REPORT ON THE EX-POST EVALUATION STUDY

ON

URBAN WATER SUPPLY DEVELOPMENT PROJECT

UNDER THE JAPANESE GRANT AID

(1981-PHASE I, 1985-PHASE II AND 1995-FOLLOW UP)

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REPORT PREPARED FOR

JAPAN INTERNATIONAL CO-OPERATION AGENCY

MYO
J R

20th January, 1999

JAPAN INTERNATIONAL COOPERATION AGENCY.

JICA MYANMAR OFFICE.

Dear Sir,

We are pleased to submit our report on the ex-post evaluation study on Urban Water Supply Project under the Japanese Grant Aid (1981-Phase I, 1985-Phase II and 1995-Follow-up). This Study is in accordance with our agreement made on October 7, 1998.

We wish to take this opportunity of thanking you, Department of Development Affairs, the staff of the Engineering Department and the Township Development Committees for the assistance given during our studying period.

Yours Faithfully,

Soe Oo

Team Leader.


1203772 [7]

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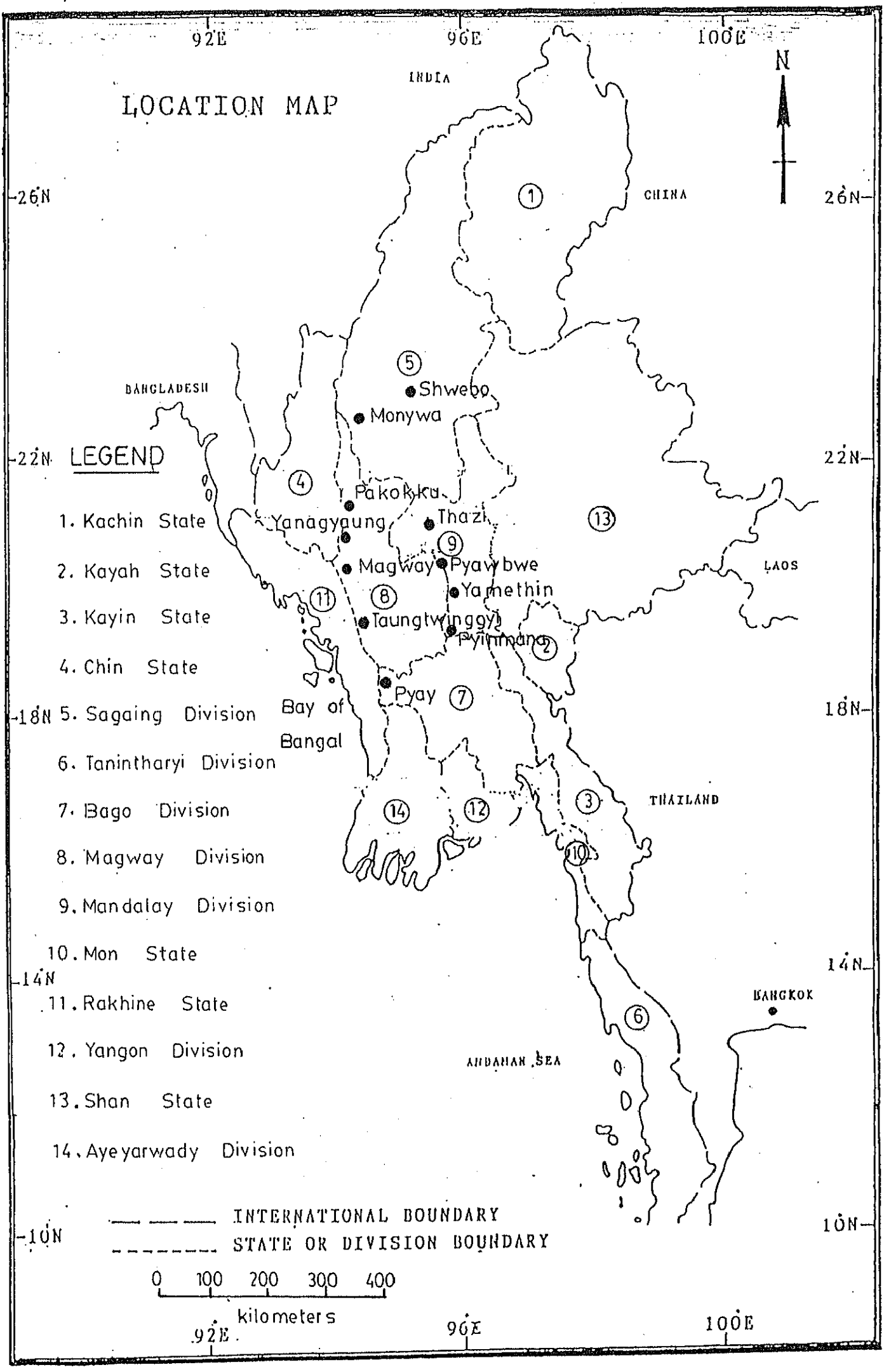

LOCATION MAP
92E
96E
100E
N
INDIA
CHINA
26N
22N
18N
14N
10N
BANGLADESH
LAOS
THAILAND
BANGKOK
ANDAMAN SEA
Bay of Bangal
Shwebo
Monywa
Pakokku
Yanagyaung
Thazi
Magway
Pyawbwe
Yamethin
Taungtwinggyi
Pyinmana
Pyay
LEGEND
1. Kachin State
2. Kayah State
3. Kayin State
4. Chin State
5. Sagaing Division
6. Tanintharyi Division
7. Bago Division
8. Magway Division
9. Mandalay Division
10. Mon State
11. Rakhine State
12. Yangon Division
13. Shan State
14. Ayeyarwady Division
INTERNATIONAL BOUNDARY
STATE OR DIVISION BOUNDARY
0 100 200 300 400
kilometers

Back Ground History of Water Supply Project.

It is found that Water Supply in Myanmar existed since 1951. Respective Municipal Committee and Town Committee carried out the Water Supply System. Around in the year 1965. The Construction Corporation took out the main construction work where as the distribution and maintenance was done by the respective Municipal and Town Committee.

The Water Supply system was carried out according to the Local Situation and financial condition. Only partially Water Supply System could achieved in towns due to the said condition. Due to the growing population and financial conditions, water supply in towns couldn't extended properly. That was the main cause of Water Supply Shortage.

In the year 1980, International Drinking Water Supply and Sanitation Decade was aimed and targeted in Myanmar. The targeted project was that every people of Myanmar would achieved the benefit of Water Supply and Sanitation System by the year 2000. In the same year, the Japanese Government had extended to aid Water Supply Scheme in Myanmar. According to the extended proposal, the Myanmar Government agreed to implement in 10 Towns. A delegation was sent by the Japanese Government to study the proposal in 1981. During the year 1981 financial year Japan International Cooperation Agency (JICA) had extended aid amounting to Japanese Yen 830 million for the first phase water supply scheme of Magway and Pyay.

The agreement was signed on October 10, 1981. According to the agreement Water Supply Materials were purchased by the 1982-83 financial year.

Previously, the General Administration Department of the Home and Religious Affairs Ministry with the engineers of the town development, implemented the project, by opening Water Supply Project Office.

As the allotted 830 Million Yens is not sufficient for the implementation of Pyay and Magway Water Supply, and to have further grant for other towns water supply, note for a guide line was put up at the Prime Minister's Office. For the completion of Magway and Pyay Water Supply Project, the Prime Minister's Office advised to carry out with joint Cooperation of Foreign Economic Relation Department (FERD). The Prime Minister's Office further advised to carry out the remaining Town Water Supply Scheme. After consulting with FERD.

According to the Prime Minister's Office recommendation a proposal was put up to the Japanese Government through FERD for the supplementary grant for Pyay and Magway town and for the remaining town Water Supply Scheme coded phase II.

A delegation to study and survey was sent in June and September 1984 by the Japanese Government with the cooperation of FERD. A report was put up to the Japanese Government by JICA in February 1985.

A Japanese Government delegation was sent in February 1985 to consult the Water Supply Scheme for 10 towns as proposed earlier. The delegation proposal for the said town was as follows.

(a) Bago Town

Being the big town, a separate proposal should put up as the cost would be high on account of substitution of pipes and widening of Lake.

(b) Taungoo Town

Not to put in priority list as sufficient portable water is available.

(c) To give priority in Phase II to Yenangyaung, Taungdwingyi and Yamethin towns is enough drinking water is not available.

(d) To have additional grant for expenses required for the Japanese consulting Engineer as the Water Supply Scheme Phase II for 9 towns, should implemented simultaneously.

The following 9 towns is included in Phase II water scheme.

(a) Pyinmana
(b) Yamethin
(c) Pyawbwe
(d) Thazi
(e) Shwebo
(f) Monywa
(g) Pakokku
(h) Yenangyaung
(i) Taungdwingyi

Among the above 9 towns, water resources for 8 towns is from ground water, where as Yenangyaung town water resource is from gallery well.

A joint agreement for 2690 million yens, grant was signed by the two parties for the complete implementation of 9 towns as well as Pyay and Magway town as proposed and recommended by JICA.

According to the agreement, Kyowa Engineering consultant Co, Ltd. Was hired by the Japanese government approved by the Minister's Office to implement the said projects amounting 145 millions yens. Project design detail survey and required materials were done by the Japanese Engineers and Myanmar Engineers, starting in the early August 1985. Material required to import form

foreign was done in the financial year 1985-86 and 1986-87.

Main project office was opened in Yangon Urban Water Supply Office to have proper supervision Executive Engineer office were also opened at Pyawbwe town in Mandalay division, Monywa town in Sagaing division, Magway town in Magway division.

Project implementation had come to a successful completion in Magway and Pyay towns in the year 1985-86 following by proper distribution. The successful completion Phase II Water Supply of 9 towns was as proposed in 1989-90 followed by systematic distribution.

The total expenditure for Phase I Water Supply Project at Pyay and Magway is 69.90 million kyats including Japanese Yen 1120 million. The expenditure for Phase II for 9 towns Water Supply Scheme is 176.49 million kyats including Japanese 2400 million. The detail expenditure is attached as per Annexure (E).

On completion of the above 11 towns project 107230 cubic metor of water can be distributed daily for the consumption of 685100 people in those towns. It upgraded the status of people, sanitation and economy.

After the completion of the said project, 6 drilling rigs with spare parts plus pipes and accessories left by the project is still at hand of Development Department Head Office. With the help of 6 drilling rigs, tube wells were dug accordingly. The requirement of towns by the Development Department Head Office, the total dug wells up to date is (179) nos. The detail number of dug well is attached a Annexure (F).

The Water Supply Project Phase I & II aided by the Japanese government was implemented in towns, solely by head quarter water supply office which is under the General Department. To make Urban and Rural Development undertaking more dynamic and effective, the township development committee have been placed under the control of reorganized Ministry for Progress of Border Area and National Races and Development Affairs since 30 January 1994. A separate department named Department of development affairs was also formed on the same day to direct and surpervised the township development committee. All the staffs of Water Supply Office Head Quarter were transferred to the Department of Development Affairs. The Water Supply Office was renamed as Engineering Department. The Engineering has (27) officers (214) office staffs is divided in 3 sections namely, Water Supply and Sanitation, building roads and bridges and stores and vehicles. The organization and set up is enclosed here with Annexure (G) and (G-1). The surplus pipes left by the Japanese aid project of 11 towns were also distributed to 17 towns for Water Supply. Though spare parts purchased for the drilling rigs were sufficient during project period, it is found that most the spare parts were exhausted after drilling (179) numbers of tube well. The efficiency of rigs also

dropped due to heavy work done, since 1983. Due to the lack of original parts and pumps, the Department of Development Affairs had put up a proposal through FERD to the Japanese government to grant spare parts for the drilling rigs and motor pumps. The Japanese government had granted 17 million yens for drilling rig's spare parts and motor pumps.

A number of 5 drilling rigs of 6 is in service drilling tube well in States and Divisions repaired with the spare parts. Supply the remaining rigs is also having major repair in engineering department workshop. It is found that due to some local made spare parts, the drilling machine couldn't drill up to 300 meter as its original capacity only 50 % of the capacity is achieved. The spare parts granted in Phase III and its consumption is shown by annexure (H).

Starting from 1997 supply drinking water to rural areas other than urban areas had been carried out with the joint cooperation of UNICEF and respective town development.

Department of Development Affairs had proclaimed the year 1999 to 2000 as road, bridges and drinking water years. It is to implement road bridges and water supply in urban areas and rural areas. The aim targeted to supply pure drinking water to the entire nation in the year 2000 according to the Union of Myanmar Water Supply Scheme.

Though, above Water Supply Scheme is running with cooperation of community and the government, it is found that due to financial difficulties and lack of materials. The task cannot be done in time. To have the task in time, a further proposal for 16 towns Water Supply Project Phase III was put up through FERD to the Japanese government after completion of Phase II. As no reply have received a further proposal was put up in the year 1993. Nothing have been done up till now.

The government department of Myanmar is implementing their respective water supply according to their respective plan. Yangon City development committee, Mandalay City development committee, Human Settlement and Housing Development Department, 286 towns Development Committee other than Yangon and Mandalay hospital Nursing and Home and Dispensaries has their respective Water Supply Scheme.

Water Supply for rural areas had been carried out with the joint cooperation of UNICEF, township development committee and Water Resources Utilization Department (WRUD). In addition to the said programme 11 township village tract has benefitted drinking water sponsored by Human Development Initiative (HDI) since 1996.

According to the 1994 statics, people in township enjoyed (49.30 %) of drinking water and those of rural area enjoyed up to (44.18 %) although the Government Department and the community are doing their best.

After seeing the above coverage, all out support from every corner is earnestly sought for the targeted Water Supply Scheme.

WATER SUPPLY WORK

IN

PYAY

WATER SUPPLY WORK IN PYAY

Pyay Town is situated on the north side of Yangon and have a distance of about 250 kilometer. The town is on the east side bank of River Ayeyarwaddy. The area of town is 20.75 sq kilometer, having 8 wards. The population is about 104873in 1998.

Water supply of Pyay was established during the second world war, by storing water in settling tank bailed from Ayeyarwaddy river. Water from settling tank is pumped to the elevated tank and distribution is done by gravity flow system. The distribution system is shown in the attached diagram.

This system is still in service and attained 6363 cubic meter (1.4 million gal) per day which benefited 52270 people of 4 wards.

Pyay water Supply scheme was done by the grant aid of the Japanese Government Phase I, starting in the year 1982-83. Water was secured from 15 nos. of 200 mmø ground water, which has the capacity of 14700 cubic meter per day. The project was completed in the year 1986-87 financial year.

According to the project, 4 wards enjoyed the benefit of river water and the remaining 4 wards enjoyed the benefit of ground water which has the capacity of 14700 cubic meter per day.

Pyay Township Development Committee is supplying water by erecting 208 stand pipes and 4735 house hold connecting distributing 11000 cubic meter of water per day.

Water supply of Pyay Town is systematically supervised and maintained by the following departmental employees.

Sub- Assistant Engineer	-	1 No.
Inspector	-	1 No
Mechanic	-	1 No.
Pump Operator	-	15 Nos.
Tax Collector	-	2 Nos.

The collected fund and expenditure for the last 3 year of Pyay Town is as follows:-

Fiscal Year	**Income (Kyats)**	**Expenditure (Kyats)**
1995-96	42980500	22323000
1996-97	49437000	26051000
1997-98	58396000	32015000

The collected water tax and fees and the expenditure for water supply system from the above mentioned data is as follows:-

Fiscal Year	Income (Kyats)	Expenditure (Kyats)
1995-96	4423400	1789700
1996-97	5116800	2728000
1997-98	6352000	2253700

General Review

At present, among 15 tube wells, only 10 wells are still in proper service. The function of 2 tube well has to be stopped due to insufficient source of water and deterioration of its motor and pump. The other stopped 3 wells are due to the motor burnt on account of power droppage.

The running 10 wells couldn't be run properly for the required 18 hours a day, due to the stoppage of electricity.

About 3 nos. of submersible mortor pump has been on substituted up to now. Among 15 control pannel which is attached with submersible mortor pump, only 12 is in running condition. Other than that 8 circuit breaker has been destroyed of 15 at the time of the project.

According to the public comment, the supply of water at public stands are very minimum between 15 min and 30 min distribution 50 to 70 gal of water per day. The house hold connection also can supply only 100 to 200 gal of water per day.

The above mentioned shortage are due to insufficient source of water, achieved from the dug wells which is much difference, achieved by the time of the project.

Time required of 18 hours per day is not possible due to the frequent stoppage of power.

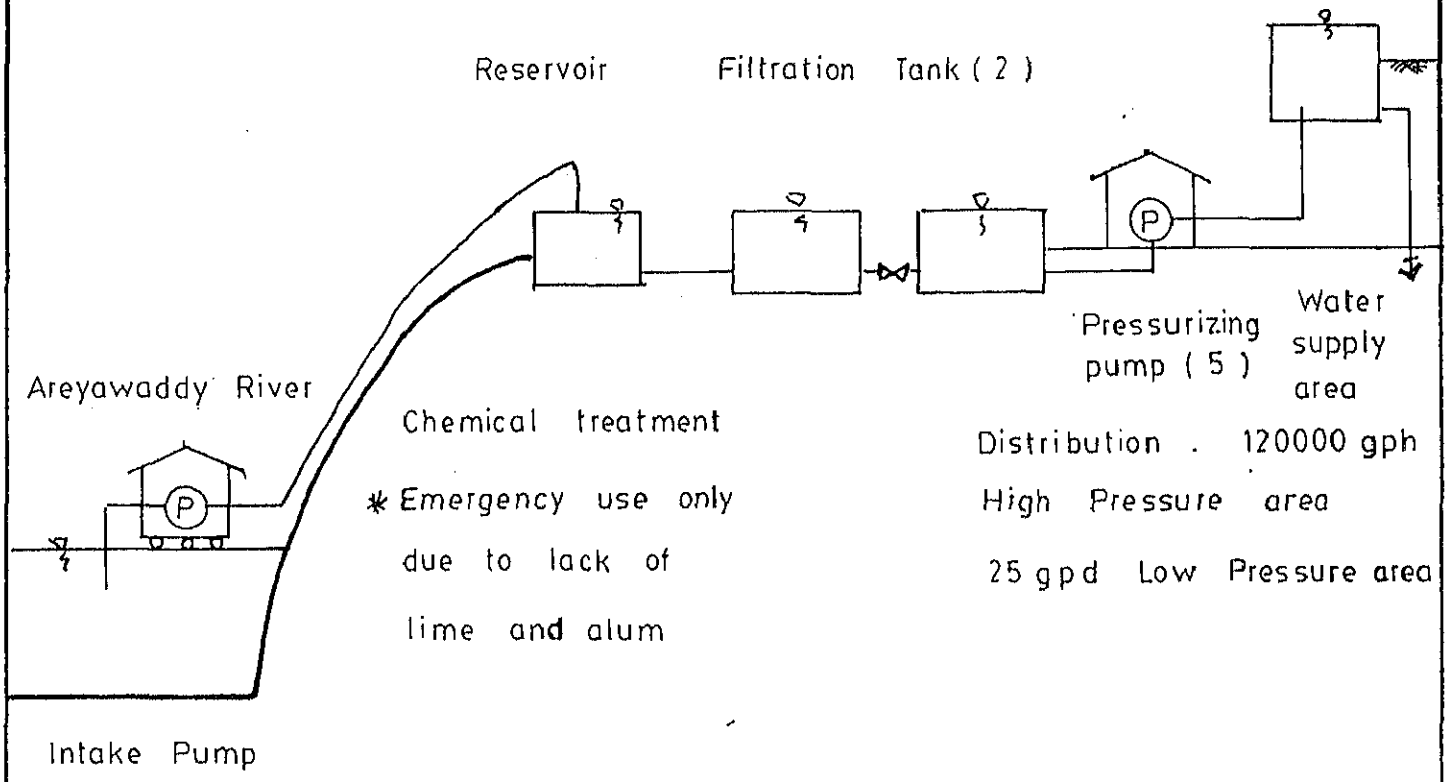
Due to frequent repair of control pannel and local made spare parts, which limited the durability.

The map of Pyay Town water supply project aided by the Japanese Government is enclosed here with Annexure (A).

A further, recorded photos of the present water supply situation is also attached here with Annexure (B).

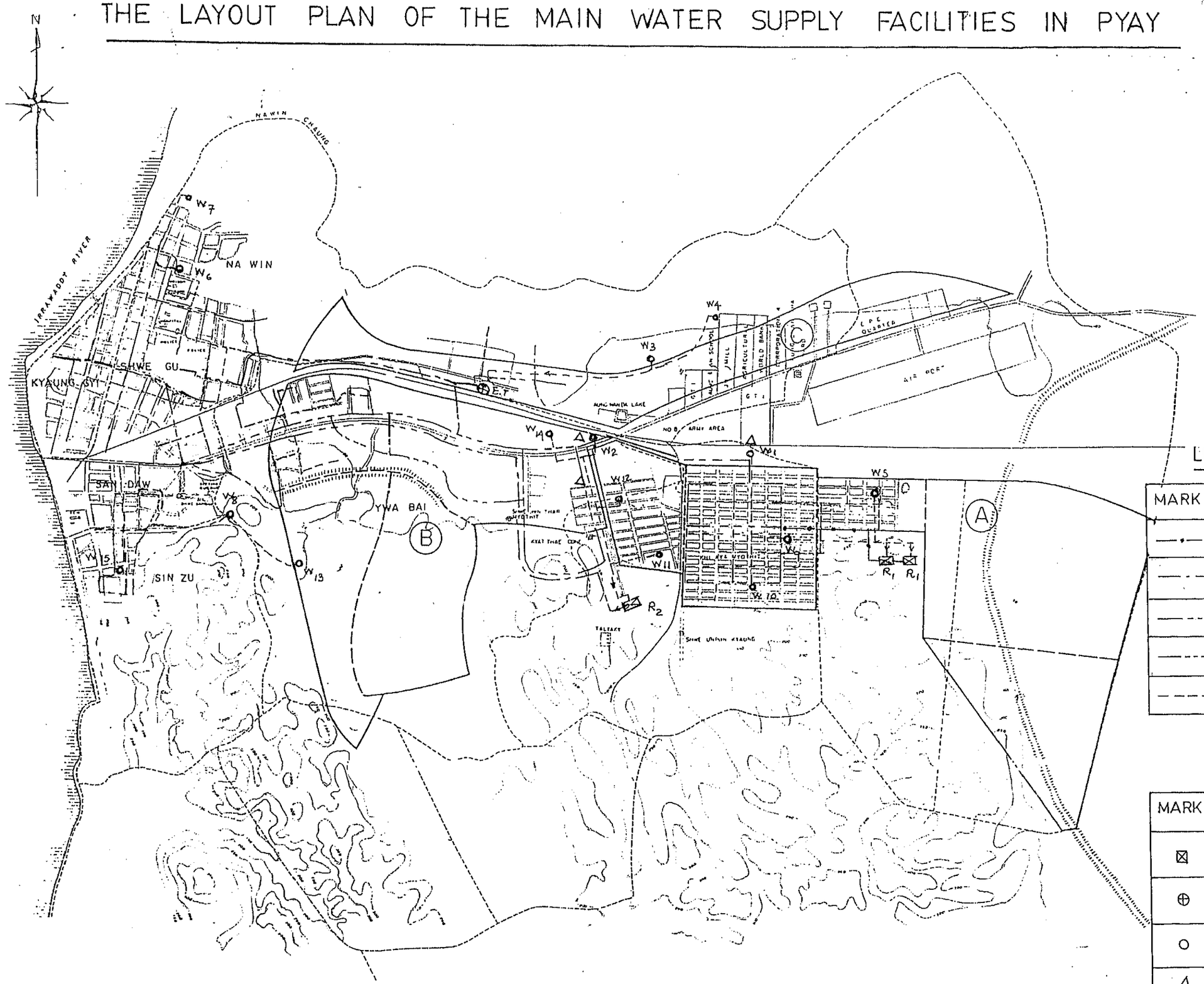
The quantity list of main facilities used in the project is attached here with Annexure(C).

EXISTING RIVER WATER SUPPLY SYSTEM



THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN PYAY

Annexure (A)



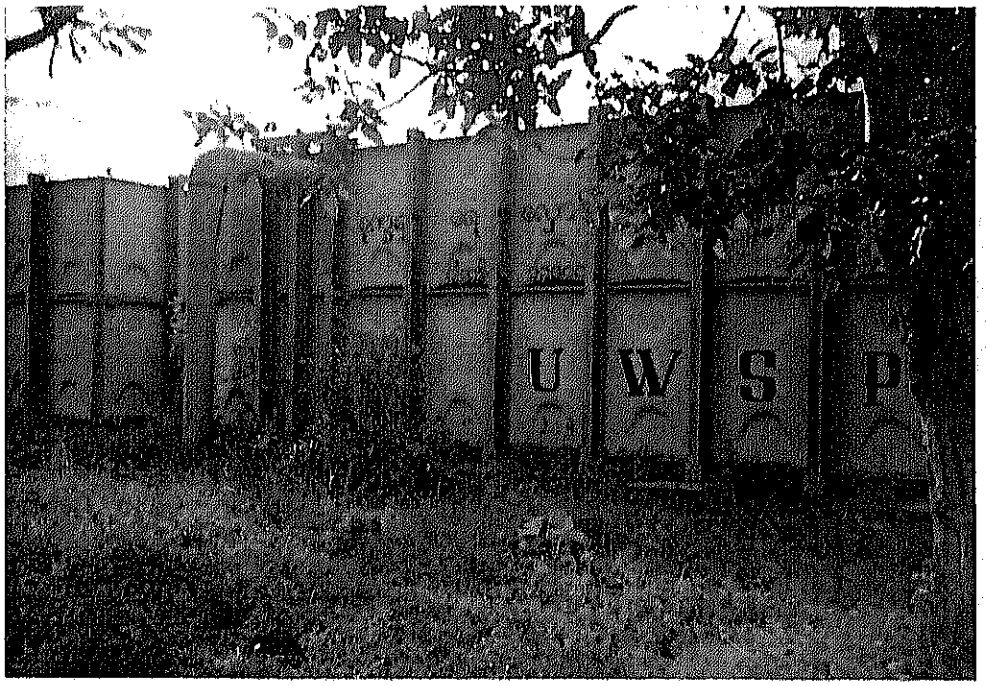
LEGEND

MARK	DIA (mm)
—•—•—	300
—·—·—	250
—— ——	200
— — —	150
– – – –	100

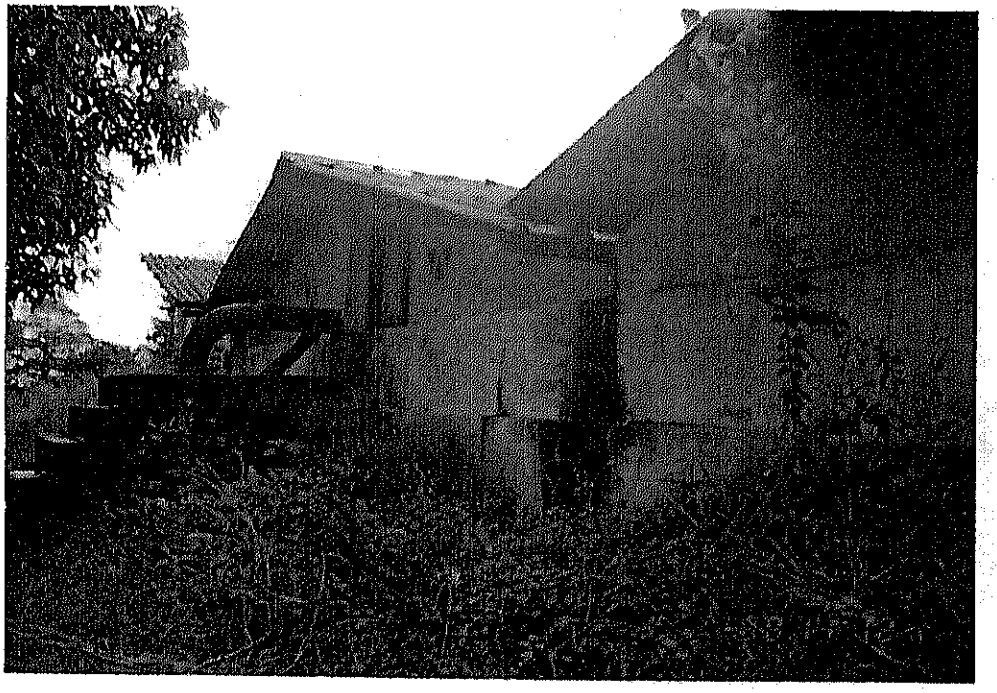
MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

SCALE

CONTOUR LINE (FEET)

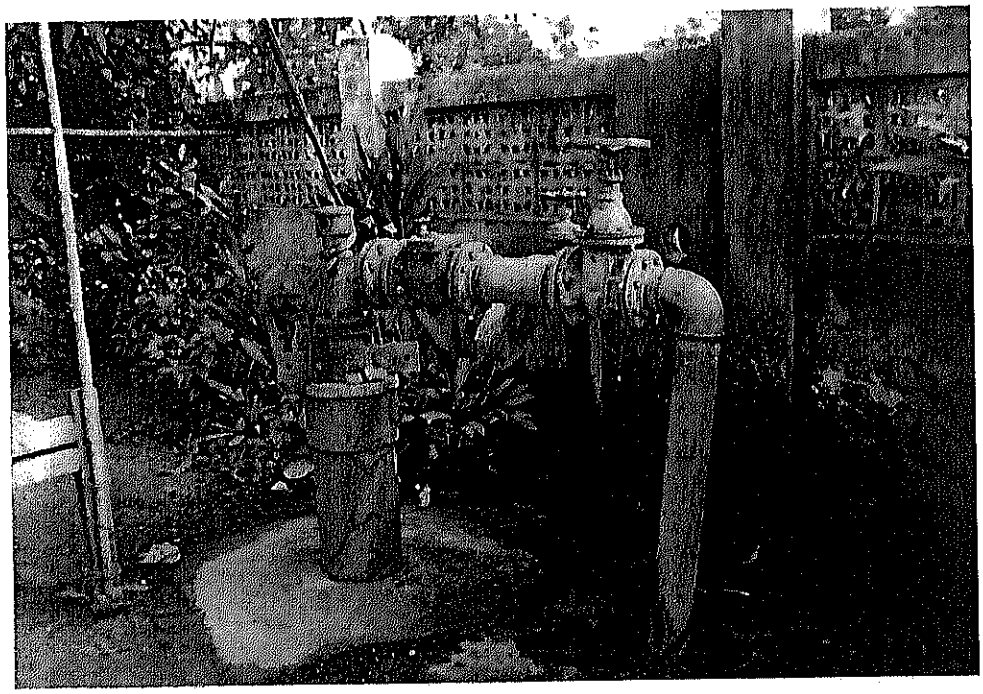


TWO GROUND F.R.P TANKS OF EACH 150 M^3 CAPACITY
INSTALLED ON ONE OF THE HIGH LAND PART OF PYAY

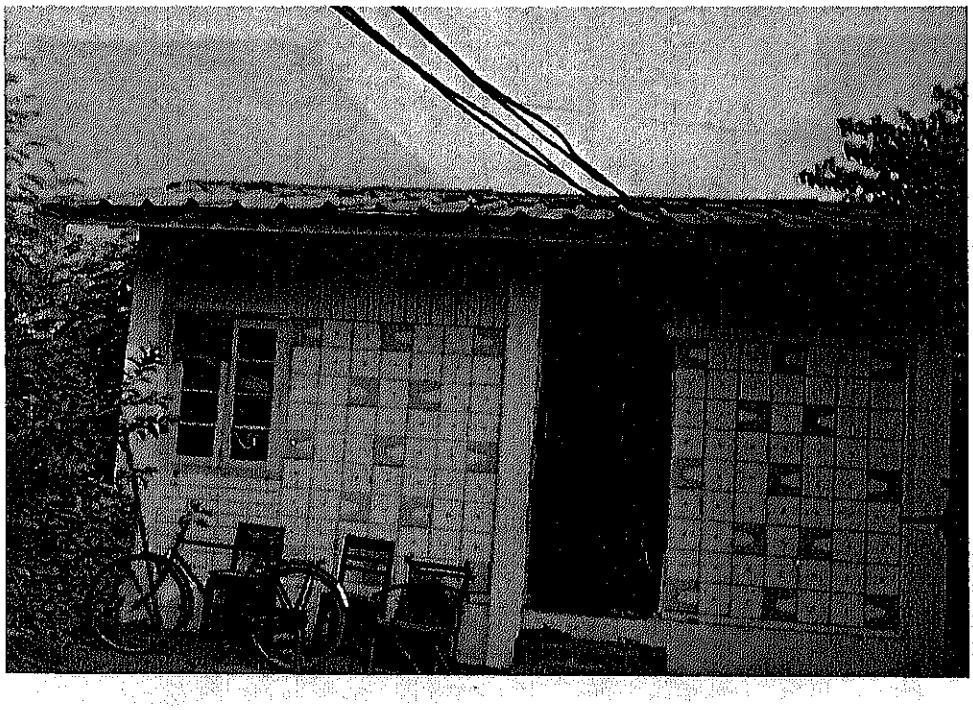


GROUND RESERVOIR. OF . 936 M^3 CAPACITY.

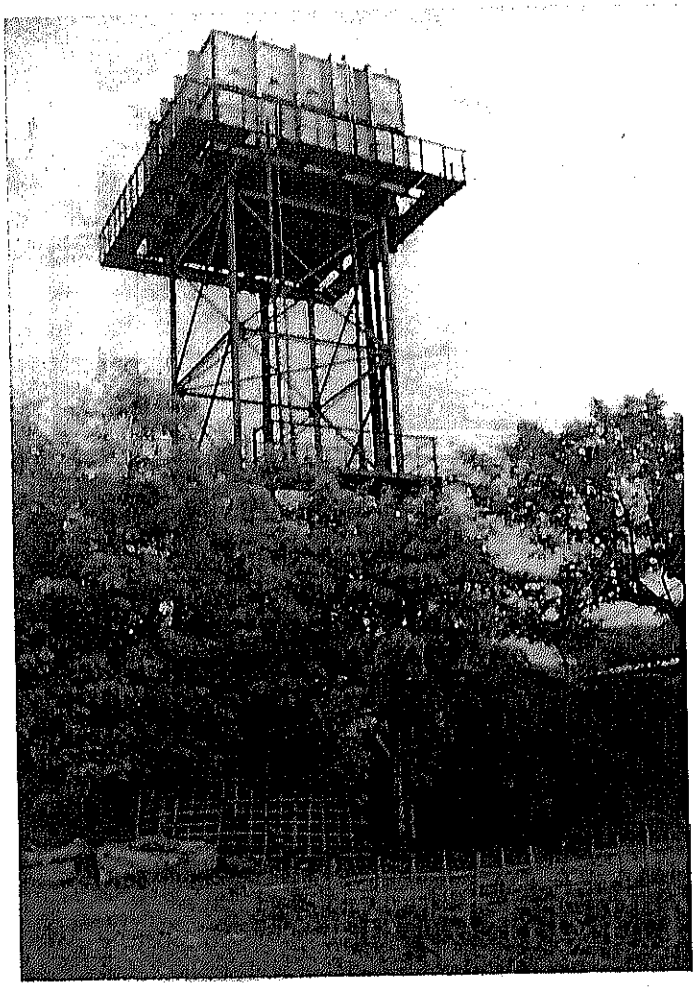
Annexure (B)



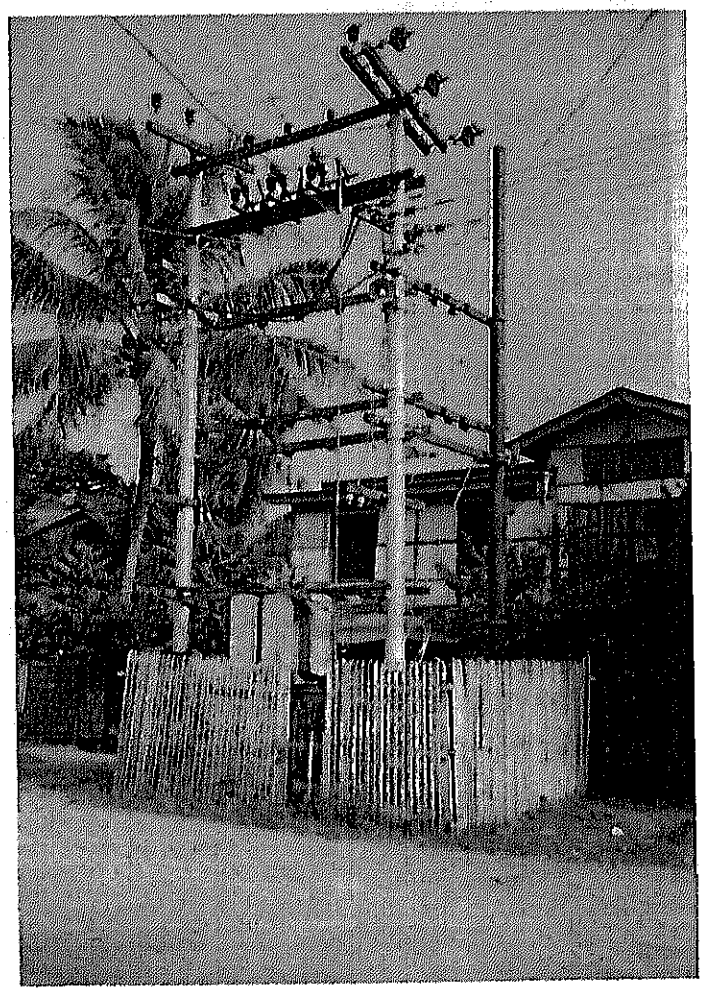
A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS.



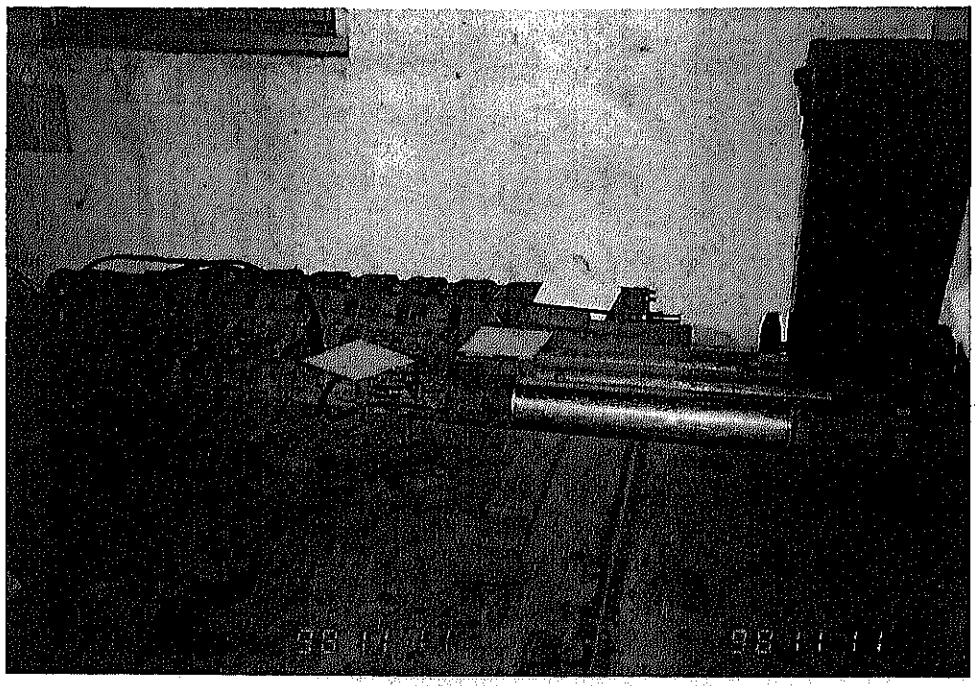
FRONT VIEW OF THE PUMP HOUSE



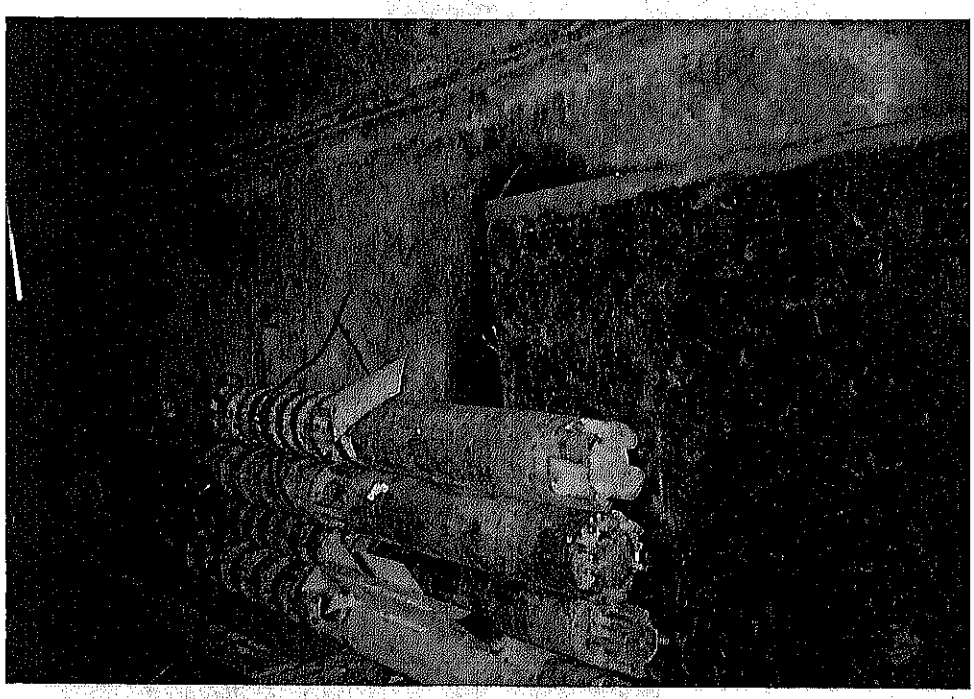
ELEVATED. F. R. P TANK
OF 35 M^3 CAPACITY



A TRANSFORMER

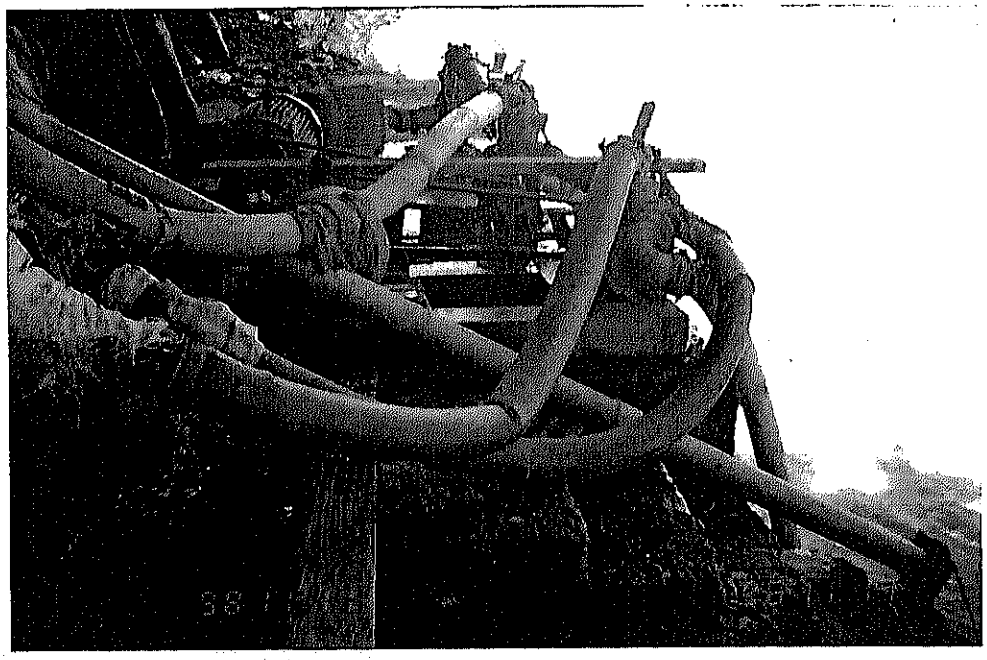


UNSERVICIEABLE SUBMERSIBLE PUMPS

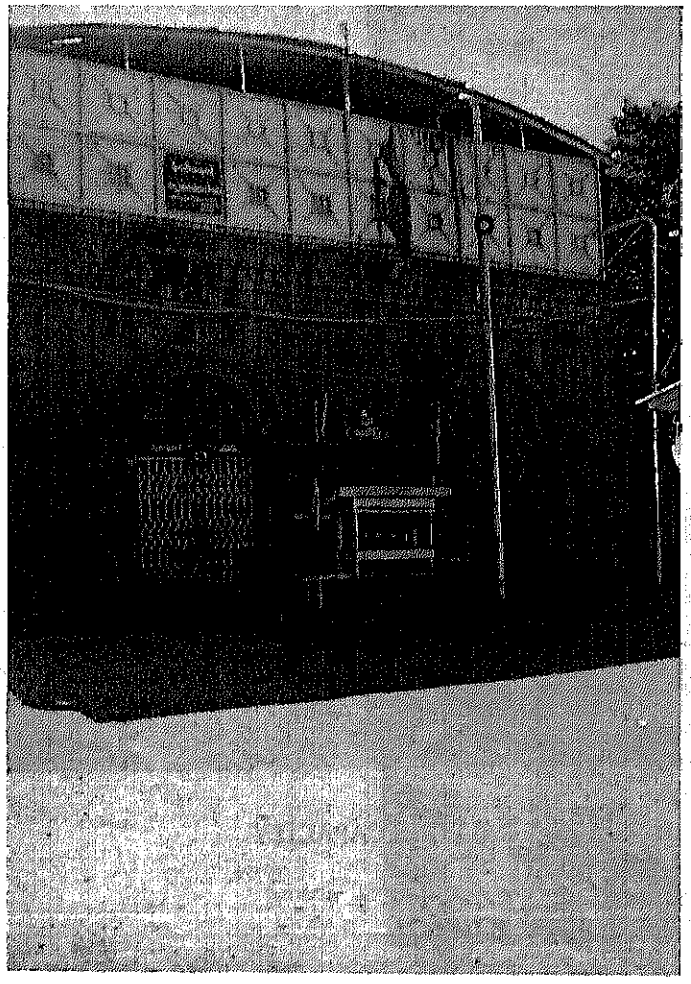


UNSERVICIEABLE SUBMERSIBLE PUMPS

RIVER WATER SUPPLY SYSTEM

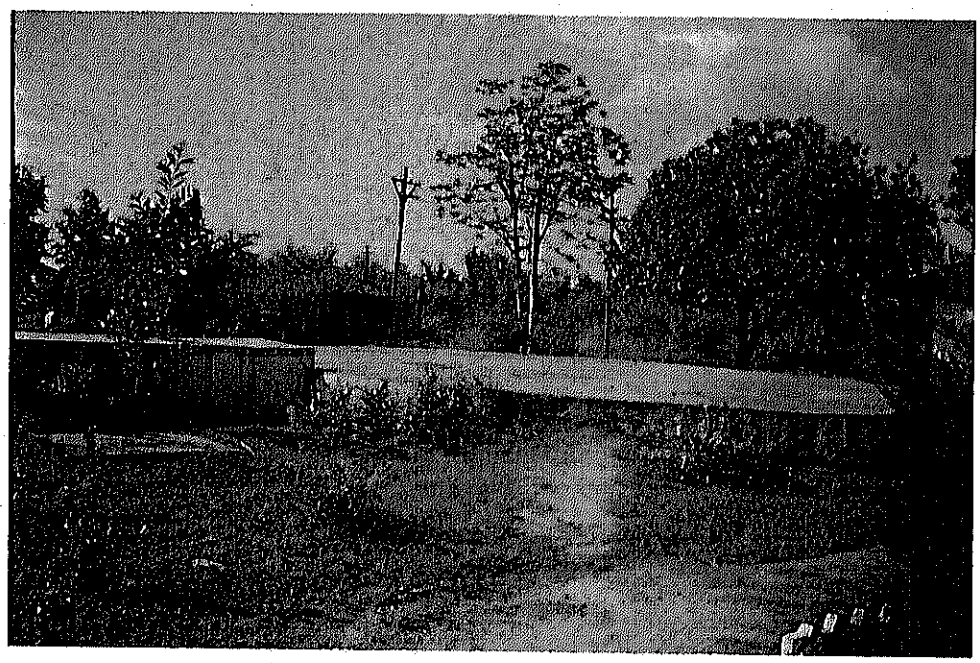


PUMP STATION NO .(1)

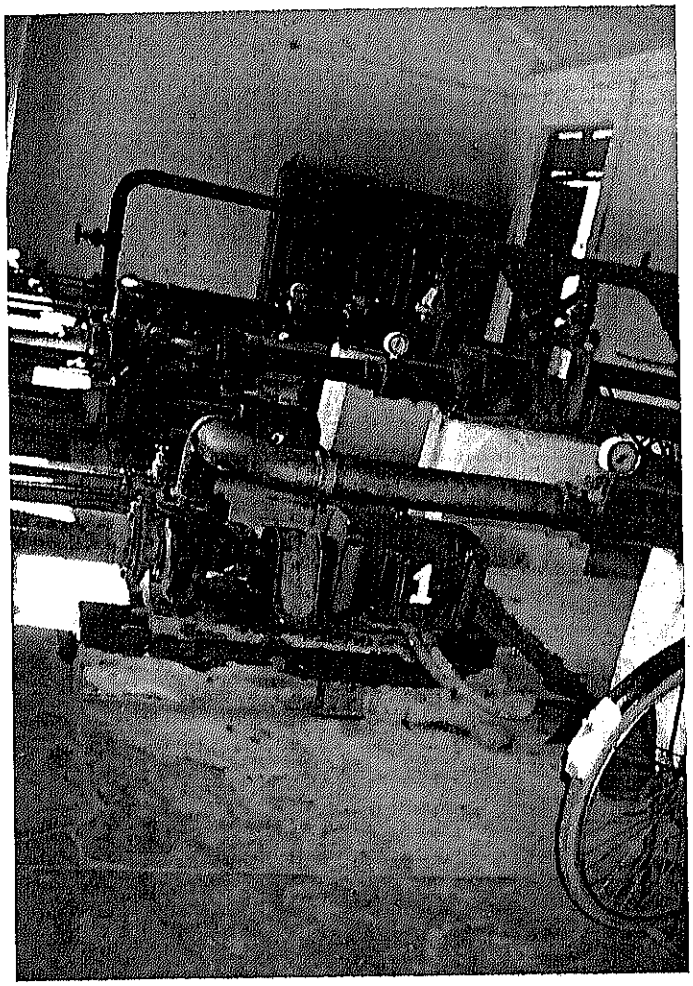


ELEVATED TANK OF 1,28,000. GALLONS CAPACITY.

PUMP STATION NO. (2)

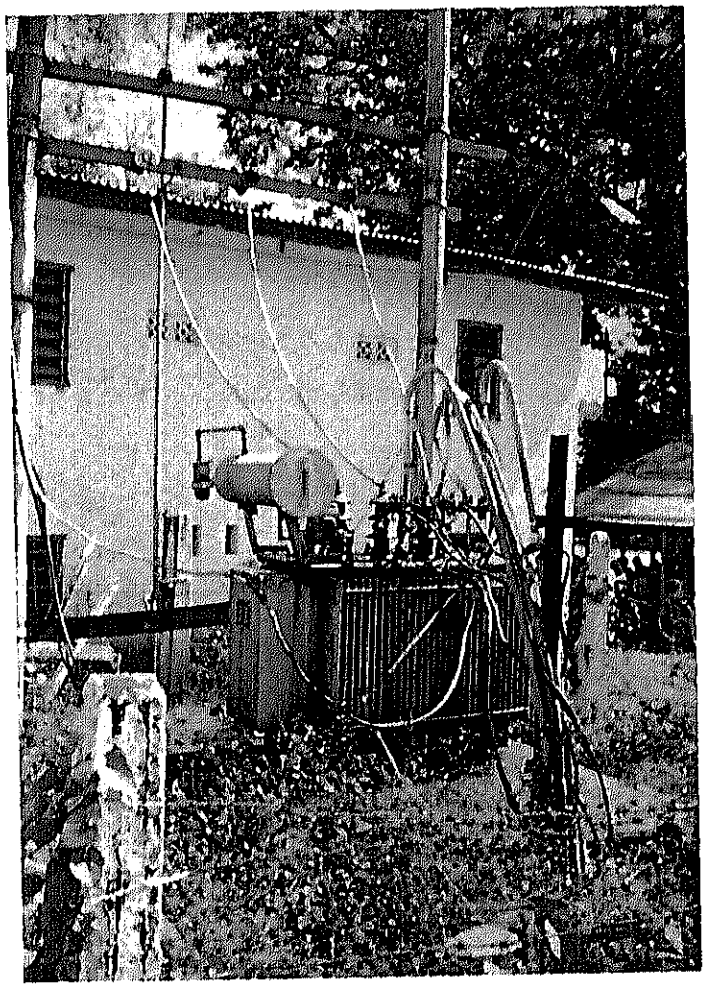


GROUND RESERVOIR OF 50,000. GALLONS CAPACITY



BOOSTER PUMPS
INSTALLED IN PUMP
STATION

A. TRANSFORMER



WATER SUPPLY WORK

IN

MAGWAY

WATER SUPPLY WORK IN MAGWAY

Magway town is the Divisional head quarter of Magway Division. It is about 530 km far from Yangon. It has an area voice of 14.84 Square-Kilometer consisting of 14 wards. According to 1998 census the population of Magway town is 57496.

Previously, water was distributed by than National Housing Board in the year 1962-63. Water is pumped from Ayearwaddy river to tank and distribution to public is done by gravity flow system.

Magway water supply scheme was done by the Grant Aid of Japanese Government Phase I starting in the year 1982-83. Water was secured by ground water resources. A number of 17, 250mm ø of production wells were drilled.

Water supply project was completed in the year 1986-87, followed by systematic distribution. According to the design period for 1991, a population of 60834, consuming 12863 m^3 (2.83 million - gal) per daý was achieved. The Ayeyarwaddy river water supply system was abolished after the completion of ground water supply system in the year 1987.

Though, after completion of the project, the said wells were capable to supply 12863 M^3 (2.83 million gal), at present it can supply only 4550 M^3 (1.0 million gal) per day. To add the necessary demand some private tube wells were drilled.

Magway Township Development Committee is providing water to consumers by erecting public stand pipes and house hold connection.

The status of water attained by two house hold is as follows:-

No.	Particular	House Hold No (1)	House Hold No (2)
1.	Name	U Zaw Than Oo	U Aung
2.	Family members	3 Nos.	7 Nos.
3.	Time for collecting water per trip	5 minutes	10 minutes
4.	Collected gallon per trip	8 gals	8 gals
5.	Number of trips	6 Nos.	7 Nos.
6.	Gallon of water collected	48 gals	56 gals

Water supply of Magway town is systematically supervised and maintained by the following Departmental employees.

Sub - Assistant Engineer - 1 No.

Mechanic - 2 Nos.

Pipe Fitter	-	5 Nos.
Pump Operator	-	19 Nos.
Tax collector	-	2 Nos.
Inspector	-	1 No.

The collected fund and expenditure for the last (3) years of Magway town is as follows.

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	21436000	10917000
1996-97	26647000	17095000
1997-98	36362000	18519000

The collected water tax and fees and expenditure for water supply system from the above mentioned data is as follows.

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	2627000	1575000
1996-97	3860000	1446000
1997-98	4476000	1856000

General Review

The main cause of shortage of fully distribution of water supply as per designed in Magway town is as follows.

(a) Due to insufficient source of water achieved from the wells compared to the amount achieved previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repair to control pannels and submersible motor pumps on account of power droppage.

(e) On account of local made spare parts, which easily dropped the efficiency of machines, as original spare parts are not easily available.

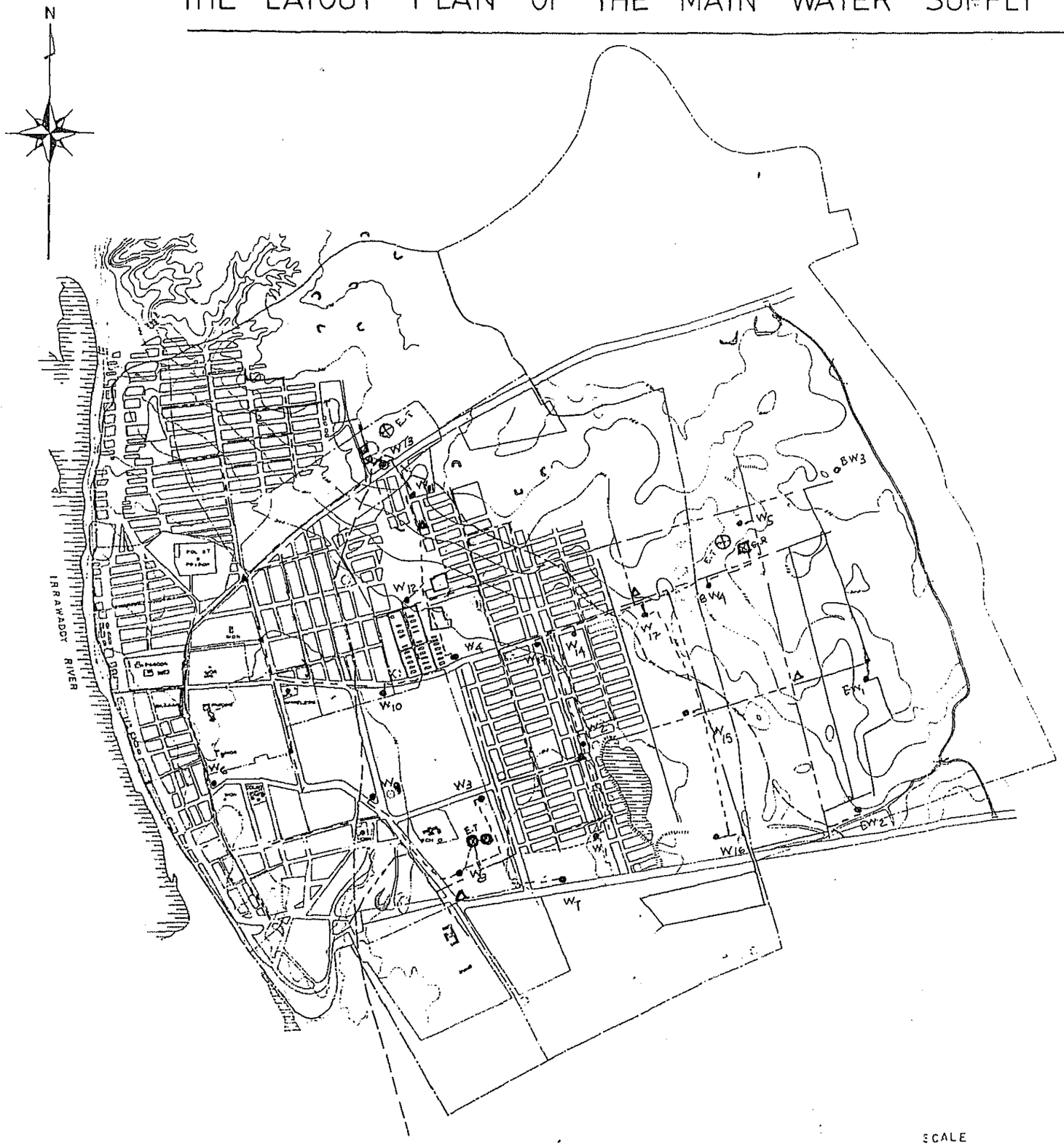
The map of Magway town water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annxure (B).

The quantity list of main facilities in the project is also enclosed here with Annexure. (C)

Annexure (A)

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN MAGWAY



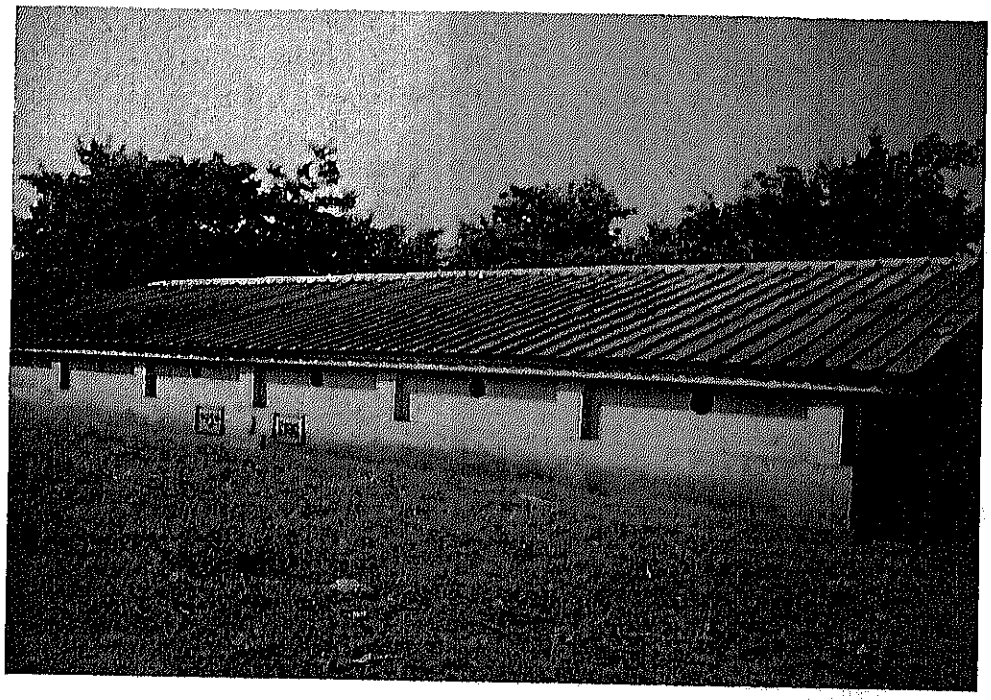
LEGEND

MARK	DIA (mm)
---·---·---	250
————	200
— — — —	150
- - - - -	100
———	75

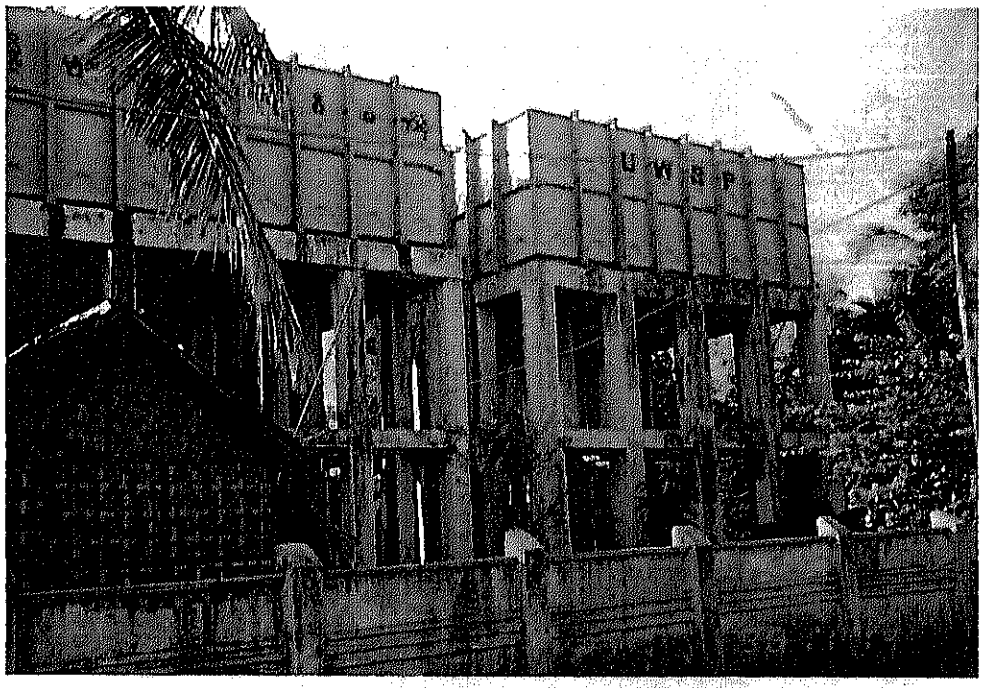
MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

SCALE

CONTOUR LINE (FEET)

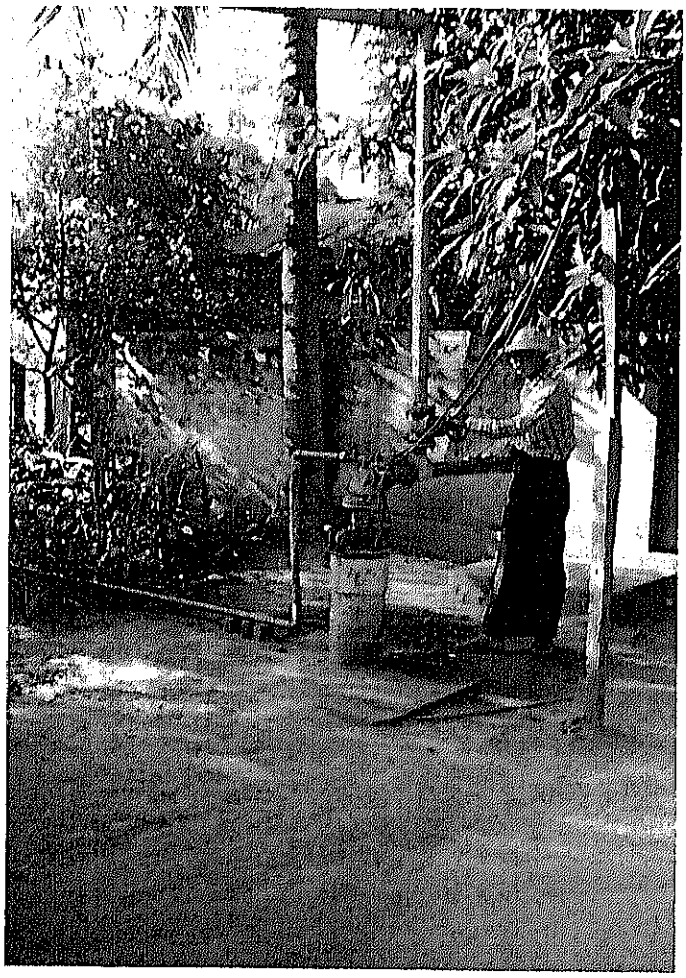


SIDE VIEW OF A GROUND RESERVOIR
(936 m^3) CAPACITY



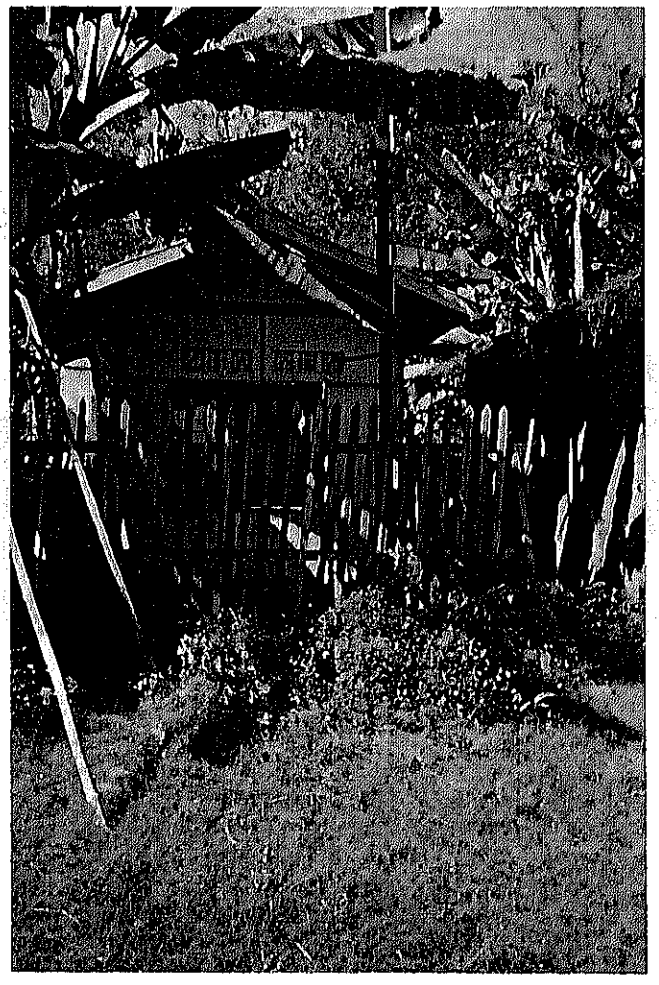
TWO ELEVATED F.R.P TANKS
OF EACH 150 M^3 CAPACITY.

Annexure (B)



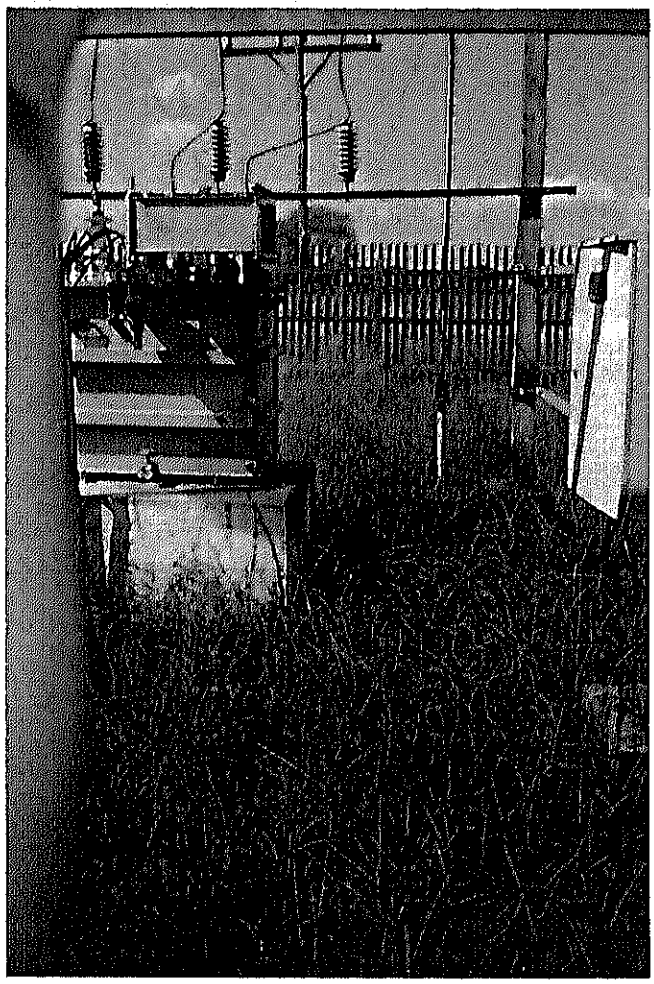
A SUBMERSIBLE PUMP
INSTALLED IN ONE OF THE WELLS.

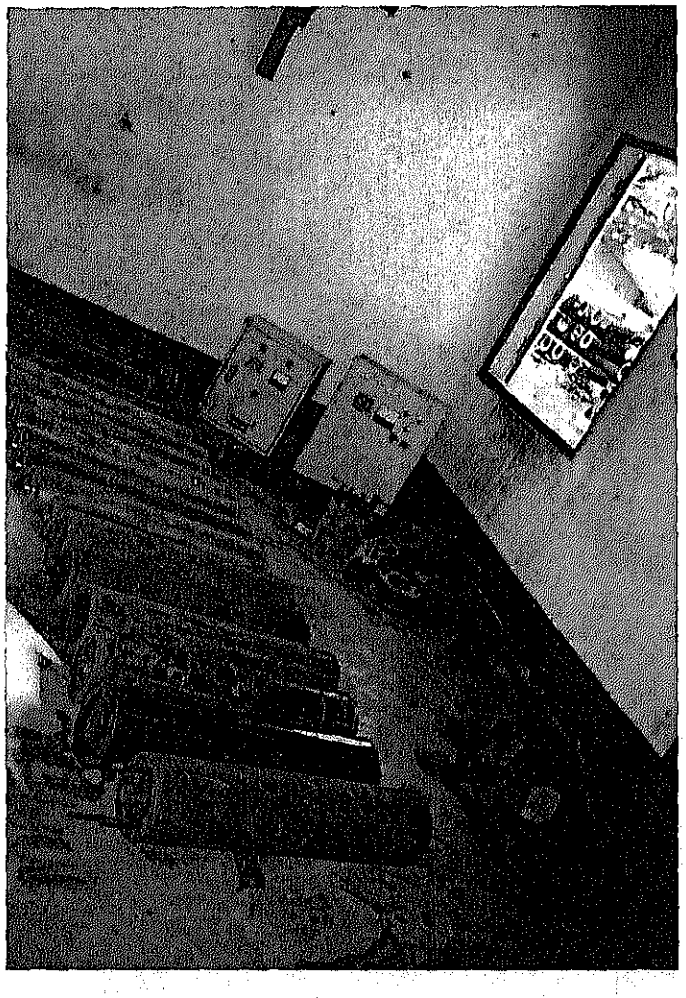
SIDE VIEW OF
THE PUMP HOUSE.



ELEVATED . F. R. P TANK
25 M^3 CAPACITY

A TRANSFORMER





UNSERVICEABLE SUBMERSIBLE PUMPS
AND CONTROL PANELS.

WATER SUPPLY WORK

IN

PYINMANA

WATER SUPPLY WORK IN PYINMANA

Pinmana town is in Mandalay Division, which is about 390 km from Yangon. It has an area voice of 8.26 square-kilometer consisting of 12 wards. The population of the town according to 1998 census figures around 73917.

Previously, There was no systematic water supply system at Pyinmanna. The community solely depended on self dug shallow tube wells.

Pyinman water supply scheme was done by the Japanese Government Grant Aid Phase II, starting in the year 1986. Water was secured by ground water resources. A number of 11,150 mm ø production wells were drilled to meet the required water demand.

Water supply project was completed in the year 1990, followed by systematic distribution. According to the design period for 1991, a population of 59200, which consumed 6200 M^3 (1.24 million gal) per day was achieved.

Though, after completion of the project, water was supplied accordingly. It is found that at present it can supply only 910 M^3 (0.2 million gal) per day. To fill the public demand, some private shallow tube wells were dug.

Pyinmana Township Development committee is providing water to consumers by erecting public stand pipes and house hold connection.

Water supply system is properly supervised and maintained by Government employees is as follows:-

Sub - Assistant Engineer	-	1 No.
Mechanic	-	1 No.
Pipe Fitter	-	2 Nos.
Pump Operator	-	11 Nos.
Tax collector	-	2 No.
Inspector	-	1 No.

The collected fund and expenditure for the last (3) years of Pyinmana Township. Development committee is as follows:-

Fiscal Year	**Collected (Kyats)**	**Expenditure (Kyats)**
1995-96	20873000	18086000
1996-97	22214000	17640000
1997-98	18769000	10972000.

The collected water tax, fees and expenditure for water supply system from the a bove mentioned data is as follows:-

Fiscal Years	Collected (Kyats)	Expenditure (Kyats)
1995-96	1381000	1234000
1996-97	1460000	2250000
1997-98	1516000	1447000

General Review

The main cause of shortage of fully distribution of water supply as per designed in Pyinmana is as follows:-

(a) Due to insufficient source of water achieved from tube wells compared to the amount achieved previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tubes wells which timed about 18 hours a day is not possible.

(d) Due to the frequent repair of control pannels and motors on account of droppage of electricity power.

(e) On account of local made spare parts which dropped the efficiency of machines, as original spare parts are not easily available.

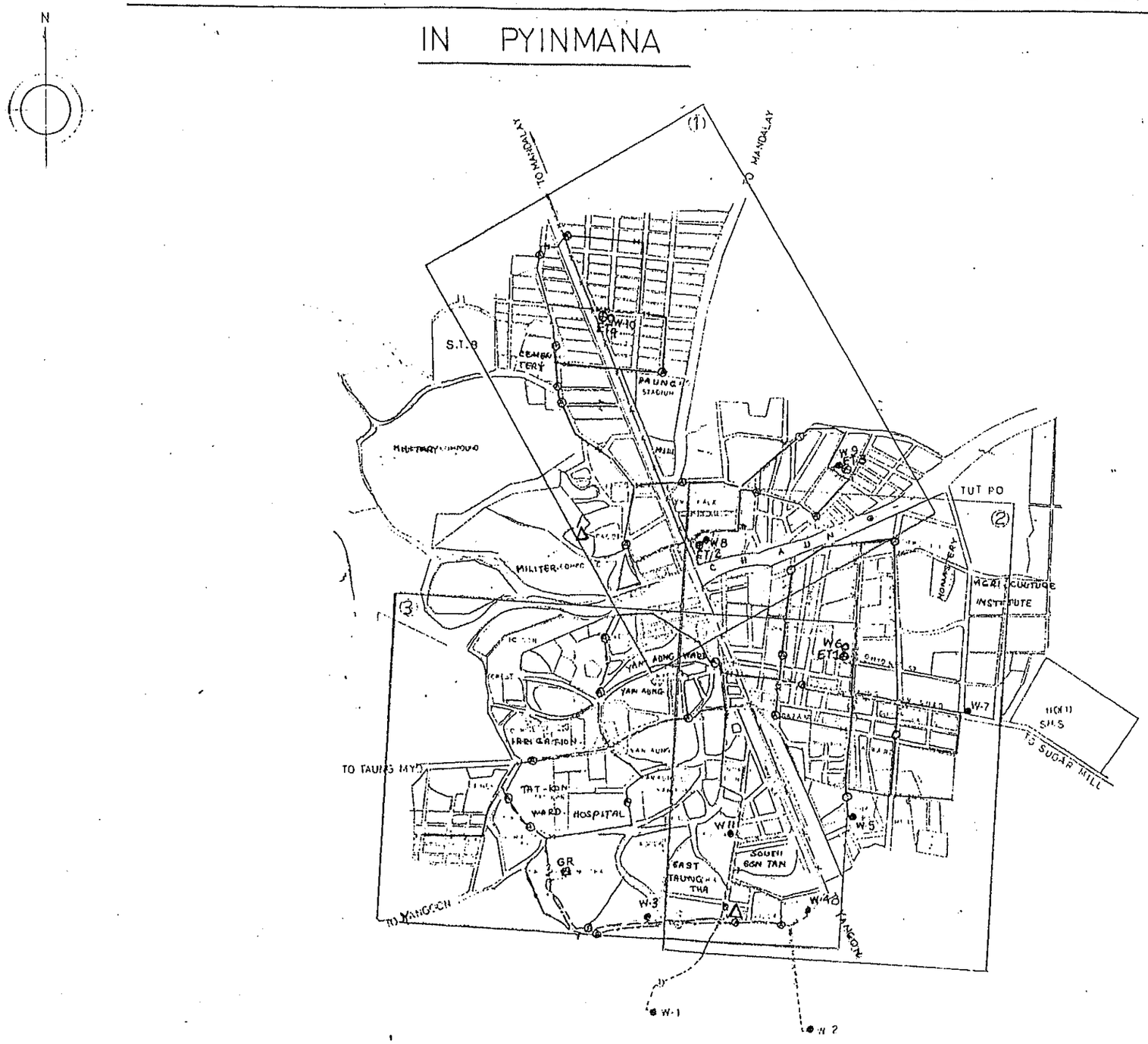
The map of Pyinmana water supply project aided by the Japanese Government is enclosed here with. Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B).

The quantity list of main facilities in the project is also enclosed here with Annexure (C).

Annexure (A)

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN PYINMANA

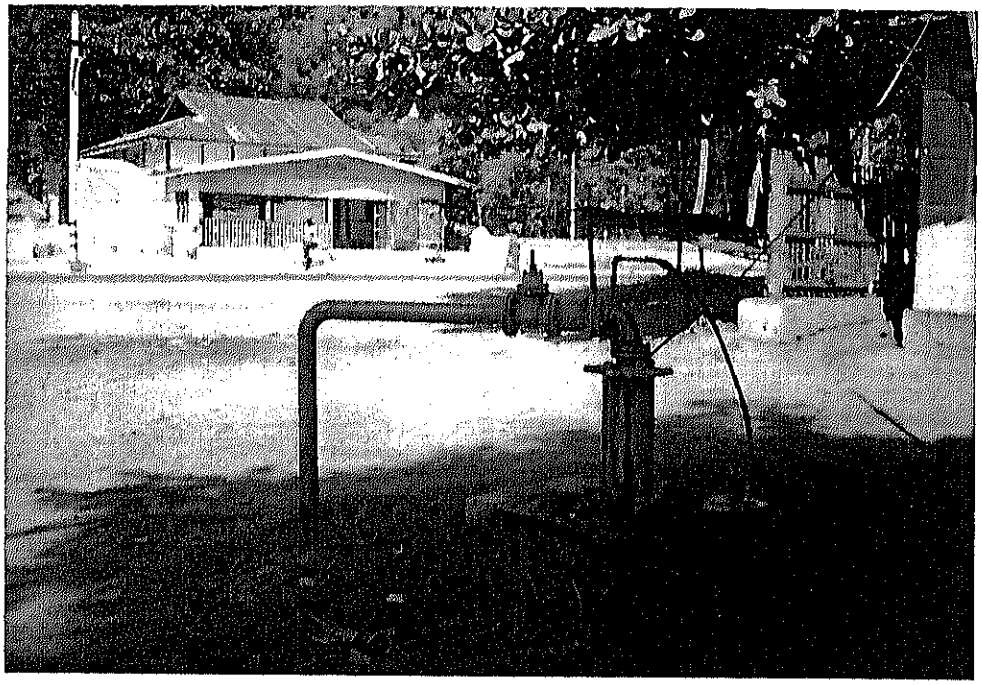


LEGEND

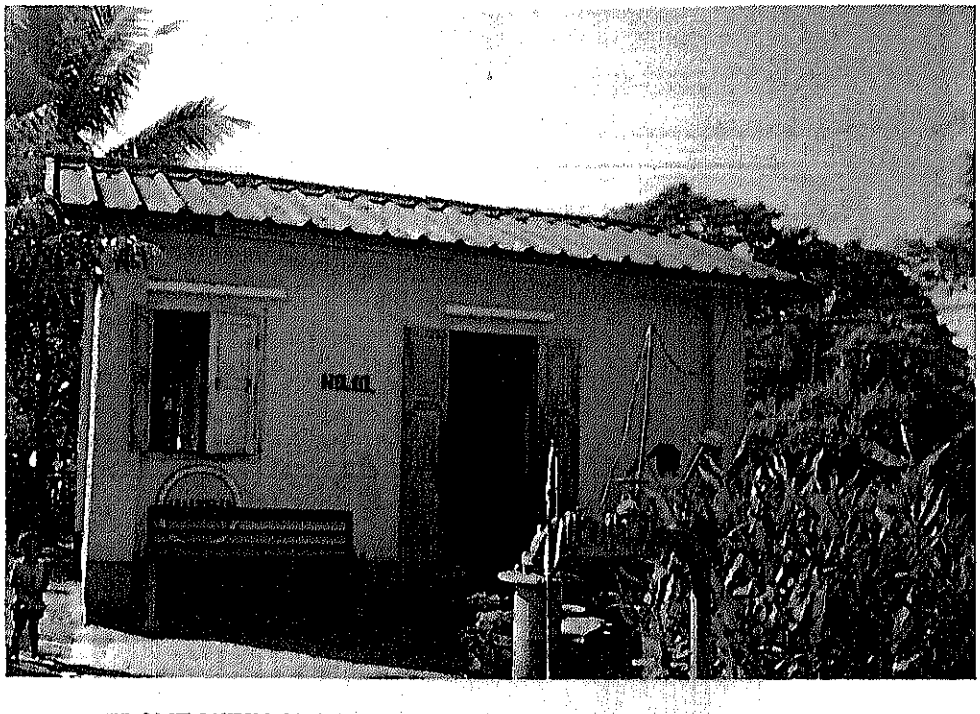
MARK	DIA (mm)
—·—·—·—	250
—·—·—·—	200
— — —	150
----------	100
———	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevoted Tank
○	Production Well
△	Transformer

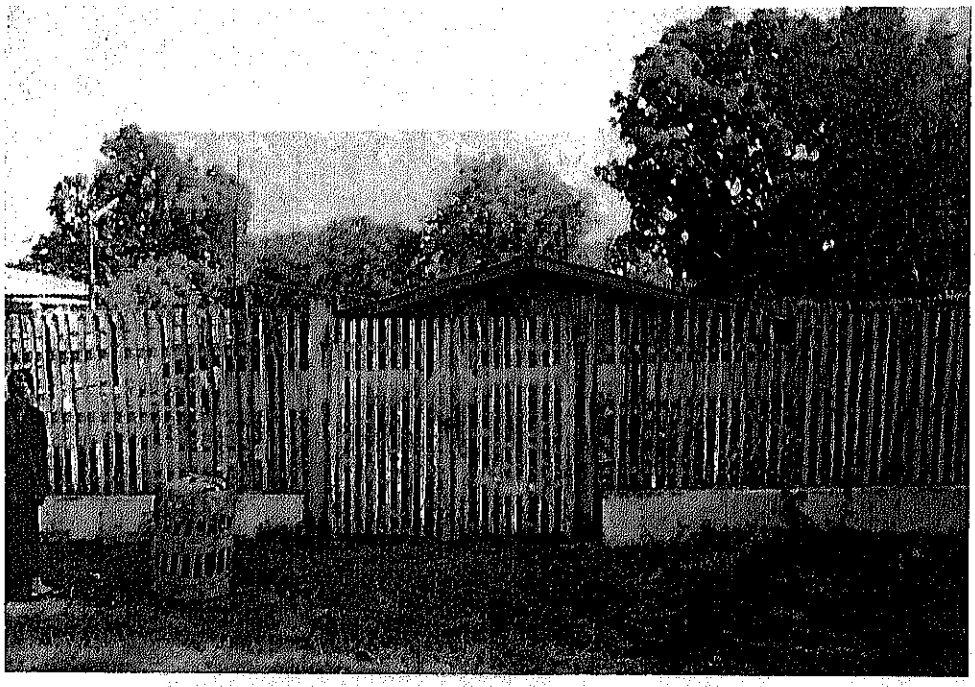
Annexure (B)



A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS.

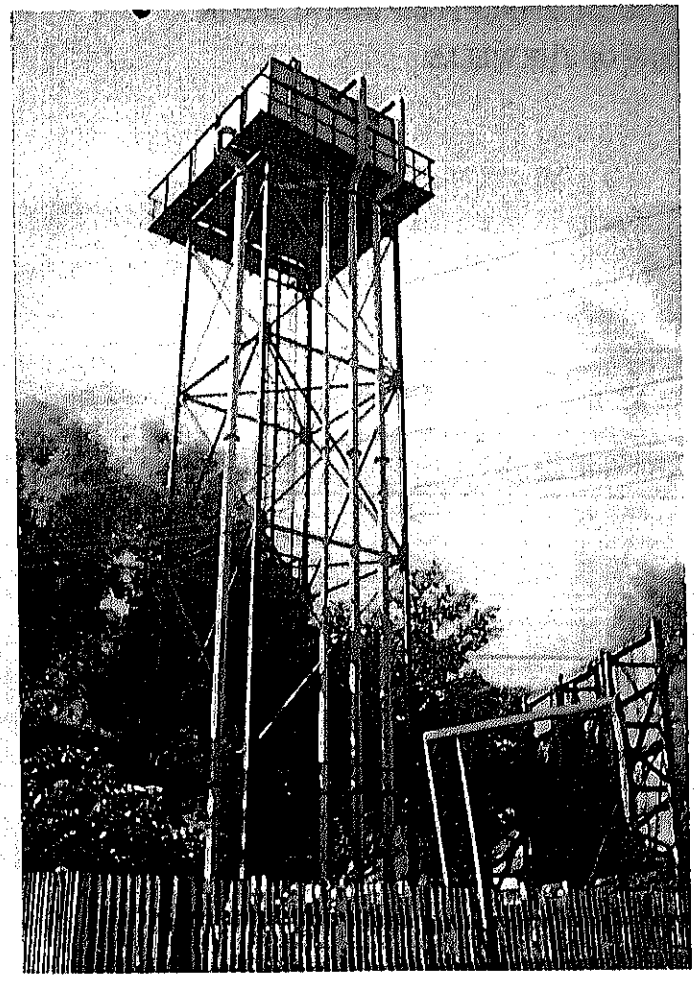


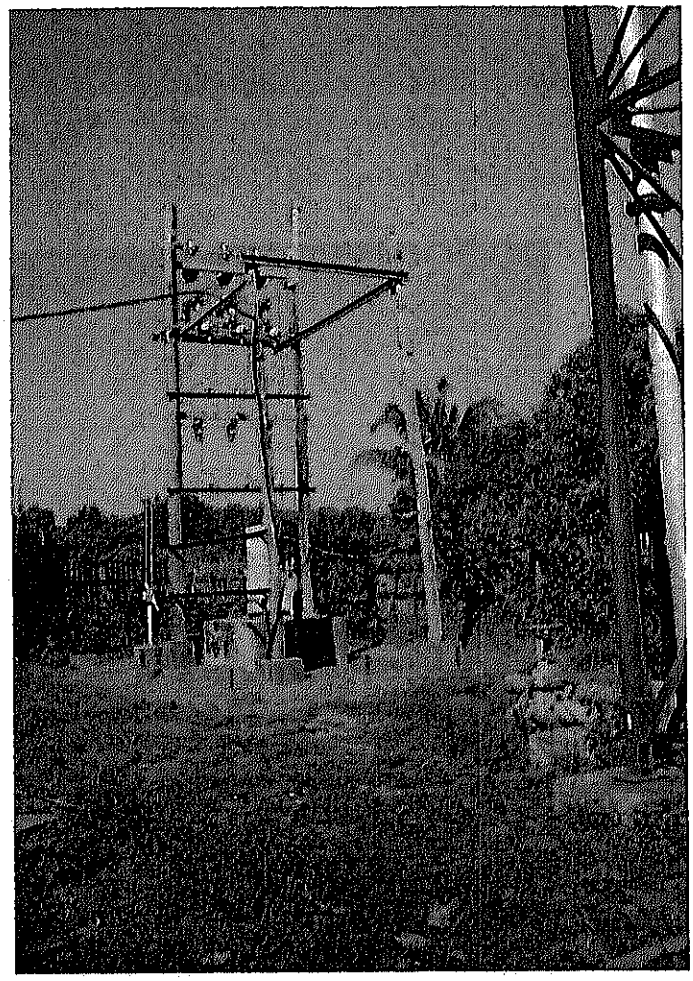
FRONT VIEW OF THE PUMP HOUSE.



FRONT VIEW OF GROUND RESERVOIR
210 M^3 CAPACITY

ELEVATED F. R. P TANK
OF. 12.9 M^3 CAPACITY

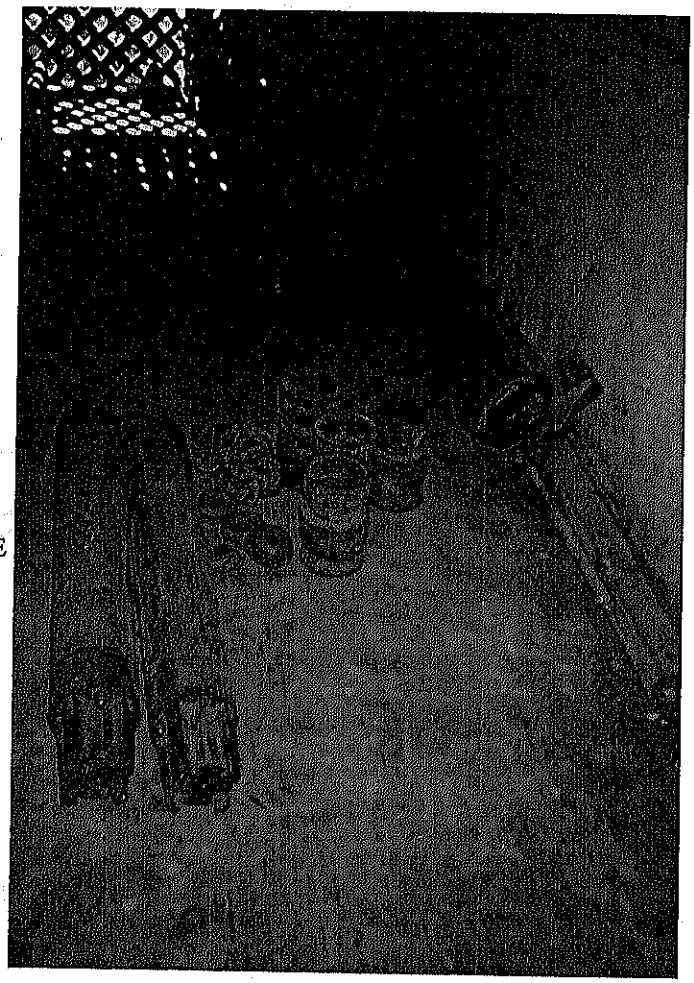




A TRANSFORMER
INSTALLED IN THE
PUMP HOUSE COMPOUND.

WATER- SELLING BULLOCK - CART IS
BEING SUPPLIED. BY A PRIVATE WELL

UNSERVICEABLE SUBMERSIBLE PUMPS AND SPARE PARTS.



WATER SUPPLY WORK

IN

PYAWEBWE

WATER SUPPLY WORK IN PYAWBWE

Pyawbwe town is in Mandalay Division, which is about 450 km from Yangon. It has an area voice of 7.7 square-kilometer having 8 wards. The population figures 25935 in the year 1998.

Previously, There was no systematic water supply system at Pyawbwe. Private wells and tube wells were dug to meet the needs.

Pawbwe town water supply scheme was started in the year 1985-86 by the Japanese Government Grant Aid Phase II. Water was secured by ground water resources by drilling 10 nos. 150 mm ø production wells.

Water supply project was completed in the year 1990, followed by systematic distribution. According to the design period for 1991, a population of 28400 enjoyed 3000 M^3 (0.66 million gal) per day.

At Present it is found that only 820 M^3 (0.18 million gal) of water had been attained compared to the previous 3000 M^3 (0.66 million gal) per day. Some private tube wells were dug to meet the needs.

Pyawbwe Township Development Committee is supplying water by erecting public Stand pipes and house hold connection.

The status of water attained by two house hold is as follows:-

No.	Particular	House Hold No (1)	House Hold No (2)
1.	Name	Daw Khin Win	U Sar
2.	Family members	8 Nos.	10 Nos.
3.	Time for collecting water per trip	15 minutes	10 minutes
4.	Collected gallon per trip	8 gals	8 gals
5.	Number of trip	5 trips	6 trips
6.	Gallon of water collected	40 gals	48 gals

Water supply system is properly supervised and maintained by the following Government Employees.

Sub - Assistant Engineer	-	1 No.
Mechanic	-	1 No.
Pipe Fitter	-	2 Nos.
Pump Operator	-	10 Nos.
Tax Collector	-	2 Nos.
Inspector	-	1 No.

The collected fund and expenditure for the last (3) years of Pyawbwe town is as follows:-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	12510000	8605000
1996-97	15461000	12616000
1997-98	13261000	11935000

The collected water tax, fees and expenditure for water supply system from the above mentioned data is as follows:-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	1425000	353000
1996-97	1404000	510000
1997-98	1446000	452000

General Review

The main cause of shortage of fully distribution of water supply as per designed in Pyawbwe town is as follows.

(a) Due to insufficient source of water achieved from the wells compared to achieve previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repair to control pannels and submersible motor pumps on account of power droppage.

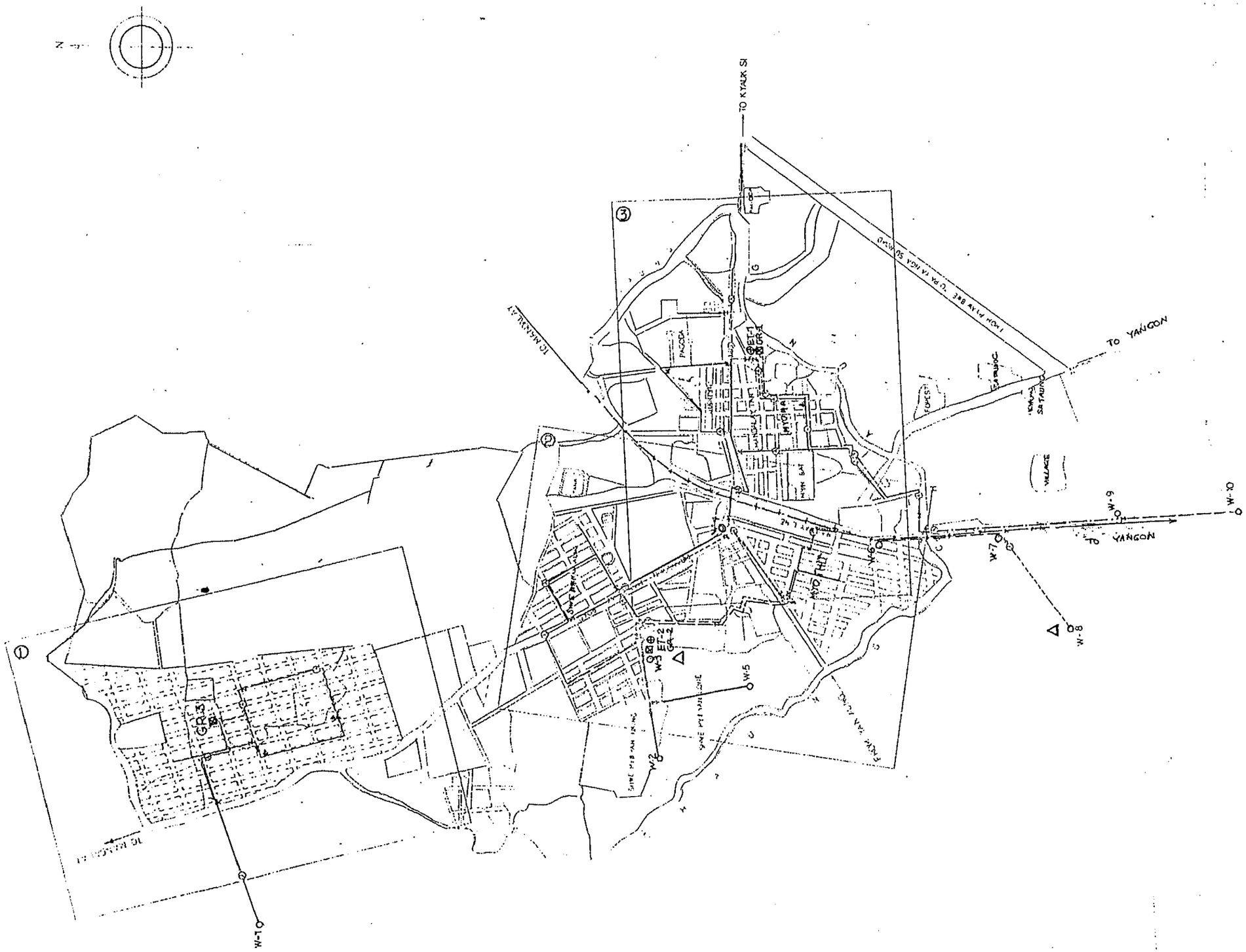
(e) On account of local made spare parts, which easily dropped the efficiency of machines, as original spare parts are not easily available.

The map of Pyawbwe town water supply project aided by Japanese Government is enclosed here with Annexure (A).

The recorded photos of present water supply situation is also enclosed here with. Annexure (B).

The quantity list of main facilities in the project is also enclosed herewith Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN PYAWBWE

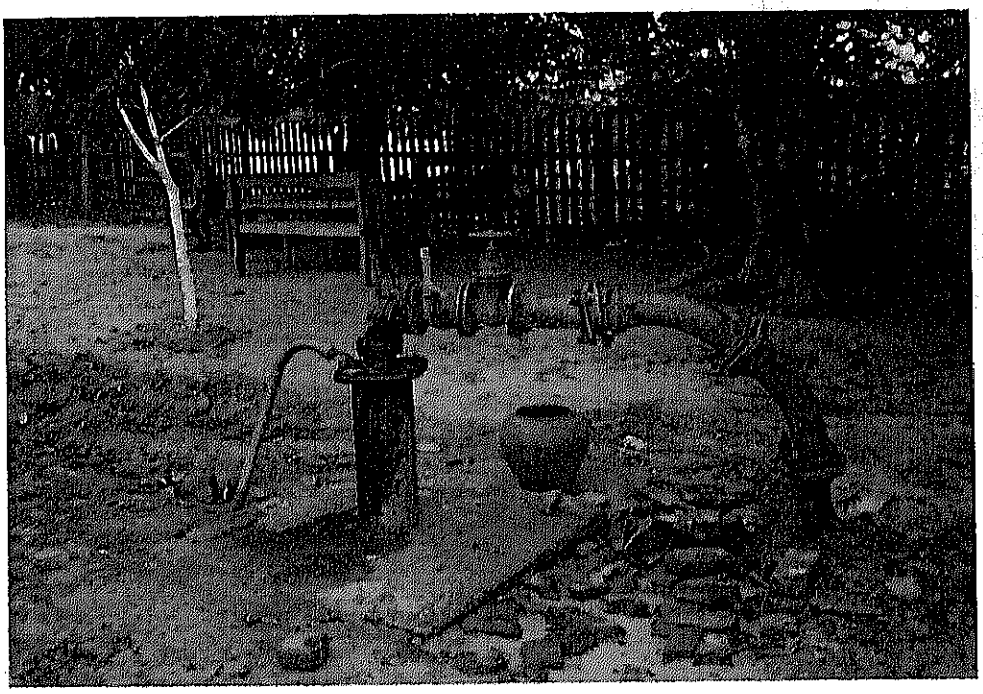


LEGEND

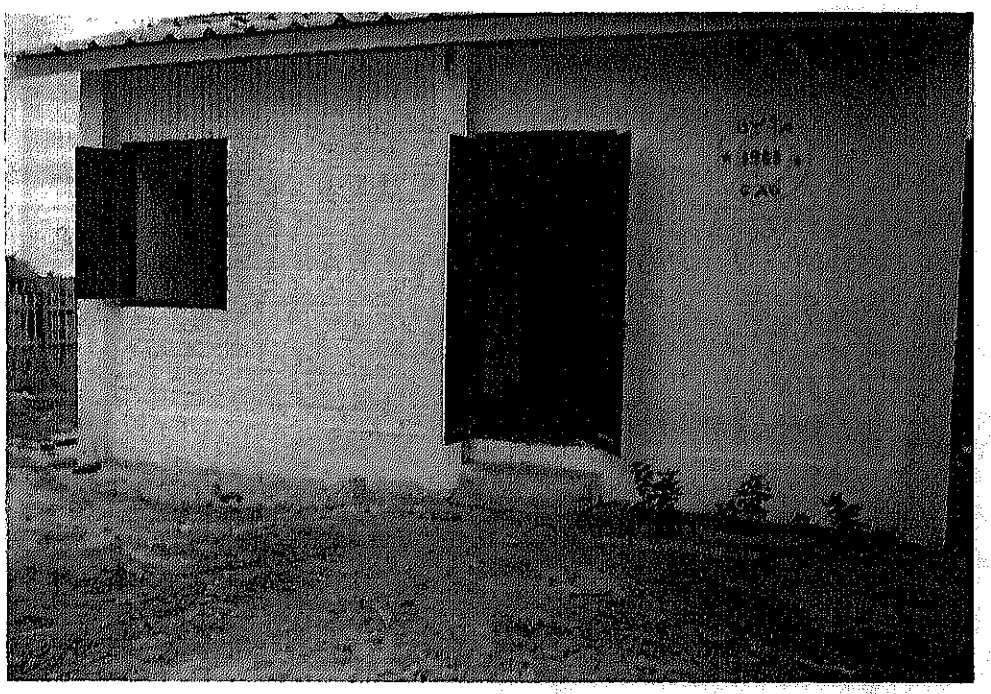
MARK	DIA (mm)
—·—·—	200
— — —	150
- - - - -	100
———	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

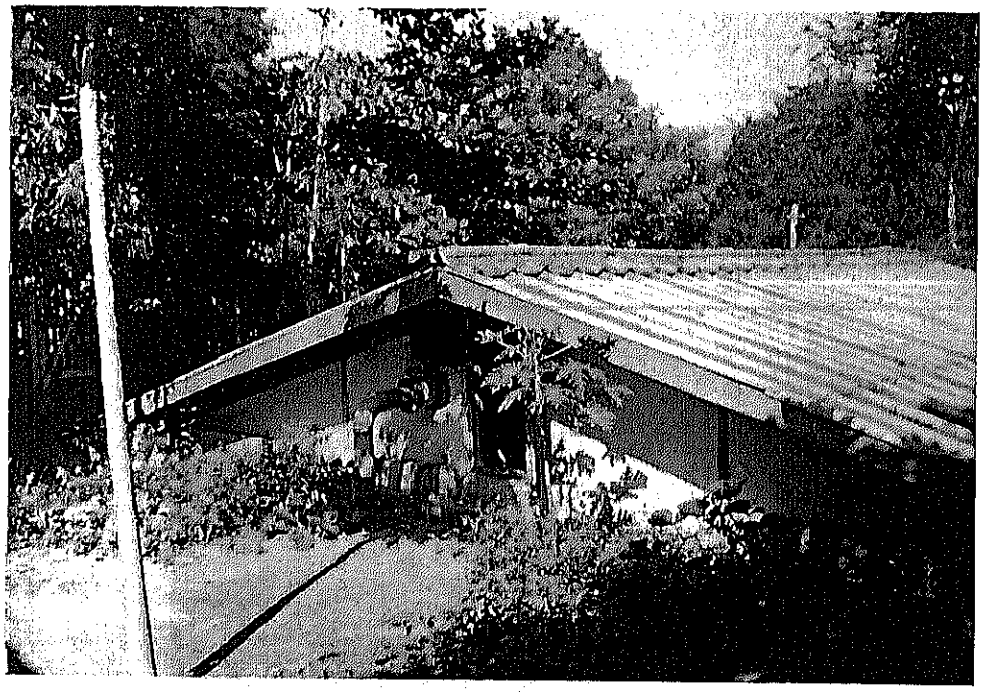
Annexure (B)



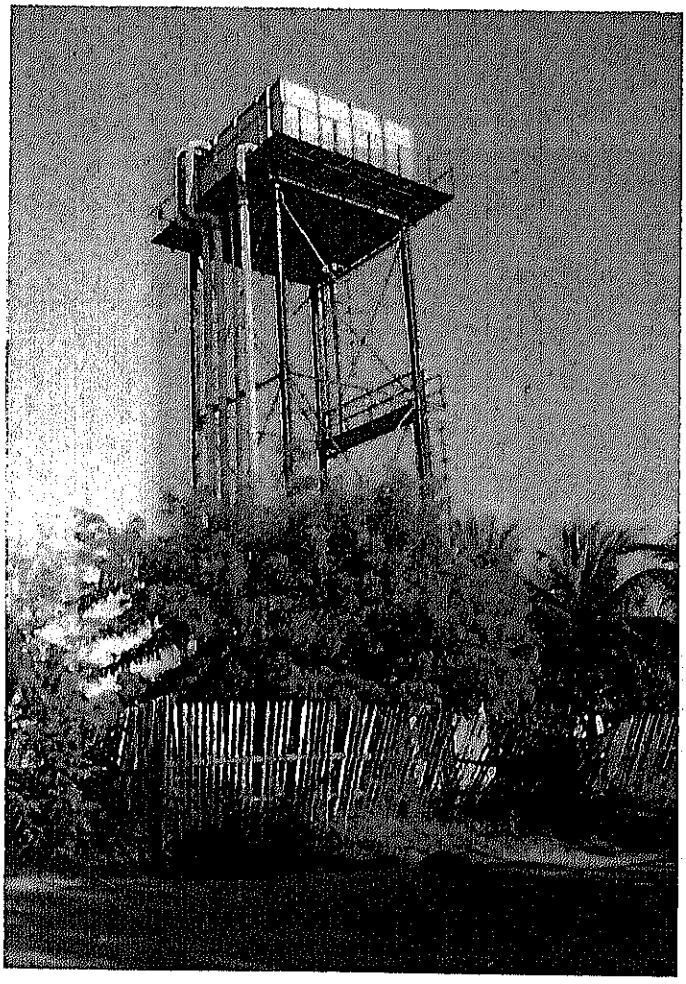
A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS.



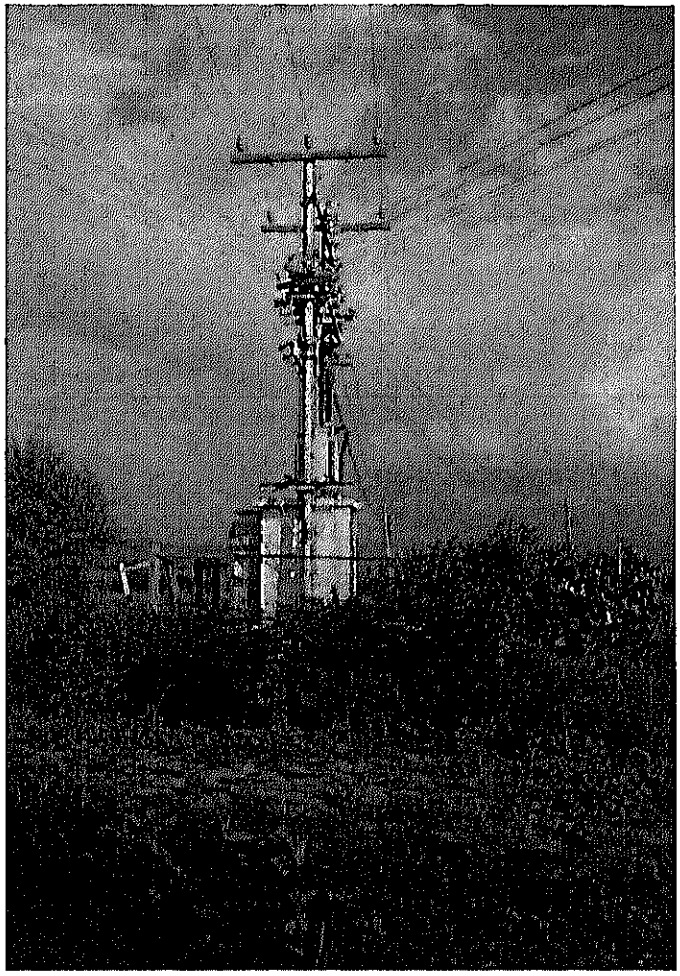
FRONT VIEW OF THE PUMP HOUSE.



FRONT VIEW OF THE GROUND RESERVOIR
100 M^3 CAPACITY.



ELEVATED. F.R.P TANK OF
25.2 M^3 CAPACITY



A . TRANSFORMER

UNSERVICEABLE SUBMERSIBLE BOOSTER PUMP

WATER SUPPLY WORK

IN

YAMETHIN

WATER SUPPLY WORK IN YAMETHIN

Yamethin Town is in Mandalay Division, and is about 490 kilometers from Yangon. The area of the town is 39.8 square kilometers having 5 wards. The population in 1998 is 25135.

Yamethin Town water supply was established in the year 1964 by than National Housing Board. Water resource was from 8 nos. of 200 mmø of tube wells dug at Thein Gone Village, 5 kilometer far on the eastern side of the town among 8 tube wells, 2 wells is still in proper service.

Yamethin Town water supply scheme was started in the year 1986 by the Grant aid of the Japanese Government Phase II supplementing the existing water supply. Water was secured from 4 nos. of 200 mm ø ground water resources.

The project was completed in the year 1990 followed by systematic water supply. Based on 1991 Design period, 25300 people enjoyed 2700 cubic meter (0.594 million gal) of water per day.

Though, after completion of the project it was capable to supply 2700 cubic meter (0.594 million gal) of water per day, at present it can supply only 460 cubic meter (0.10 million gal) of water per day. To get additional water, Yamethin T.D.C managed to convey water from Kan Thit Pond connected from Thit Sone Dam, which is on the south east side of the town. Private shallow tube wells were also dug.

Yamethin Township Development Committee is properly supplying water by erecting public stand pipes and house hold connections.

The following data Shows the water attained by two house hold.

No	Particular	House Hold No. (1)	House Hold No. (2)
1	Name	U Aung Pe	Daw Khin Than
2	Family Members	5 Nos.	6 Nos
3	Time for collecting water per trip	15 minutes	10 minutes
4	Collected gallon per trip	8 gals	8 gals
5	Number of trips	4 trips	5 trips
6	Gallon of water collected	32 gal	40 gal

The following Departmental Employees, supervised and maintained, the water supply system.

Sub – Assistant Engineer - 1 No.
Mechanic - 1 No.
Pipe Fitter - 2 Nos.

Pump Operator	-	4 Nos.
Tax Collector	-	2 Nos.
Inspector	-	1 No.

The annual Income and Expenditure for the last 3 years of Yamethin Town is as follows:-

Fiscal Year	**Income (Kyats)**	**Expenditure (Kyats)**
1995-96	9991000	6476000
1996-97	12116000	7196000
1997-98	8369000	6929000

The collected water tax and fees and the expenditure for water supply system from the above mentioned data is as followed.

Fiscal Year	**Collected (Kyats)**	**Expenditure (Kyats)**
1995-96	1992000	399000
1996-97	1420000	965000
1997-98	1441000	1649000

General Review

The main cause of shortage of fully supply of water as per designed is as follows : -

(a) Due to insufficient source of water achieved from tube wells, compared to water achieved as per design.

(b) Due to the frequent interruption of Electricity supply and voltage fluctuation.

(c) As water supply solely depends on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repairs to control panels and submersible motor pumps on account of droppage.

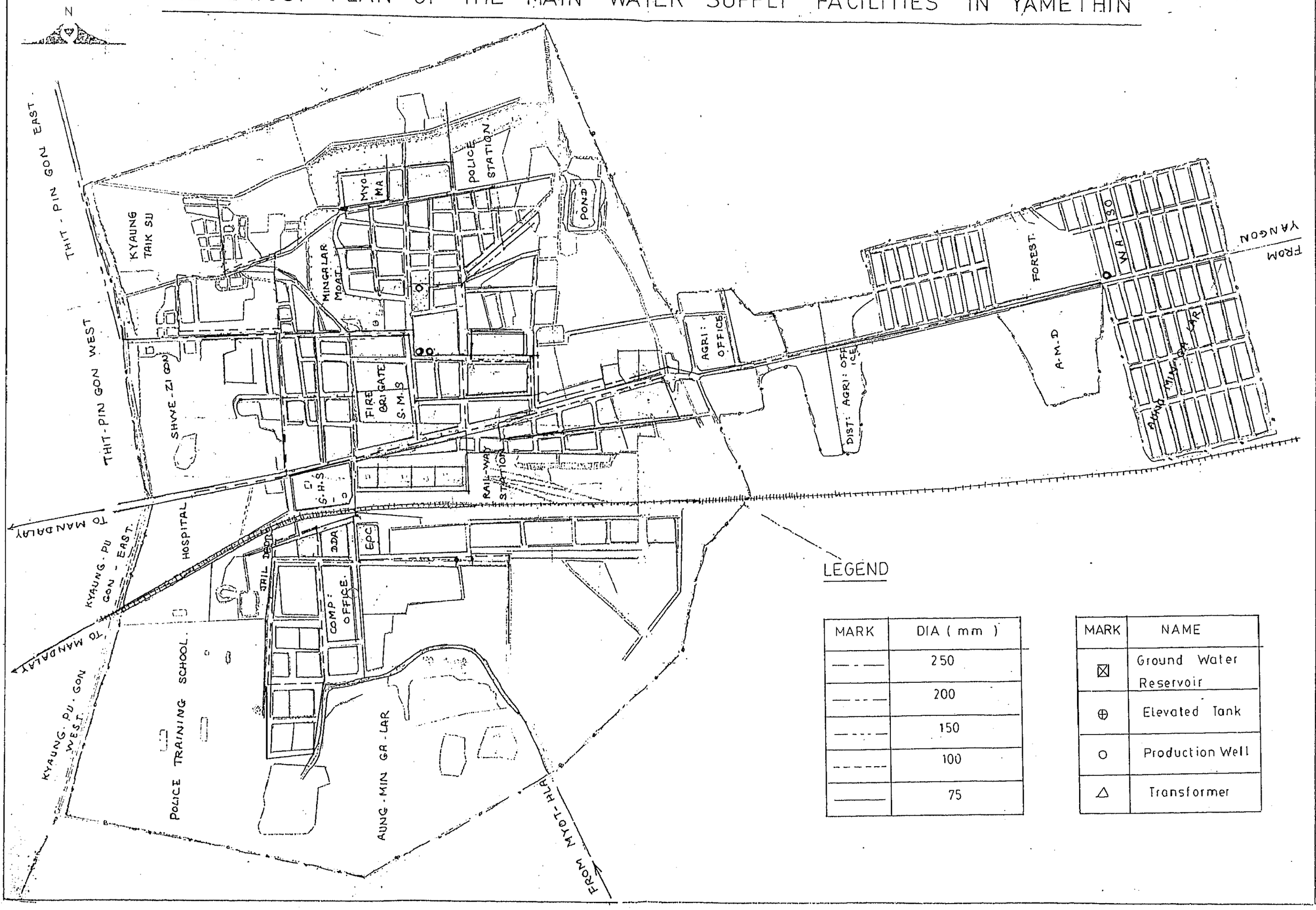
(e) On account of local made spare parts, which dropped the efficiency of machines, as original spare parts are not easily available.

The map of Yamethin water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B).

The quantity list of main facilities in the project is also enclosed here with Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN YAMETHIN

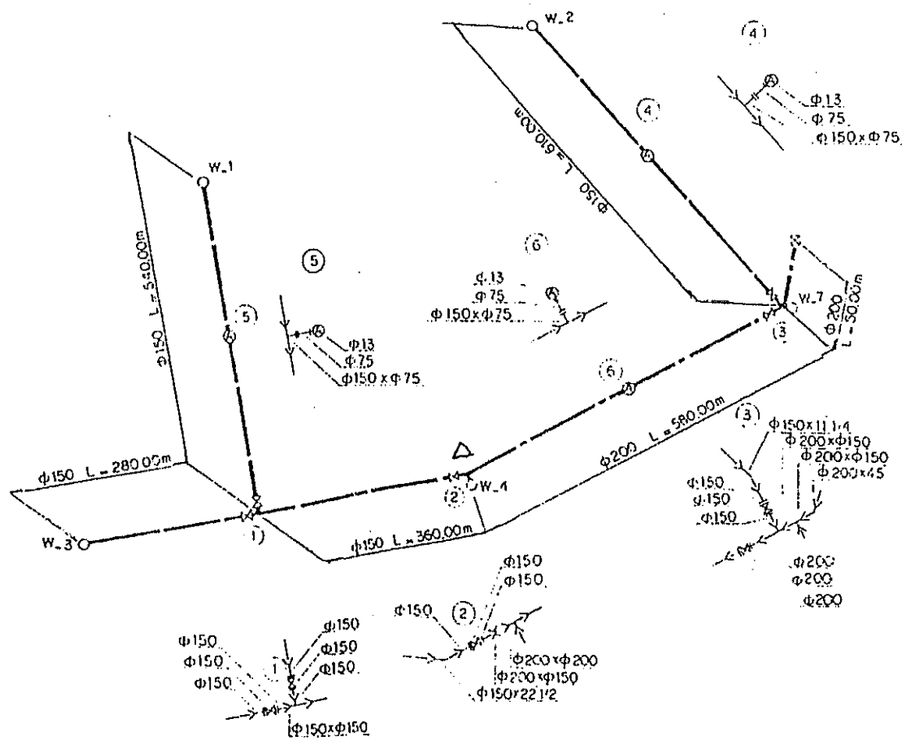


LEGEND

MARK	DIA (mm)
— — —	250
— — —	200
— — —	150
— — —	100
———	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

THE LAY OUT PLAN OF THE MAIN FACILITIES IN YAMETHIN.

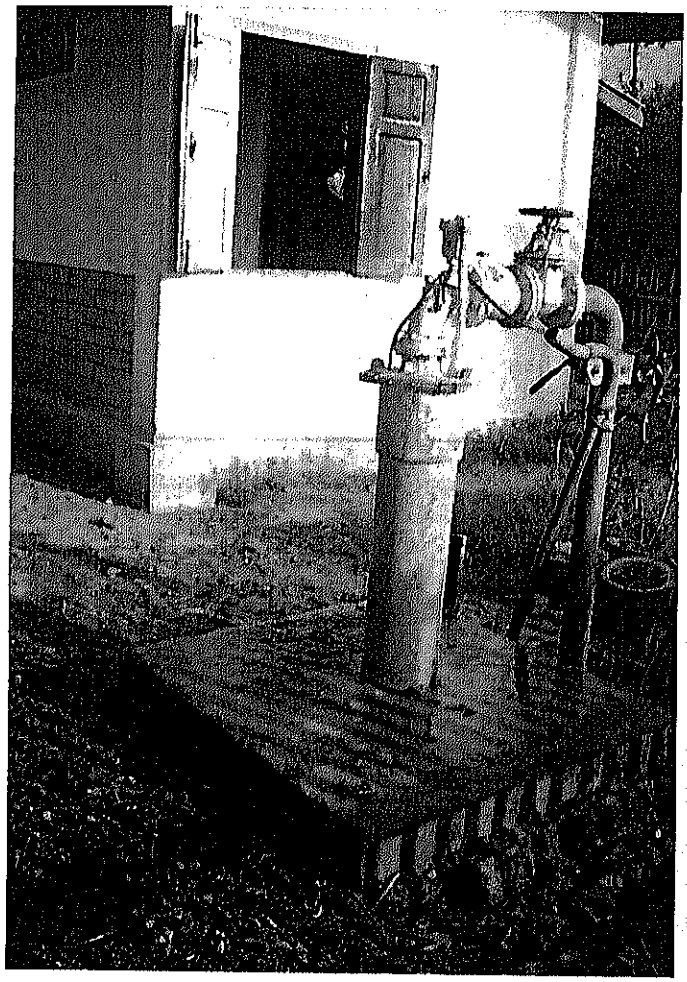


LEGEND

MARK	DIA (mm)
— - —	200
— —	150

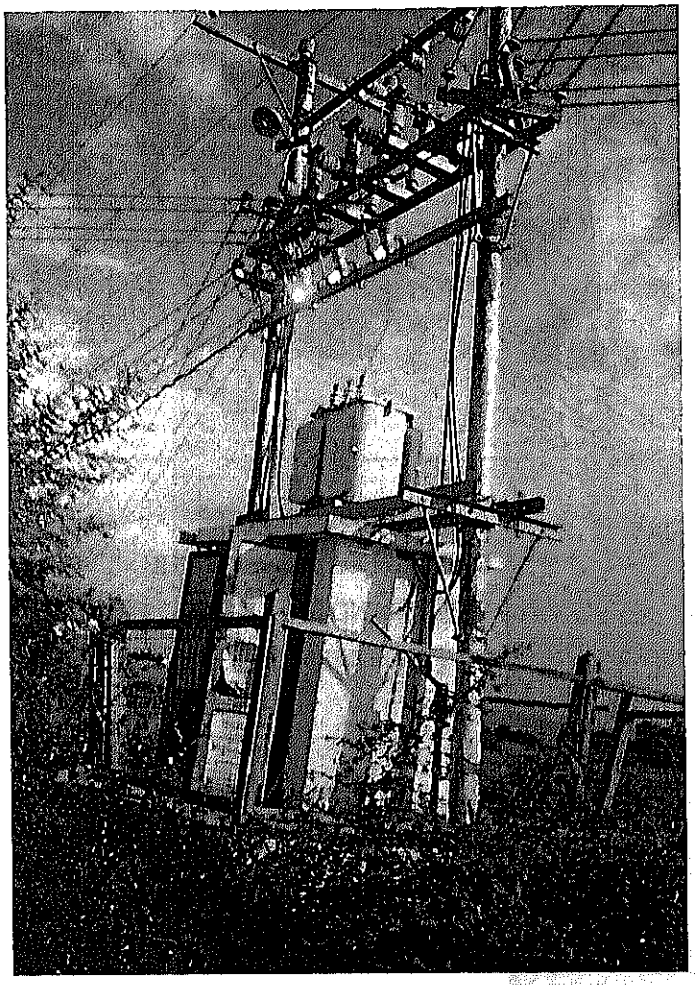
MARK	NAME
○	Production well
△	Transformer

Annexure (B)



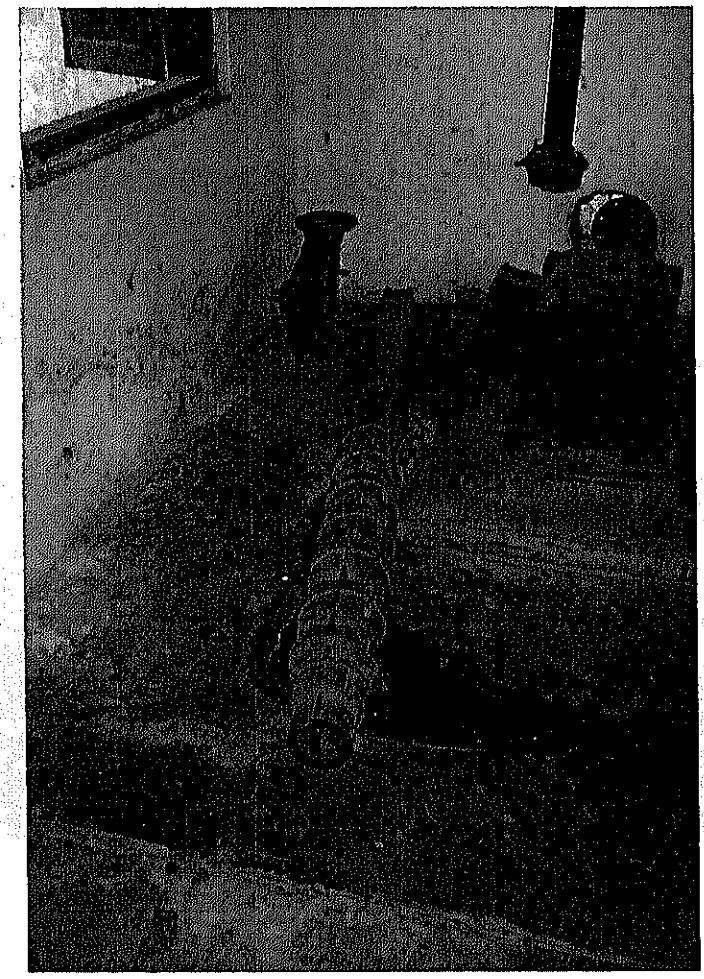
A SUBMERSIBLE PUMP INSTALLED IN ONE OF THE WELLS. AND SIDE VIEW OF THE PUMP HOUSE.

FRONT VIEW OF THE PUMP HOUSE.

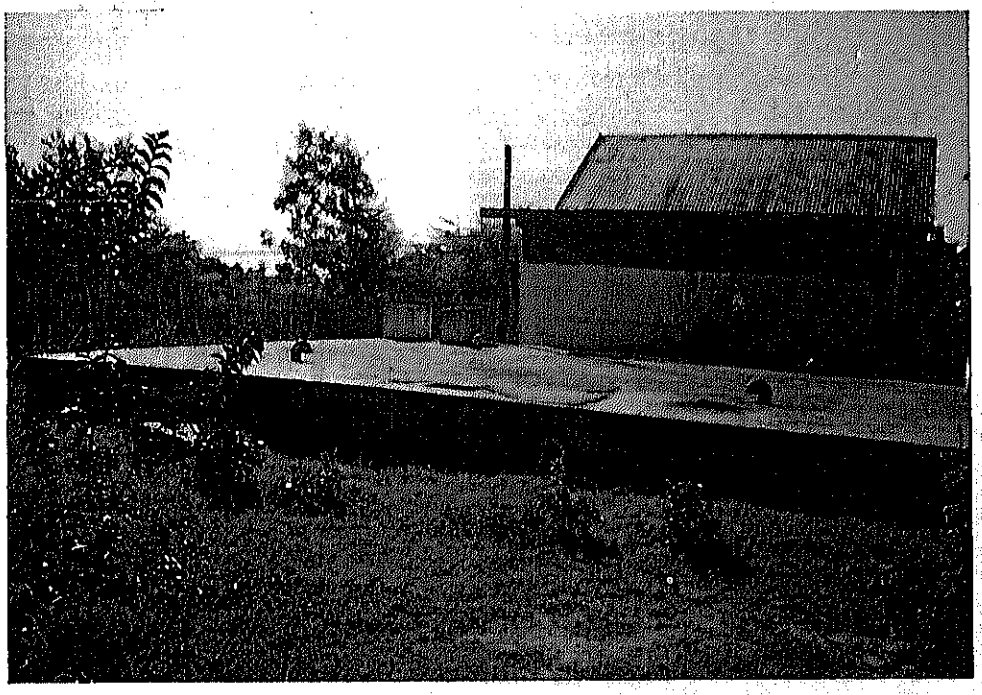


150 K.V.A TRANSFORMER
DISTRIBUTING ELECTRICITY
TO THE FOUR WELLS.

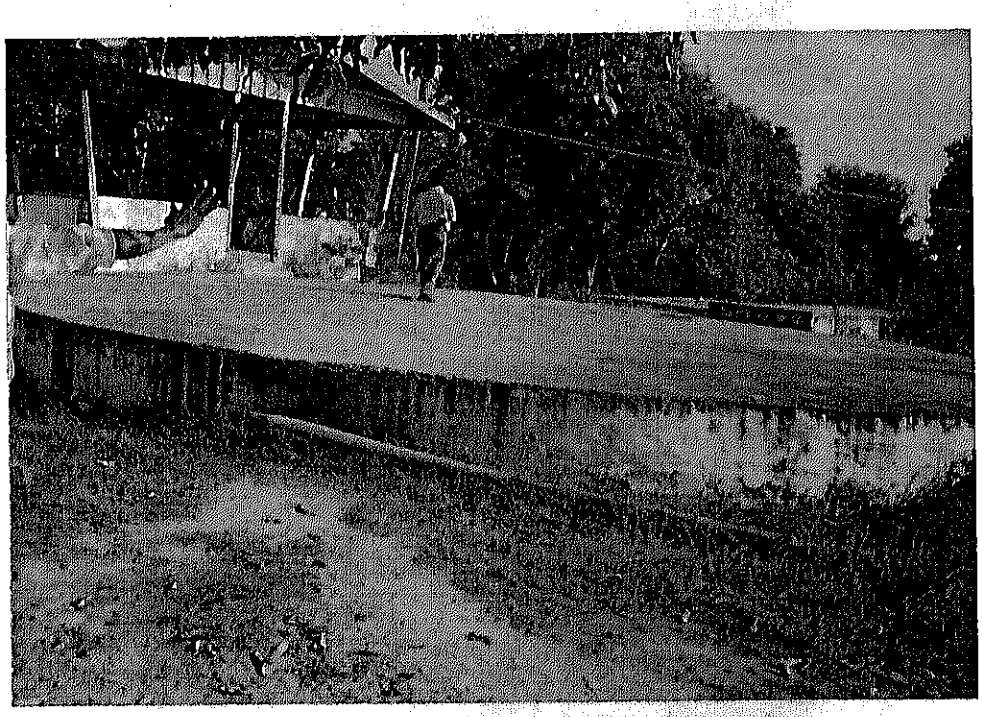
UNSERVICEABLE
SUBMERSIBLE PUMP.



THE OLD WATER SUPPLY SYSTEM



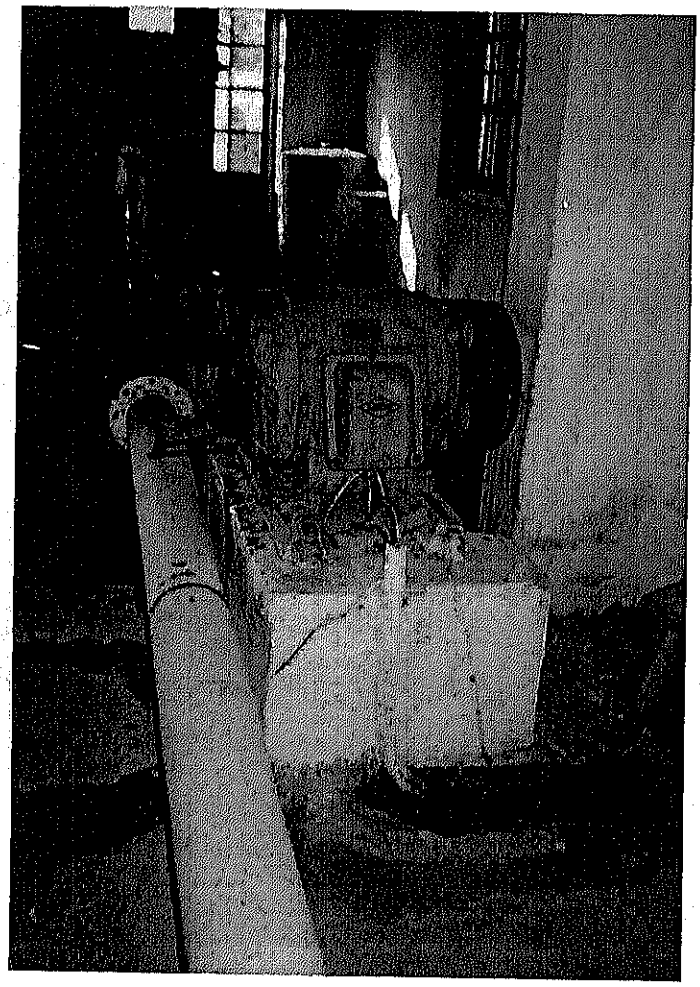
THE SIDE VIEW OF PUMP HOUSE AND
GROUND. RESERVOIR. OF 30,000 GALLONS CAPACITY.



GROUND RESERVOIR. OF 55,000. GALLONS CAPACITY.

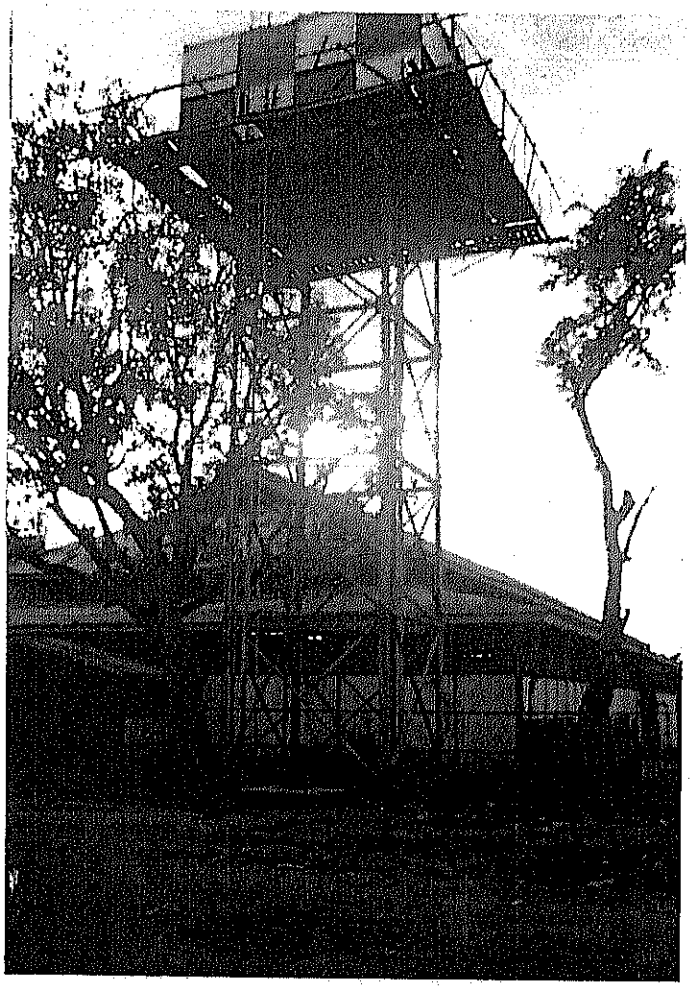
DIRECT ON LINE STARTER.

MOTOR AND PUMP



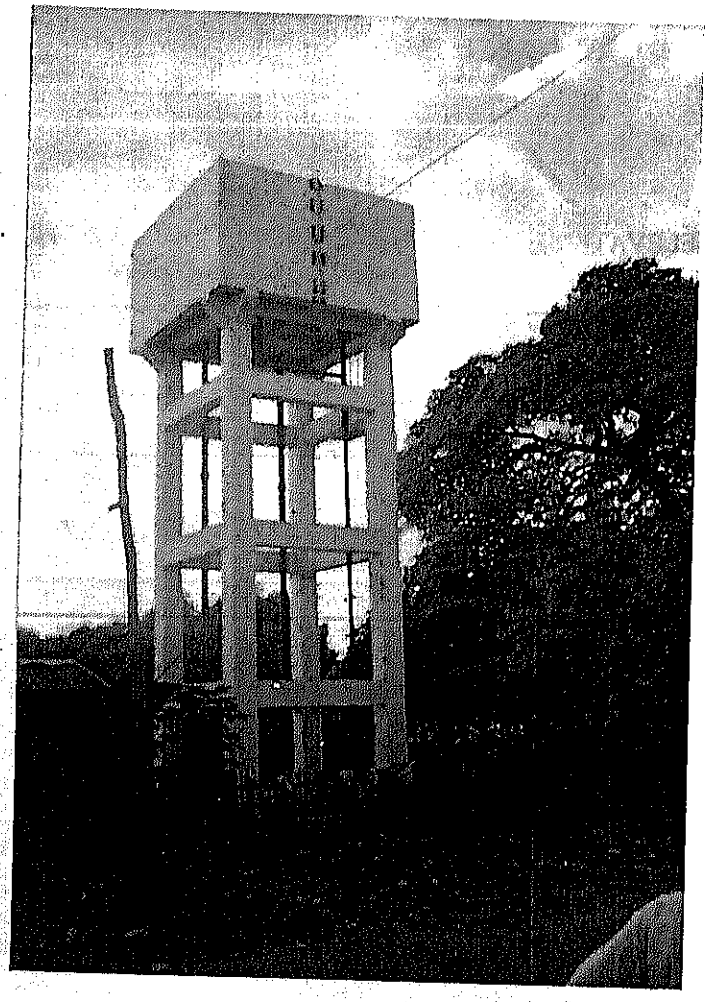
ELEVATED R.C. TANK

ELEVATED R . C. TANK



ELEVATED IRON TANK
OF 12,000 GALLONS CAPACITY

ELEVATED TANK. OF.
8,000 GALLONS CAPACITY.



WATER SUPPLY WORK

IN

THAZI

WATER SUPPLY WORK IN THAZI

Thazi Town is in Mandalay Division, which is about 470 kilometer far from Yangon. The area of Thazi is 4.31 sq kilometers having 7 wards. The population in 20439 in the year 1998.

Previously, there was no proper water supply system. Some collected water from private tube wells and hand dug wells. Some carry water from near by Min Hla Pond which is situated on the southeast of the town.

Thazi water supply scheme was started in the year 1986, by the Grant Aid of the Japanese Government Phase II. Water was secured from 5 nos. of 200 mm ø ground water resources.

It was completed in the year 1990, followed by systematic water supply to the public. A sum of 21400 people enjoying 2300 cubic meter (0.506 million gal) of water per day was achieved, based on 1991 design period.

Though, after completion of the project it was capable to supply 2300 cubic meter (0.506 million gal) per day, it is found that at present it can supply only 1290 cubic meter of water per day. To supplement the water supply Thazi Township Development Committee, with the collaboration of Ministry of Agriculture and Irrigation Department and the community, 3 nos. of 100 mm ø tube wells were dug. A furthermore private tube wells were also dug.

Thazi Township Development Committee is systematically supplying water by erecting public stand pipes and house hold connection.

The status of water attained by two house hold is as follows:-

No	Particular	House Hold No. (1)	House Hold No. (2)
1	Name	U Poe	U Kyaw San
2	Family Members	6 Nos.	7 Nos
3	Time for collecting water per trip	5 minutes	10 minutes
4	Collected gallon per trip	10 gal	10 gal
5	Number of trips	8 trips	6 trip
6	Gallon of water collected	80 gal	60 gal

The following Departmental Employees, supervised and maintained, the town water supply system.

Sub – Assistant Engineer - 1 No.
Mechanic - 1 No.
Pump Operator - 7 Nos.

Pipe Fitter	-	2 Nos.
Tax Collector	-	1 No.
Inspector	-	1 No.

The annual Income and Expenditure for the last 3 years of Thazi Town is as follows:-

Fiscal Year	**Income (Kyats)**	**Expenditure (Kyats)**
1995-96	10557000	2813000
1996-97	10916000	4676000
1997-98	11158000	5062000

The collected water tax and fees and the expenditure for water supply system from the above mentioned data is as followed : -

Fiscal Year	**Income (Kyats)**	**Expenditure (Kyats)**
1995-96	595000	358000
1996-97	737000	340000
1997-98	932000	283000

General Review

The main cause of shortage of fully supply of water as per designed is as follows : -

(a) Due to insufficient source of water achieved from tube wells, compared to water achieved previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depends on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repairs to control panels and submersible motor pumps on account of droppage of power.

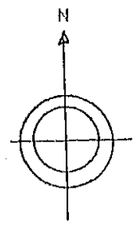
(e) On account of local made spare parts, which dropped the efficiency of machines, as original spare parts are not easily available.

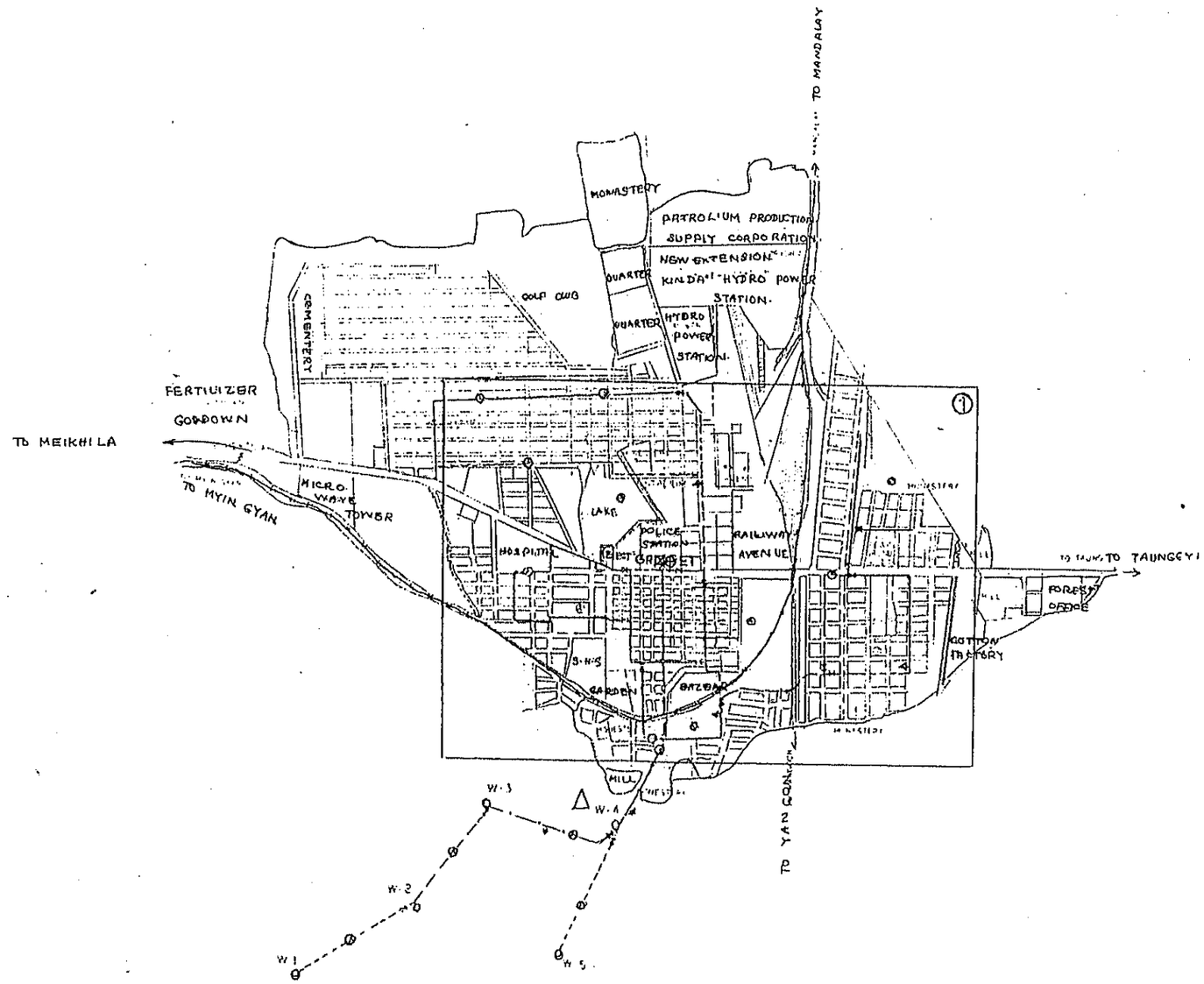
The map of Thazi town water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B).

The quantity list of main facilities used in the project is also enclosed here with Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN THAZI



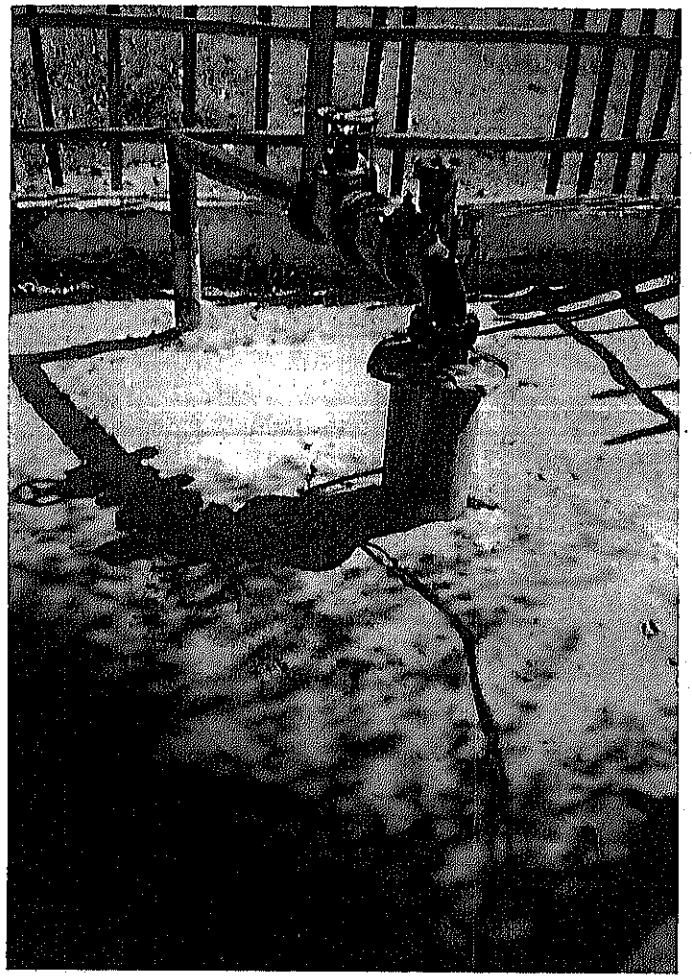


LEGEND

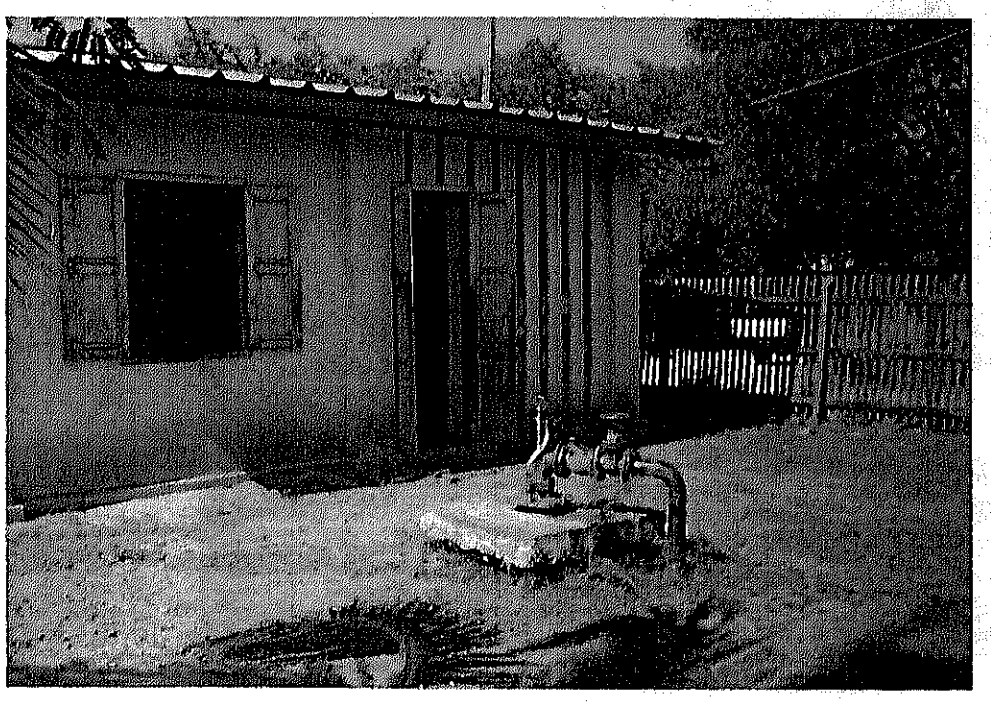
MARK	DIA (m m)
—·—·—	200
— — —	150
- - - - -	100
———	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

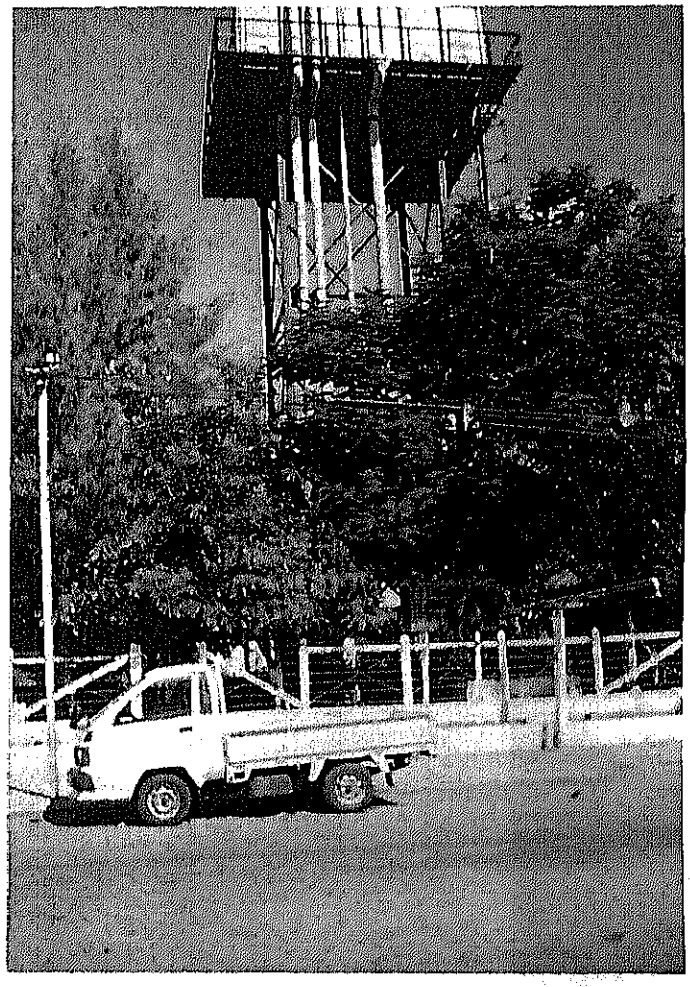
Annexure (B)



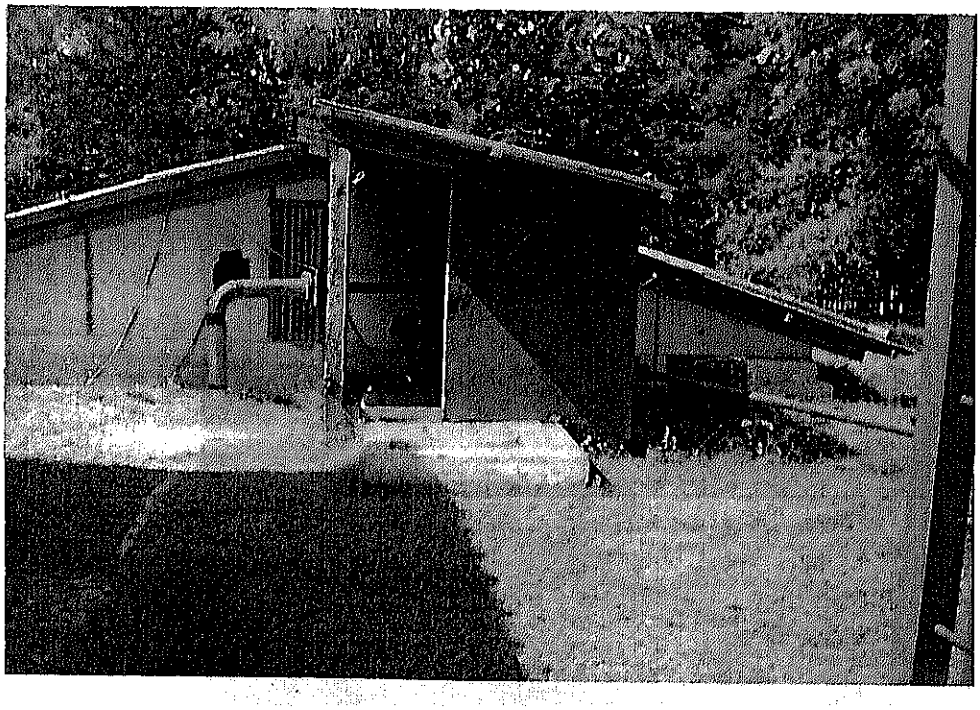
A SUBMERSIBLE PUMP INSTALLED IN ONE OF THE WELLS.



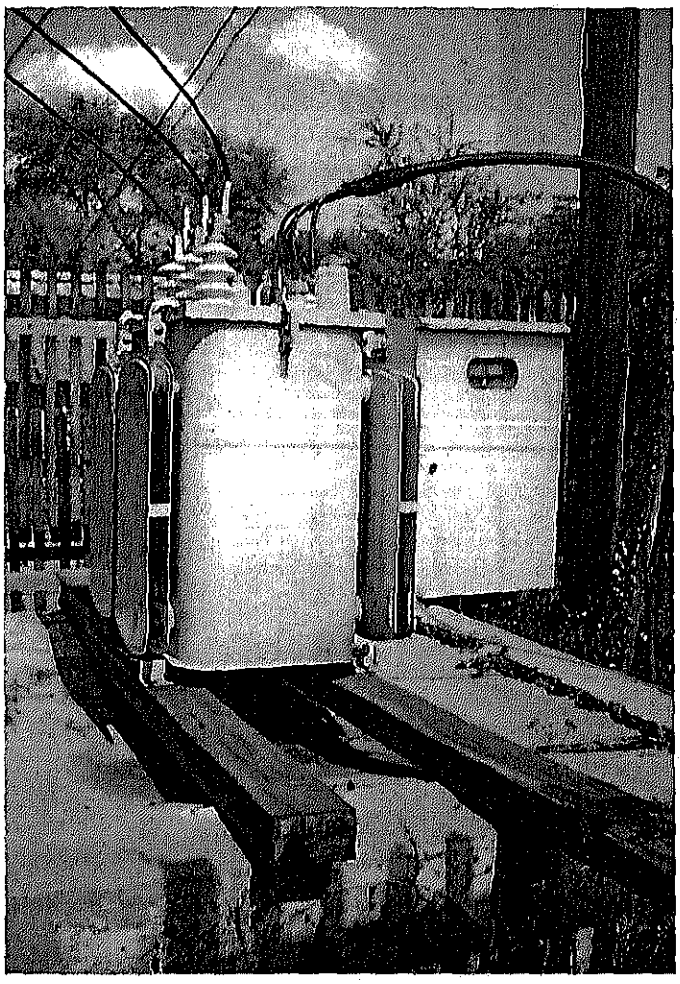
FRONT VIEW OF THE PUMP HOUSE



ELEVATED F.R.P TANK
OF 46.8 M^3 CAPACITY

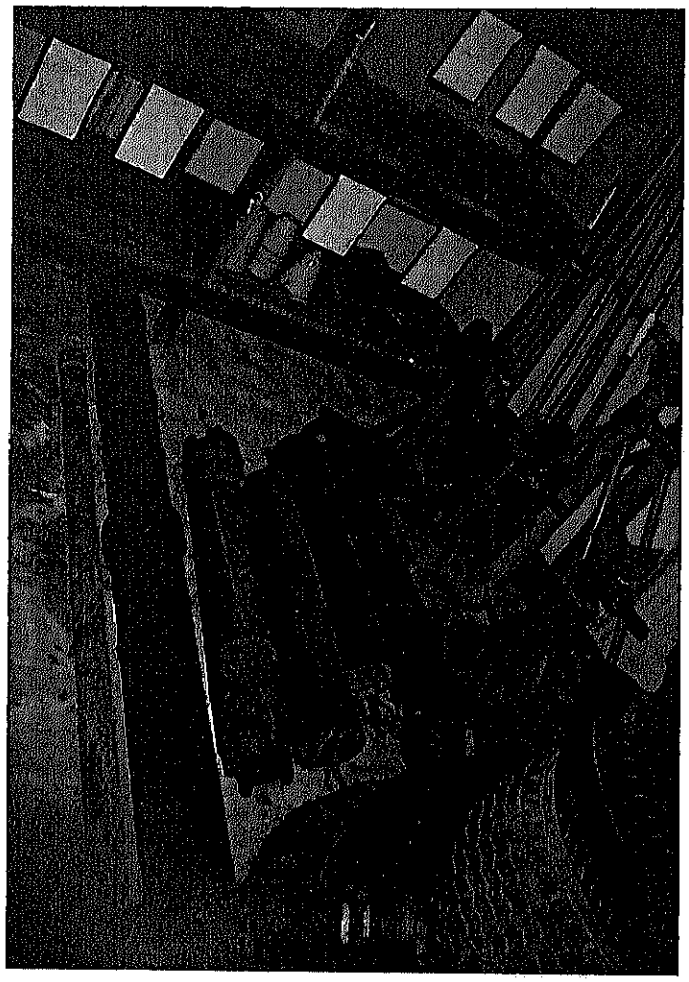


GROUND RESERVOIR OF 190 M^3 CAPACITY.

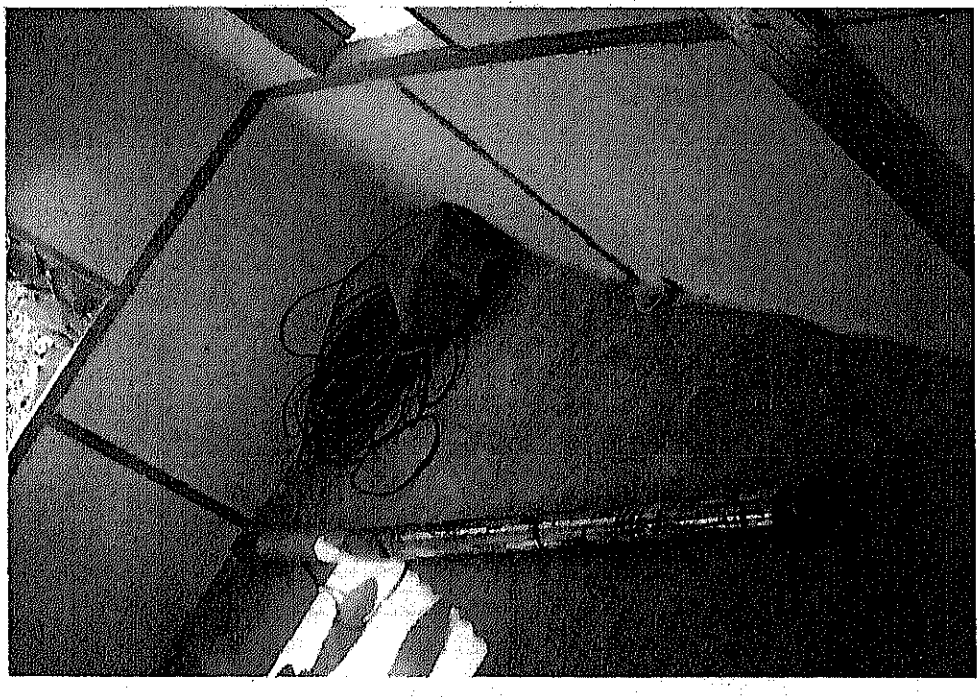


A TRANSFORMER

EMERGENCY OUT LET.



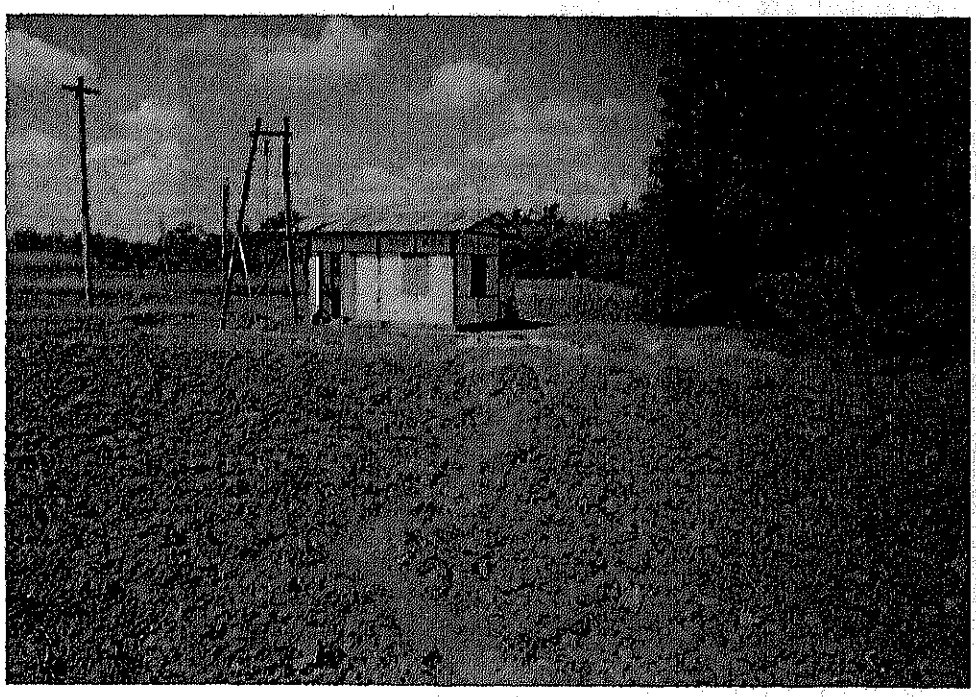
UNSERVICEABLE SUBMERSIBLE PUMPS AND SPARE PARTS.



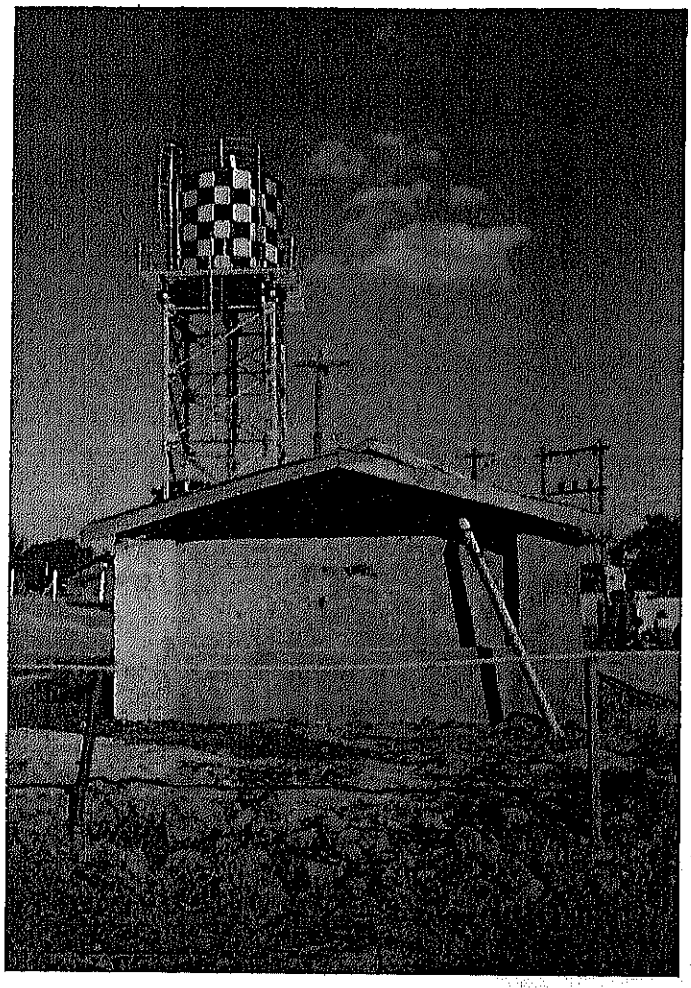
UNSERVICEABLE SUBMERSIBLE PUMP.

EXTENSION WATER SUPPLY SYSTEM

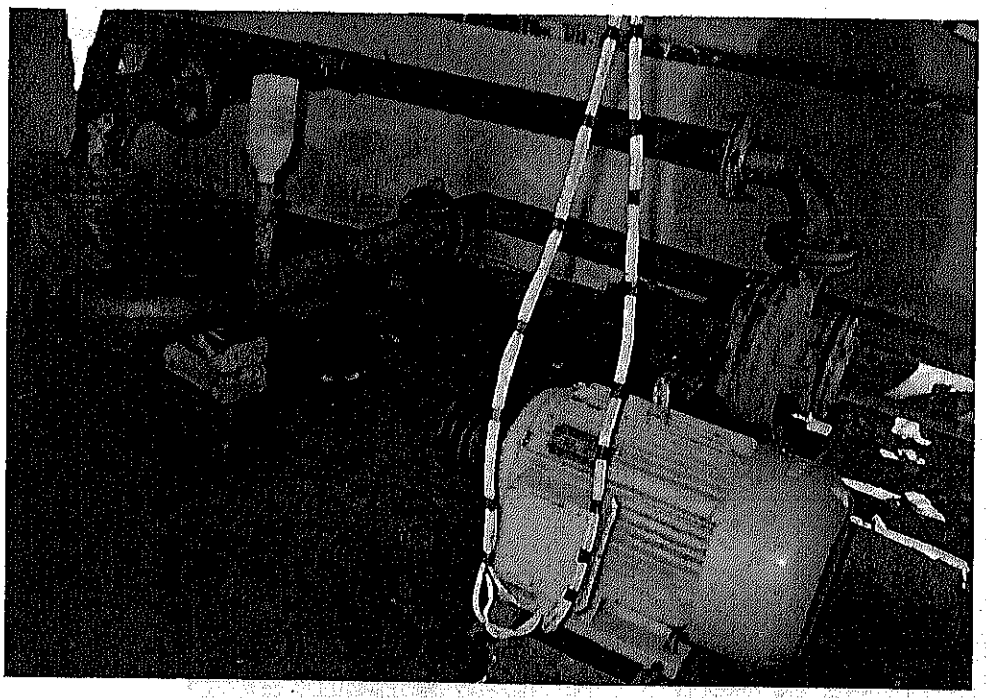
MONO PUMP INSTALLED
IN ONE OF THE WELLS



PUMP HOUSE FROM EXTENSION WELL FILED



GROUND TANK AND
ELEVATED TANK.



BOOSTER PUMP FROM EXTENSION WATER SUPPLY SYSTEM.

WATER SUPPLY WORK

IN

SHWEBO

WATER SUPPLY WORK IN SHWE BO

Shwebo Town is in Sagaing Division, and situated on the northwest of Mandalay. The distance between Mandalay and Shwebo is about 100 kilometers. The area of Shwebo town is 10.33 sq kilometer having 10 wards. The population status showed 70000 in the year 1998.

Previously, there were no proper water supply at Shwebo. People drew water from canal dug for agriculture purpose from Mu River. Beside that, water is attained from hand dug wells, which can be used only for utensil purpose as it contain saline on the other hand, most of these wells, dried up during summer.

Shwebo water supply scheme was started in the year 1985-86 aided by the Japanese Government grant Phase II. Water was secured from 9 nos. of 200 mm ø ground water wells, which produced 6100 cubic meter of water per day, benefiting 57800 persons, as per designed for 1991.

Water was sufficient for Shwebo town in the year 1990, when the project was completed.

"The present water supply situation"

It is found that among 9 tube wells drilled, only 3 wells is properly functioning. Some wells were blocked by sand and some were due to insufficient source of water, which were artisian well during the project. The functioning 3 tube wells can produce only 1100 cubic meter of water per day.

In the year 1985, Shwebo Township Development Committee with the co-operation of the public, drew Mu canal water into a settling tank, from where water is pumped to the elevated tank aided by the Japanese Government. Water of 1900 cubic meter per day is achieved from the said programme.

Though the above programme was implemented, still the required demands for the population of 70000 could be fulfilled.

To meet the requirement a further project was drawn in the year 1997 to have water by 15"ø R.C pipe from Maha Nanda Lake. The project was carried out with. the joint co-operation of Shwebo Township Development Committee and public in the year 1998, producing 1900 cubic meter of water per day. Thus the total water supply summed per day is around 4900 cubic meter.

A further two water resources are achieved and distribution is done by gravity flow system from the Japanese Government aided elevated tanks.

Water supply of Shwebo Township Development Committee is systematically supervised and maintained by the following Government employees.

Sub-Assistant Engineer	-	1 No.
Inspector	-	1 No
Mechanic	-	1 No.
Pipe Fitter	-	2 Nos.
Pump Operator	-	3 Nos.
Tax Collector	-	2 Nos.

The following data shows the collected tax and fees and expenditures for water supply for the last years.

Fiscal Year	**Collected (Kyats)**	**Expenditure (Kyats)**
1995-96	1120700	1085716
1996-97	1053850	569620
1997-98	19040000	211830

General Review

Though the tube wells drilled by the Japanese Government Aid is not in good condition, the Township Development Committee with the co-operation of public has helped to supplement the requirement.

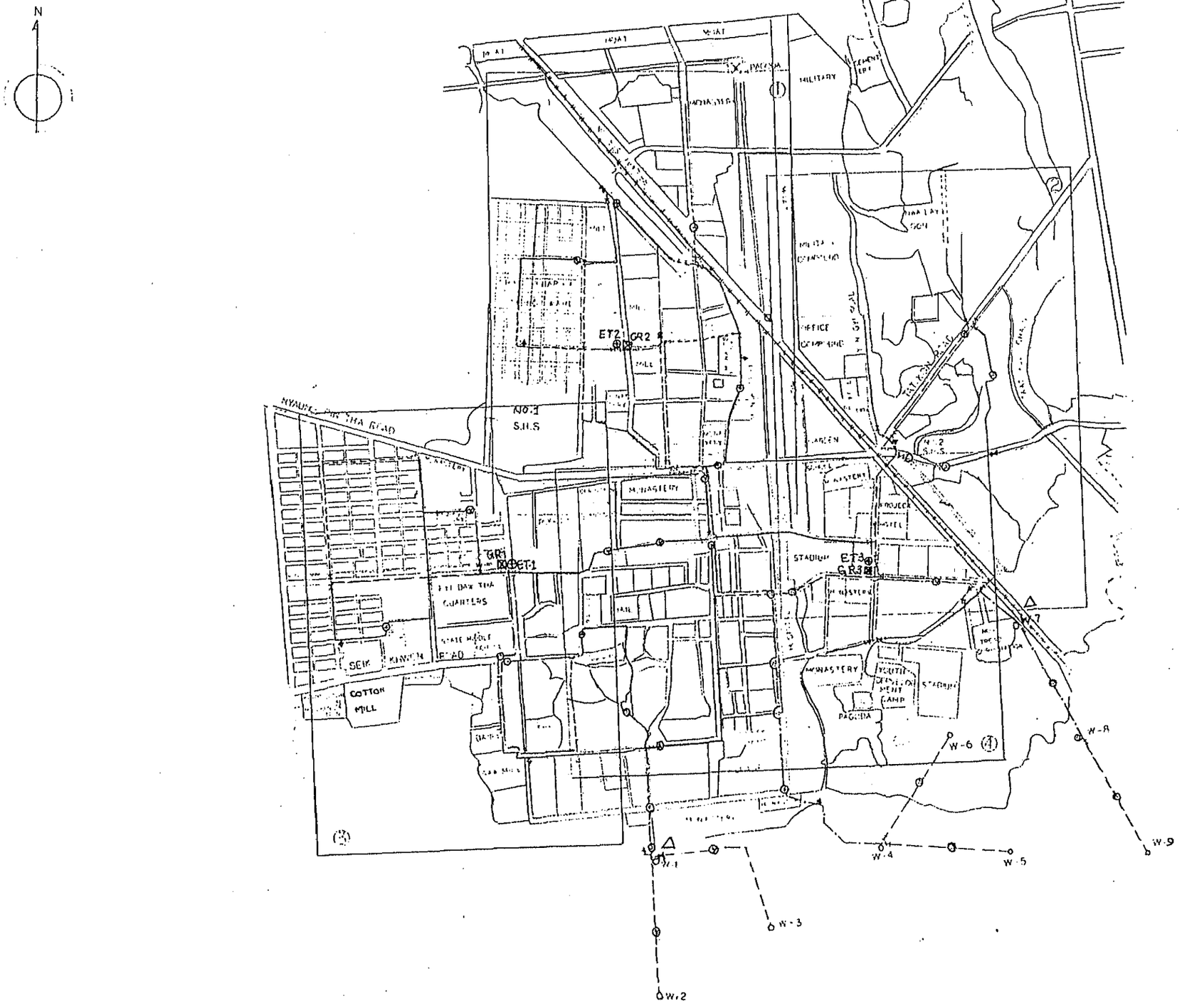
For long run, clean water supply is required, though, the present water is partially clean. As water supply solely depends on electricity supply, stoppage and fluctuation of power voltage, fully operation of 18 hours per day is not possible.

The map of Shwebo Town water supply project aided by the Japanese Government is enclosed here with Annexure (A).

A further, recorded photos of the present water supply situation is also attached here with annexure (B).

The quantity list of main facilities used in the project is also enclosed here with Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN SHWEBO

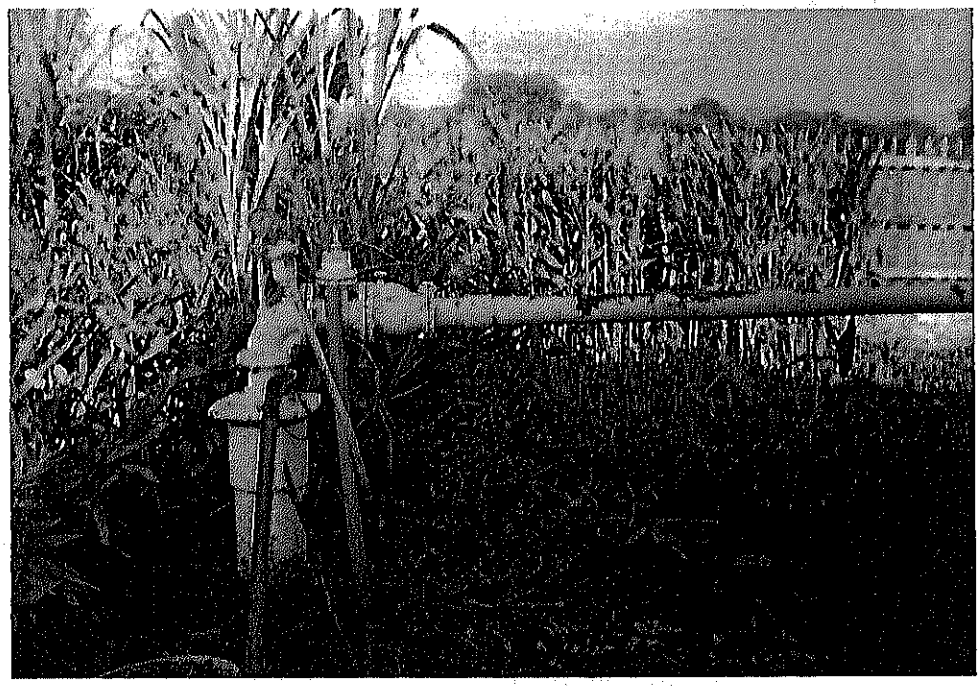


LEGEND

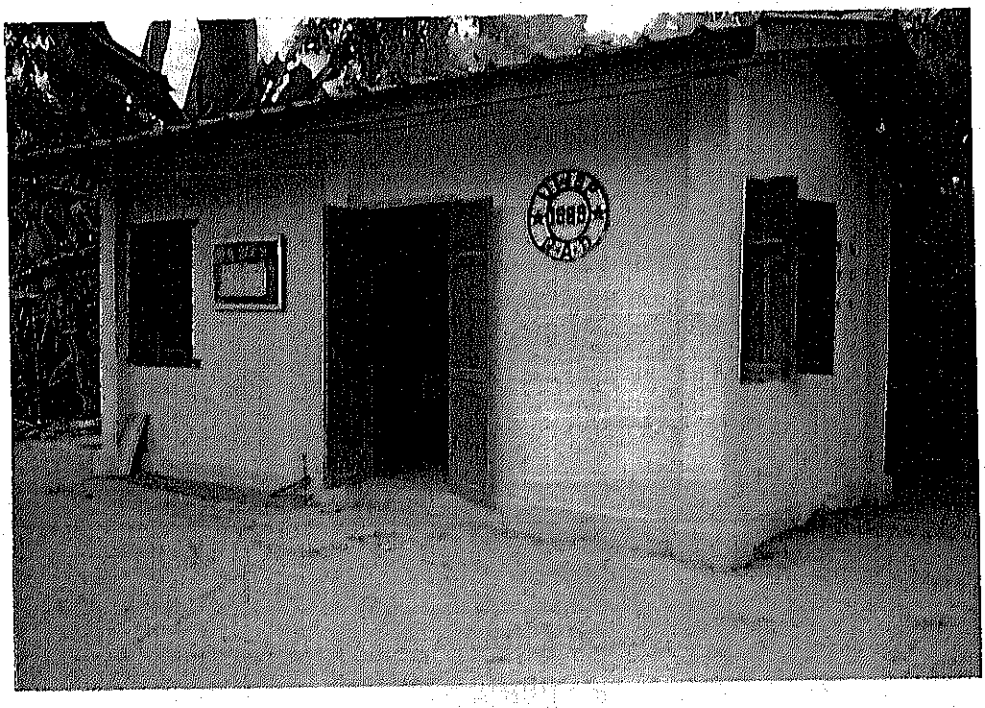
MARK	DIA (m m)
—·—·—	200
— — —	150
----------	100
————	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

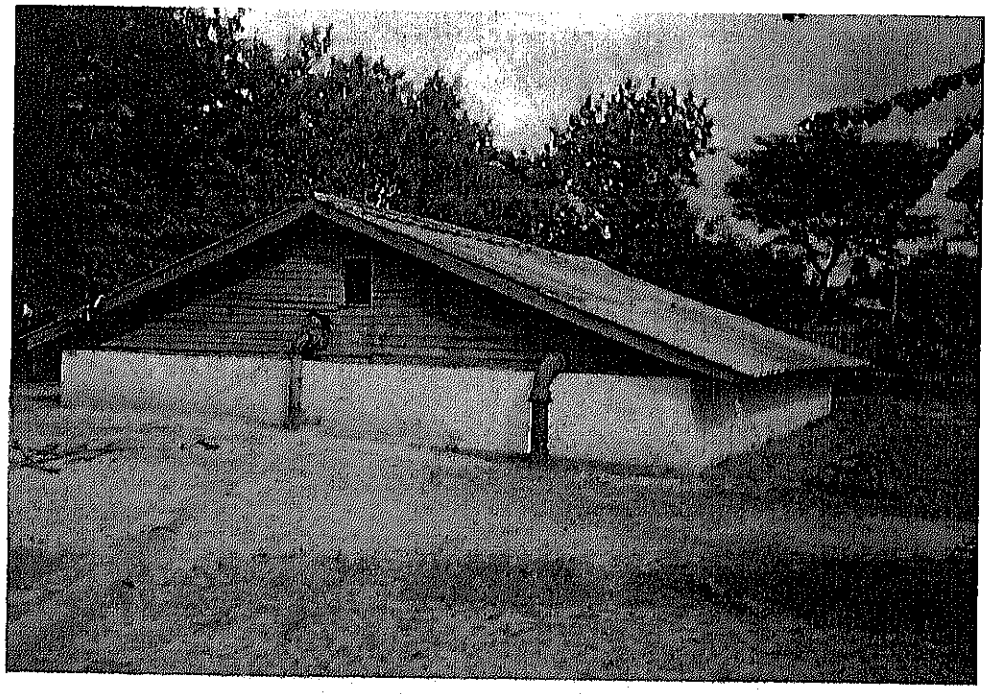
Annexure (B)



A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS.

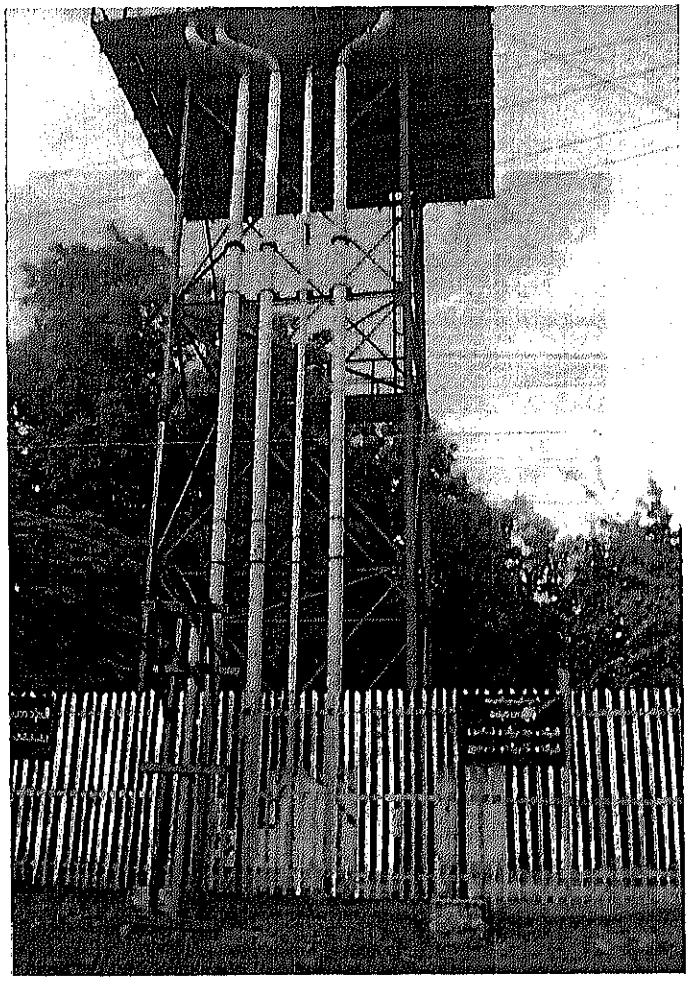


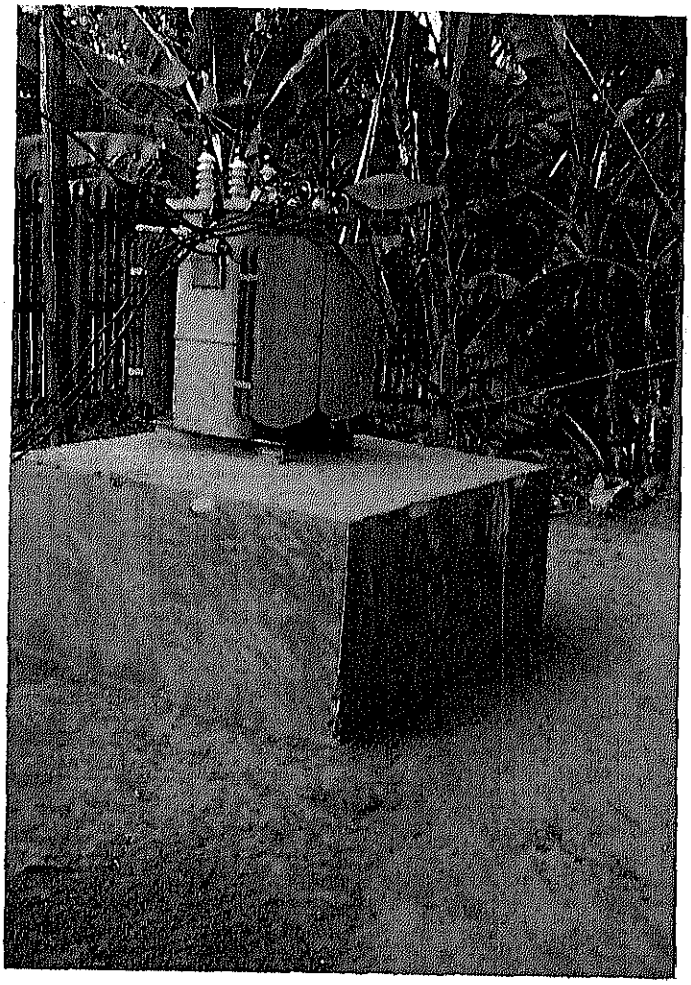
FRONT VIEW OF THE PUMP HOUSE



FRONT VIEW OF THE GROUND RESRVOIR
170 M^3 CAPACITY.

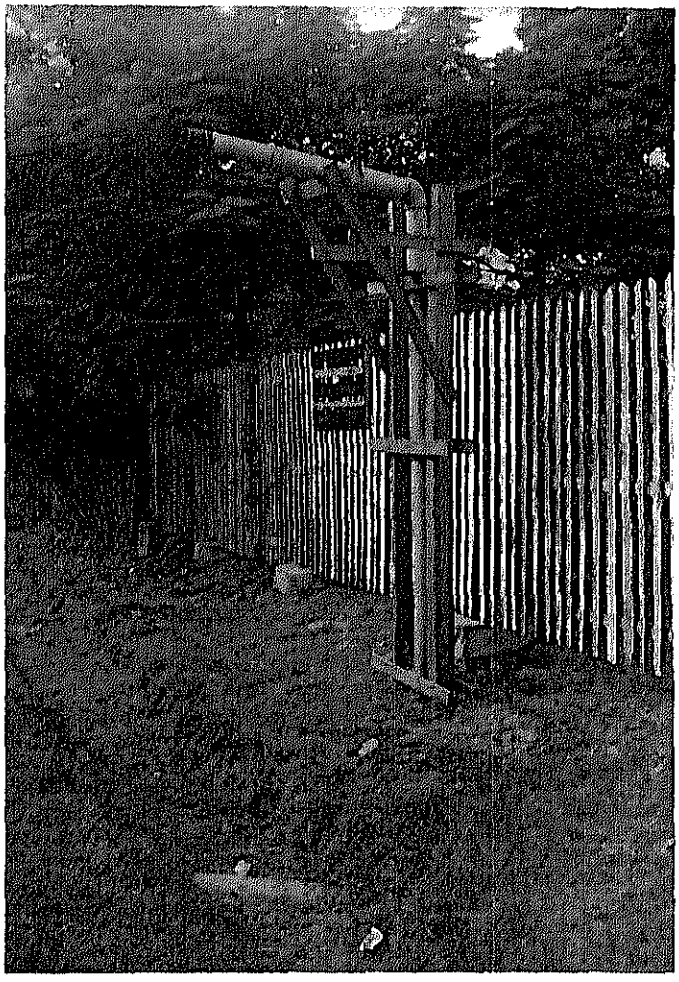
ELEVATED F.R.P TANK OF
43.3 M^3 CAPACITY.

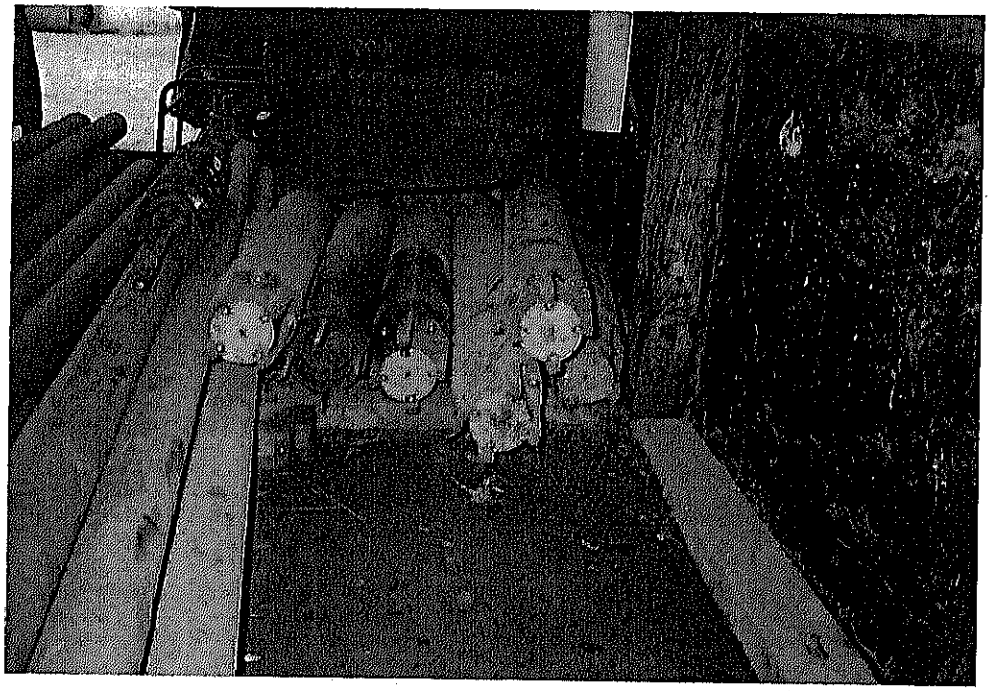




A TRANSFORMER

EMERGENCY OUT LET.

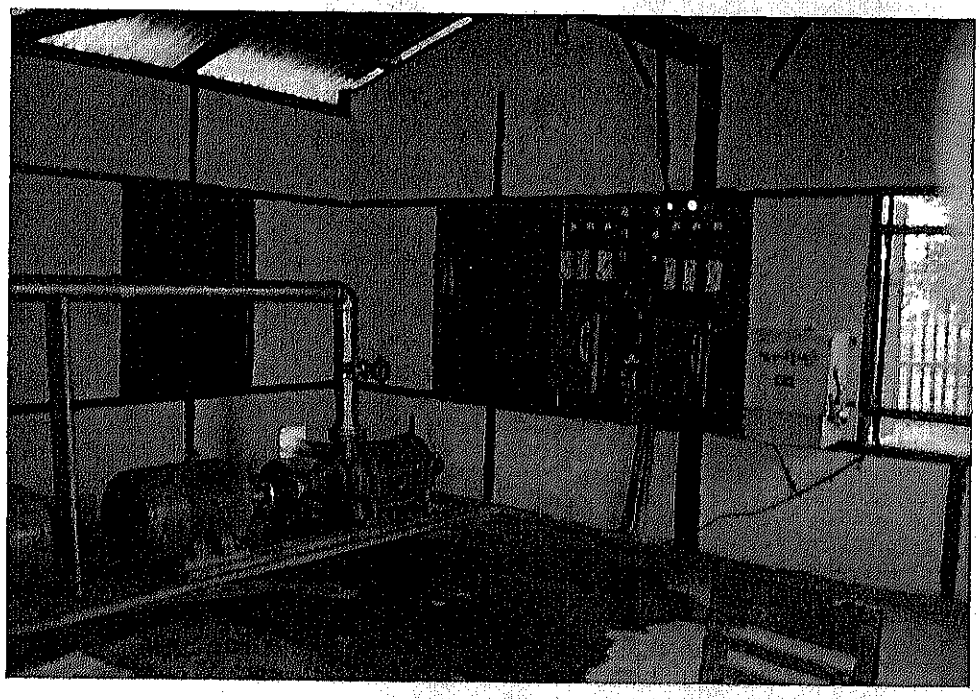




UNSERVICEABLE SUBMERSIBLE PUMPS.

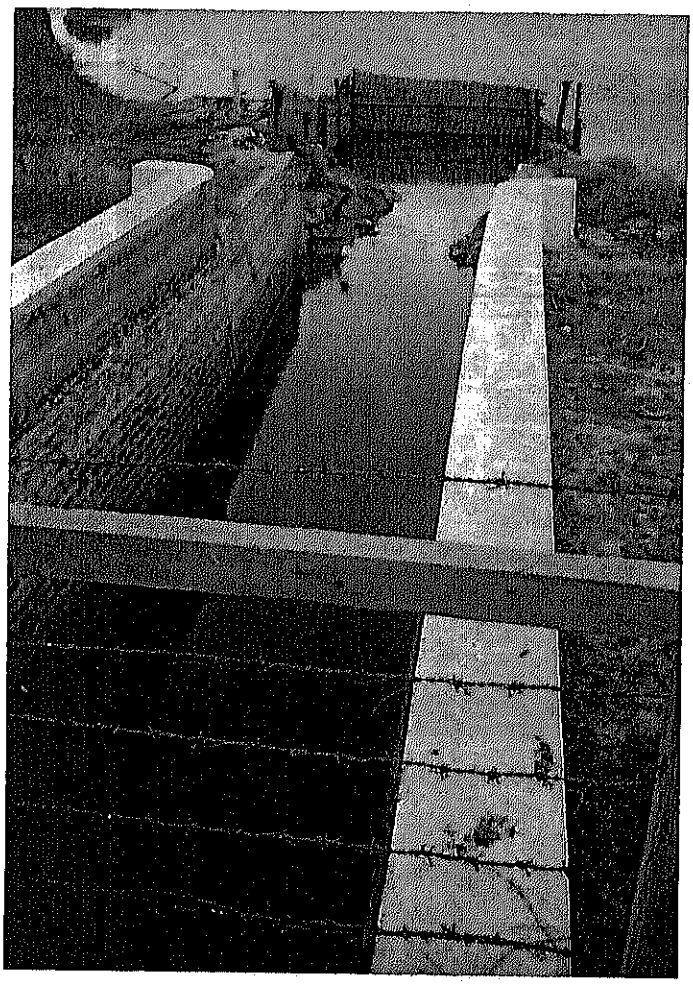
MU- THONEKHWA RIVER WATER SUPPLY SYSTEM (EXTENSION)

PUMP STATION NO. (1).

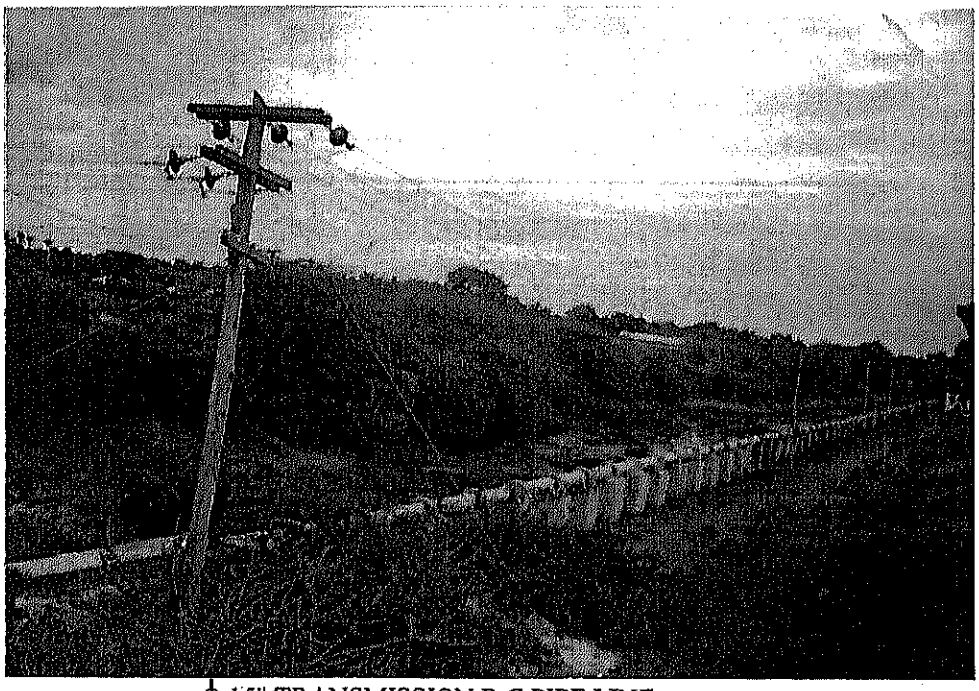


BOOSTER PUMPS INSTALLED IN
PUMP STATION NO. (1).

MAHA NANDAR LAKE WATER SUPPLY SYSTEM (EXTENSION)



INTAKE OF MAHA NANDAR LAKE.



ϕ 15" TRANSMISSION R.C PIPE LINE.

WATER SUPPLY WORK

IN

MONYWA

WATER SUPPLY WORK IN MONYWA

Monywa town is in Sagaing Division, which is about 590 km from Yangon. It has an area voice of 22 square kilometer consisting of 24 wards. The population of the town according to 1998 census figures around 132487.

Monywa town still has the benefit of 6 numbers of 18' ø connected gallery wells dug in the year 1938. The water is pumped form the said gallery wells to the elevated tanks and distribution to 6 wards of 24 wards is done by gravity flows system. It covers the population of 33120 of the whole 6 wards consuming 1820 M^3 (0.40 million gal) per day.

Monywa water supply scheme was done by the Japanese Government Grant Aid Phase II, starting in the year 1985-86. Water was secured by ground water resources. A number of 6,250 mm ø production wells were drilled.

Water supply project was completed in the year 1990, followed by systematic distribution. According to the design period for 1991, a population of 128000 which consumed 13800 M^3 (2.97 million gal) per day was achieved.

Though, after completion of the project, it was capable to distribute 13800 M^3 (2.97 million gal) for the remaining 18 wards it is found that at present it can supply only 10900 M^3 (2.4 million gal) per day. To meet the demand, some private wells were dug.

Monywa Twonship Development Committee is providing water to consumers by erecting public stand pipes and house hold connection.

The status of water attained by two house hold is as follows:-

No.	Particular	House Hold No (1)	House Hold No (2)
1.	Name	U Tun Tun	U San Moe
2.	Family members	7 Nos.	8 Nos.
3.	Time for collecting water per trip	15 minutes	10 minutes
4.	Collected gallon per trip	8 gals	8 gals
5.	Number of trips	6 trips	8 trips
6.	Gallon of water collected	48 gals	64 gals

Water supply is systematically supervised and maintained by Departmental Employees is as follows :-

Sub - Assistant Engineer - 1 No.

Mechanic - 1 No.

Pipe Fitter	-	2 Nos.
Pump Operator	-	8 Nos.
Tax Collector	-	2 Nos.
Inspector	-	1 No.

The collected fund and expenditure for the last 3-years of Monywa town is as follows:-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	44181000	16797000
1996-97	62373000	21409000
1997-98	86339000	24156000

The collected water tax and fees and expenditure for water supply system from the above mentioned data is as follows : -

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	1663000	981000
1996-97	2930000	1169000
1997-98	3980000	767000

General Review

The main cause of shortage of fully distribution of water supply as per designed in Monywa town is as follows :-

(a) Due to insufficient source of water achieved from the tube wells compared to the amount achieved previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repairs to control pannels and motors on account of droppage of power.

(e) On account of local made spare parts which dropped the efficiency of machines as original spare parts are not easily available.

The map of Monywa water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B)

The quantity list of main facilities in the project is also enclosed here with Annexure (C).

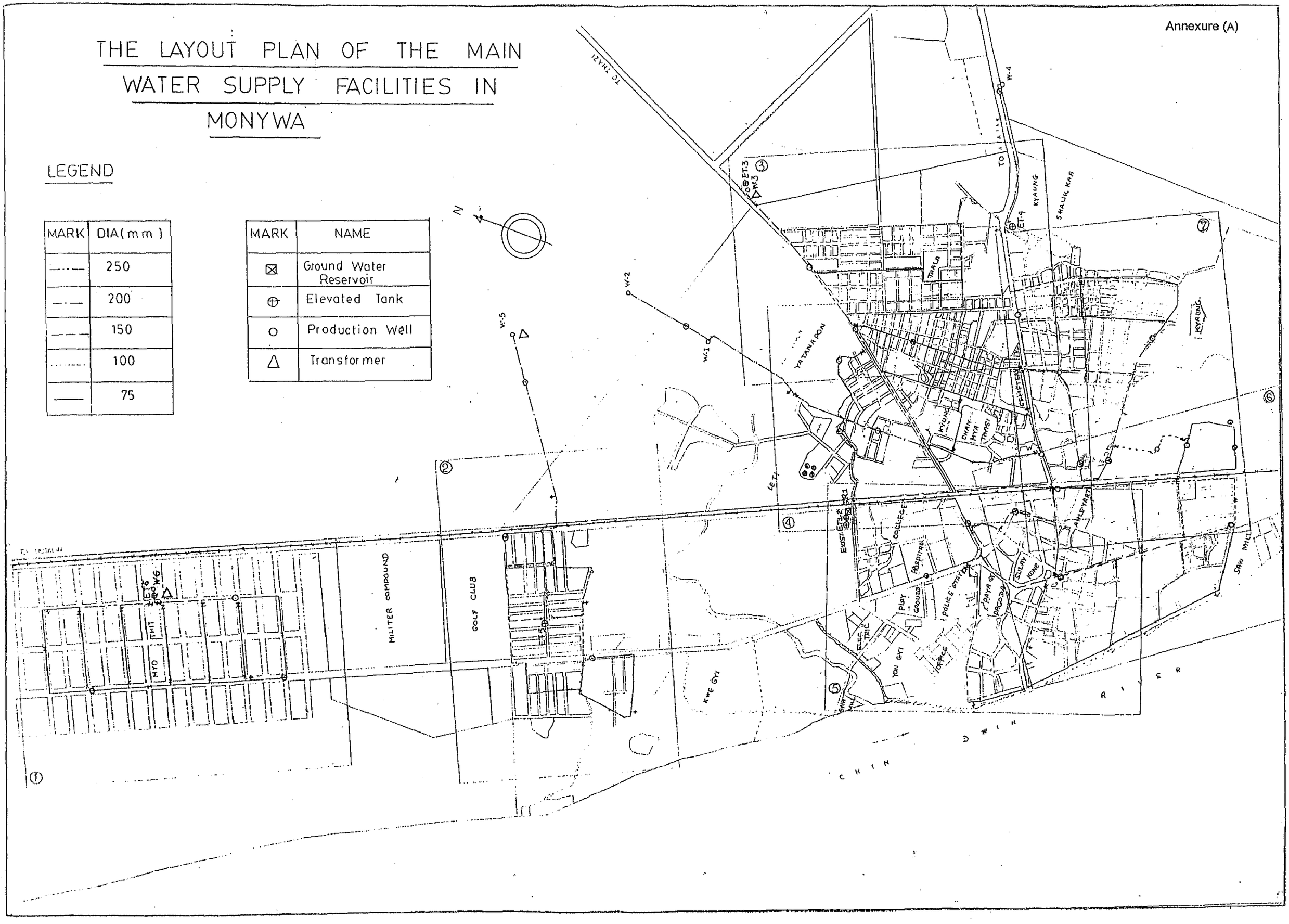
Annexure (A)

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN MONYWA

LEGEND

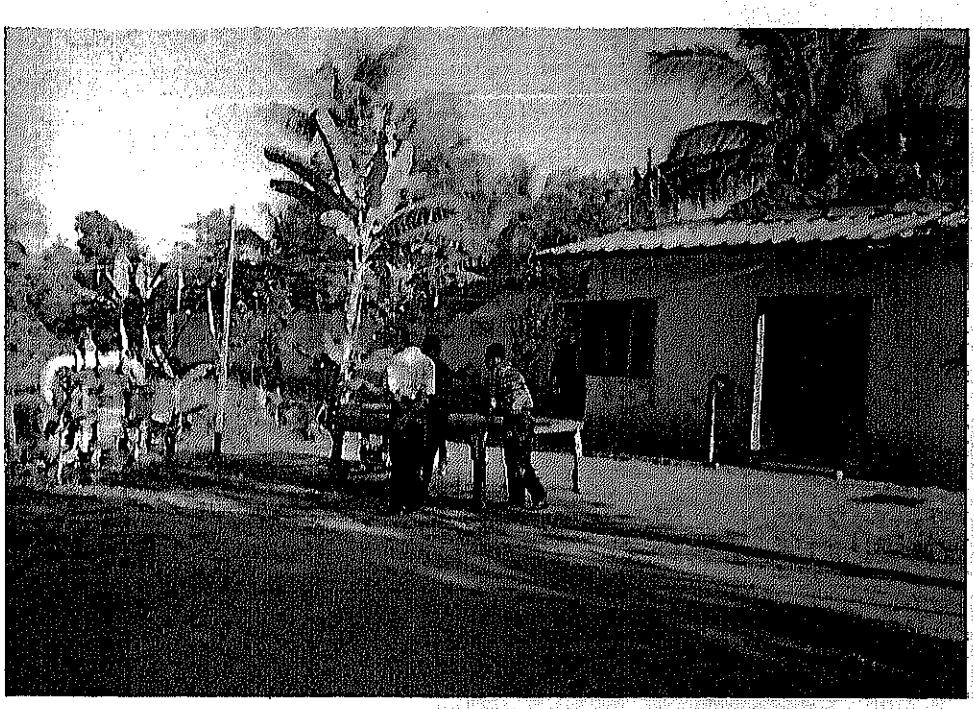
MARK	DIA(mm)
—·—·—	250
—·—·—	200
— — —	150
.....	100
———	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

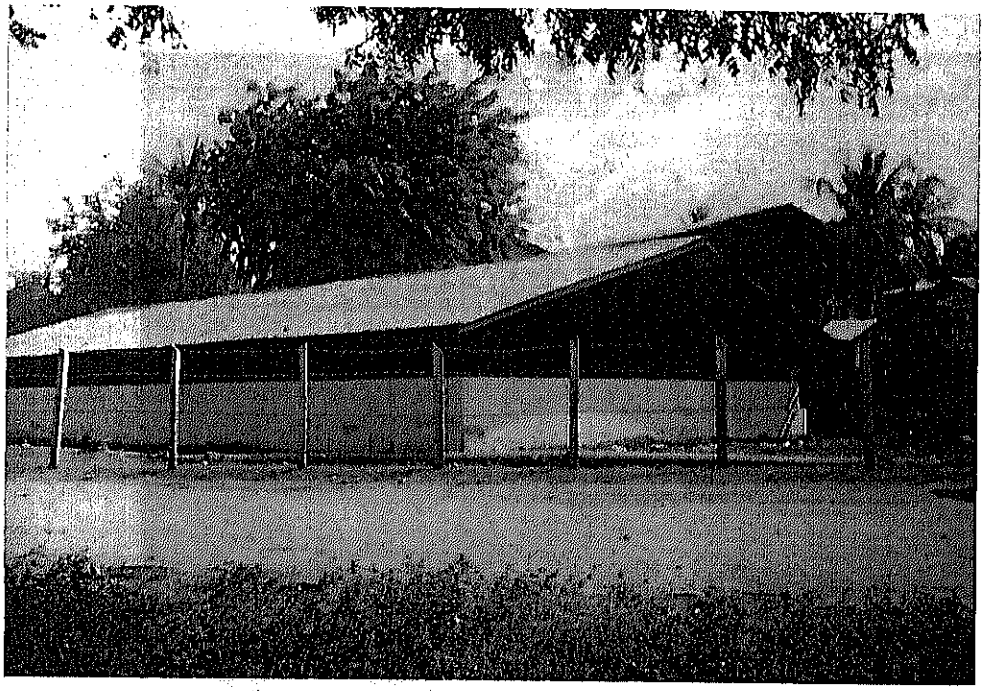


Annexure (B)

A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS.



FRONT VIEW OF THE PUMP HOUSE.

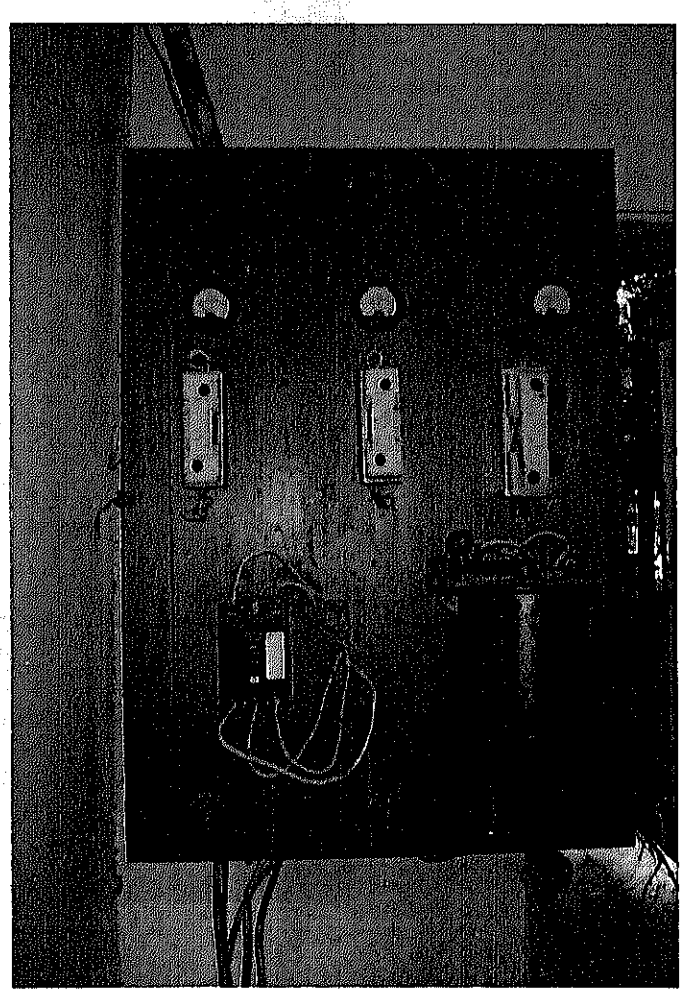


GROUND RESERVOIR
OF 55 M^3 CAPACITY

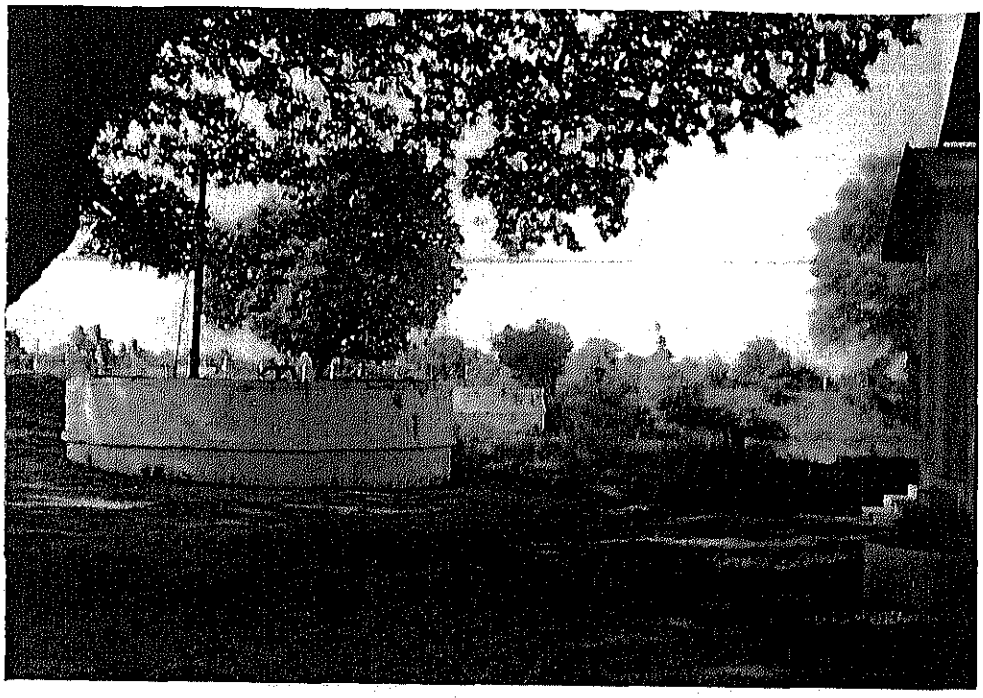
ELEVATED F.R.P TANK OF
34.1 M^3 CAPACITY

A TRANSFORMER

DIRECT ON LINE STARTER

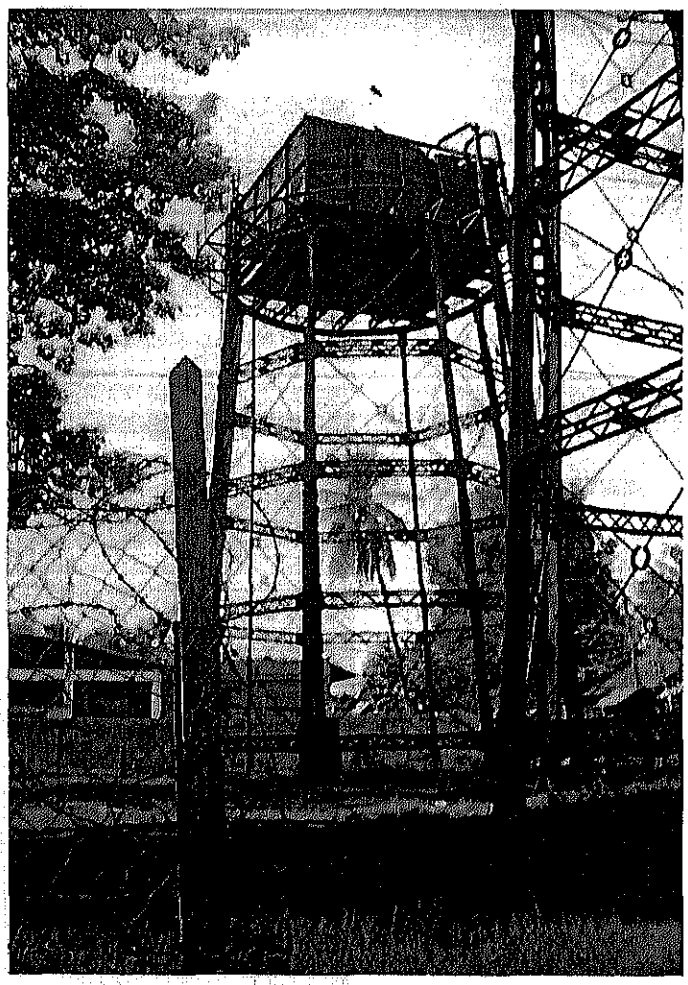


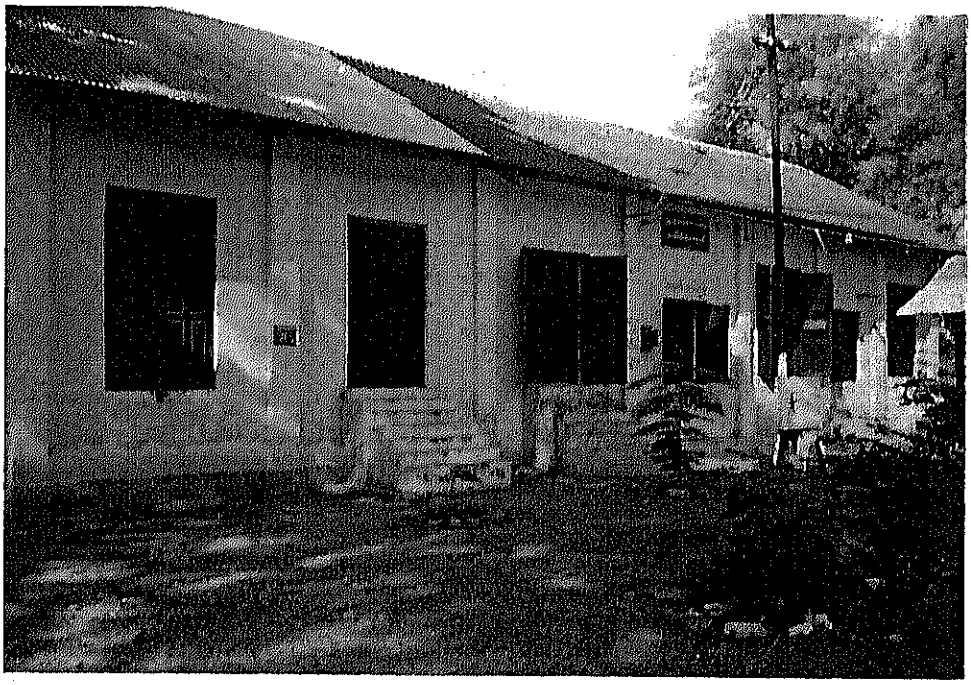
THE OLD WATER SUPPLY SYSTEM



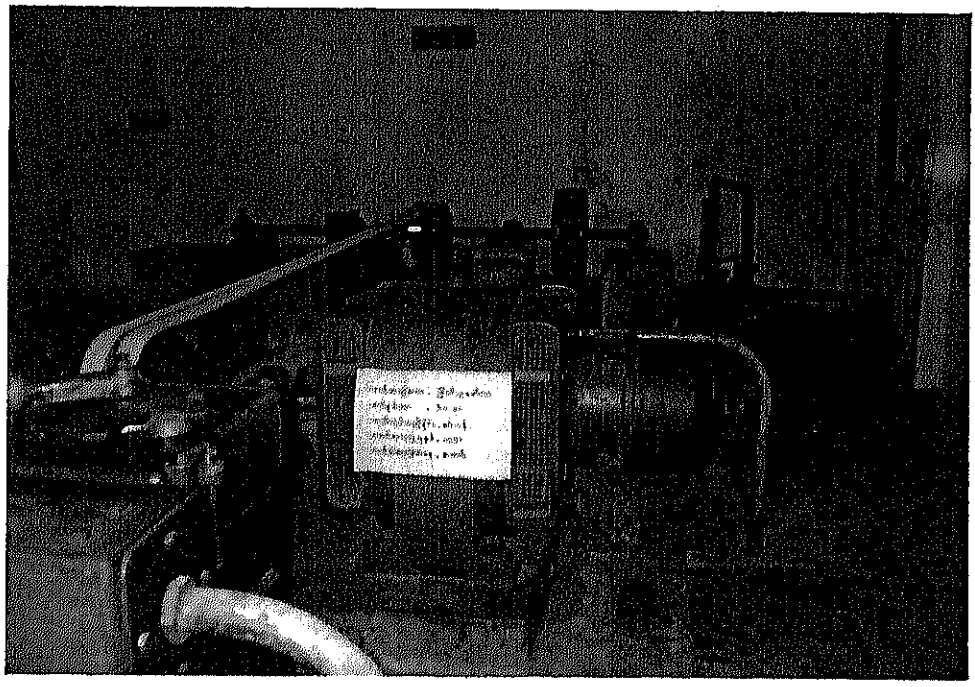
GALLERY WELLS

ELEVATED IRON TANK





FORNT VIEW OF THE PUMPING STATION



BOOSTER PUMP INSTALLED IN PUMPING STATION

WATER SUPPLY WORK

IN

PAKOKKU

WATER SUPPLY WORK IN PAKOKKU

Pakokku town is in Magway Division, which is about 500 km far from Yangon. It has an area voice of 15.38 square kilometer consisting of 15 wards. According to 1998 census the population figures. 177421.

Previously, There was no systematic water supply system at Pakokku. The community solely depends on private tube wells and hand dug wells.

Pakokku town water supply scheme was done by the Grant Aid of Japanese Government Phase II starting in the year 1985-86. Water was secured by ground water resources. A number of 7,250 mm ø production wells were drilled to meet the required water demand.

Water supply project was completed in the year 1990, followed by systematic distribution. According to the design period for 1991, a population of 81800 which consumed 8600 M^3 (1.72 million gal) per day was achieved.

Though, after completion of the project, it was capable to distribute 8600M^3 (1.72 million gal), it is found that at present it can supply only 5640 M^3 (1.20 million gal) per day. To meet the public demand some private wells were dug accordingly.

Pakokku Township Development Committee is providing water to consumer by erecting public stand pipes and house hold connection.

The status of water attained by two house hold is as follows:-

Sr No.	Particular	House Hold No (1)	House Hold No (2)
1.	Name	Daw San Shwe	Daw Khin Saw
2.	Family members	5 Nos.	6 Nos.
3.	Time for collecting water per trip	10 minutes	15 minutes
4.	Collected gallon per trip	8 gals	8 gals
5.	Number of trips	10 trips	8 trips
6.	Gallon of water collected	80 gals	64 gals

Water supply is systematically supervised and maintained by Departmental employees if as follows.

Sub-Assistant Engineer.	-	1 No.
Mechanic	-	1 No.
Pump Fitter	-	2 Nos.

Pump Operator	-	7 Nos.
Tax Collector	-	2 Nos.
Inspector	-	1 No.

The collected fund and expenditure for the last (3) years of Pakokku town is a follows :-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	17700000	15781000
1996-97	21073000	21262000
1997-98	22139000	11312000

The collected water tax and fees and expenditure for water supply system from the above mentioned data is as follows :-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	1322000	776000
1996-97	1985000	674000
1997-98	1930000	613000

General Review

The main cause of shortage of fully distribution of water supply as per designed in Pakokku town is as follows.

(a) Due to in sufficient source of water achieved from the tube wells compared to amount achieved previously.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repairs to control pannels and submersible motor pumps on account of droppage of power.

(e) On account of local made spare parts, which dropped the efficiency of machines, as original spare parts are not easily available.

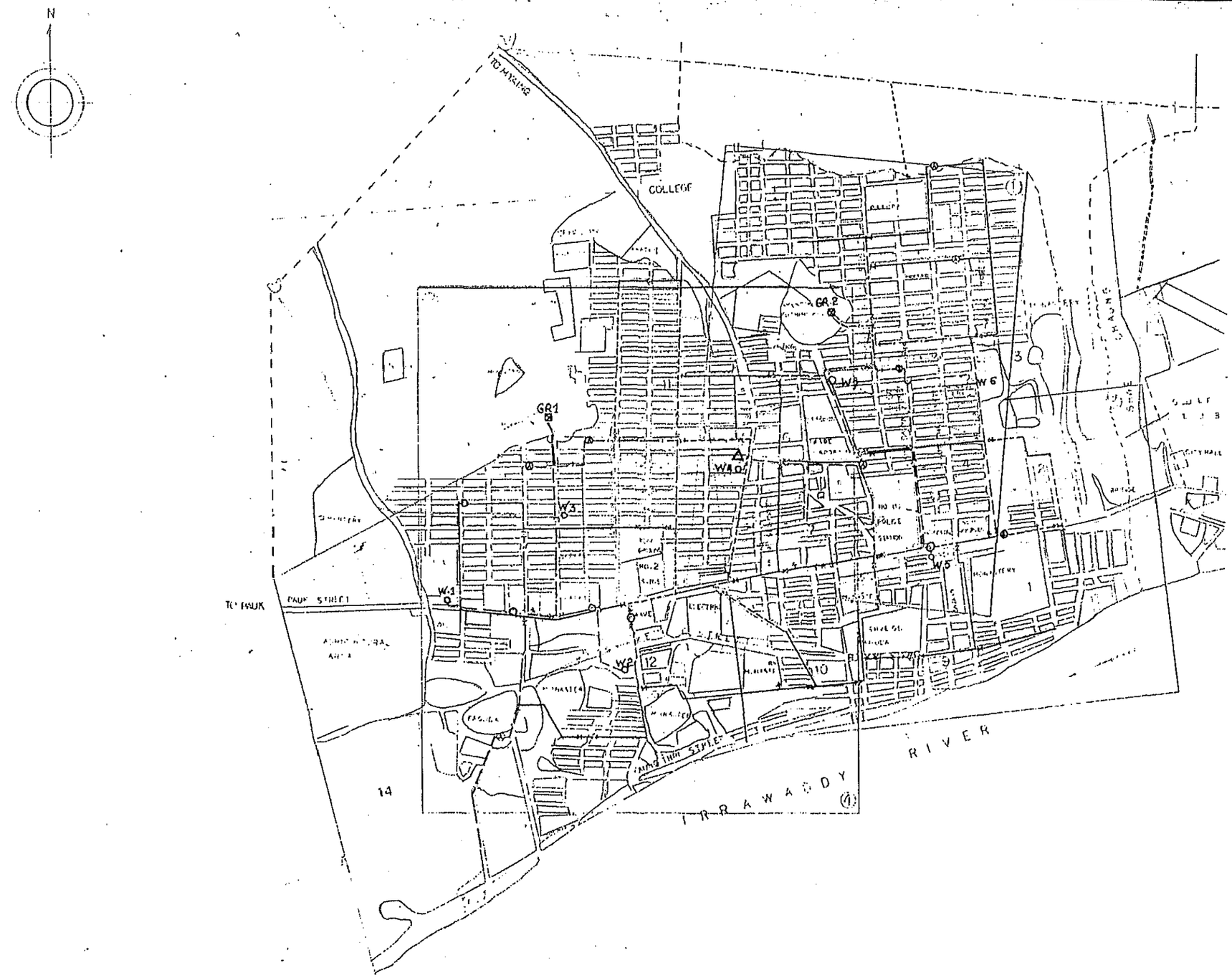
The map of Pakokku town water supply aided by the Japanese Government is enclosed herewith Annexure. (A)

The recorded photos of present water supply situation is also enclosed herewith Annexure. (B)

The quantity list of main facilities in the project is also enclosed herewith Annexure. (C)

Annexure (A)

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN PAKOKKU

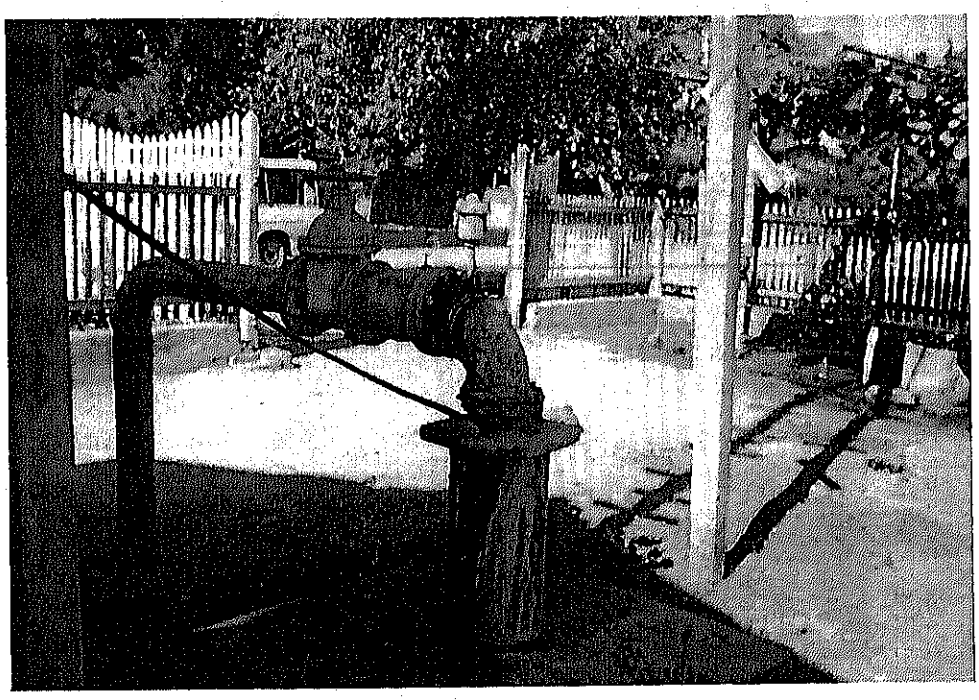


LEGEND

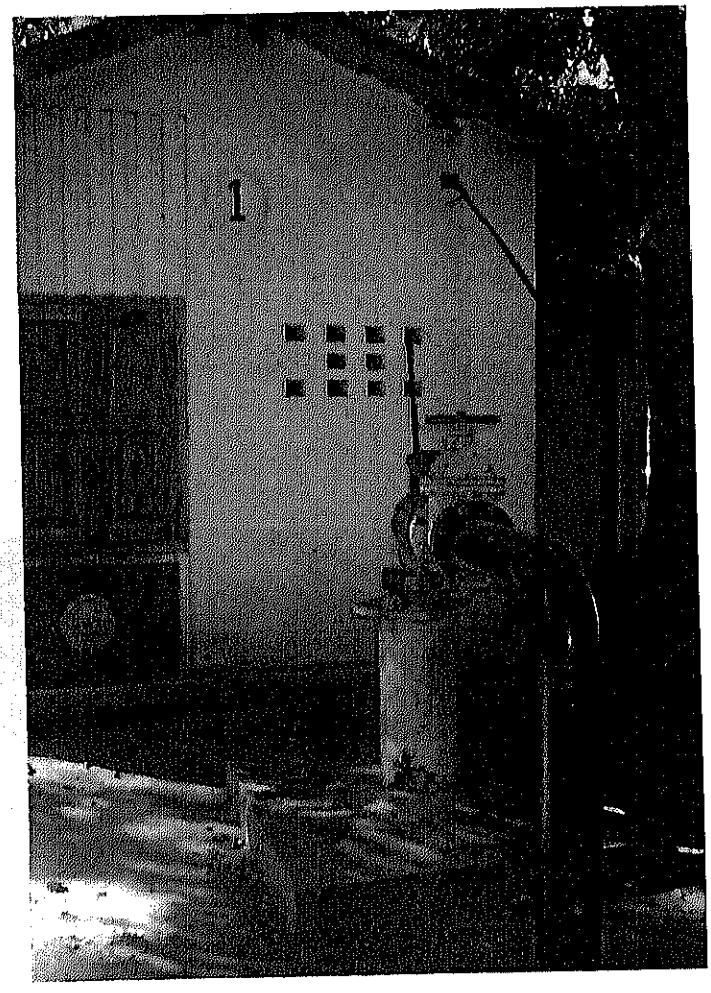
MARK	DIA (mm)
—— — ——	250
—— · —— · ——	200
—— —— ——	150
- - - - - - - -	100
————	75

MARK	NAME
⊠	Ground Water Reseryoir
⊕	Elevated Tank
O	Production Well
△	Transformer

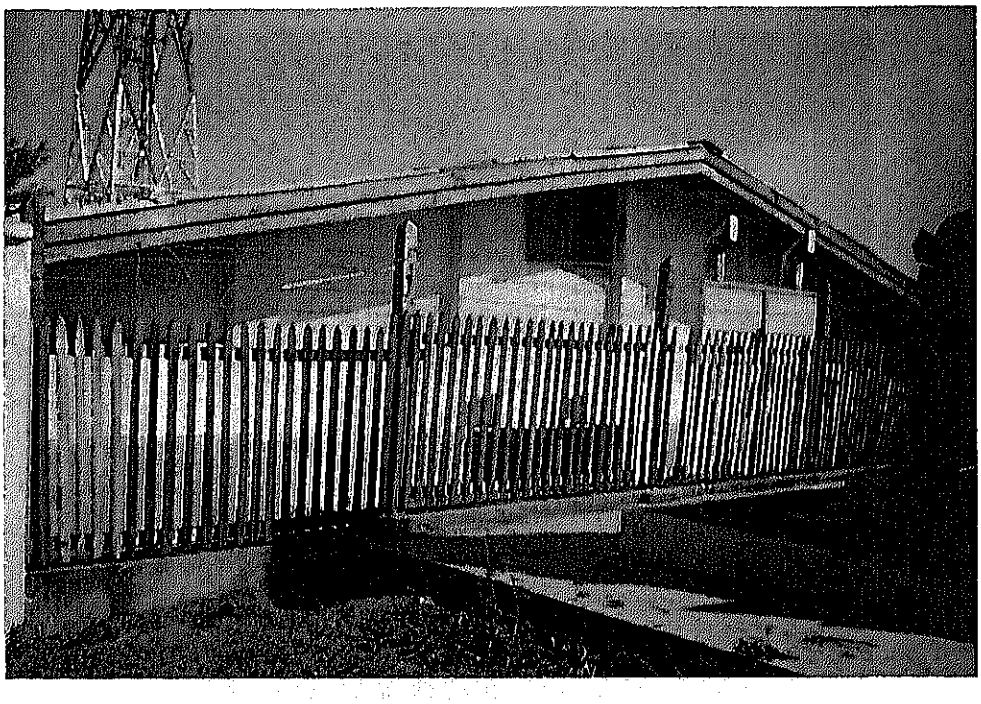
Annexure (B)



A SUBMERSIBLE PUMP INSTALLED IN ONE OF THE WELLS.

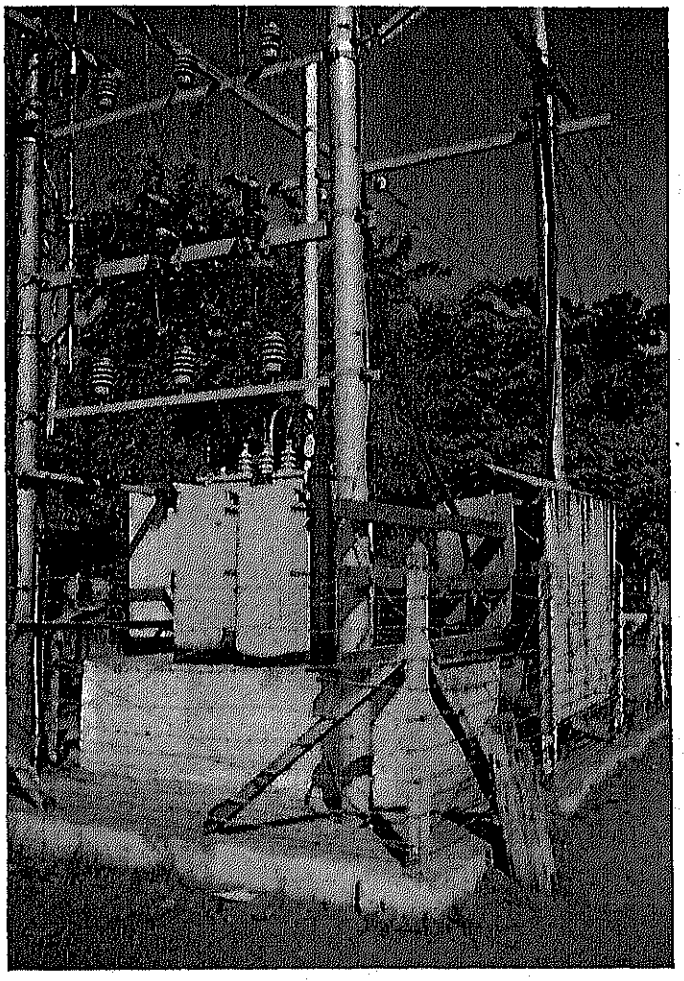


SIDE VIEW OF THE PUMP HOUSE AND PRODUCTION WELL.

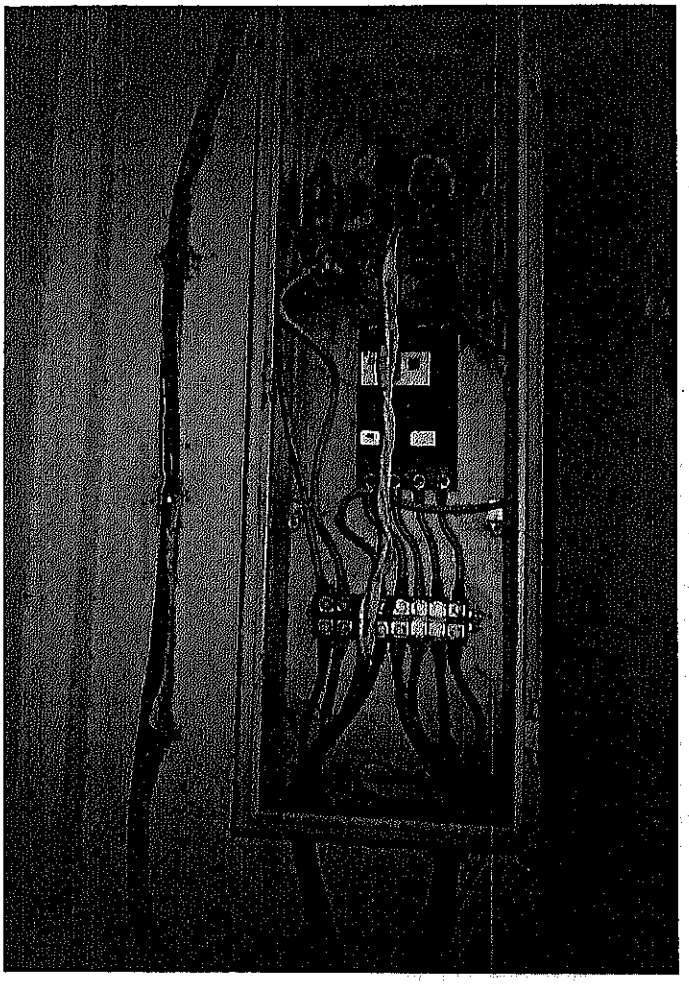


GROUND RESERVOIR OF 410 M^3 CAPACITY

GROUND RESERVOIR OF 315 M^3 CAPACITY



A TRANSFORMER

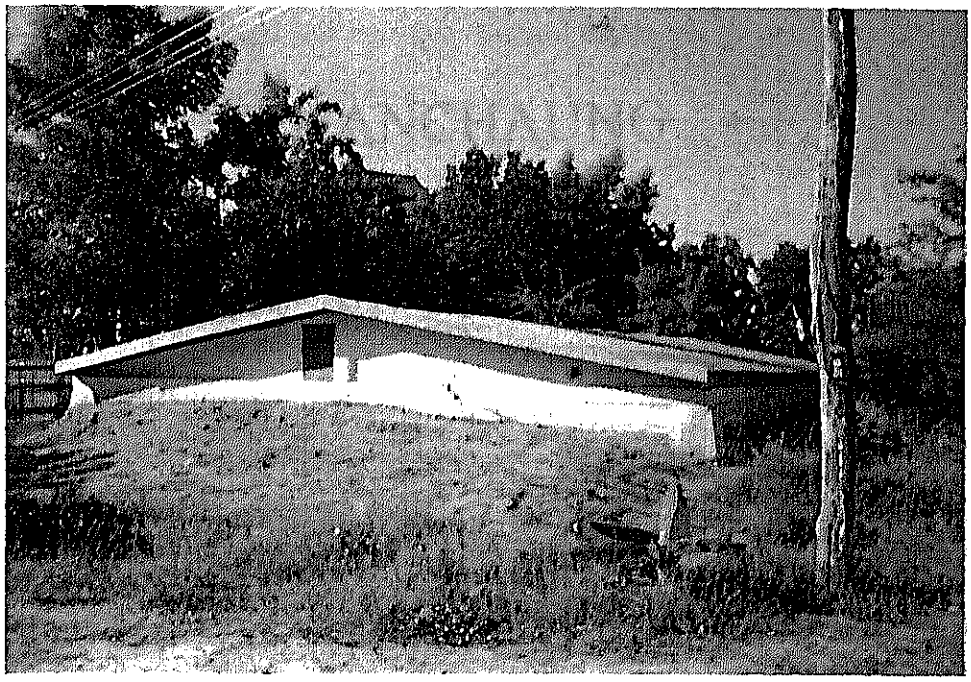


UNSERVICEABLE
CONTROL PANEL

UNSERVICEABLE
SUBMERSIBLE PUMP

EXTENSION OF WATER SUPPLY

PUMP HOUSE



GROUND TANK OF 4000 GALLONS CAPACITY

WATER SUPPLY WORK

IN

YENANCHAUNG

WATER SUPPLY WORK IN YENANCHAUNG.

Yenanchaung town is in Magway Division which is about 576 km from Yangon. It has an area of 22.26 square-kilometer and consisting of 15 wards. The population of 1998 is about 55395.

During the second World War, water supply was done by than Myanmar Petrolium Corporation by collecting water from big gallery wells of creek water resources into 1 million gal Capacity iron tank. Water is distributed to the public by gravity flow system previously.

Yenanchaung water supply scheme was started in the year 1985-86 by the Grant Aid of the Japanese Government phase II. Water was secured by digging 5 nos of 3600 mm ø gallery wells as the creek water resources near by Pin chaung.

Water supply project was completed in the year 1990 and the water distribution system was started in the same year. According to the design period for 1991, a population of 81200 enjoyed 8500 M^3 (1.87 million gal) of water per day.

At present it is found that 3200 M^3 (0.70 million gal) of water per day had been attained and compared to previous 8500 M^3 (1.87 million gal) per day. To meet the needs the public has to draw water from Ayeyarwaddy river.

Yenanchaung Township Development Committee is supplying water by erecting public stand pipes and house hold connection.

The status of water attained by one house hold is as follows:-

No.	Particular	House Hold No (1)
1.	Name	U Tun Kyi
2.	Family members	8 Nos.
3.	Time for collecting water per trip	10 minutes
4.	Collected gallon per trip	8 gals
5.	Number of trips	6 trips
6.	Gallon of water collected	48 gals

Water supply system is properly supervised and maintained by the following Departmental employees.

Sub - Assistant Engineer - 1 No.

Mechanic - 1 No.

Pipe Fitter - 5 Nos.

Pump Operator	-	5 Nos.
Tax Collector	-	1 No.
Inspector	-	1 No.

The collected fund and expenditure for the last 3 years of Yenanchaung town is as follows:-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	8190000	5068000
1996-97	8247000	6370000
1997-98	9676000	7466000

The collected water tax and fees and expenditure of water supply system from the above mentioned data is as follows:-

Fiscal Year	Collected (Kyats)	Expenditure (Kyats)
1995-96	1590000	1300000
1996-97	1600000	1386000
1997-98	1645000	1657000

General Review

The main cause of shortage of water supply as per designed in Yenanchaung town is as follows : -

(a) Due to the droppage of static water level, on account of water diversion during the less water flow season in Pin Chaung.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) Due to frequent repairs to motors on account of power droppage.

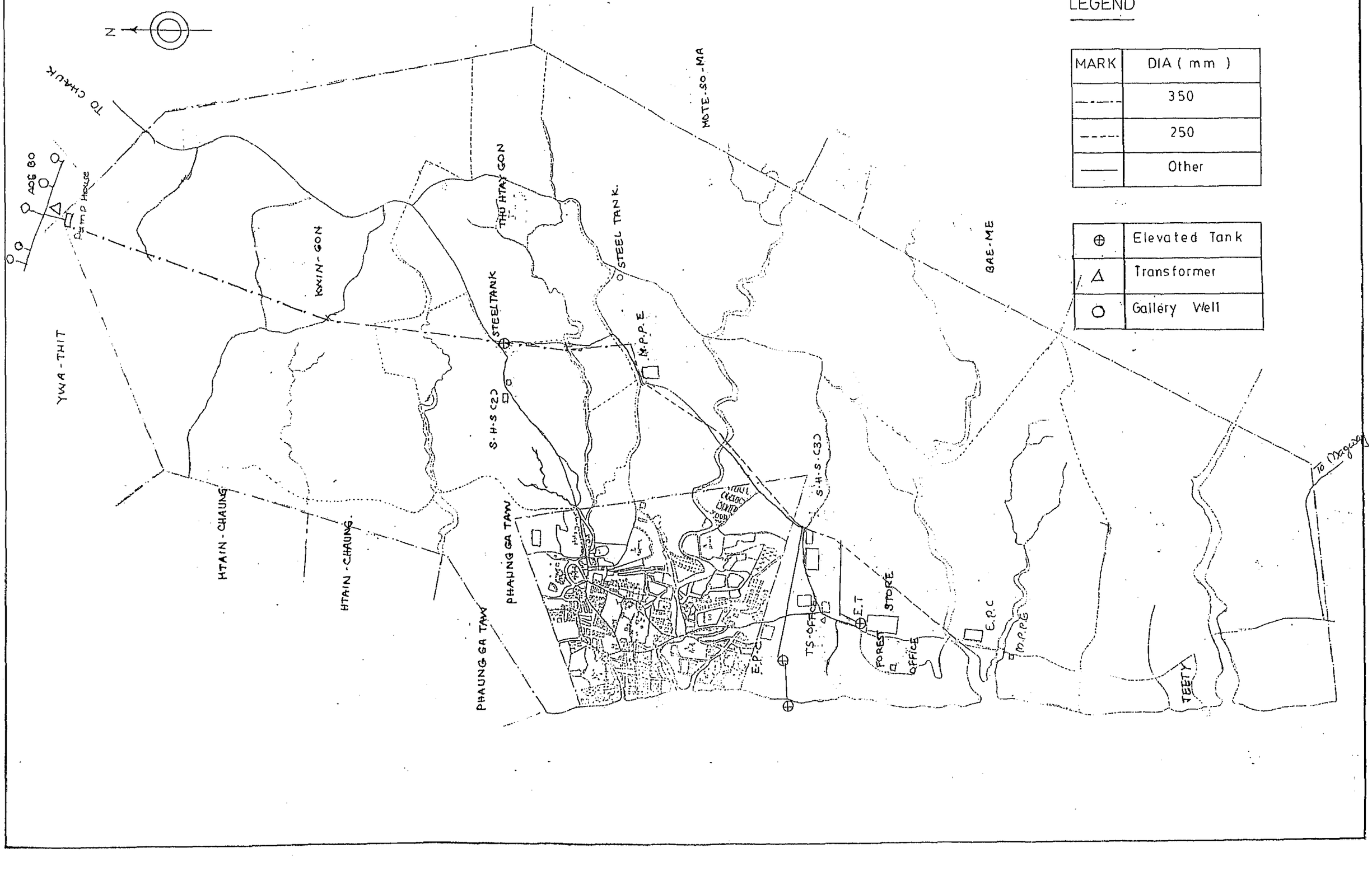
(d) On account of local made spare parts which dropped the efficiency of machines, as original spare parts are not availabel.

The map of Yenanchaung town water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B).

The quantity list of main facilities in the project is also enclosed here with Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN YENANGYAUNG

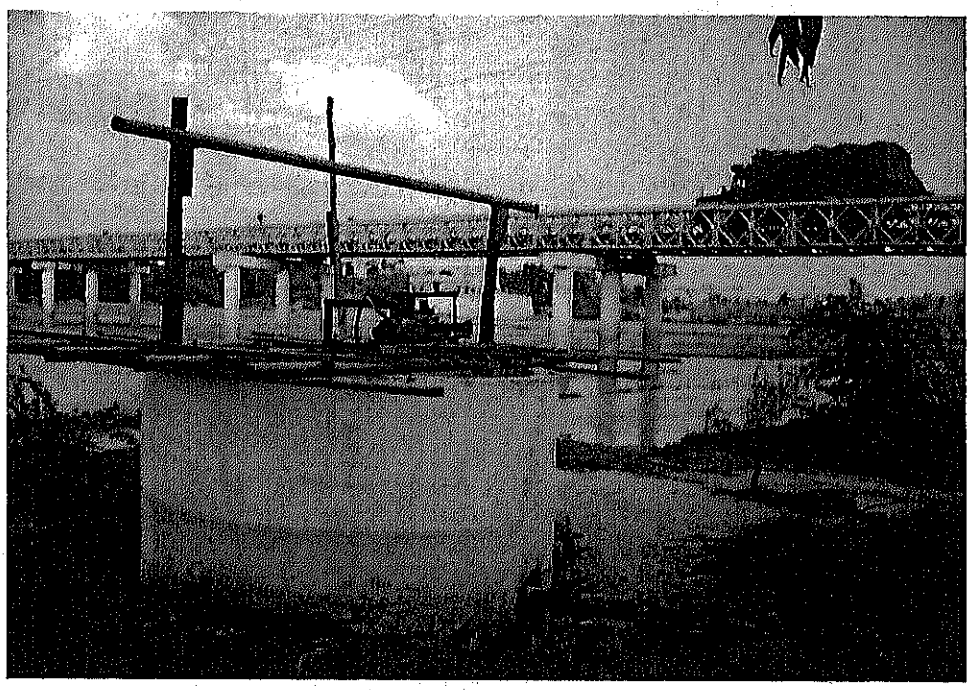


LEGEND

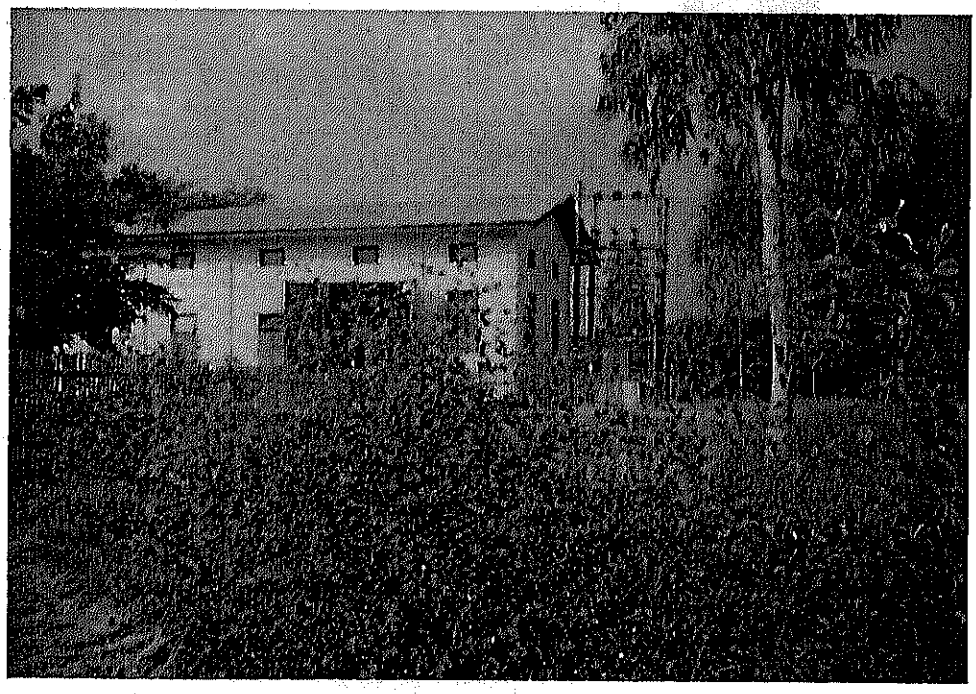
MARK	DIA (mm)
—·—·—	350
– – – –	250
———	Other

⊕	Elevated Tank
△	Transformer
○	Gallery Well

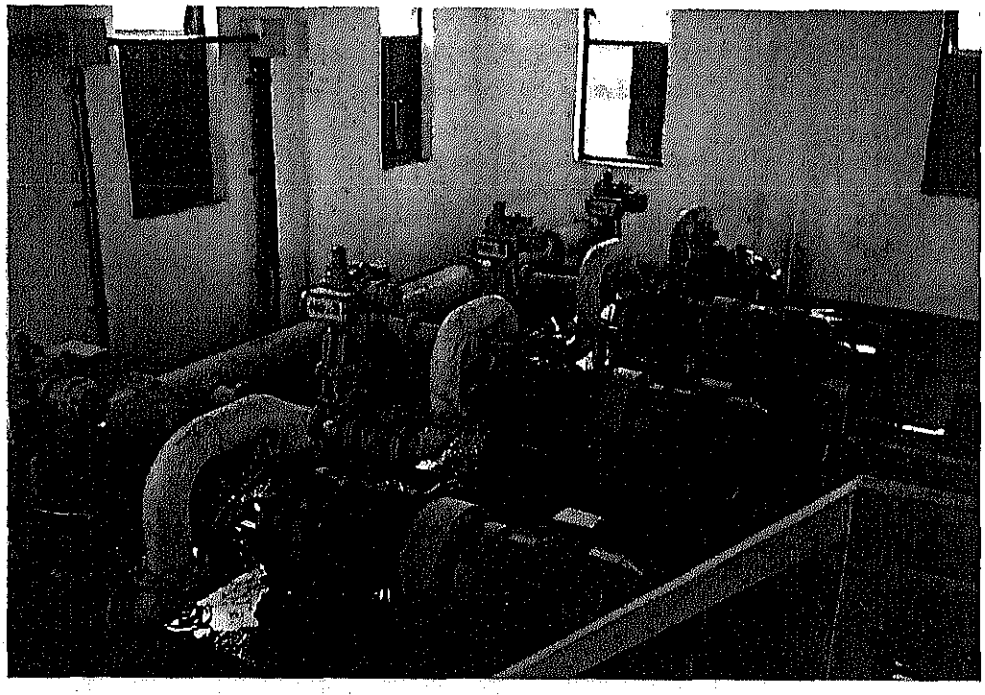
Annexure (B)



GALLERY WELL AND A NEARBY STREAM
WHICH IS A SOURCE OF WATER

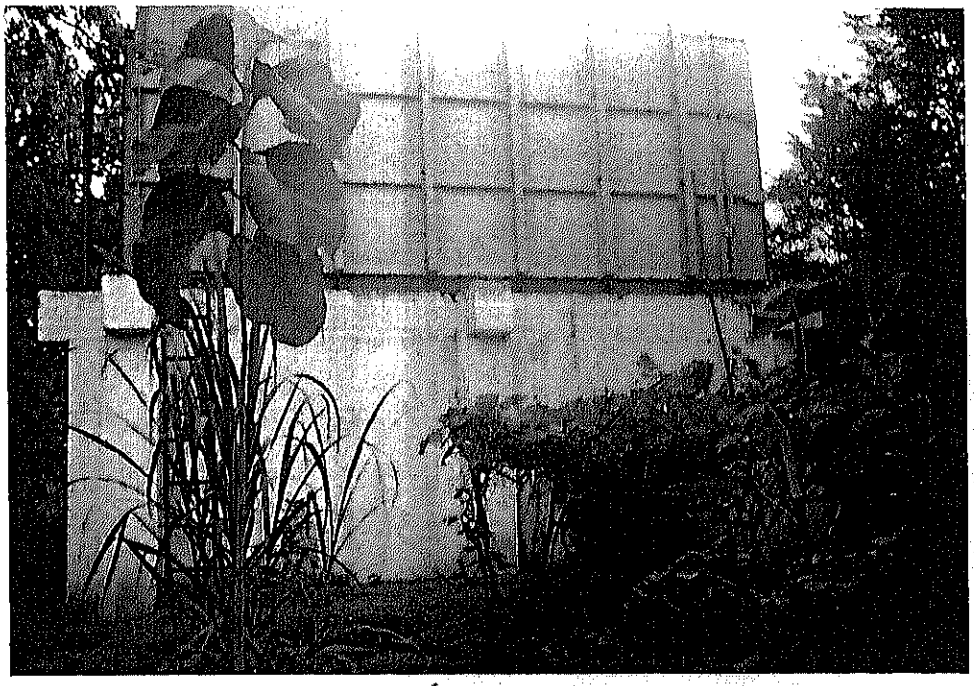


FRONT VIEW OF THE PUMPING HOUSE

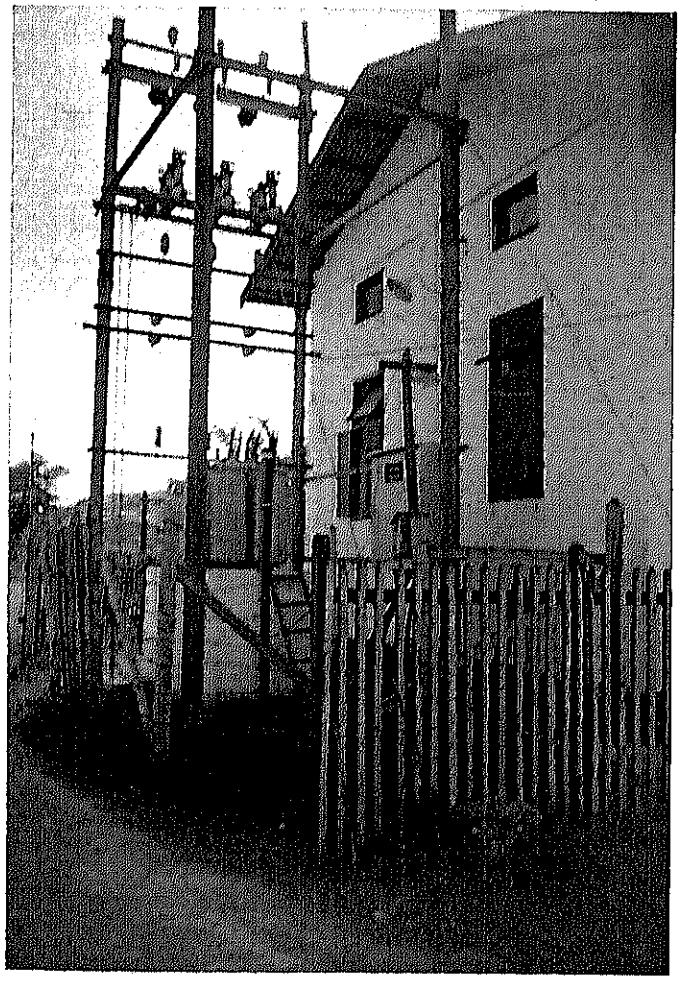


FOUR BOOSTER PUMPS INSTALLED IN
THE PUMPING HOUSE

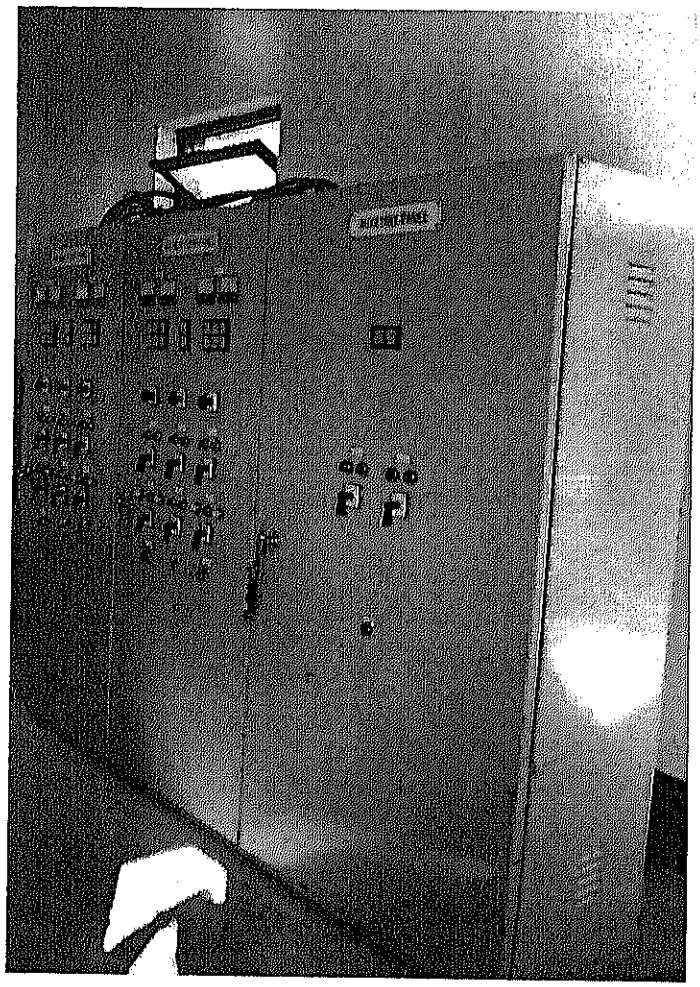
GROUND TANK OF 1 MILLION GALLONS
CAPACITY MADE OF IRON



ELEVATED F.R.P TANK OF 150 M^3 CAPACITY



THE TRANSFORMER 300 K.V.A INSTALLED BESIDE THE PUMPING HOUSE.



THE CONTROL PANEL INSTALLED IN
THE PUMPING HOUSE

WATER SUPPLY WORK

IN

TAUNGDWINGYI

WATER SUPPLY WORK IN TAUNGDWINGYI

Taungdwingyi Town is in Magwe Division, Which is about 448 kilometers far from City Town Yangon. It has an area voice of 8 sq, kilometers having 10 wards. The population status shows 38569 in the year 1998.

Taungdwingyi Town Development Committee has it water supply system for 2 nos. of 200 mm ø and 1 no of 150mm ø, Totaling 3 nos. tube wells, since 1952.

Taungdwingyi Town water supply scheme was started in the year 1986 by the Grant aid of the Japanese Government Phase II, supplementing the existing water supply. Water was secured from 10 nos. of 200mm ø ground water resources.

It was completed in the year 1990, followed by systematic water supply to the public. According to the design period for 1991, a sum of 45200 peoples enjoyed 4800 cubic meter (1.056 millions gal) of water per day.

It was found that at present it can only supply 1620 cubic meter (0.3565 million gal) per day compared to 4800 M^3 (1.056 million gal) per day previously achieved. To supplement the need private tube wells were dug accordingly.

Taungdwingyi township Development Committee is systematically supplying water, by erecting public stand pipes and house hold connection.

The status of water attained by two house hold in as follows:-

No	Particular	House Hold No. (1)	House Hold No. (2)
1	Name	U Aung Kyi	U Aye Htoon
2	Family Members	3 nos.	7 nos.
3	Time for collecting water per trip	15 minutes	10 minutes
4	Collected gallon per trip	8 gal	8 gal
5	Number of trips	3 trips	5 trip
6	Gallon of water collected	24 gals	40 gals

The following Departmental Employees, supervised and maintained, the water supply system.

Sub – Assistant Engineer	-	1 No.
Inspector	-	1 No.
Tax Collector	-	2 Nos.
Pipe Fitter	-	2 Nos.
Pump Operator	-	7 Nos.
Mechanic	-	1 No.

The annual Income and Expenditure for the last 3 years of Taungdwingyi Town is as follows:-

Fiscal Year	Income (Kyats)	Expenditure (Kyats)
1995-96	11549000	7097000
1996-97	15524000	8587000
1997-98	17076000	11526000

The collected water tax and fees and the expenditure for water supply system from the above mentioned data is as followed : -

Fiscal Year	Income (Kyats)	Expenditure (Kyats)
1995-96	1175000	1214000
1996-97	1194000	1389000
1997-98	1250000	1542000

General Review

The main cause of shortage of fully supply of water as per designed is as follows : -

(a) Due to insufficient source of water achieved from tube wells, compared to water achieved previously, plus some wells were plugged.

(b) Due to the frequent stoppage of electricity supply and voltage fluctuation.

(c) As water supply solely depend on electricity, fully operation of tube wells which timed about 18 hours a day is not possible.

(d) Due to frequent repairs to control panels and submersible motor pumps on account of droppage of power.

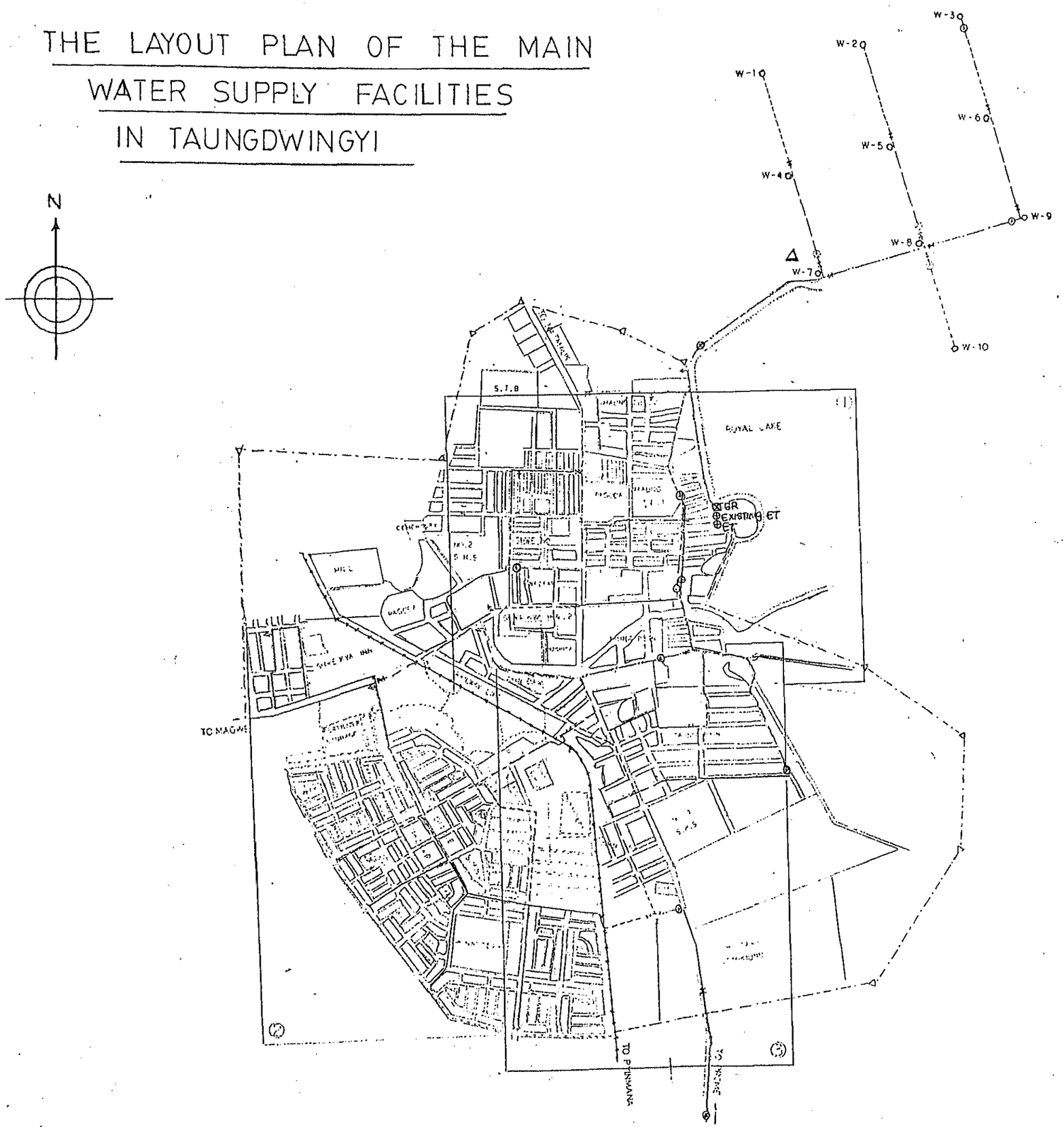
(e) On account of local made spare parts, which dropped the efficiency of machines, as original spare parts are not easily available.

The map of Taungdwingyi water supply project aided by the Japanese Government is enclosed here with Annexure (A).

The recorded photos of the present water supply situation is also enclosed here with Annexure (B).

The quantity list of main facilities in the project is also enclosed here with Annexure (C).

THE LAYOUT PLAN OF THE MAIN WATER SUPPLY FACILITIES IN TAUNGDWINGYI

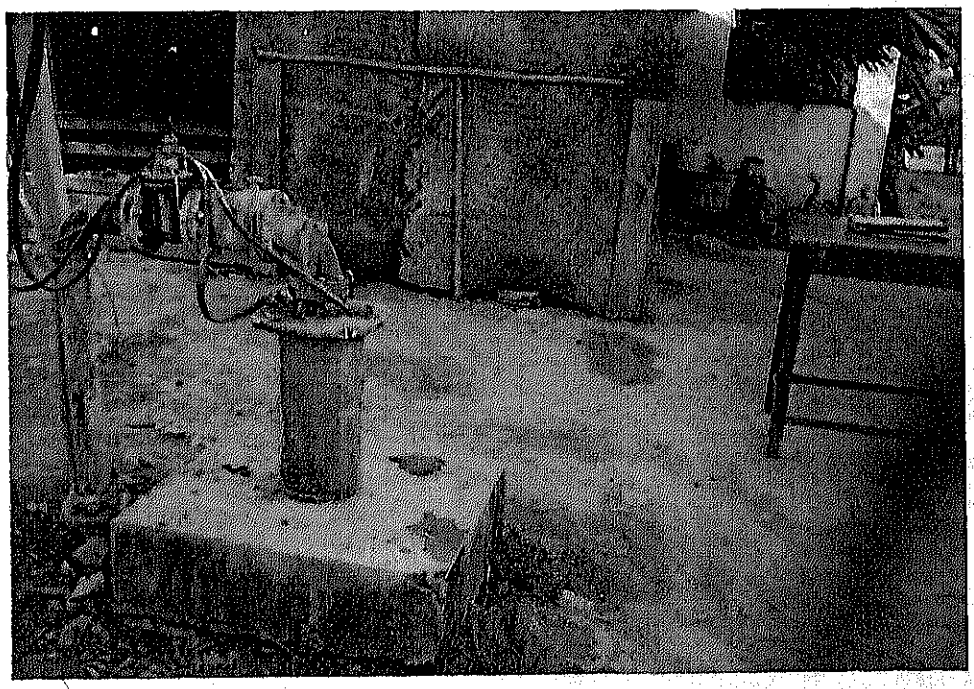


LEGEND

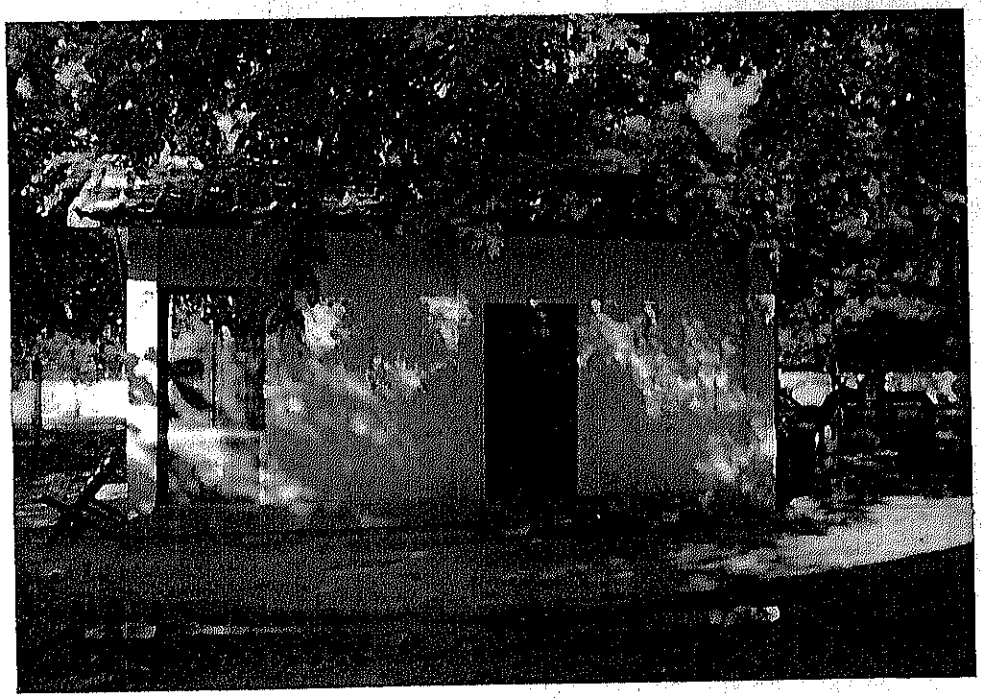
MARK	DIA (mm)
——·····——	300
——·—·—·——	250
——·—·—·——	200
—— — ——	150
----------	100
—·—·—·—·—	75

MARK	NAME
⊠	Ground Water Reservoir
⊕	Elevated Tank
○	Production Well
△	Transformer

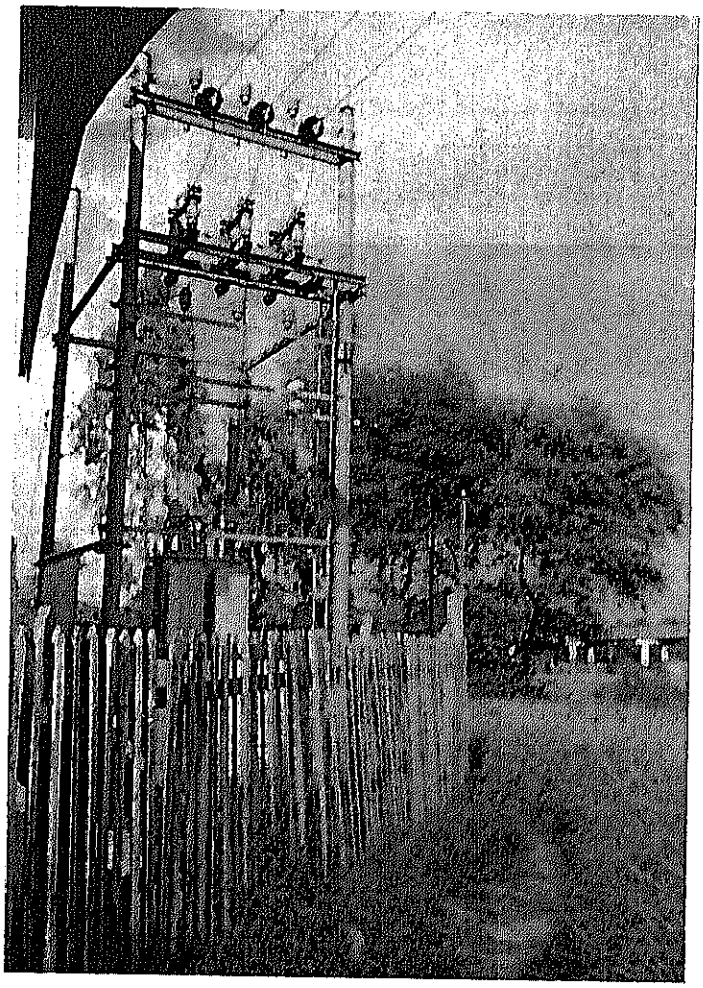
Annexure (B)



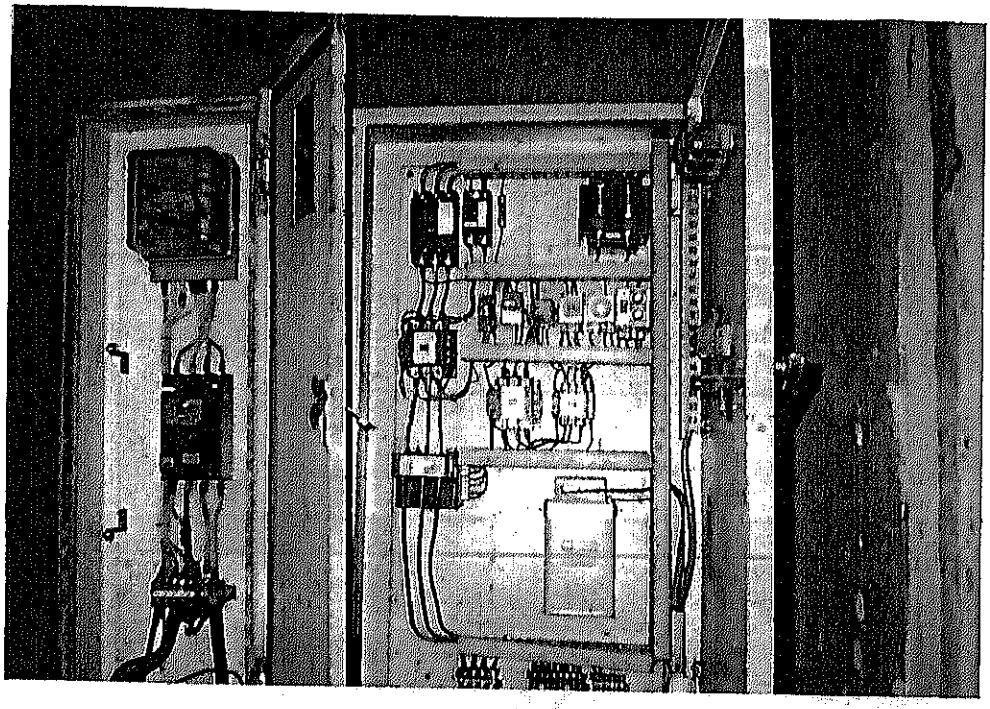
A SUBMERSIBLE PUMP INSTALLED IN
ONE OF THE WELLS



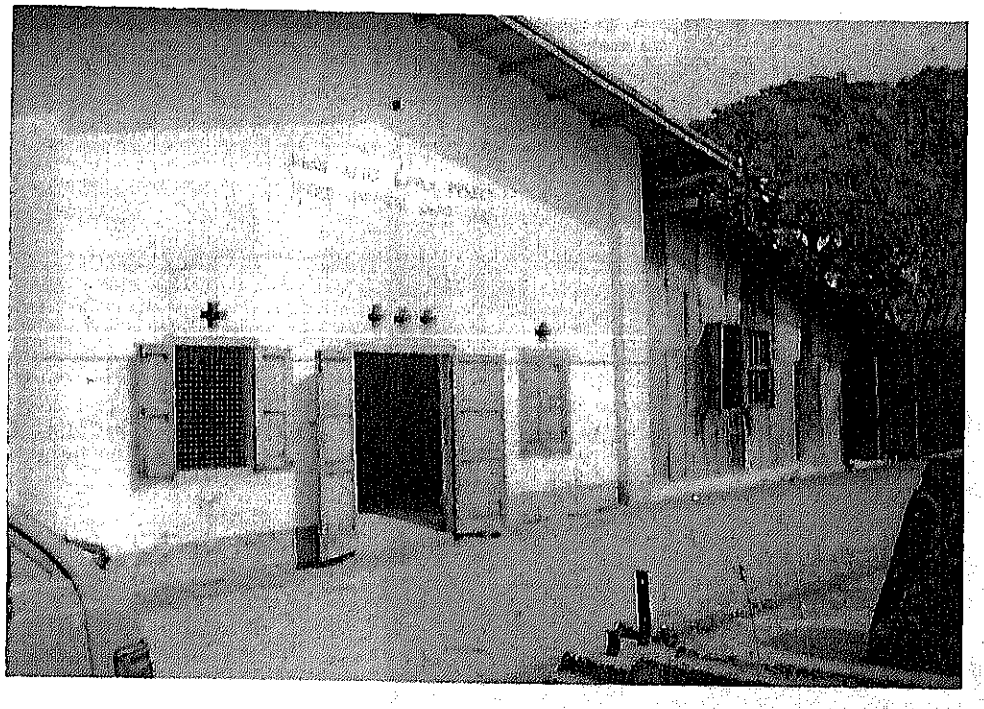
FRONT VIEW OF THE PUMP HOUSE



THE TRANSFORMER
INSTALLED IN WELL FIELD

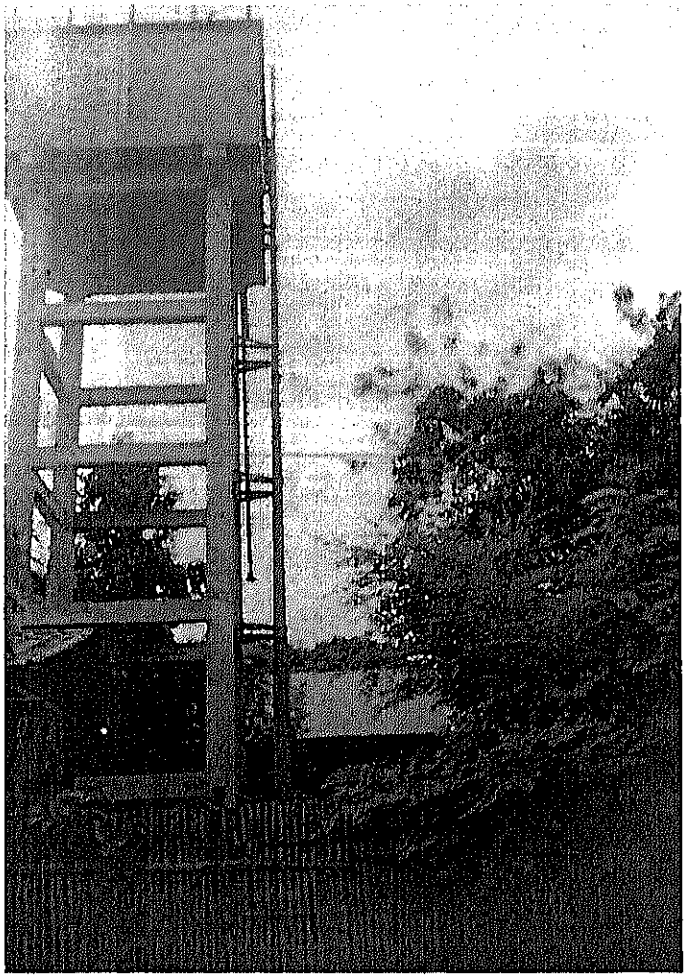


THE CONTROL PANEL INSTALLED IN
THE PUMP HOUSE



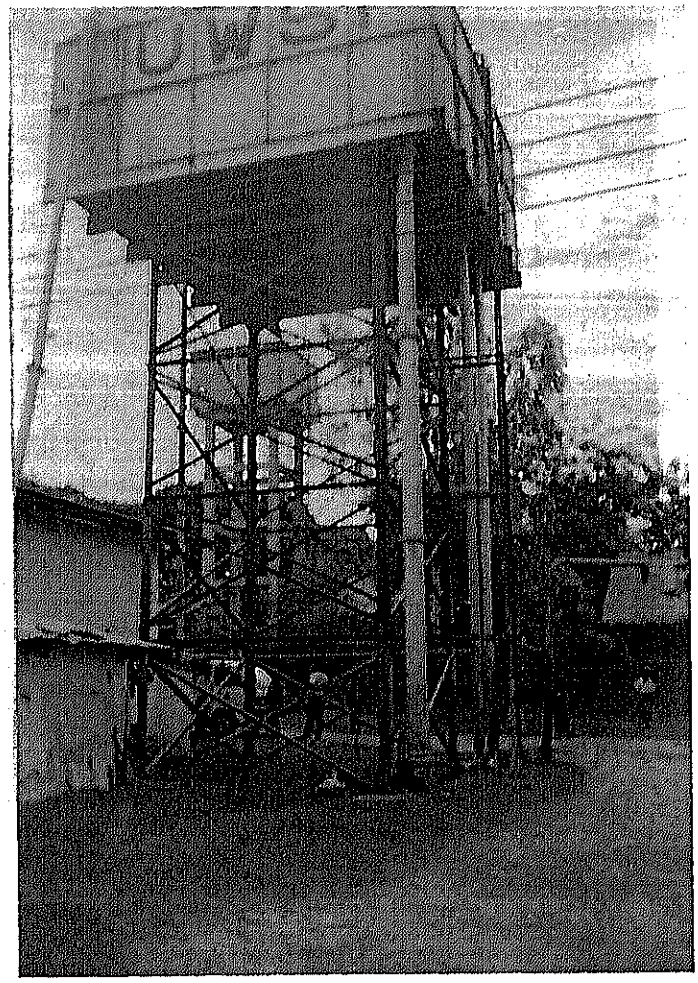
PUMP HOUSE MAINTAINED BY G.A.D
TO BE USED INCONJUNCTION WITH URBAN
WATER SUPPLY PROJECT

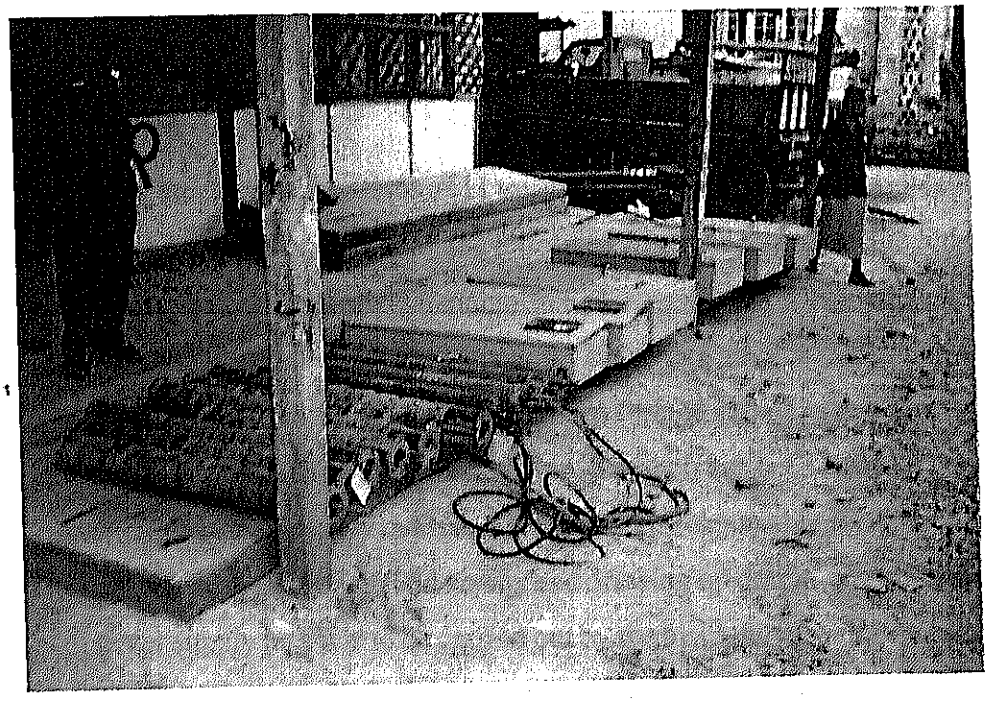
FOUR BOOSTER PUMPS INSTALLED IN
THE PUMP HOUSE.



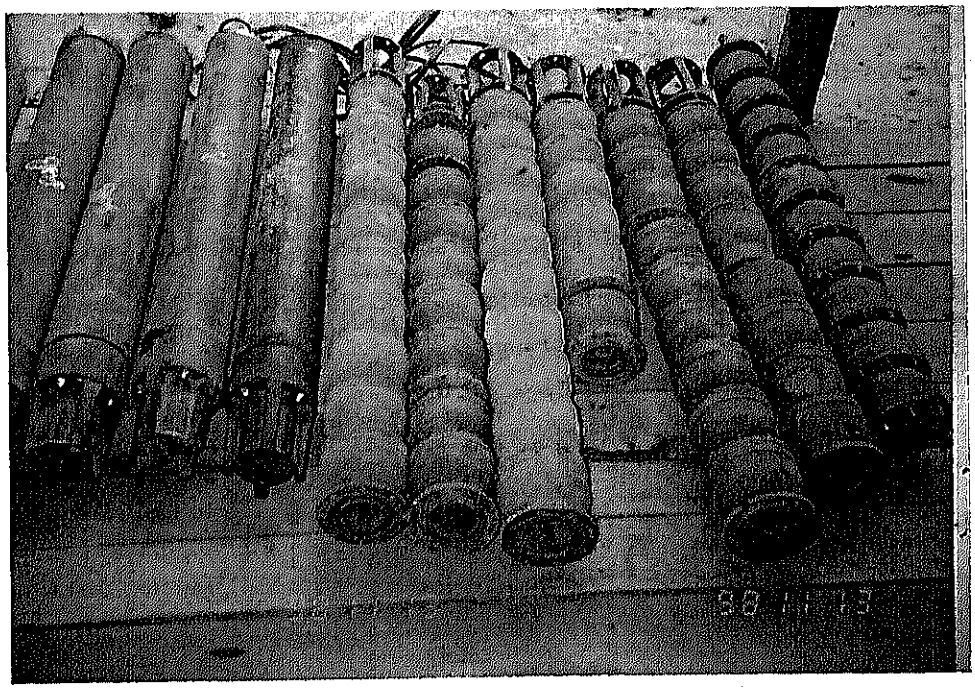
ELEVATED R.C TANK OF
12000. GALLONS CAPACITY
MAINTAINED. BY THE G.A.D

ELEVATED F.R.P TANK OF
20000. GALLONS CAPACITY
MAINTAINED BY THE G.A.D.





UNSERVICEABLE CONTROL PANELS AND
SUBMERSIBLE PUMPS.



UNSERVICEALBE SUBMERSIBLE PUMPS.

APPRAISAL

In reviewing the present situations of 11 towns water supply works completed with Japanese Government's Grant Aid (JICA Grant Aid), the following findings come into the lights:-

(a) The township development committee concerned has assigned duties to a section headed by an independent engineer for ensuring daily water supply.

(b) A separate Engineering Division has been formed at the Department of Development Affairs (Head Office). In that Division, a branch has been specifically assigned to carry out water supply matters. That branch is responsible for rendering technical assistance, conducting field survey and drawing up design-plans in connection with water supply projects to be carried out by the township development committee.

(c) The Department of Development Affairs is conducting training course and practical demonstration from time to time for engineers and technicians dealing in water supply undertaking.

(d) Allocation of funds in the annual budget estimates submitted by township development committees are made by the Head Office for regular operation and replacement of spares.

(e) The township development committees are allowed to take out loans at reasonable interest from the Development Bank, founded by the department, to meet deficiencies if any in carrying out water supply and other construction works.

(f) The majority of main facilities pertaining to 11 towns water supply works accomplished with Japanese Government's Grant Aid are well maintained by the township development committees concerned. Hence they are found to be in good condition.

(g) Smooth running of the water supply undertakings largely depends on electric supply with full voltage. That applies to all eleven towns. Due to electricity supply deficit, submersible motor pumps and their control panels belonging to the water supply system are often burnt out.

(h) In making repairs to damaged parts, difficulties are often experienced due to nonavailability of spares for replacement. Thus improvised means have to be sought. Consequently, there is decline in performance capability; and shortage in supply.

(i) In carrying out water supply works in 11 towns, tube wells were drilled for distributing ground water. Owing to changes in underground water sourses and less rain, water comes out from the tube well decreases. Moreover, tube well developing works can not be done regularly.

(j) Sluice valves fixed at transmission and distribution pipe lines are found to be leaked in some places. Hence there occurs wastage of water.

(k) Sufficient water supply to the public cannot be done yet in the town where town water supply projects were carried out with Japanese Government's Grant Aid. Extended water supply projects have been carried out on self-management after seeking for new water resources. Such undertakings are being done with public cooperation;

(l) To remedy the mentioned defects, to some extent, the Department of Development Affairs submitted a proposal to the Japanese Government for providing spares for drilling rigs and submersible pumps. 17 millions Yen worth of spare parts were received in 1997 from the Japanese Government as aid. Owing to the receipt of spares, the drilling rigs kept at the Head Office and submersible pumps installed at water works in the townships could be considerably improved in their condition of service.

(m) New tube wells were drilled in the districts for supplying water in water scarce areas by employing 6 rigs received with Japanese Government's Grant Aid. It was done so under the arrangement of the Department of Development Affairs (Head Office).

(n) Not only providing drill rig service, pipe and accessories and other spares required by the towns are also provided.

(o) On completion of the town water supply projects carried out Japanese Government's Grant Aid, the Engineering Division of the Department of Development Affairs maintains drilling rigs, supporting machines equipment and vehicles such as compressors, crane carriers, bowsers etc. which were purchased for the said projects. The division is also rendering assistance to Township Development Committee by employing those machines, equipment and vehicles.

RECOMMENDATIONS

To improve the current 11 towns water supply works accomplished with Japanese Government's Grant Aid and supply safe water to the townspeople more, the under-mentioned requirements need to be fulfilled in continuation:-

(a) For improved yield of the tube wells, they (the wells) are required to be developed regularly. In doing so, compressors are to be used, after they have been properly repaired. Appropriate action needs to be taking for obtaining spares in that regard. For transport of the compressors to the work sites and render necessary services in the developing operations, the cranes in hand are to be renovated accordingly. Spares for the cranes, therefore, are also needed.

(b) New tube wells are to be drilled in extending existing water supply works in the project-towns. As casing pipes and screens are not available for doing so, such mate rials should be supplied by contribution.

(c) Submersible motor pumps in use are found to have been burnt out in many places. On account of repeated repairs, some submersible motor pumps have damaged beyond repair. Hence, new pumps are required to be installed.

(d) Electricity outage is hampering the water supply works. Aid should be given for purchasing generators to drive submersible pump motors at the time of electricity interruption.

(e) Cable and transformer installations were effected for driving submersible pump motors in the project-towns. However, full electric supply is not got for water supply works and the electricity service has to be shared with town's lighting works. Coordi nation should be made with Myanma Electric Power Enterprise for using cables and transformers exclusively for water supply works.

(f) Major repairs have been effected to the six drilling rigs in hand under third phase Follow up programme. In doing so, replacements were made with locally made spares in some cases. Those spares are found to be not durable. Hence repeated repairs, original spare parts are in badly need.

CONCLUSIONS

The Department of Development Affairs under the Ministry of Progress of Border Areas and National Races and Development Affairs is a government organization, which is working with might and main for supply safe water not only in the urban but also in the rural areas. Though the national target is to supply sufficient amount of safe water to each and every person by the year 2000, only 50% of the project has been achieved yet. In implementing the project, government contributions, international aided funds and regional people's contributions as well are being utilized.

After designing 1999-2000 as Roads, Bridge and Water Supply Year, the Department of Development Affairs under the guidance of the Ministry will focus its attention on road and bridge building and water supply matters.

Regarding 11 towns water supply works constructed with Japanese Government's Grant Aid, the department concerned has been working for longlasting of the works in accordance with projects laid down. Financial allotments are being made annually for their maintenance.

Extensions and yearly maintenance can be done well if the Japanese Government continues giving assistance through supply of spares for the machines and equipment.

By fulfilling the need for pipes and accessories, water supply works in the project towns and other towns can be improved. Thus residents in those areas will enjoy water supply benefits.

Improved water supply undertakings will contribute much to public health and sanitation sector as well as the economic sector.

The Government and the people of Myanmar are looking forward to further aid of the Japanese Government's for water supply undertakings which benefit the people.

QUANTITY LIST OF MAIN FACILITIES OF ALL TOWNS

Annexure (C)

	Item	Pyay		Magway		Pyinmana		Yamethin		Pyawbwe		Thazi		Shwe bo		Monywa		Pakokku		Yenangyaung		Taungdwingyi		Remark
Intake Facility	Production well	Q = 1000 250x150	15	Q= 700 250x110	17	Q=600-650 150x76	10	Q=600-650 200x176	4	Q=200-250 150x46	10	Q = 500 200x36	5	Q=700 200x206	9	Q=1400-1500 250x56	6	Q=1200-1250 250x160	7	Q=1590 3600x6.0	* 5	Q=700 200x76	10	Discharge Q=m³/day Dia(mm)xDepth(m) * Gallery well
	Intake Pump	22	15	15	17	11	10	7.5	4	3.7 5.5 7.5	7 1 2	11	5	15	9	37 30 22	3 1 2	22	7	55	4	15	10	Power (k.w)
	Pump Room	A=16.0	15	A=16.0	17	A=16.0	10	A=16.0	4	A=16.0	10	A=16.0	5	A=16.0	9	A=16.0	6	A=16.0	7	A=167.0	1	A=16.0	10	A = (m²)
Transmission Facility	Transmis-sion Pipe	ø 200-350	7750	ø 150-250	8700	ø 150-200	3790	ø 150-300	2800	ø 75-200	17140	ø 100-250	3040	ø 150-250	9540	ø 200-300	5720	ø 200-350	3980	ø 350	586	ø 150-350	3270	Dia (mm) L(m)
	Sluice Value	ø 200-350	17	ø 150-250	19	ø 150-200	6	ø 150-300	5	ø 75-200	18	ø 100-250	5	ø 150-250	9	ø 200-300	8	ø 200-350	8		-	ø 150-350	6	Dia (mm)
	Air Valve	ø 20	10	ø 20	10	ø 20	5	ø 20-25	4	ø 20	23	ø 20-25	4	ø 20-25	13	ø 20-25	8	ø 20-25	6		-	ø20-25	5	Dia (mm)
Distribution Facility	Ground Reservoir	936 150	1 2	936	1	210	1		-	20 100 130	1 1 1	190	1	170 175	2 1	480	1	315 410	1 1		-			(m³) R.C F.R.P
	Elevated Tank	35	1	150 35 25	2 1 1	38.9 12.9	1 3		-	32.6 25.2	1 1	46.8	1	43.3	3	50.5 30.8 34.1	1 1 2		-	150	1		-	m³ F.R.P
	Distribution Pipe	ø 150-200	30900	ø 75-250	20254	ø 75-200	16840		-	ø 75-150	13190	ø75-200	8720	ø 75-200	25670	ø 75-350	45320	ø 75-250	27440		-	ø 75-250	20320	Dia (mm) D.I.Pipe (m)
	Sluice valve	ø 150-200	82	ø 75-250	50	ø 75-200	57		-	ø 75-150	46	ø75-200	27	ø 75-200	60	ø 75-350	127	ø 75-250	71		-	ø 75-250	53	Dia(mm)
	Air valve	ø 20	30	ø 20	20	ø 20	36		-	ø 20	28	ø 20	20	ø 20	58	ø 20-25	95	ø 20-25	57		-	ø 20-25	43	Dia(mm)
	Booster Pump		-		-		-		-	7.5 11	1 1	15	1	11	3	30	1		-		-	15	4	Power (k.w)
Electric Power Facility	Transformer equipment	300 200	1 2	300 200	1 3	100 25	1 1	150	1	75 50	1 1	100	1	150 75	1 1	100 50	1 2	500	1	300	1	200	1	KVA
	Power cable	BC 3,8,10 ACSR	9.3	BC 3,8,10 ACSR	11.7	14°-100° 8°x4c	27.8	60° 8°x4c	1.5	14°-80° 5.5°x4c	47	50° 8°x4c	9.4	14°-100° 14°x4c	23.4	30°-50° 14°x4c	28.4	22°-60° 22°x4c	17.1	30°-50° 14°x4c	2.4	22°-80° 8°x4c	18.0	OW CV-(km)

Annexure (D)

PRESENT CONDITION OF THE EQUIPMENTS PROVIDED UNDER THE URBAN WATER SUPPLY DEVELOPMENT PROJECT (PHASE I & II)

Sr. No	Description	Quantity	Serviceable	Repairable	Unserviceable
1.	Truck mounted water well drilling rig, Tone Model. TRD. 300 Rotary Table, Direct Circulation Type, Hino Model "WA-211"	4 Units	4 Units	-	-
	Test Pumping Equipments.				
2.	Electrical submersible multistage trubine pump capacity 950 L/ min, TDH 50m, OKAMOTO model "OPD 8-410-15-6"	4 Sets	2 Sets	-	2 Sets
3.	Trailer mounted, Diesel engine generator, 30 KVA, Capacity, OSAKA. SEIMITSU model "AS- 3507"	2 Units	-	2 Unit	-
4.	Truck Cargo type with Crane (TADANO model. TM 40-BS mounted on HINO model WA- 211 with wooden body	2 Units	1 Unit	1 Unit	-
5.	Trailer mounted portable Air Compressor model PDR- 370 (10.5 m^3/ min)	2 Units	1 Unit	1 Unit	-
6.	Trailer mounted portable Air Compressor. HOKUETSU model PDSH-300 (8.5m^3/min)	2 Units	-	2 Units	-
7.	Portable versatile logging system geologer model 3000 E	2 Units	-	2 Units	-
8.	Trolley mounted diesel engine driven D.C Arc welder model YW. 230	2 Units	-	-	2 Units
	Test Pumping Equipments.				
9.	Submersible motor pump for 4 inches tube well (Rewindable Type) EBARA model 50 BHS (4C) 13- 537.	4 Sets	2 Sets	-	2 Sets
10.	Diesel engine generator, HOKUETSU (model SDG 10S)	2 Sets	-	-	2 Sets
11.	Resistivity Equipment, OYO model "ES. G2"	1 Set	-	1 Set	-
12.	Diesel engine, TONE MODEL. "TS. 50" Soil Investigating machine	1 Unit	-	1 Unit	-

Sr. No	Description	Quantity	Serviceable	Repairable	Unserviceable
13.	Truck mounted rotary water well drilling rig, Tone Model "TRD- 300" (Hino model "NZ-225 SA")	2 Units	1 Unit	1 Unit	-
	Test pumping Equipments.				
14.	Diesel engine portable. Air Compressor, HOKUETSU model "PDSH- 300"	2 Units	1 Unit	1 Unit	-
15.	Submersible motor pump, EBARA model 80. BHS (GE) B. 11	4 Sets	2 Sets	-	2 Sets
16.	Diesel engine generator, HOKUETSU model "SDG. 40"	4 Sets	3 Sets	1 Set	-
	Supporting Equipments.				
17.	Gravel packing machine, TAIRIKU model 'TM-10'	6 Units	6 Units		
18.	Diesel engine welder, HOKUETSU model 'PDW –270 SW'	2 Units	-	2 Units	-
19.	Back washing Tools	4 Sets		4 Sets	-
	Vehicles				
20.	7.5 ton cargo truck with 4 ton crane Hino model. "FH .334. SA- NA"	1.No	1.No	-	-
21.	3.5 ton cargo truck with 3- ton cargo 4x2 Hino model "KM 640"	3.Nos	1.No	2.Nos	-
22.	3.5 ton cargo tuck with 3-ton crane 4x4 Hino model "FT- 175 SA"	3.Nos	1.No	2.Nos	-
23.	4000. liter water tanker, Hino model "KM- 600-KE"	2.Nos	1.No	1.No	-
24.	4500 liter fuel Tanker. Hino model 'KM- 600-kE'	2.Nos	1.No	1.No	-
25.	2 ton truck with workshop van Built-in type, equipped with accessories NISSAN 'ML. 440 WTFK'	4.Nos	1.No	3.Nos	-
26.	Motor Cycle Honda model 'CG- 125A'	9.Nos	3.Nos	6.Nos	-
27.	Fork lift truck 3. ton Tone model 'FD- 3027 C'	1.No	1.No	-	-
28.	Jeep pick-up type, equipped with water analysis Unit Nissan (JLMD- 21 SF)	2.Nos	1.No	1.No	-

Sr. No	Description	Quantity	Serviceable	Repairable	Unserviceable
29.	Jeep station wagon type. equipped with electric logging equipment NISSAN (VRLG- 160 G.F)	1.No	1.No	-	-
30.	Jeep pick-up type, mounted with centrifugal pump. NISSAN (JLMP- 21. SF)	1.No	-	1.No	-
31.	High pressure compressor for DTH drilling, 17.5 Kg/cm^2 operating pressure and 21 m^3/ min delivery whell mounted type, HOKUETSU model PDSH- 750 (with auxiliary attachment of TRD- 300 for D- TH operation)	1 Unit	1 Unit	-	-
32.	Air operated concrete breaker, TOKU model 'TPB- 30'	2 Units	2 Units	-	-
33.	Portable concrete mixer, KYC. model 'KND. 1011'	3 Units	1 Unit	2 Units	-
	Air Compressor				
34.	Capicity 8.5 m^3/min x 10.5 kg/cm^2 TANABE model 'VLH. 2114'	2.Nos	2.Nos	- -	- -
35.	Capacity 10.5 m^3/min x 7.0 kg/cm^2, TANABE model 'VLH 2114'	2.Nos	2.Nos	- -	- -
36.	Capacity 0.5m^3/min x7.0 kg/cm^2 TANABE model 'VCH 64.A'	2.Nos	2.Nos	-	-
37.	TAKASAGO multistage turbine pump with built- in check valve, 650 L/min Capacity, model 80 TS. 8E-6E-15	25 Sets	21 Sets	-	4 Sets
38.	TAKASAGO multistage turbine pump with built- in check value 950 L/min Capacity model 100 TS. 8F-8E-22	15 Sets	10 Sets	-	5- Sets
39.	TAKASAGO multistage turbine pump with built in check value 950 L/min Capacity, model 100 TS 8F-5E-15	2- Sets	-	-	2- Sets

Sr. No	Description	Quantity	Serviceable	Repairable	Unserviceable
40.	Submersible motor pump 11. kw	16 Sets	6 Sets	6 Sets	4 Sets
41.	Submersible motor pump 7.5. kw	6 Sets	4 Sets	1 Set	1 Set
42.	Submersible motor pump 3.7. kw	7 Sets	5 Sets	2 Sets	-
43.	Submersible motor pump 5.5. kw	1 Set	1 Set	-	-
44.	Submersible motor pump 15. kw	19 Sets	7 Sets	-	12 Sets
45.	Submersible motor pump 37. kw	3 Sets	3 Sets	-	-
46.	Submersible motor pump 22. kw	9 Sets	8 Sets	-	1 Set
47.	Submersible motor pump 30. kw	1 Set	1 Set	-	-
48.	Volute pump with motor 15 kw	4 Sets	4 Sets	-	-
49.	Volute pump with motor 7.5 kw	4 Sets	4 Sets	-	-
50.	Volute pump with motor 13 kw	2 Sets	2 Sets	-	-
51.	multistage volute pump 55 kw	4 Sets	3 Sets	-	1 Set
52.	Submersible motor pump 0.4 kw	2 Sets	2 Sets	-	-
53.	Vacumm pump 0.75 kw	2 Sets	2 Sets	-	-
54.	Booster pump with power cable 11 kw	4 Sets	3 Sets	1 Set	-
55.	Booster pump with power cable 7.5kw	1 Set	-	-	1 Set
56.	Booster pump with power cable 15 kw	1 Set	1 Set	-	-
57.	Booster pump with power cable 30 kw	1 Set	-	-	1 Set

Sr No	Description	Quantity	Balance
	Standard Accessories for Water Well Drilling Rig, Tone Model "TRD-300"		
1.	Disassembling tools for drill machine and mud pump.	2- Sets	Nil
2.	High pressure delivery hose. with fitting 50 mm x 7m.	12- Sets	Nil
3.	Suction hose with nipple 100 mm x 4.5 m.	12.Nos	Nil
4.	Foot valve with nipple 100 mm.	8.Nos	2.Nos
5.	Slip for 2 7/8" drill pipe.	8- Sets	Nil
6.	Super Tong ST-2	10.Nos	Nil
7.	Super Tong ST-3	10.Nos	Nil
8.	Piston Rod for pull down.	2.Nos	Nil
9.	Reinforcing parts for guide of pull down guide.	2-Sets	Nil
10.	Spare Tong jaws for 5" drill pipe.	2.Nos	Nil
11.	Air hose with fitting (25 mm x 20m)	6.Nos	Nil
	Operation tools for water well Drilling Rig, Tone model "TRD-300"		
1.	There wing bit 6 ¼"	12.Nos	Nil
2.	There wing bit 8 ½"	12.Nos	Nil
3.	There wing bit 10 5/8"	12.Nos	3.Nos
4.	There wing bit 12 ¼"	6.Nos	1.N0
5.	There wing bit 14 ¾"	6.Nos	Nil
6.	There Cutter Rock Roller bit 6 ½" (M.H. Type)	12.Nos	Nil
7.	There Cutter Rock Roller bit 8 ½" (M.H Type)	12.Nos	Nil
8.	There Cutter roller bit 10 5/8" (M.H Type)	12.Nos	Nil
9.	There Cutter Rock Roller bit 12 ¼" (M.H Type)	12.Nos	1. No
10.	There Cutter Rock Roller bit 14 ¾" (M.H Type)	12.Nos	5.Nos

Sr No	Description	Quantity	Balance
	Spare parts for Drilling Rig,		
	TONE MODEL "TRD- 300"		
1.	**For Leveling Jack Assembly (B- 5405-102)**		
	Packing SKY-50- Eslight wear ring, SY-75 x 80 x 3 (SY- 75 x 20x 3)	4.Nos	4.Nos
1.	For Rotary Table Assembly (B. 771-010)		
2.	Bearing (7036)	10.Nos	Nil
3.	Bearing (BG- 21312)	10.Nos	Nil
	Oil Seal (SB-200-240-20)	10.Nos	Nil
1.	For Cylinder Assembly (B.5725-803)		
2.	O- Ring (JIS. B. 2401 G. 45)	6.Nos	Nil
3.	O- Ring (JIS. B. 2401 G- 115)	6.Nos	2 Nos
4.	U- Packing (UPI 60-80-12)	4.Nos	Nil
5.	U- Packing (UPI 80-100-12)	6.Nos	Nil
6.	Dust Seal (DKI 60-74-B-11)	6.Nos	Nil
	Eslight Wearing SW- 100	4.Nos	Nil
1.	For Watet Swivel assembly		
2.	Packing (L 2528-237)	12.Nos	4 Nos
	Packing- SKY-25(SKY-75) For assembly	4.Nos	2 Nos
3.	(C-5725-305)		
	Bearing Ball No.6014	2.Nos	Nil
4.	for gearing assembly (B-5272-181)		
	V-Belt. 5V-800 (for transfer assembly)	6.Nos	Nil
5.	(B-5272-244)		
	Air Clutch ATD 316 STYC.	2.Nos	Nil
	(For Air Clutch assembly 5648-126)		
	SPARE PARTS FOR DRILLING RIG, TONE MODEL.		
1.	"TRD. 300" HINO MODEL. 211 NZ For Rotary Table.		
2.	Gear Bevel D.1117-52 (Ring gear)	4.Nos	Nil
3.	Gear Bevel D.1117-53 (Drive shaft)	4.Nos	Nil
4.	Oil Seal S-320-360-20	20.Nos	Nil
5.	O-Ring G-290	20.Nos	Nil
6.	Bearing Roller 32211	12.Nos	Nil
	Bearing Roller 21312	12.Nos	Nil

Sr No	Description	Quantity	Balance
	FOR ENGINE GROUP (HINO MODEL WA-211)		
	(Main Moving parts)		
1.	V-Belt Set 9001.49127	6.Nos	Nil
2.	Valve Assembly, delivery.	6.Nos	Nil
	22103-1200 (Engine group fuel system)		
3.	Disc Assembly Clutch,	4.Nos	Nil
	31250-1351 (Chassis group) Clutch		
4.	Sealed Beam unit 9008-32018	2.Nos	Nil
	(9008-21102) electrical (chassis group)		
5.	Bearing, BGA,G-206	2.Nos	Nil
6.	(For compound case assy B.5272-244)	36.Nos	Nil
	Tyre with tube 6071-900-6206		
	(11.00 x 20 x 14 PR)		

Sr No	Description	Quantity	Balance
	SPARE PARTS FOR "TRD 300" DRILL UNIT		
1.	Oil Seal (SB-100-125-13)	6 Nos.	2 Nos
2.	Oil Seal (SB-70-90-12)	6 Nos.	1 No
3.	Oil Seal (SB-200-240-20)	6 Nos.	Nil
4.	Oil Seal (SB-60-80-10)	6 Nos.	4 Nos
5.	Oil Seal (SB-65-90-10)	6 Nos.	3 Nos
6.	Oil Seal (SB-70-100-10)	6 Nos.	4 Nos
7.	Oil Seal (SB-80-100-10)	6 Nos.	4 Nos
8.	Oil Seal (SB-65-85-12)	6 Nos.	1 No
9.	Oil Seal (SB-85-110-13) (SB-60-85-12)	6 Nos.	2 Nos
10.	Packing (UPI 55-75-12)	6 Nos.	1 No
11.	Packing E-2528-237	6 Nos.	6 Nos
12.	Dust Seal SDR-25	6 Nos.	Nil
13.	Dust Seal SDR-50	6 Nos.	Nil
14.	Dust Seal DKI 55-69-8-11	6 Nos.	Nil
15.	Dust Seal SDR-30	6 Nos.	Nil
16.	Bearing 21311	6 Nos.	Nil
17.	Bearing 6014	6 Nos.	Nil
18.	Bearing 6211	6 Nos.	1 No.
19.	Bearing 6302 22	6 Nos.	2 Nos.
20.	Bearing 6005 LB	6 Nos.	Nil
21.	Bearing 6206 (6213 Z)	6 Nos.	Nil
22.	Bearing 7036	6 Nos.	1 No.
23.	Bearing 21312	6 Nos.	Nil
24.	Bearing 6206	6 Nos.	Nil
25.	Spider Bearing KO-YO-6-B-1	6 Nos.	Nil
26.	Gauge WIKA 213-63-315 A (WIKA 213-63-10 P)	6 Nos.	2 Nos.
27.	Gauge WIKA 213-63-60 F (WIKA 213-63-250 A) Gauge WIKA 213-63-10 F (WIKA 213-63-40 A)	6 Nos.	2 Nos.
28.	Guage A T1/4 x 60 x 20kg/cm^2 (WIKA 213-63-25 A)	6 Nos.	2 Nos.
29.	Gauge, double pointer D-1183-096 (D.1185-092)	6 Nos.	2 Nos.
30.	V-Belt A-45 (A-48)	6 Nos.	Nil

Sr No	Description	Quantity	Balance
31.	Control Cable 32100-B-4600 (T-800-32025-B4600)	6 Nos.	Nil
32.	Control Cable T-900-32050-B-4100	6 Nos.	Nil
33.	Control Cable T-900-32050-B-3500	6 Nos.	Nil
34.	Control Cable T-990-32100-B-7750	6 Nos.	Nil
35.	Tachometer MASADA 100569-0650	4 Nos.	4 Nos.
36.	Fuel meter FUR HASHI 52-D-24	4 Nos.	4 Nos.
37.	Pilt Lamp SAKAZUME B.4 RED	4 Nos.	Nil
38.	Fuse box (NYKSE) 5 LINE	4 Sets.	Nil
39.	Bulb for night operation 40w (60 w)	24 Nos.	Nil
40.	Piston assembly 127 ø	24 Nos.	Nil
41.	O-Ring JIS B-2401-P-80	24 Nos.	12 Nos.
42.	O-Ring JIS B-2401 P-90	24 Nos.	Nil
43.	V- Packing V.P 909 F 40-65-53	200 Nos.	Nil
44.	Graphite packing 50 x 66 x 8 SQ	12 Nos.	Nil
45.	Piston Rod D 2841-260	30 Nos.	Nil
	SPARE PARTS FOR WA CRANE (TADANO-TM 40 BS) HINO MODEL WA-211 ENGINE GROUP		
1.	V-Belt set 9001- 49127	4 Sets.	Nil
2.	Nozzle Ass'y 23650-1080	4 Sets.	Nil
3.	Sealed Beam Unit 9008-21102	2 Nos.	Nil
	HYDRAULIC PIPING		
4.	Hose 126-452-08000	2 Nos.	Nil
5.	Hose 896-020-00320	2 Nos.	Nil
6.	Tyre tube set 1100-20	12 Nos.	Nil
	CYLINDE R HEAD (ENGINE GROUP)		
7.	Head Assembly Cylinder 11110-1500	1 No.	Nil
8.	Gasket Cylinder Head 11115-1090	2 Nos.	Nil
9.	V-Belt Set 9001-49127	2 Nos.	Nil

Sr No	Description	Quantity	Balance
	SPARE PARTS FOR PORTABLE VERSATILE LOGGING SYSTEM GEOLOGGER MODEL 3000 E		
1.	Depth Counter , Model 3835, to use together with OYO sheave and Geologger 3000 series.	1 No.	Nil
2.	Natural Gamma Ray Nodule (Model 3414 B)	1 No.	Nil
3.	Sheave (Hand Winch Model 3993)	1 No.	1 No.
4.	Probe Model (3571)	2 Nos.	2 Nos.
5.	Probe Model R-SP	2 Nos.	2 Nos.
6.	Cable 310 M Long	2 Rolls.	2 Rolls.
7.	Record Paper	350 Rolls.	Nil
8	Record Pen	100 Pcs.	Nil
9.	Record ink	24 Pcs.	Nil
10.	Geologger, Model 3030, Portable Multiple Logging System	2 Sets.	1 Set.
	HYDROGEOLOGICAL EQUIPMENTS		
11.	Geological Compass.	5 Nos.	Nil
12.	Geological Hammer.	4 Nos.	Nil
13.	Portable Water Level indicator, Electric Probe type model "TOSHIN-ST"	4 Sets.	Nil
14.	PH Meter, type RM-10K	4 Sets.	Nil
15.	Portable Electrical Conductivity meter.	2 Sets.	Nil

Sr No	Description	Quantity	Balance
	WATER ANALYSIS		
16.	Portable Water Analysis Laboratory Kit.		
	(a) Colour metric analysis Kit	2 Units.	Nil
	(b) Laboratory equipment and apparatus, model HACH "DR-EL/4"	1 Units.	Nil
	SPARE PARTS FOR FH,CRANE FH.224.SA.NA, HINO MODEL		
	ENGINE GROUP		
1.	Gasket Cylinder Head 11213-1120	1 No.	Nil
	Fuel System		
2.	Element Set Fule FI 23401-1080	2 Nos.	Nil
	Chassis Group Fuel Tank		
3.	Element Set Fuel FI 23401-1290	5 Nos.	Nil
	Electrical Parts		
4.	Bulb 24V-12w HD 9008-32154	2 Nos.	Nil
5.	Bulb 24V- 25w HD 9008-32106	2 Nos.	Nil
	Clutch		
6.	Disc Ass'y Clutch B-1250-2870	2 Nos.	Nil
7.	Tyre and tube set 1100-20	6 Nos.	Nil

Sr No	Description	Quantity	Balance
	SPARE PARTS FOR KM-CRANE		
	KM-640 CK (HINO MODEL)		
	ENGINE GROUP		
1.	Gasket Cylinder Head 11115-1670	1 No.	Nil
	LUBRICATING SYSTEM		
2.	Kit Oil Filter 04015-6013	15 Nos.	Nil
	FUEL SYSTEM		
3.	Element Fuel 23401-1060	15 Nos.	Nil
4.	Nozzel Ass'y 23650-1180	6 Nos	Nil
	ELECTRIC HEATER		
5.	Signal Heater 23550-1090	2 Nos.	Nil
	CHASSIS GROUP		
6.	Element Set fuel 23401-1030	20 Nos.	Nil
7.	Tyre and tube Set 750-16	20 Nos.	Nil
	SPARE PARTS FOR FT CRANE		
	"FT 175 SA" B-52		
	FUEL SYSTEM		
1.	Element Set fuel 23401-1290	20 Nos.	Nil
2.	Nozzle Ass'y 23650-1100	4 Nos.	Nil

Sr No	Description		Quantity	Balance
	COOLING SYSTEM			
3.	Gasket Thermostat	16325-1111	2 Nos.	Nil
4.	Gasket Thermostat	16325-1290	2 Nos.	Nil
5.	Thermostat	9001-46157	2 Nos.	Nil
	ELECTRICAL PARTS			
6.	Controller Ass'y	28550-1211	1 No.	Nil
7.	Relay Ass'y Star	28410-1121	1 No.	Nil
	CLUTCH			
8.	Disc Ass'y Clutch	31250-3030	3 Nos.	Nil
	SERVICE BREAK			
9.	Hose Oil Break	9004-72125	2 Nos.	Nil
10.	Tyre	825-20	18 Nos.	Nil
	SPARE PARTS FOR KM-600KE CAB HINO MODEL (Water tanker, Fuel tanker)			
1.	Mirror Sub Ass'y Out	87902-1230	1 No.	Nil
	ELECTRICAL PRTS			
2.	Signal Heater	28550-1080	1 No.	Nil
	CLUTCH			
3.	Disc Ass'y Clutch	31250-3230	2 Nos.	Nil
	FRONT SUSPENTION			
4.	Leaf Sub Ass'y FR.CP	48101-1630	1 No.	Nil

Sr No	Description		Quantity	Balance
	FUEL SYSTEM			
5.	Element Set Fuel	23401-1060	3 Nos.	Nil
6.	Nozzle Ass'y	23650-1108	3 Nos.	Nil
	ELECTRICAL PARTS			
7.	Flug Ass'y Glow	19110-1040	3 Nos.	Nil
8.	Tyre and Tube Set	750-16	24 Nos.	Nil
	SPARE PARTS FOR NISSAN VEHICLES (2 TON TRUCKS)			
1.	Element Assembly	16403- J 5500	6 Nos.	Nil
2.	Ring Set, piston	12033- L 2006	6 Nos.	Nil
3.	Absorber-shock	56110- 31626	6 Nos.	Nil
4.	Gasket, engine	10101- 09w 26	3 Nos.	Nil
5.	Unit Sealed	26705- C 9771	3 Nos.	Nil
6.	Ring Set,piston	12033- C 8704	1 No.	Nil
7.	Cartridge Ass'y	11405- 9003	4 Nos.	3 Nos.
8.	Flug-glow	11065- 10600	18 Nos.	Nil
9.	Nozzle Assembly		4 Sets.	Nil
10	Tyre and Tube Set	(700 x 16)	24 Nos.	Nil
	SPARE PARTS FOR HONDA MODEL CG-125 MOTOR CYCLE			
1.	Gasket Cylinder	(1219-397-010)	6 Nos.	Nil
2.	Pulg Spark	(98069-58717)	12 Nos.	Nil
3.	Screw Pan 6 x 32	(93500-060320A)	12 Nos.	Nil
4.	Ring Set, piston	(13011-383-621)	6 Nos.	Nil

Sr No	Description		Quantity	Balance
5.	Piston	(13101-383-003)	6 Nos.	Nil
6.	Cable comp Clutch	(22870-383-670)	6 Nos.	Nil
7.	Cable comp-Fr Brake	(45450-391-830)	6 Nos.	Nil
8.	Lever R Steering handle	(53175-369-)	6 Nos.	Nil
9.	Cable Ass'y techometer	(37260-439-)	6 Nos.	Nil
10.	Cable Ass'y speedometer	(44830-524 -)	9 Nos.	Nil
11.	Tyre Fr wheel	(44711-397-003)	9 Nos.	Nil
12.	Tyre Fr wheel	(42711-240-019)	9 Nos.	Nil
13.	Tube whell	(42712-268-033)	9 Nos.	Nil
	SPARE PARTS FOR NISSAN VEHICLES PICK-UP, 2 TON TRUCK WITH VAN			
1.	Plug-Glow	(11065- T 9001)	12 Nos.	Nil
2.	Element Assembly	(16403-J 6500)	12 Nos.	Nil
3.	Plug Glow	(11065-10600)	12 Nos.	Nil
4.	Nozzel Assembly		3 Nos.	Nil
5.	Ring Set, Piston		3 Sets	Nil
6.	Gasket, Engine Set		3 Sets	Nil
7.	Tyre and Tube Set	(600 x 15)	18 Nos.	Nil
	SPARE PARTS FOR TAKASAGO MULTISTAGE TURBINE PUMP, 650 L/Min CAPACITY MODEL 80 TS 8E-6E-15)			
1.	Motor Stator for (80-TS-8E-6E-15) Submersible pump (15 kw motor)		20 Nos.	5 Nos.

Sr No	Description	Quantity	Balance
2.	Control pannel, Consisting of (Main Contactor, Star-Delta Contactors, Star-Delta Timer, Time Delay Relay, Under Voltage relay and overload relay etc)	15 Nos.	2 Nos.
3.	Cable Connector for TAKASAGO multistage turbine pump coupled with 15 kw, can type motor	60 Nos.	Nil
4.	Motor Cable for 15 kw motor (length 90 M)	30 Coils	4 Coils
	SPARE PARTS FOR TAKASAGO MULTISTAGE TURBINE PUMP, 950 L/MIN CAPACITY MODEL 100 TS-8F-8E-22		
1.	Motor Stator for (100 TS-8F-8E-22) Submersible Pump, 22 kw motor	10 Nos.	Nil
2.	Control pannel Consist of main Contactor, Star-Delta Contactor, Star-Delta Timer, Time Realy, Under Voltage Relay and Overload Relay	10 Nos.	Nil
3.	Motor Cable for 22 kw motor (length 90 M)	30 Coils	Nil

Annexure (E)

THE EXPENDITURE OF (11) TOWNS GRANTED BY THE JAPANESE GOVERNMENT

Sr No	Particular	Provided Amount		Local Currency Kyats (in Million)	Total Kyats (in million)
		JP ¥ (in Million)	Kyats (in Million)		
	Water Supply Project Phase I				
1	Pyay	452.50	17.33	10.73	28.06
2	Magway	352.50	12.72	9.44	22.16
3	Head Office	315.00	7.50	3.18	10.68
		1120.00	37.55	23.35	60.90
	Water Supply Project Phase II				
4	Pyinmana	237.88	10.30	8.63	18.93
5	Yamethin	68.99	2.97	2.00	4.97
6	Pyawbwe	288.81	12.56	10.30	22.86
7	Thazi	127.00	5.41	4.84	10.25
8	Shwebo	322.91	13.97	11.55	25.52
9	Monywa	385.91	16.82	13.25	30.07
10	Pakokku	252.01	10.78	9.38	20.16
11	Yenanchaung	44.53	1.90	3.70	5.60
12	Taungdwingyi	207.79	8.94	7.00	15.94
13	Head Office	464.17	18.60	3.59	22.19
		2400.00	102.25	74.24	176.49
	Total	**3520.00**	**139.80**	**97.59**	**23.39**

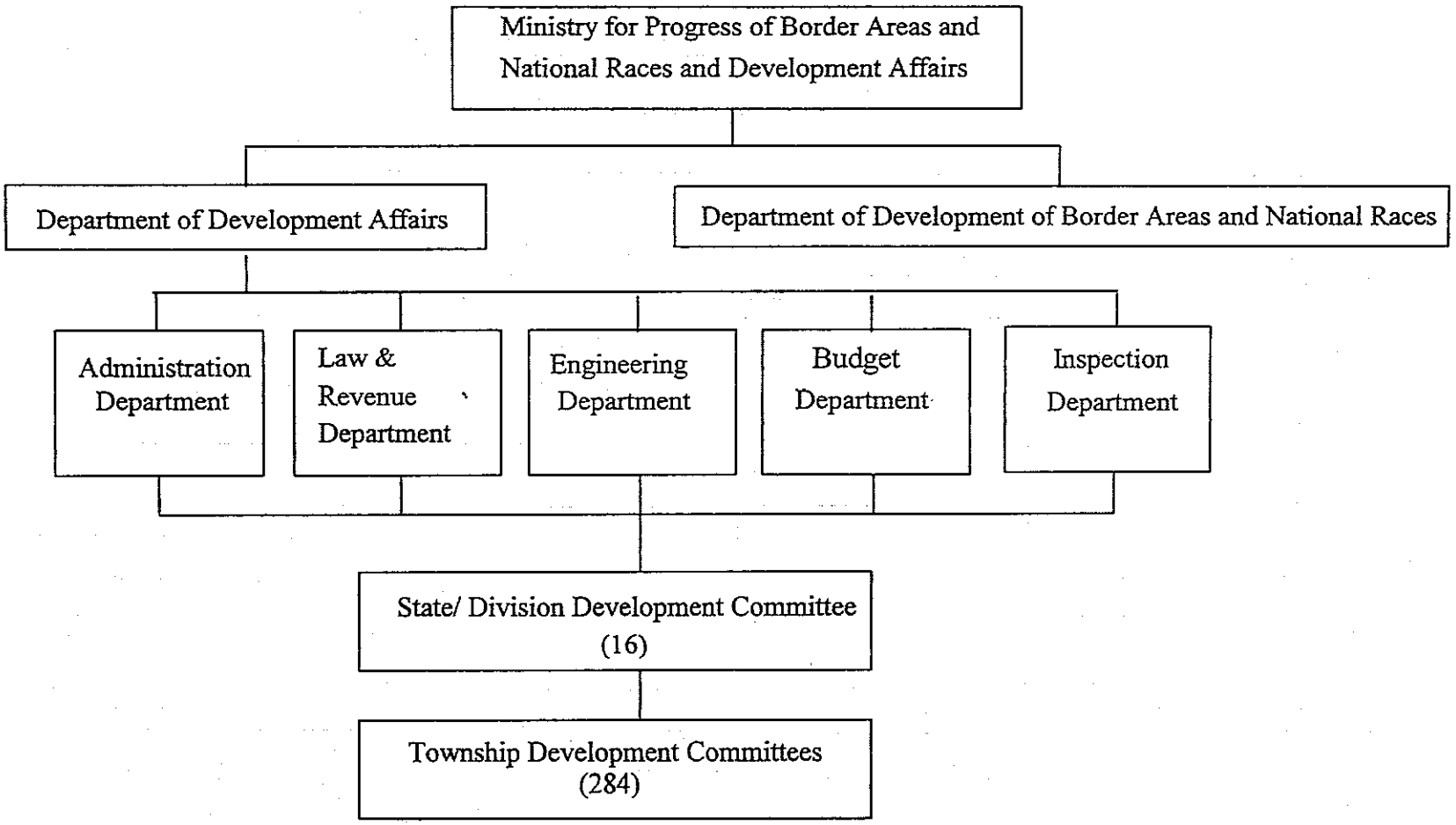
Annexure (F)

NUMBER OF WELLS DRILLED OUTSIDE THE PROJECT AREA BY USING THE EQUIPMENTS AND MACHINERIES PROVIDED UNDER THE URBAN WATER DEVELOPMENT PROJECT PHASE (I) & (II)

Sr No.	state/ Division	1990 (No)	1991 (No)	1992 (No)	1993 (No)	1994 (No)	1995 (No)	1996 (No)	1997 (No)	1998 (No)	1999 (No)	Total (No)
1	Kachin											
2	Kayah		1	2								3
3	Kayin		11		3	3						17
4	Chin											-
5	Sagaing	2		5								7
6	Tanintharyi		20	9	12							41
7	Bago	4	2	5								11
8	Magway	8	2	2								12
9	Mandalay	5	3	-	-	4	4	3	2	15	1	37
10	Mon			3								3
11	Rakhine											-
12	Yangon	10	-	-	-	3		1	2	2		18
13	Shan (E)											
14	Shan (N)					5	7	7	5	6		30
15	Shan (S)											
16	Ayeyarwaddy											
	Total	29	39	26	15	15	11	11	9	23	1	179

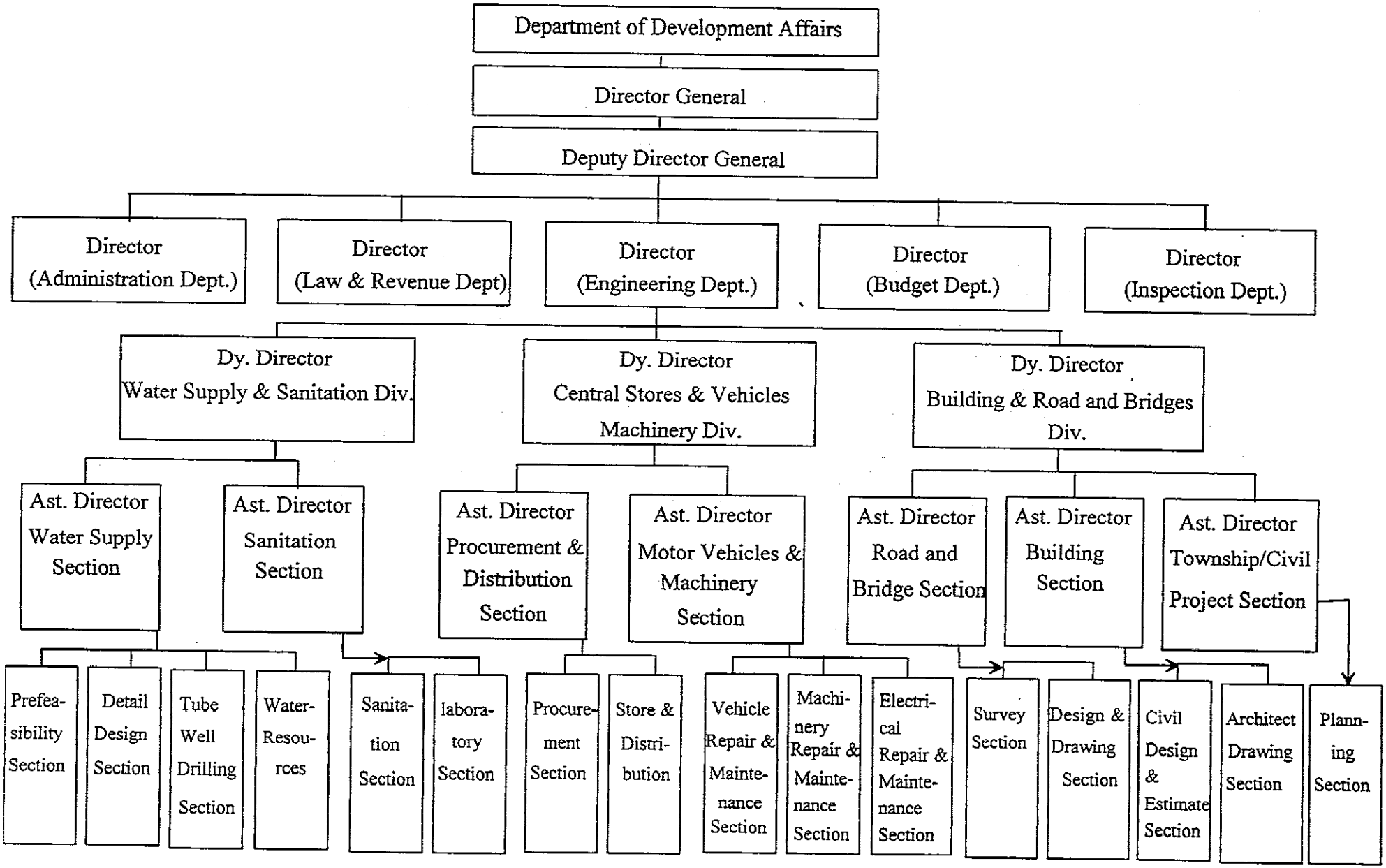
Annexure (G)

Organization Chart of Ministry for Progress of Border Areas and National Races and Development Affairs



Annexure (G-1)

ORGANIZATION CHART OF DEVELOPMENT AFFAIRS



Annexure (H)

PRESENT CONDITION OF SPARE PARTS PROVIDED UNDER URBAN WATER SUPPLY DEVELOPMENT PROJECT (PHASE III)

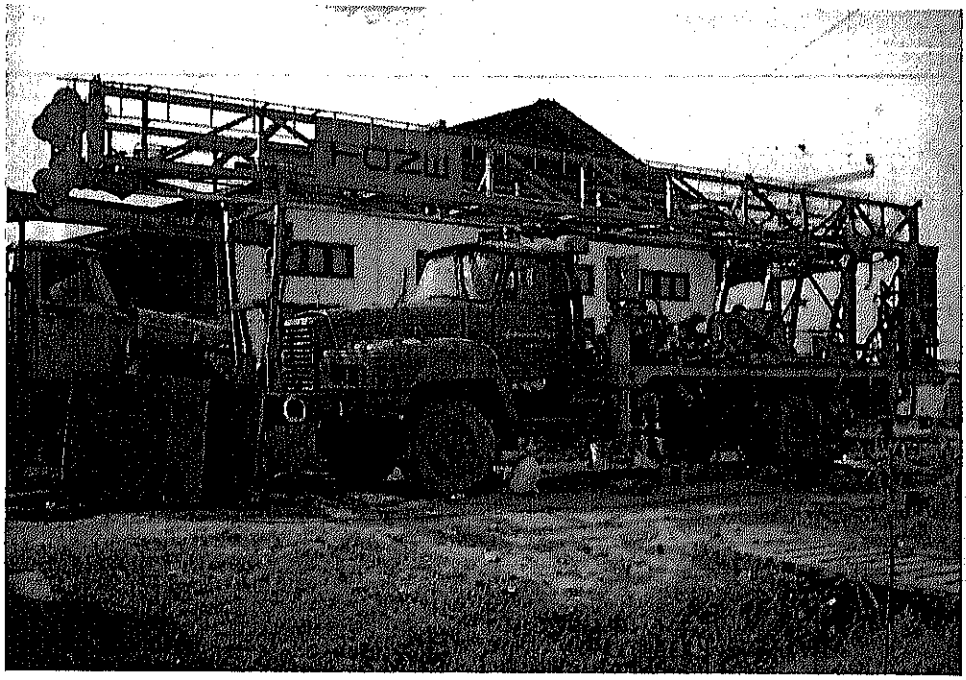
C/NOS.	Description	Quantity	Balance
C/NO.1 (CASE)			
	1-1 HIGH PRESSURE DELIVERY HOSE WITH FITTING 50mm X 7m	2 PCS	Nil
	1-2 SUCTION HOSE WITH FITTINGS 100mm X 4.5 m	2 PCS	Nil
	1-3 THREE WING BIT 6-1/4" DIA B4042-985	2 PCS	Nil
	1-4 THREE WING BIT 8-1/2" DIA B4042-984	2 PCS	1 PC
	1-5 THREE WING BIT 10-5/8" DIA B4042-996	2 PCS	1 PC
	1-6 THREE WING BIT 12-1/4" DIA B4042-995	2 PCS	1 PC
	1-7 PACKING E2528-237	4 PCS	Nil
	1-8 PACKING KY75 PKG2042	6 PCS	Nil
	1-9 BALL BEARING 6014 BGA6014	6 PCS	Nil
	1-10 PACKING UPI-55 75 12 PKG0054	6 PCS	Nil
	1-11 PACKING E2528-237	6 PCS	Nil
	1-12 DUST SEAL SDR25 SDA2010	6 PCS	Nil
	1-13 DUST SEAL SDR50 SDA2023	6 PCS	Nil
	1-14 DUST SEAL DKI55 69 811 SDA0028	6 PCS	Nil
	1-15 DUST SEAL SDR30 SDA2014	6 PCS	Nil
	1-16 BEARING 21311 BG1311	6 PCS	Nil
	1-17 BEARING 6211 BGA6211	6 PCS	Nil

C/NOS.		Description	Quantity	Balance
C/NO.1 (CASE)				
	1-18	BEARING 6302ZZ BGC6302	6 PCS	Nil
	1-19	BEARING 6005LB BGF6005	6 PCS	Nil
	1-20	BEARING 6206 BGA6206	6 PCS	Nil
	1-21	BEARING 6206Z BGB6206	6 PCS	Nil
	1-22	CONTROL CABLE 32100-B-4600	4 PCS	Nil
	1-23	CONTROL CABLE T900-32050-B4 100	4 PCS	Nil
	1-24	CONTROL CABLE T900-32050-B3500	4 PCS	Nil
	1-25	CONTROL CABLE T900-32100-B7750	4 PCS	Nil
	1-26	PISTON ASSY 127mm D4641-093	6 PCS	1 PC
	1-27	V-PACKING 40 X 65 X 5 X 3 PKV3009	100 PCS	20 PCS
	1-28	PISTON ROD D2841-260	6 PCS	Nil
	1-29	BEARING 7036 BGA7036	6 PCS	Nil
	1-30	BEARING BG21312	6 PCS	Nil
	1-31	OIL SEAL SB200 240 20 SEA20006	4 PCS	NIL
	1-32	U-PACKING UPI60 80 12 PKG0060	4 PCS	NIL
	1-33	U-PACKING UPI80 100 12 PKG0069	6 PCS	NIL
	1-34	DUST SEAL DKI-60 74 8 11 SDA0030	6 PCS	NIL
	1-35	ESLIGHT WEARING SW100 RSWO100	4 PCS	1 PC
	1-36	BEVEL GEAR D1117-452	2 PCS	NIL
	1-37	BEVEL GEAR D1117-453	2 PCS	1 PC
C/NO.2 (CASE)	2-2	CABLE FOR 3.7KW MOTOR 90M 2,3	2 SETS	1 SET
	2-5	CABLE FOR 5.5KW MOTOR 90M 6,7	2 SETS	1 SET
	2-8	CABLE FOR 7.5KW MOTOR 90M 10-14	5 SETS	2 SETS
	2-11	CABLE FOR 11KW MOTOR 90M 18-26, 28	10 SETS	4 SETS
	2-14	CABLE FOR 15KW MOTOR 90M 35-44	10 SETS	5 SETS
	2-17	CABLE FFOR 22KW MOTOR 90M 54-63	10 SETS	5 SETS
	2-19	CABLE FOR 37KW MOTOR 90M 70,71	2 SETS	1 SETS

C/NOS.	Description			Quantity	Balance
C/NO.3 (CASE)					
	2-1	SUBMERSIBLE MOTOR 3.7KW	1	1 SET	NIL
	2-4	SUBMERSIBLE MOTOR 5.5KW	5	1 SET	NIL
	2-7	SUBMERSIBLE MOTOR 7.5KW	9	1 SET	NIL
	2-10	SUBMERSIBLE MOTOR 11KW	16,17	2 SETS	1 SET
	2-13	SUBMERSIBLE MOTOR 15KW	31-34	4 SETS	2 SET
C/NO.4 (CASE)					
	2-3	CONNECTING KIT 3.7KW	4	1 SET	NIL
	2-6	CONNECTING KIT 5.5KW	8	1 SET	NIL
	2-9	CONNECTING KIT 7.5KW	15	1 SET	NIL
	2-12	CONNECTING KIT FOR 11KW	29-30	2 SETS	1 SET
	2-15	CONNECTING KIT FOR 15KW	45-48	4 SETS	2 SETS
	2-18	CONNECTING KIT FOR 22KW	64-68	5 SETS	2 SETS
	2-21	CONNECTING KIT FOR 37KW	72	1 SET	NIL
	2-16	SUBMERSIBLE MOTOR 22KW	49-53	5 SETS	2 SETS
	2-19	SUBMERSIBLE MOTOR 37KW	69	1 SET	NIL

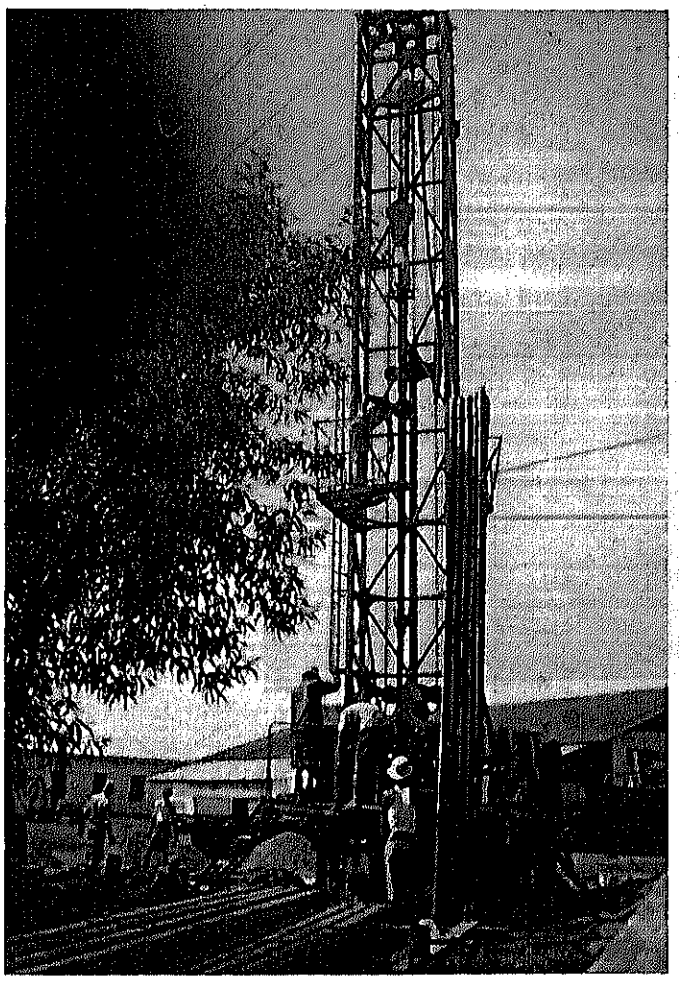
Annexure (I)

PHOTOS OF SOME OF THE EQUIPMENTS PROVIDED UNDER THE URBAN WATER SUPPLY DEVELOPMENT PROJECT. (PHASE I & II)

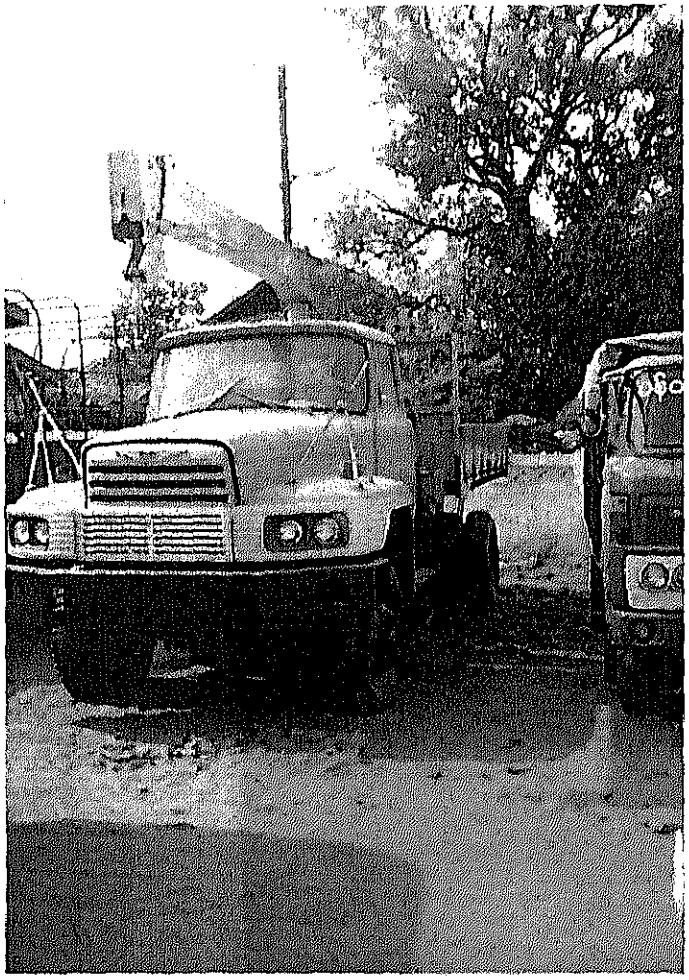


↑

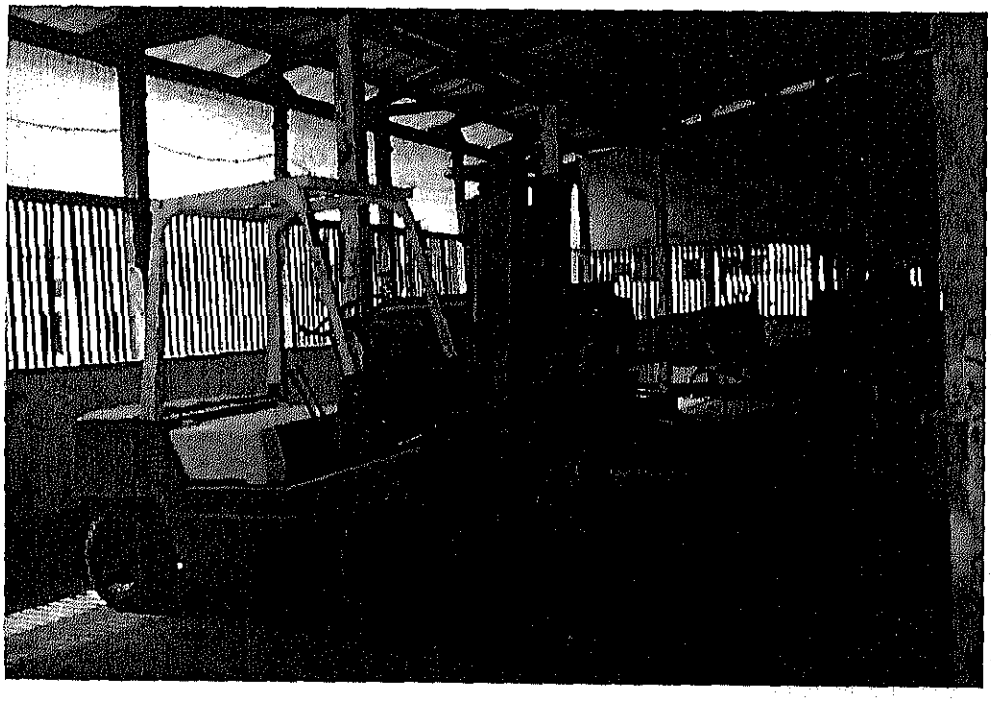
TRUCK MOUNTED WATER WELL DRILLING RIG. TONE MODEL "TRD-300" ROTARY TABLE, DIRECT CIRCULATION TYPE. HINO MODEL WA.211"



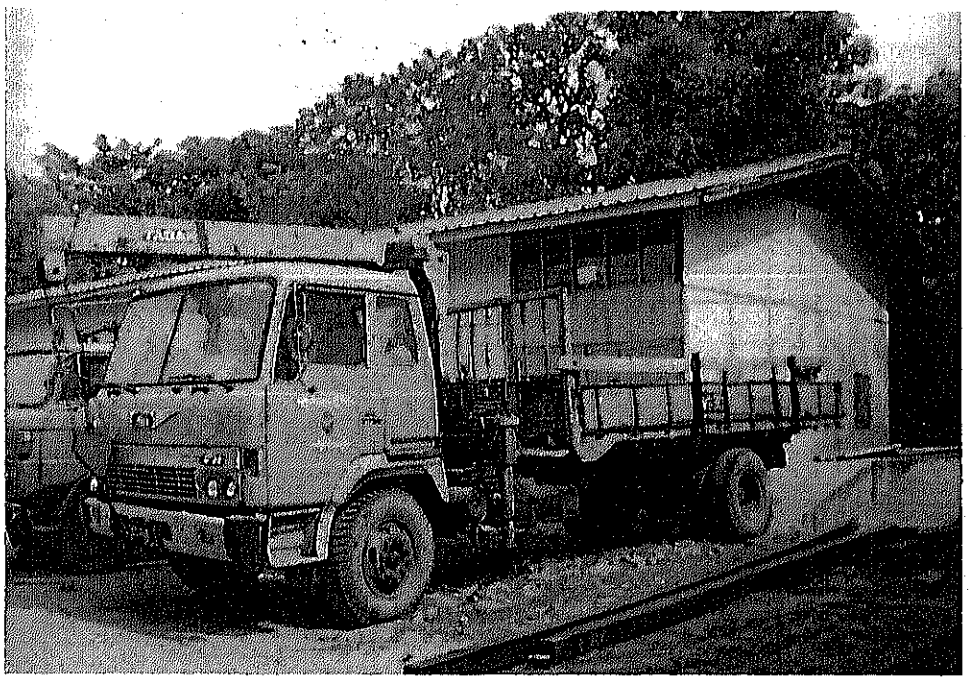
← DRILLING RIG UNDER OPERATION



TRUCK CARGO TYPE WITH CRANE, (TADANO MODEL TM 40 BS MOUNTED. ON HINO MODEL WA-211 WITH WOODEN BODY.



FORK LIFT TRUCK 3 TONS.

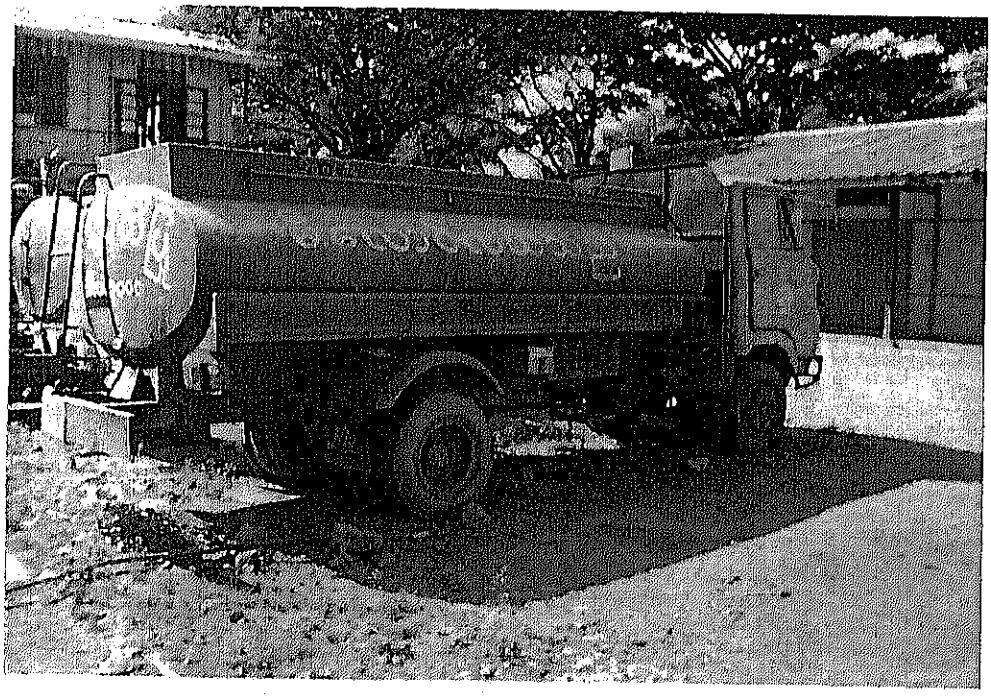


7.5 TON CARGO TRUCK WITH 4 TON CRANE

HINO MODEL " FH- 224 SA-NA"

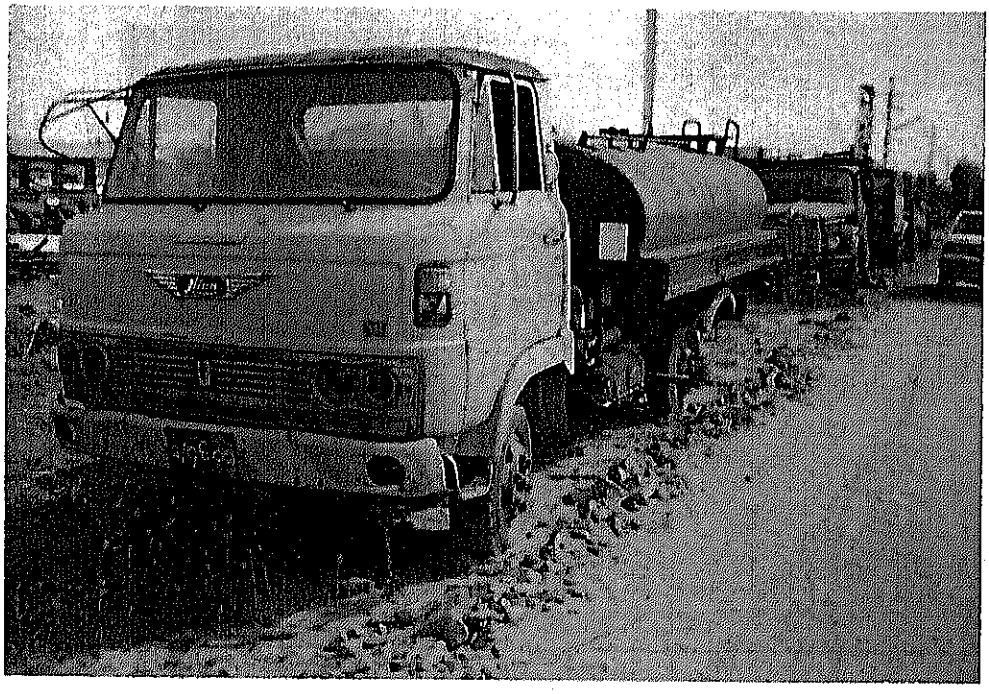
3.5 TON CARGO TRUCK WITH 3 TON CRANE

4 x 4 HINO MODEL " FT - 175 SA"



4500 LITER. FUEL TANKER

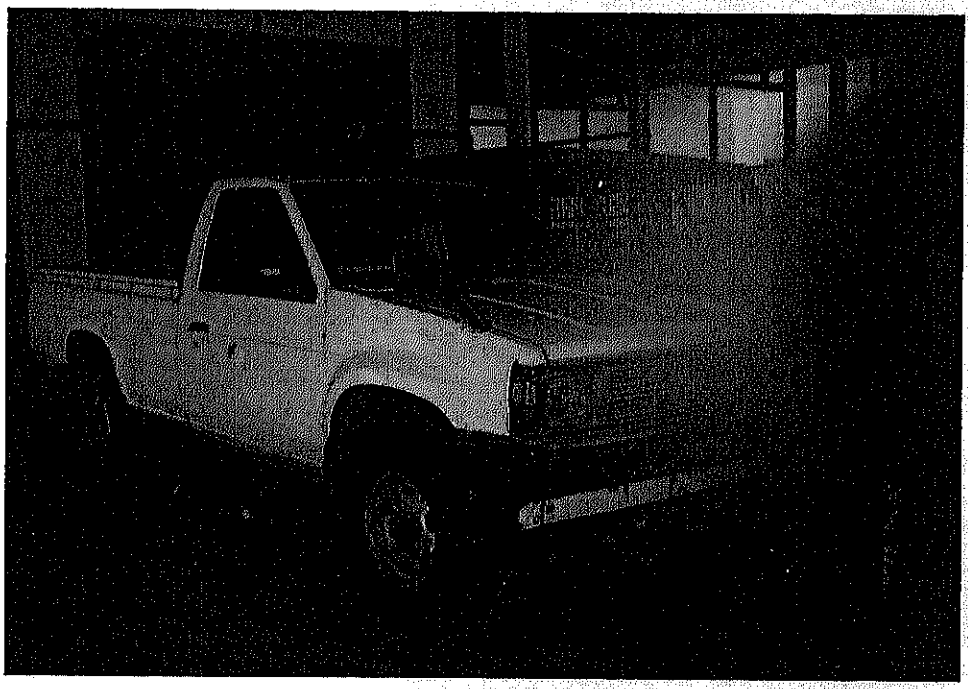
" HINO MODEL 600 KE"



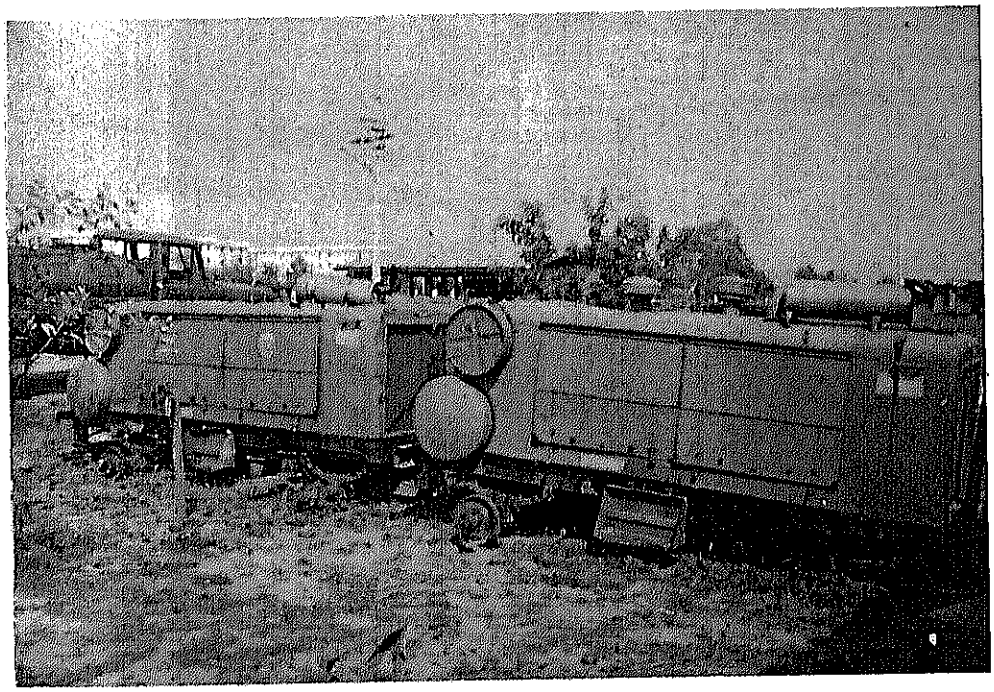
4000 LITER WATER TANKER

" HINO MODEL 600. K.E "

JEEP STATION WAGON TYPE, NISSAN.

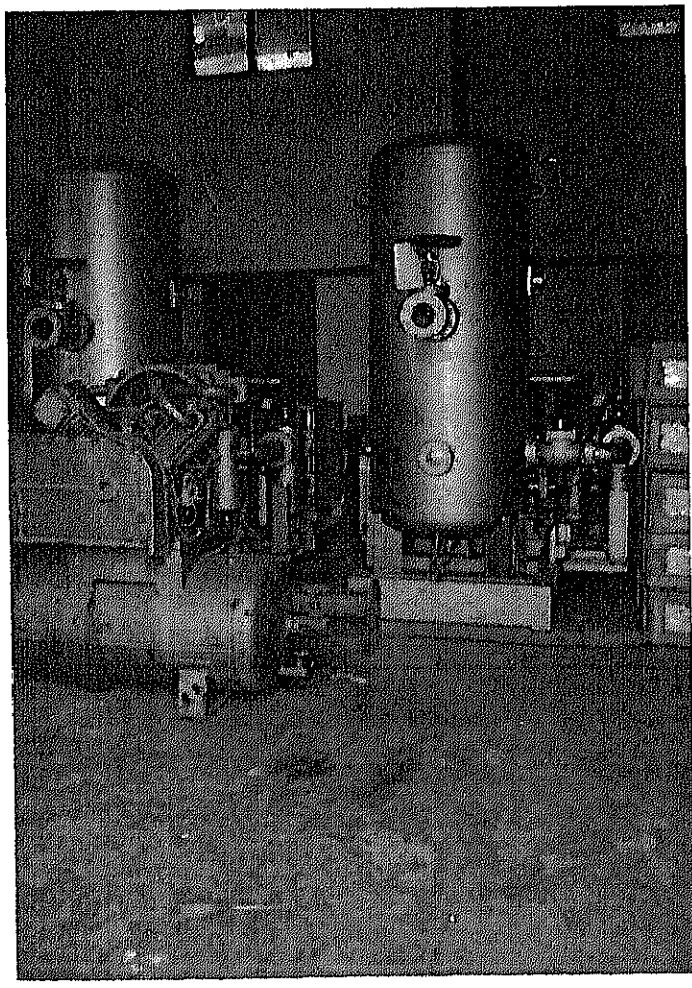


JEEP PICK - UP TYPE. NISSAN



TRAILER MOUNTED. PORTABLE AIR COMPRESSOR

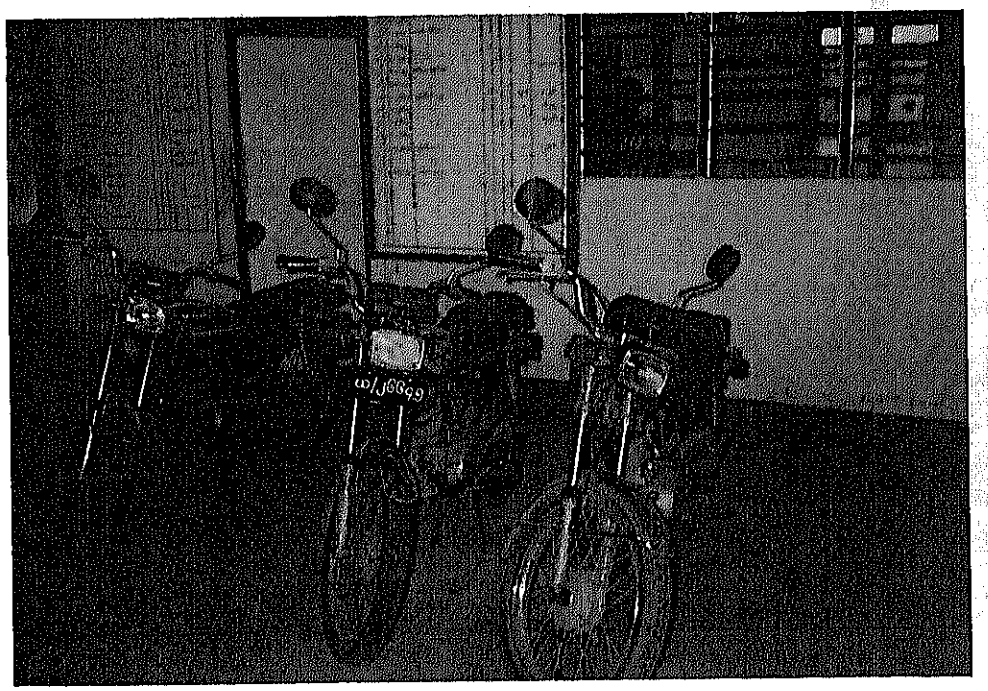
" HOKUETSU. MODEL PDSH - 300 "



MOTOR DRIVEN AIR COMPRESSOR

" TANABE MODEL VLH. 2114 "

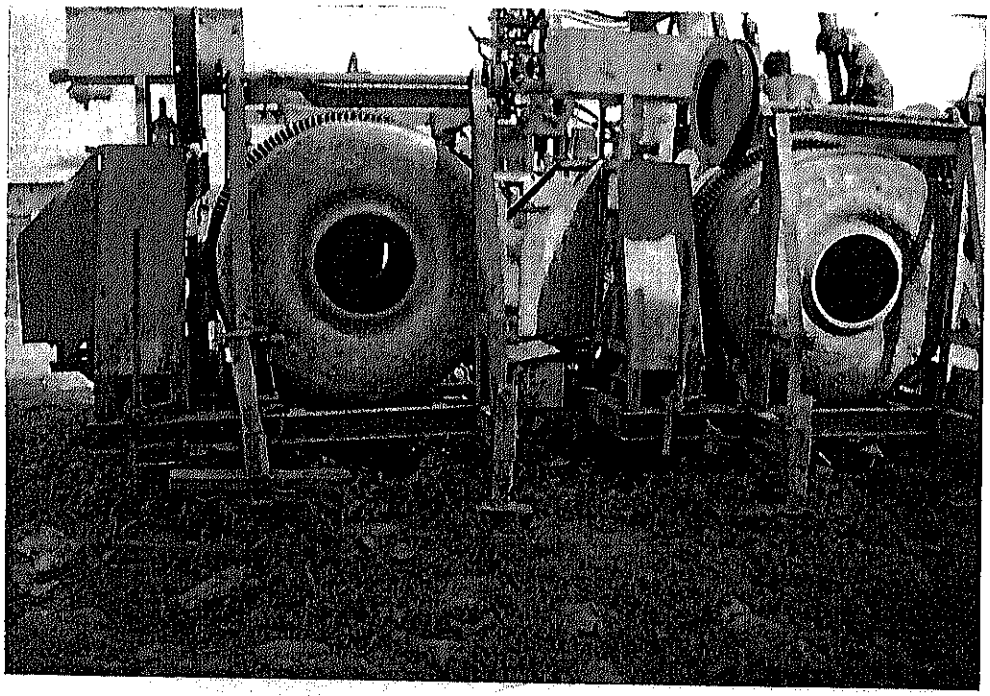
2 TON TRUCK, NISSAN



MOTOR CYCLE HONDA MODEL " CG 125. A"

TRAILER MOUNTED, ENGINE GENERATOR

30 K.V.A. CAPACITY, OSAKA SEIMITSU MODEL "AS 3507"



PORTABLE CONCRETE MIXER

KYC MODEL "KND - 1011"