-5 (RD 70+450)	sq-ft	15,000
10	YMC, U/S & D/S stone pitching in main canal at HR of Dy-6 (RD 88+900)	sq-ft	40,000
11	YMC, repair and maintenance of Dy-6 gate leaf (RD 88+900)	set	1
12	YMC, U/S & D/S stone pitching in main canal at HR of Dy-7 (RD 91+500)	sq-ft	40,000
13	YMC, repair and maintenance of Dy-7 gate leaf (RD 91+500)	set	2
14	YMC, stone pitching in main canal at HR of Dy-8 (RD 95+000)	sq-ft	36,250
15	YMC, repair and maintenance of Dy-8 gate leaf (RD 95+000)	set	1

No	Description	unit	Quantity
16	YMC, stone pitching in main canal at HR of Dy-9 (RD 102+200)	sq-ft	36,000
17	YMC, repair and maintenance of Dy-9 gate leaf (RD 102+200)	set	2
18	YMC, repair and maintenance of Dy-10 gate leaf (RD 104+000)	set	1
19	YMC, repair and maintenance of Dy-11 gate leaf (RD 114+000)	set	2
20	YMC, stone pitching in main canal at HR of Dy-12 (RD 120+000)	sq-ft	33,105
21	YMC, repair and maintenance of Dy-12 gate leaf (RD 120+000)	set	1
22	YMC, stone pitching in main canal at HR of Direct Minor 1 (RD 124+500)	sq-ft	31,920
23	YMC, stone pitching in main canal at HR of Dy-13 (RD 131+550)	sq-ft	31,920
24	YMC, repair and maintenance of Dy-13 gate leaf (RD 131+550)	set	1
25	YMC, stone pitching in main canal at HR of Dy-14 (RD 136+700)	sq-ft	31,425
26	YMC, repair and maintenance of Dy-14 gate leaf (RD 136+700)	set	1
27	YMC, repair and maintenance of Dy-15 gate leaf (RD 141+900)	set	1
28	YMC, stone pitching in main canal at HR of Dy-15A (RD 153+000)	sq-ft	29,155
29	YMC, repair and maintenance of Dy-15-A gate leaf (RD 153+000)	set	1
30	YMC, stone pitching in main canal at HR of Dy-16 (RD 157+100)	sq-ft	29,155
31	YMC, repair and maintenance of Dy-16 gate leaf (RD 157+100)	set	1
32	YMC, stone pitching in main canal at HR of Dy-17 (RD 165+800)	sq-ft	27,880
33	YMC, repair and maintenance of Dy-17 gate leaf (RD 165+800)	set	1
34	YMC, repair and maintenance of Dy-18 gate leaf (RD 170+000)	set	1
35	YMC, stone pitching in main canal at HR of Dy-19 (RD 176+200)	sq-ft	24,520
36	YMC, repair and maintenance of Dy-19 gate leaf (RD 176+200)	set	1
37	YMC, stone pitching in main canal at HR of Dy-20 (RD 186+900)	sq-ft	22,750
38	YMC, repair and maintenance of Dy-20 gate leaf (RD 186+900)	set	1
39	YMC, repair and maintenance of Dy-21 gate leaf (RD 192+150)	set	1
40	YMC, stone pitching in main canal at HR of Dy-22 (RD 198+100)	sq-ft	20,800
41	YMC, repair and maintenance of Dy-22 gate leaf (RD 198+100)	set	1
42	YMC, stone pitching in main canal at HR of DMR-1 (RD 204+000)	sq-ft	18,940
43	YMC, repair and maintenance of DMR-1 gate leaf (RD 204+000)	set	1
44	YMC, repair and maintenance of Dy-23 gate leaf (RD 211+500)	set	1
45	YMC, repair and maintenance of Dy-24 gate leaf (RD 217+080)	set	1
46	YMC, stone pitching in main canal at HR of DMR-2 (RD 220+100)	sq-ft	15,900
47	YMC, repair and maintenance of DMR-2 gate leaf (RD 220+100)	set	1
48	YMC, repair and maintenance of Canal tail Dy gate leaf (RD 223+000)	set	2
49	YMC, TDY, repair and maintenance of gate leaf at Hrof Minor 1	set	1
50	YMC, Mayankan Branch Canal (MBC), U/S & D/S lining of Dy -5 HR (RD 34+000)	sq-ft	25,200
51	YMC, MBC, U/S & D/S lining of Dy -1 HR (RD 0+745)	sq-ft	25,200
52	YMC, MBC, U/S & D/S lining of Dy -2 HR (RD 5+600)	sq-ft	25,200
53	YMC, MBC, Extension of HR at Dy-2 and 3	nos	2
54	YMC, MBC, U/S & D/S lining of Dy -3 HR (RD 8+400)	sq-ft	25,200
55	YMC, MBC, U/S & D/S lining of Dy -4 HR (RD 15+384)	sq-ft	25,200
56	YMC, MBC, U/S & D/S lining of DMR(1) HR (RD 41+000)	sq-ft	25,200
57	YMC, MBC, gate leaf installation to HR of Dy-1, 2, 3	LS	3
58	YMC, MBC, Installation of gate leaf to HR of Dy-5, 7, 9, 11	set	4
59	YMC, MBC, Installation of gate leaf to HR of direct minor(1)	set	1
60	YMC, MBC, U/S & D/S lining of FB-3A (RD 42+500)	sq-ft	42,000
61	YMC, MBC, U/S & D/S lining of Dy -7 (HR RD 47+000)	sq-ft	25,200

No	Description	unit	Quantity
62	YMC, MBC, U/S & D/S lining of Dy -9 HR (RD 52+000)	sq-ft	25,200
63	YMC, MBC, U/S & D/S lining of Dy -12 HR (RD 69+500)	sq-ft	25,200
64	YMC, MBC, U/S & D/S lining of DMR(2) HR (RD 91+000)	sq-ft	25,200
65	YMC, MBC, Repair and Installation of gate leaf to HR of Dys and minors in Tayatkan area	LS	1
66	YMC, MBC, Dy-3, Installation of gate leaf to HR of Direct Minor 1	set	1
67	YMC, MBC, Dy-4, gate leaf installation to HR of Minor 1	LS	1
68	Mainor repair woks for Head regulator	nos	24
69	Installation of the water measurement facilities (parshall flume, etc.)	nos	65
Ⅱ	**Rehabilitation of Outlet Structutre for Water course & DO**		
1	YMC, MBC, Repairing and Installation of gate leaf of DO (RD0+000 to RD 30+000)	LS	8
2	YMC, MBC, Repairing and Installation of gate leaf of DO (Nyaung Hla Area)	set	5
3	YMC, MBC, Repair and Installation of DO in Tayatkan area	set	5
	YMC, Rehabilitation of Outlet Structutre and gate installation for water courses & DO	nos	1,270
	Sub-total		
Ⅲ	**Rehabilitation of Check Structure**		
1	YMC, U/S & D/S lining of cross regulator 1 (RD 45+375)	sq-ft	51,864
2	YMC, U/S & D/S lining of cross regulator 2 (RD 70+450)	sq-ft	34,576
3	YMC, gate leaf installation of cross regulator (1) & (2)	LS	2
4	YMC, stone pitching of cross regulator (RD 104+300)	sq-ft	35,465
5	YMC, repair and maintenance of cross regulator (2-A) gate leaf (RD 104+000)	set	8
6	YMC, stone pitching of cross regulator (RD 114+000)	sq-ft	34,910
7	YMC, repair and maintenance of cross regulator (3) gate leaf (RD 114+000)	set	6
8	YMC, U/S & D/S stone pitching of cross regulator (RD 142+000)	sq-ft	29,835
9	YMC, repair and maintenance of cross regulator (4) gate leaf (RD 142+000)	set	4
10	YMC, U/S & D/S stone pitching of cross regulator (RD 170+000)	sq-ft	25,790
11	YMC, repair and maintenance of cross regulator (5) gate leaf (RD 170+000)	set	5
12	YMC, U/S & D/S stone pitching of cross regulator (RD 192+800)	sq-ft	22,480
13	YMC, repair and maintenance of cross regulator (6) gate leaf (RD 192+800)	set	6
14	YMC, U/S & D/S stone pitching of cross regulator (RD 211+510)	sq-ft	18,940
15	YMC, repair and maintenance of cross regulator (7) gate leaf (RD 211+510)	set	5
16	Mainor repair woks for Check Structure	nos	9
Ⅳ	**Rehabilitation of Fall Structure**		
1	YMC, U/S & D/S lining of Fall(1) (RD 2+500)	sq-ft	42,000
2	YMC, U/S & D/S lining of Fall(2) (RD 9+7009	sq-ft	42,000
3	YMC, U/S & D/S lining of Fall(3) (RD 15+480)	sq-ft	42,000
4	YMC, MBC, U/S & D/S lining of Fall(4) (RD 53+000)	sq-ft	42,000
5	YMC, MBC, U/S & D/S lining of Fall(5) (RD 64+500)	sq-ft	42,000
6	YMC, MBC, Dy-5, Repair and Construction of Fall 6, 7	set	2
7	Rehabilitation for fall structure	nos	20

No	Description	unit	Quantity
8	Mainor repair woks for Check Structure	nos	48
V	**Rehabilitation of Syphon and flume (canal bridge)**		
1	YMC, U/S & D/S lining of syphon of Drainage (2) (RD 40+300)	sq-ft	65,420
2	YMC, U/S & D/S lining of syphon of Drainage (4) (RD 73+350)	sq-ft	61,970
3	YMC, DY-3, repairing of flume structure retaining wall (RD 16+800)	nos	1
VI	**Rehabilitation of Spill-out & Spill-in facility**		
1	YMC, spill in construction (RD 7+500)	nos	1
2	YMC, spill in construction (RD 12+500)	nos	1
3	YMC, repair and maintenance of drainage(6) side spill gate leaf (RD 222+800)	set	2
VII	**Rehabilitation of Bridge**		
1	YMC, U/S & D/S lining of bridge (1) (RD 4+386)	sq-ft	52,366
2	YMC, U/S & D/S lining of bridge (RD 7+840)	sq-ft	33,600
3	YMC, U/S & D/S lining of bridge (2) (RD 10+628)	sq-ft	52,366
4	YMC, U/S & D/S lining of bridge (RD 17+500)	sq-ft	33,600
5	YMC, U/S & D/S lining of bridge (3) (RD 19+150)	sq-ft	52,366
6	YMC, U/S & D/S lining of bridge (4) (RD 25+275)	sq-ft	52,366
7	YMC, U/S & D/S lining of bridge (5) (RD 33+134)	sq-ft	52,366
8	YMC, U/S & D/S lining of bridge (6) (RD 46+133)	sq-ft	51,864
9	YMC, U/S & D/S lining of bridge (7) (RD 59+500)	sq-ft	50,048
10	YMC, U/S & D/S lining of bridge (8) (RD 67+171)	sq-ft	50,048
11	YMC, U/S & D/S lining of railway bridge (RD 71+900)	sq-ft	49,576
12	YMC, U/S & D/S stone pitching of bridge (RD 84+000)	sq-ft	40,000
13	YMC, U/S & D/S stone pitching of bridge (RD 96+000)	sq-ft	36,250
14	YMC, U/S & D/S stone pitching of bridge (RD 104+000)	sq-ft	35,465
15	YMC, U/S & D/S stone pitching of bridge (RD 113+800)	sq-ft	34,910
16	YMC, U/S & D/S stone pitching of bridge (RD 118+400)	sq-ft	33,105
17	YMC, U/S & D/S stone pitching of bridge (RD 132+335)	sq-ft	31,920
18	YMC, U/S & D/S stone pitching of bridge (RD 145+535)	sq-ft	29,155
19	YMC, U/S & D/S stone pitching of bridge (RD 152+425)	sq-ft	29,155
20	YMC, U/S & D/S stone pitching of bridge (RD 155+700)	sq-ft	29,155
21	YMC, U/S & D/S stone pitching of bridge (RD 162+435)	sq-ft	28,475
22	YMC, U/S & D/S stone pitching of bridge (RD 168+780)	sq-ft	25,790
23	YMC, U/S & D/S stone pitching of bridge (RD 178+050)	sq-ft	22,750
24	YMC, U/S & D/S stone pitching of bridge (RD 184+900)	sq-ft	22,750
25	YMC, U/S & D/S stone pitching of bridge (RD 194+500)	sq-ft	22,480
26	YMC, U/S & D/S stone pitching of bridge (RD 194+500)	sq-ft	20,800
27	YMC, U/S & D/S stone pitching of bridge (RD 201+000)	sq-ft	18,940
28	YMC, U/S & D/S stone pitching of bridge (RD 211+000)	sq-ft	18,940
29	YMC, U/S & D/S stone pitching of bridge (RD 212+700)	sq-ft	17,670
30	YMC, U/S & D/S stone pitching of bridge (RD 217+100)	sq-ft	28,272
31	YMC, Dy-4, U/S & D/S lining of bridge (1) (RD 9+850)	sq-ft	16,564
32	YMC, Dy-4, U/S & D/S lining of bridge (5) (RD 19+100)	sq-ft	14,322
33	YMC, MBC, U/S & D/S lining of bridge (3) (RD 37+600)	sq-ft	33,600

No	Description	unit	Quantity
34	YMC, MBC, U/S & D/S lining of bridge(3-B) (RD 47+600)	sq-ft	42,000
35	YMC, MBC, U/S & D/S lining of bridge(4) (RD 51+400)	sq-ft	33,600
36	YMC, MBC, U/S & D/S lining of bridge(5) (RD 57+200)	sq-ft	33,600
37	YMC, MBC, U/S & D/S lining of bridge(6) (RD 63+000)	sq-ft	33,600
38	YMC, MBC, U/S & D/S lining of bridge(6) (RD 63+800)	sq-ft	25,200
39	YMC, MBC, U/S & D/S lining of bridge (RD 64+500)	sq-ft	33,600
40	YMC, MBC, U/S & D/S lining of Causeway (6) (RD 75+000)	sq-ft	42,000
41	YMC, MBC, U/S & D/S lining of bridge (RD 78+000)	sq-ft	33,600
42	YMC, MBC, U/S & D/S lining of Causeway (7) (RD 79+500)	sq-ft	42,000
43	YMC, MBC, U/S & D/S lining of bridge (RD 83+300)	sq-ft	33,600
44	YMC, MBC, U/S & D/S lining of bridge (RD 94+500)	sq-ft	33,600
45	YMC, MBC, U/S & D/S lining of Causeway (8) (RD 95+500)	sq-ft	42,000
46	YMC, MBC, U/S & D/S lining of bridge (Dy-tail) (RD14+700)	sq-ft	16,000
47	YMC, MBC, Lining (RD77+500)	sq-ft	25,200
48	Mainor repair woks for Bridge	nos	13
Ⅷ	**Rehabilitation of Cross Drainage and drainage canal**		
1	YMC, U/S & D/S lining of silt excluder (H/R) (RD 33+400)	sq-ft	39,945
2	YMC, U/S & D/S lining of C.D.C of Drainage(1) (RD 33+664)	sq-ft	65,420
3	YMC, U/S & D/S lining of C.D.C of Drainage(3-A) (RD 61+700)	sq-ft	62,560
4	YMC, U/S & D/S lining of C.D.C of Drainage(3-B) (RD 64+900)	sq-ft	62,560
5	YMC, Outfall channel canal bed repair of drainage (2) Tayapin chaung (RD 40+300)	nos	1
6	YMC, Extension of Drainage Canal Structure CDC (RD 61+700)	nos	1
7	YMC, downstream bed repair of Hnaw Gone drainage(4) syphon (RD 73+350)	nos	1
8	YMC, U/S & D/S stone pitching of Drainage (5) (RD 82+600)	sq-ft	40,000
9	YMC, U/S & D/S stone pitching of drainage (5-A) (RD 86+000)	sq-ft	40,000
10	YMC, U/S & D/S stone pitching of drainage (5-B) (RD 93+200)	sq-ft	36,250
11	YMC, U/S & D/S stone pitching of drainage (6) (RD 100+400)	sq-ft	36,000
12	YMC, U/S & D/S stone pitching of drainage (6-A) (RD 107+300)	sq-ft	34,910
13	YMC, U/S & D/S stone pitching of drainage (7) (RD 116+900)	sq-ft	33,105
14	YMC, U/S & D/S stone pitching of drainage (9) (RD 129+000)	sq-ft	31,920
15	YMC, U/S & D/S stone pitching of drainage (8-A) (RD 134+200)	sq-ft	31,425
16	YMC, U/S & D/S stone pitching of drainage (9) (RD 139+900)	sq-ft	29,835
17	YMC, U/S & D/S stone pitching of drainage (10) (RD 154+200)	sq-ft	29,155
18	YMC, U/S & D/S stone pitching of drainage (11) (RD 158+400)	sq-ft	28,475
19	YMC, U/S & D/S stone pitching of drainage (11-A) (RD 166+900)	sq-ft	25,790
20	YMC, U/S & D/S stone pitching of drainage (9-A) (RD 150+400)	sq-ft	29,155
21	YMC, U/S & D/S stone pitching of drainage (12) (RD 173+500)	sq-ft	24,520
22	YMC, U/S & D/S stone pitching of drainage (12-A) (RD 178+500)	sq-ft	22,750
23	YMC, U/S & D/S stone pitching of drainage (13) (RD 189+180)	sq-ft	22,480
24	YMC, U/S & D/S stone pitching of drainage (14) (RD 202+000)	sq-ft	18,940
25	YMC, U/S & D/S stone pitching of drainage (15) (RD 209+800)	sq-ft	18,940
26	YMC, U/S & D/S stone pitching of drainage (15-A) (RD 214+300)	sq-ft	17,670
27	YMC, U/S & D/S stone pitching of drainage (16) (RD 222+800)	sq-ft	15,900
28	Mainor repair woks for Cross Drainage	nos	14
29	Improvement of drainage canals	lot	1

No	Description	unit	Quantity
30	Improvement of facility for reuse of drainage water	lot	1

Upgrading of canal (Resectioning, Unsilting) OMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sud)
1	OMC	85,400	78,100
2	OMC, Dy-1	12,500	5,000
3	OMC, Dy-2	1,300	500
4	OMC, Dy-3	5,280	7,920
5	OMC, Dy-4	3,320	5,000
6	OMC, Dy-5	5,400	1,500
7	OMC, Dy-6	15,000	22,500
8	OMC, Dy-7	15,000	22,500
9	OMC, Dy-7A	15,000	4,000
10	OMC, Dy-9	16,000	3,000
11	OMC, Dy-9, Minor1	15,000	5,000
12	OMC, Dy-9, Minor2	18,000	6,000
13	OMC, Dy-9, Minor3	20,000	7,000
14	OMC, Dy-9, Minor4	10,000	3,000
15	OMC, ThinPayungkyin Canal	15,000	5,000
16	OMC, Long Shae Dy Canal	15,000	2,000
17	OMC, Si Thar Dy Canal	10,000	1,500
18	OMC, Tha Yet Kan Dy Canal	5,400	1,000
19	OMC, Ywa Than Dy Canal	27,000	2,500
20	OMC, LayHtoke DY	35,000	7,000
21	OMC, DO-1	15,000	22,500
22	OMC, DO-2	15,000	3,000
23	OMC, DO-3	18,480	3,700
24	OMC, DO-4	22,000	4,500
25	OMC, DO-4A	11,000	3,000
26	OMC, DO-5	38,000	9,000
27	OMC, DO-6	15,000	5,000
28	OMC, DO-8	22,000	3,000
29	OMC, DO-8A	16,000	1,000
30	OMC, DO-9	25,000	3,750
31	OMC, DO-10	11,000	1,000
32	OMC, DO-11	11,000	1,250
33	OMC, DO-12	13,200	19,800
34	OMC, DO-13	11,000	1,250
35	OMC, DO-14	11,000	1,000
36	OMC, SSW-7 canal	40,000	10,000
37	Other canals	300,000	250,000
	Total	**939,280**	**357,770**

Upgrading of canal (lining) OMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sq-ft)
1	Main canal	75,000	2,160,000
2	Dy canal and DO canal OMC DY (1), OMC DY-1A, OMC DY-1B, OMC DY (2), OMC DY (3), OMC DY-3A, OMC DY (4), OMC DY-4A, OMC DY (5), OMC DY (6), OMC DY-6A, OMC DY-6B OMC DY (7), OMC DY-7A, OMC DO (1), OMC DO (2) OMC DY (9) Minor canal which connected land consolidation area	115,000	1,490,000
	Total	**190,000**	**3,650,000**

Upgrading of canal (Resectioning, Unsilting and lining) RMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sud)
1	RMC, RD 64+000 to 73+000	150,000	225,000
2	RMC, Te Sar Direct MinorRMC	15,000	15,000
3	RMC, Kha Paung Kyaing branch canal (KBC)	36,500	54,750
4	RMC, Shwe Gu Direct Minor	12,000	12,000
5	RMC, Dy-1	10,000	10,000
6	RMC, Dy-1, Minor 1	15,000	15,000
7	RMC, Dy-2A	17,600	17,600
8	RMC, Dy-2, Minor 3	15,000	15,000
9	RMC, Dy-2, Minor 4	20,000	20,000
10	RMC, Dy-2, Minor 4A	25,000	25,000
11	RMC, KBC, Dy-1	15,000	15,000
12	RMC, KBC, Dy-1, Minor-1	20,500	20,500
13	RMC, Dy-4	37,500	37,500
14	Other canals	500,000	125,000
	Total	**889,100**	**607,350**

Upgrading of canal (lining) RMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sq-ft)
1	Main canal	138,000	7,779,000
2	AEC	12,000	270,000
3	BEC	6,000	113,000
4	Dy canal RMC DY (1), RMC DY (2), RMC DY (2-A), KBC DY (1), KBC DY (2), KBC DY (3), RMC DY (4) Minor canal which connected land consolidation area	63,000	1,426,000
	Total	**219,000**	**9,588,000**

Upgrading of canal (Resectioning, Unsilting): SMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sud)
1	Shwebo Main Canal (SMC) (at essential parts)	25,000	37,500
2	SMC, Dy-1, Minor 7	12,500	2,500
3	SMC, Dy-3	15,000	3,000
4	SMC, Dy-3, Minor 2	12,500	2,500
5	SMC, Dy-3, Minor 3	12,500	2,500
6	SMC, Dy-3, Minor 4	7,500	1,500
7	SMC, Dy-3, Minor 5	12,500	2,500
8	SMC, Dy-6, Minor 1	15,000	3,000
9	SMC, Dy-6, Minor 1-B	22,000	5,500
10	SMC, Dy-6, Minor 2	25,800	4,500
11	SMC, Dy-6, Minor 3	8,900	2,500
12	SMC, Dy-7 (From RD- 36/500 to RD- 53/500)	16,500	8,000
13	SMC, Dy-7, Minor 2	23,000	7,000
14	Moke So Gyone Branch Canal (MBC) (at essential parts)	15,000	22,500
15	MBC, Dy-3	25,000	5,000
16	MBC, Dy-3, RD 28/0 to 65/0	37,000	30,000
17	MBC, Dy-4 RD 25/0	25,000	5,000
18	MBC, Dy-4, Minor 4, RD 10/0 Tail	50,000	10,000
19	MBC, Dy-5 (at essential parts)	20,000	30,000
20	MBC, Dy-5, RD 10/0 to 32/300	22,300	15,000
21	MBC, RD 55/0 to 90/0	35,000	40,000
22	MBC, WC between DY-4 and DY-5	1,500	17,500
23	Hla Daw Branch Cana (HBC) (at essential parts)	15,000	22,500
24	HBC, Dy-1	12,500	2,500
25	HBC, Dy-1 (at essential parts)	15,000	22,500
26	HBC, Dy-1, Minor 1	7,500	1,500
27	HBC, Dy-1, Minor 4	62,500	12,500
28	HBC, Dy-2	17,500	3,500
29	HBC, Dy-3, Minor 6, 7, 8, Tail	50,000	10,000
30	HBC, DY-3, Minor 8	8,000	1,500
31	HBC, Dy-3, RD 45/0 to Tail	87,500	17,500
32	HBC, Dy-3, WC-12	300	800
33	HBC, Dy-5 (at essential parts)	10,000	22,500
34	HBC, DY-5, Minor 3 & 5	24,800	18,600
35	HBC, Dy-5, RD 0/0 to 24/0	24,000	15,000
36	Other canals	500,000	125,000
	Total	**1,384,635**	**596,900**

Upgrading of canal (lining) SMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sq-ft)
1	Main canal	43,000	1,661,000
2	MBC	18,000	786,000
3	HBC	25,000	1,237,000

No	Description	Length / Volume	
		(ft)	(sq-ft)
4	Dy canal SMC DY (1), SMC DY (1-A), SMC DY (2), SMC DY (3) SMC DY (4), SMC DY (5), SMC DY (6), SMC DY (7) SMC DY (8), MBC DY (1), MBC DY (2), MBC DY (3) MBC DY (4), MBC DY (5), HBC DY (1),HBC DY (2) HBC DY (3), HBC DY (4), HBC DY (5), Minor canal which connected land consolidation area	176,000	6,674,000
	Total	**262,000**	**10,358,000**

Upgrading of canal (Resectioning, Unsilting and lining) YMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sud)
1	YMC	111,500	100,000
2	DY (1)	11,500	2,000
3	DY (3)	9,550	2,000
4	DY (4)	22,025	8,000
5	DY (4-A)	7,050	2,000
6	DY (5)	3,750	1,000
7	DY (6)	1,400	1,000
8	DY (7)	23,950	7,000
9	DY (8)	5,400	1,000
10	DY (9)	10,250	2,000
11	DY (10)	2,600	1,000
12	DY (11)	12,700	3,000
13	DY (12)	9,200	2,000
14	DY (13)	2,550	1,000
15	DY (14)	3,500	1,000
16	DY (15)	14,120	3,000
17	DY (15-A)	7,600	2,000
18	DY (16)	9,000	1,000
19	DY (17)	2,250	1,000
20	DY (18)	11,000	2,000
21	DY (19)	9,350	1,000
22	DY (20)	7,400	1,000
23	DY (21)	5,550	1,000
24	DY (22)	5,550	1,000
25	DY (23)	3,000	1,000
26	DY (24)	4,500	1,000
27	Tail DY	20,500	10,000
28	Ma Ya Kan Branch Canal (MBC)	47,750	43,000
29	MBC DY (1)	9,600	2,000
30	MBC DY (2)	8,300	1,000
31	MBC DY (3)	9,900	2,000
32	MBC Dy (4)	22,450	6,000
33	MBC DY (5)	24,750	8,000
34	MBC DY (7)	22,650	5,000

No	Description	Length / Volume	
		(ft)	(sud)
35	MBC DY (9)	12,500	1,000
36	MBC DY (11)	6,025	1,000
37	MBC DY (12)	5,750	1,000
38	MBC DY (13)	24,000	6,000
39	MBC Tail DY	21,250	5,000
40	Other Canals	200,000	127,000
	Total	**751,670**	**367,000**

Upgrading of canal (lining) YMC Irrigation System

No	Description	Length / Volume	
		(ft)	(sq-ft)
1	Main canal	67,000	2,221,000
2	MBC	29,000	650,000
3	Dy canal and DO canal	100,000	1,752,000
	DY (1), DY (3), DY (4), DY (4-A), DY (5), DY (6), DY (7), DY (8), DY (9), DY (10), DY (11), DY (12), DY (13), DY (14), DY (15), DY (15-A), DY (16), DY (17), DY (18), DY (19), DY (20), DY (21), DY (22), DY (23), DY (24), Tail DY, MBC DY (1), MBC DY (2), MBC DY (3), MBC Dy (4), MBC DY (5), MBC DY (7), MBC DY (9), MBC DY (11), MBC DY (12), MBC DY (13), MBC Tail DY, Minor canal which connected land consolidation area		
	Total	**196,000**	**4,623,000**

Detail Project Scope of Water management & flood monitoring system (equipment procurement)

Flood monitoring & water management system

No	Description	unit	Quantity
1	Monitoring system for Water management improvement (Rainfall gauge, water level gauge, flow meter, data transmission system, monitor and recording system)	LS	1
2	Monitoring system for flood management improvement (Rainfall gauge, water level gauge, flow meter, data transmission system, monitor and recording system)	LS	1