

3.2.3 Groundwater Zoning Map

The draft Groundwater Zoning Maps that have been prepared in the Phase I Study were reviewed reflecting the results of the executed work such as geophysical survey, test well drilling, etc. during the Phase II Study.

The reviewed Groundwater Zoning Map of every township is presented in Fig.3.2.3.1 (1/11)-(11/11). Hydrogeological indices as much as possible to collect are shown on the map. However, some hydrogeological data in some Townships were not available.

(1) Static Water Level (Depth of water level from the ground surface) (WL)

Static water level is classified into 5 based on the existing data, that is

WL ≤ 30 ft (10 m),
30 ft (10 m) < WL ≤ 100 ft (30 m),
100 ft (30 m) < WL ≤ 150 ft (50 m),
150 ft (50 m) < WL ≤ 300 ft (100 m), and
300 ft (100 m) < WL

(2) Well Depth (WD)

Well depth is classified into 5 based on the existing data, that is

WD ≤ 150 ft (50 m),
150 ft (50 m) < WD ≤ 300 ft (100 m),
300 ft (100 m) < WD ≤ 450 ft (150 m),
450 ft (150 m) < WD ≤ 600 ft (200 m), and
600 ft (200 m) < WD

(3) Water Quality

Water quality is shown with EC (electrical conductivity) value and classified into 2, that is

EC ≤ 1,500 μ S/cm (= 1.5 mS/cm), and
1,500 < EC

Classification was carried out based on the measured data by the Study Team, the estimation from the general law that the majority of groundwater tapped from Peguan aquifers has distinct high value of EC (see Table 1.1.4.1), and the results of water quality tests in laboratory in Phase II Study, considering the following relation,

1,000 mg/lit (TDS) 1,500 μ S/cm (EC) (Bouwer H (1978)).

(4) Water Quantity (= Discharge: Long period available water under the desirable condition of the aquifer)

Zoning of discharge could not be carried out. Since discharge of each well varies widely in a small area, zoning of discharge was very difficult. Estimation of discharge of the new well should be done with comparing with one of existing wells in the vicinity.

The main reason for the wide variation of discharge is estimated as follows.

- () As described before (3.2.3 Hydrogeology), most groundwater in the Study Area is mainly fissure water in the rocks, therefore, the discharge is controlled by the local conditions of the fractured zone encountered.
- () Difference of skill of well construction at each well
- () Installation of unsuitable pump

(5) Groundwater Flow System and Recharge System

To know the groundwater flow system and the recharge system of the fissure water in the hill or mountain area like the Study Area in the Central Dry Zone (that is the area where is not flat as alluvial plain and where, the aquifer is not alluvial stratum aquifer), the following data with sufficient accuracy and amount are necessary,

- () Detailed topographical data (topographical map or location map of wells with contour lines), with which it is possible to know ground elevation
- () Well logs, with which it is possible to correlate stratigraphical horizon of the aquifer each other
- () Observation data of water level and water quality of the monitoring wells

In the Project Area, especially the most important data of () and () were not available. Therefore, estimation of the groundwater flow system and the recharge system were impossible.

However, it can be said with observation data of water level and water quality of the monitoring wells in this Project that the rain water infiltrated at the higher place flow down to the lower place (for example, to main rivers) as groundwater with long time.

Taungtha Township

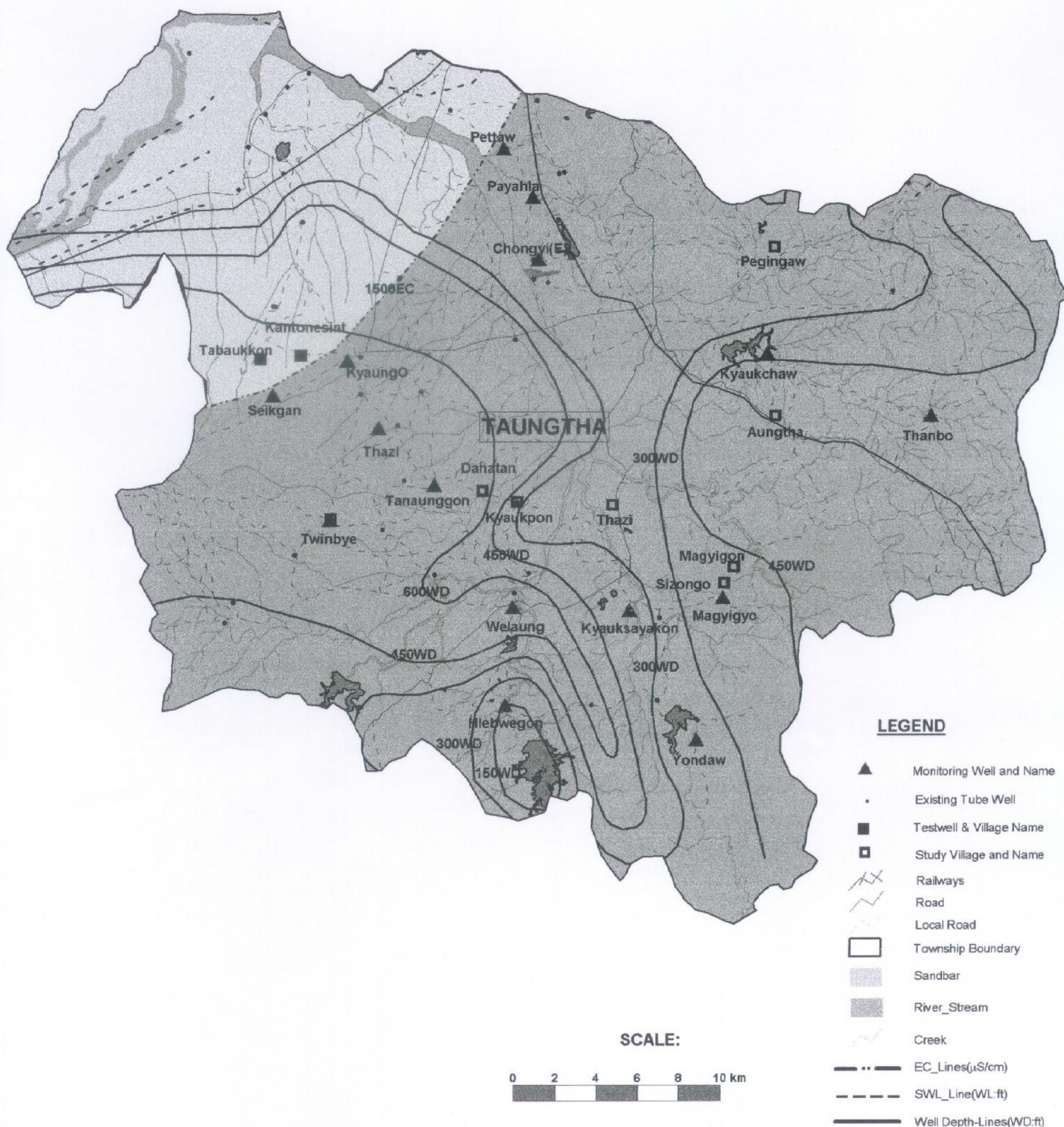


Fig 3.2.3.1 (1/11)

Ground Water Zoning Map of Taungtha Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

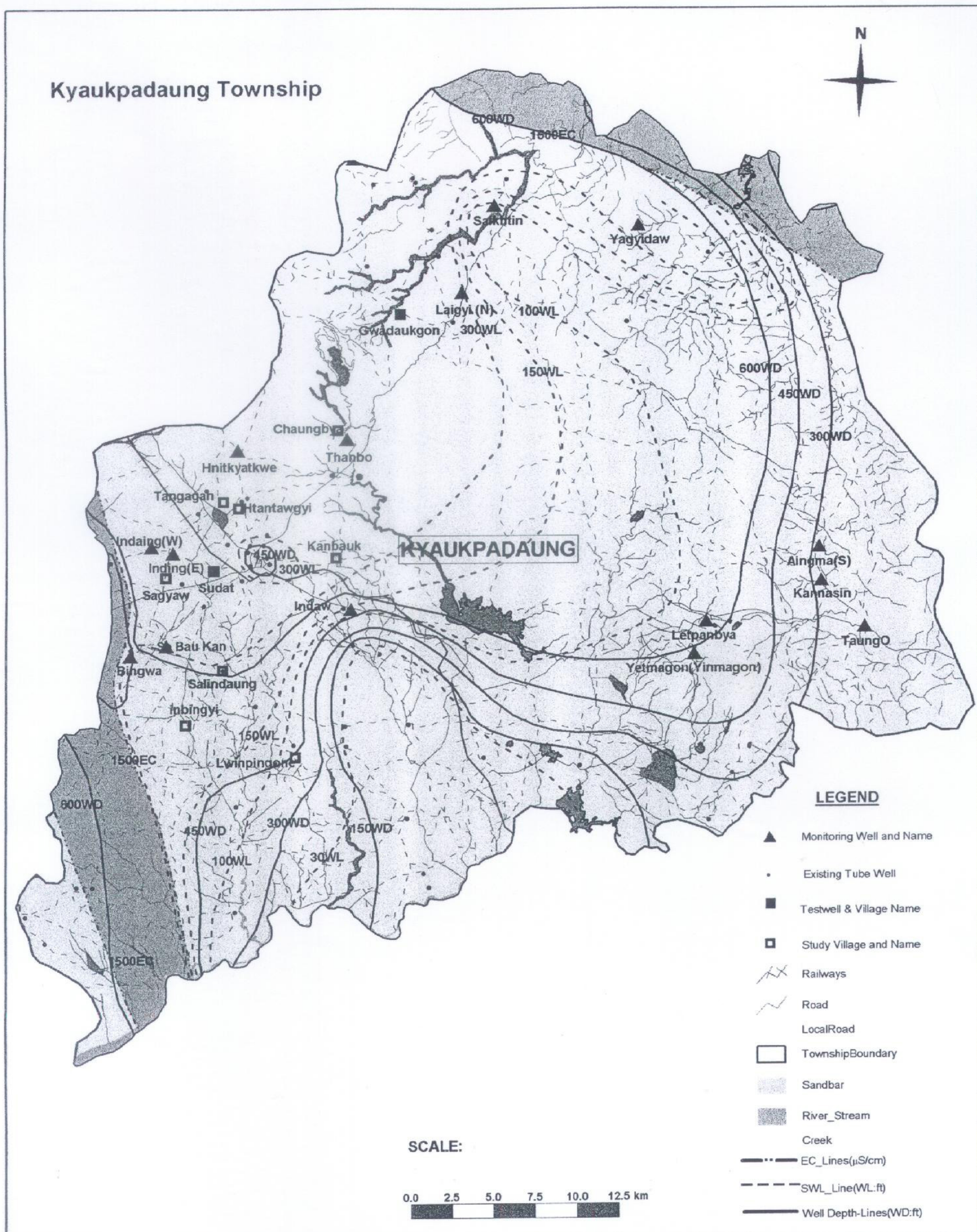


Fig 3.2.3.1 (2/11)

Ground Water Zoning Map of Kyaukpadaung Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

Natogyi Township

LEGEND

- Monitoring Well and Name
- Existing Tube Well
- Testwell & Village Name
- Study Village and Name
- Railways
- Road
- Local Road
- Township Boundary
- Sandbar
- River_Stream
- Creek
- EC_Lines(μ S/cm)
- SWL_Line(WL.ft)
- Well Depth-Lines(WD.ft)

SCALE:

0.0 2.5 5.0 7.5 10.0 12.5 km

The map displays the Natogyi Township with various geographical features and groundwater data. The township boundary is outlined in a thick black line. The map includes a north arrow in the top left corner. The legend identifies symbols for monitoring wells, existing tube wells, test wells, study villages, railways, roads, local roads, township boundaries, sandbars, rivers, creeks, electrical conductivity (EC) lines, static water level (SWL) lines, and well depth lines. The map shows several villages and study areas, including Ywagyi, Kontha, Thapandaw, Pwayagyaung, Tandawma, Thintabaw, Nyaunggon, Aungtha, Aungbangan, Palangon, Tazun, Chambe, Myegya, Mogan, Nyaungbintha, Pedyet, Nabemyn, and Katian. The map also shows various well depth lines (WD) and static water level lines (SWL) across the township.

Ground Water Zoning Map of Natogyi Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

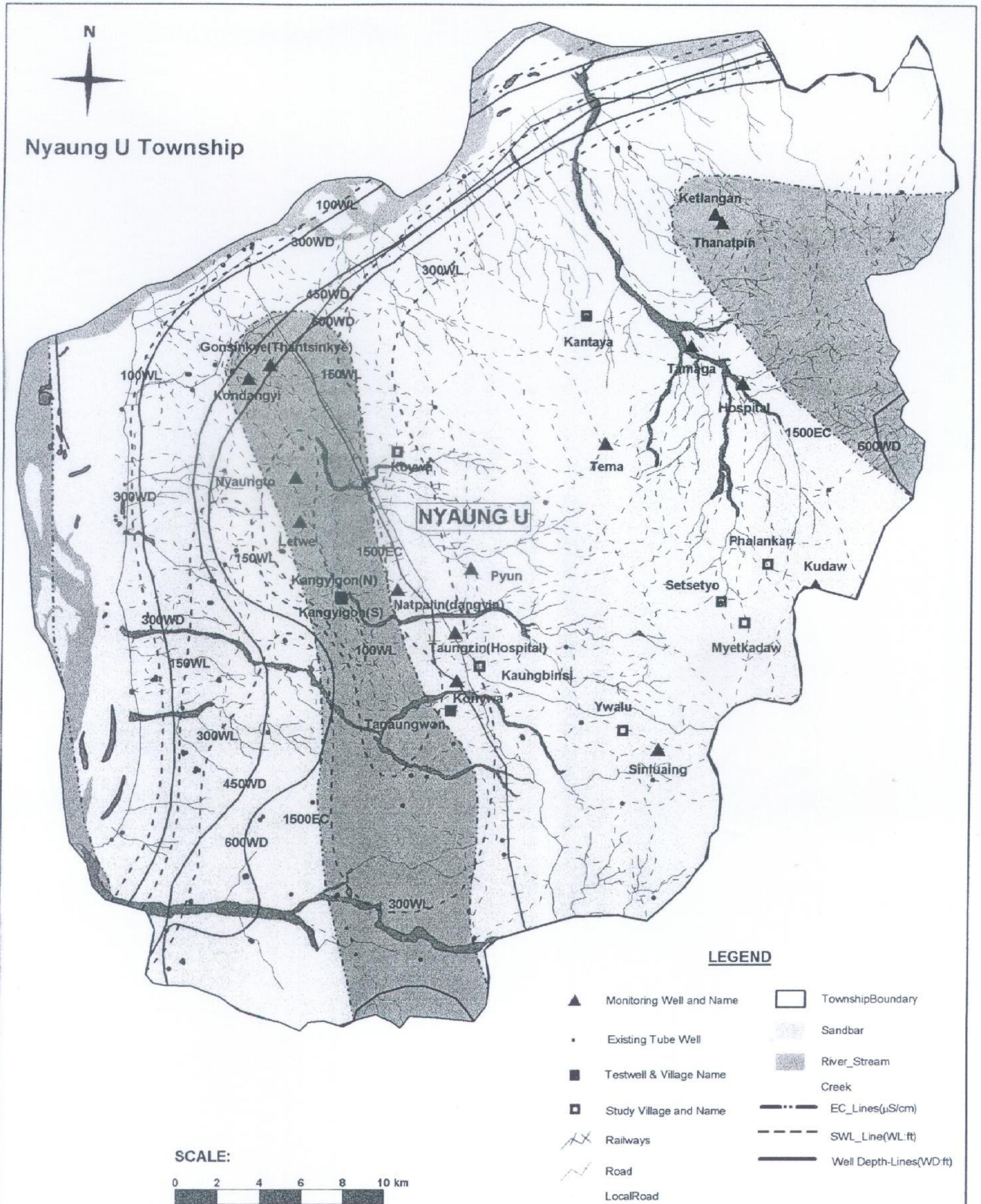


Fig 3.2.3.1 (4/11)

Ground Water Zoning Map of Nyaung U Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

Pyawbwe Township

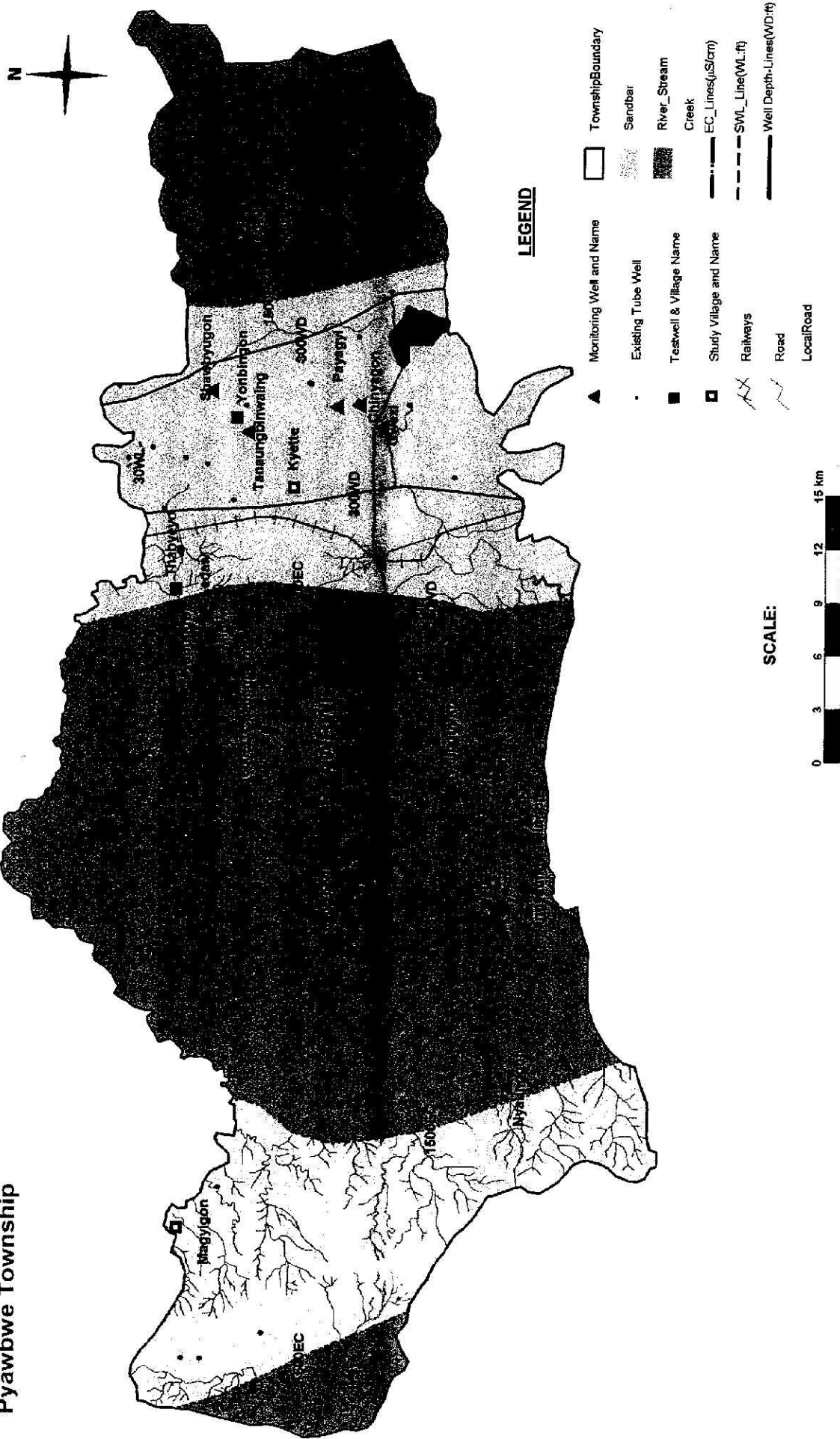


Fig 3.2.3.1 (5/11)

Ground Water Zoning Map of Pyawbwe Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

Myingyan Township

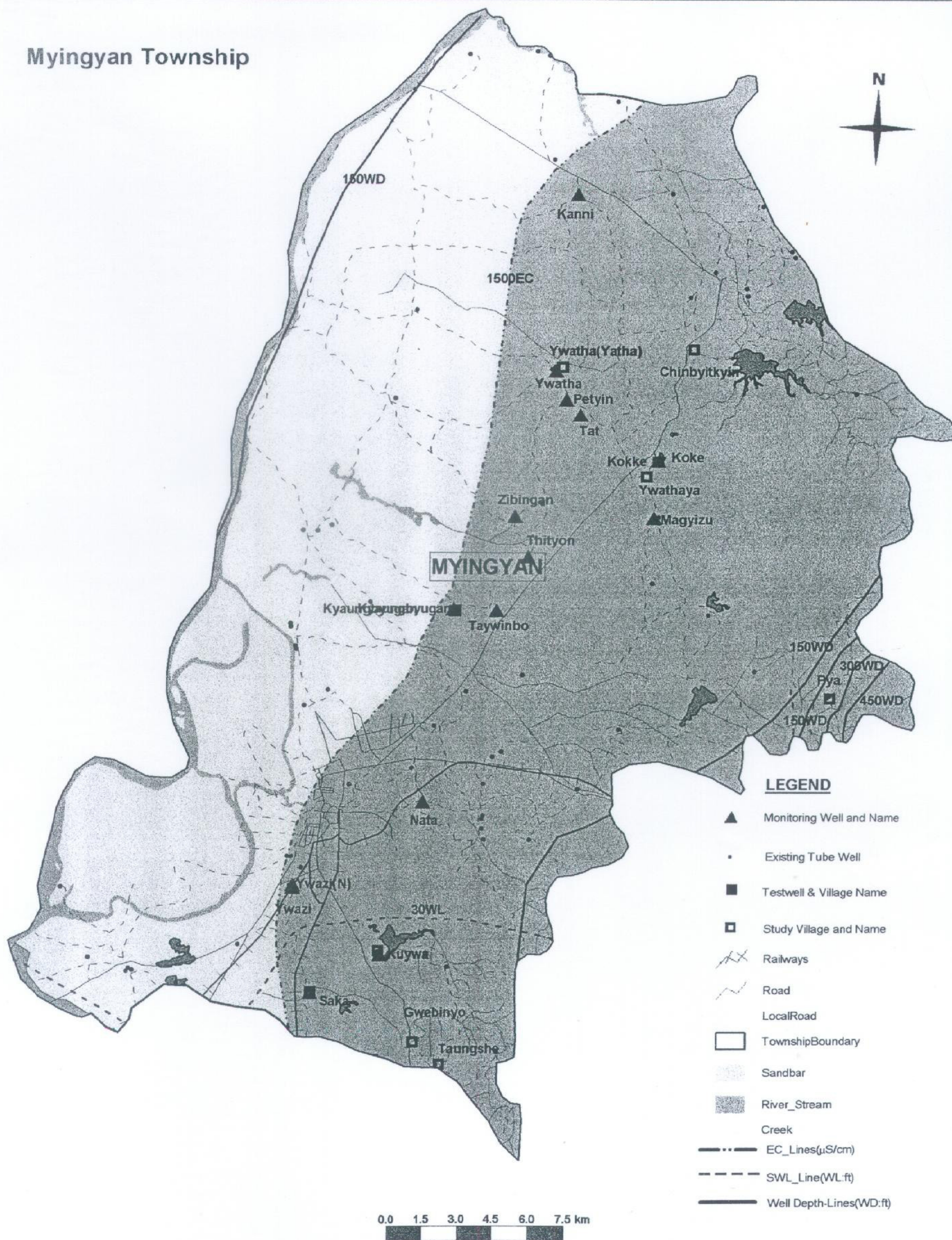


Fig 3.2.3.1 (6/11)

Ground Water Zoning Map of Myingyan Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

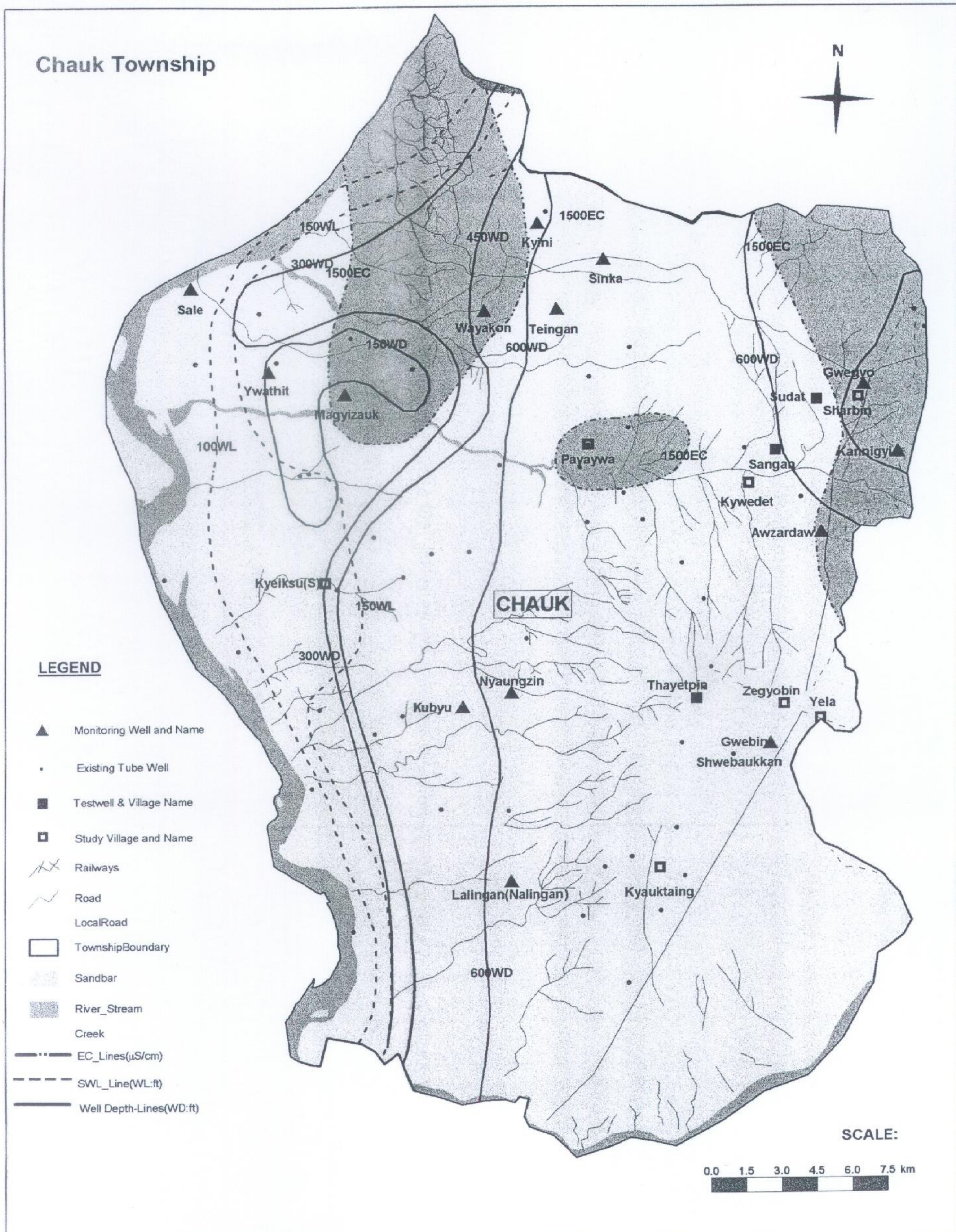


Fig 3.2.3.1 (7/11)

Ground Water Zoning Map of Chauk Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone

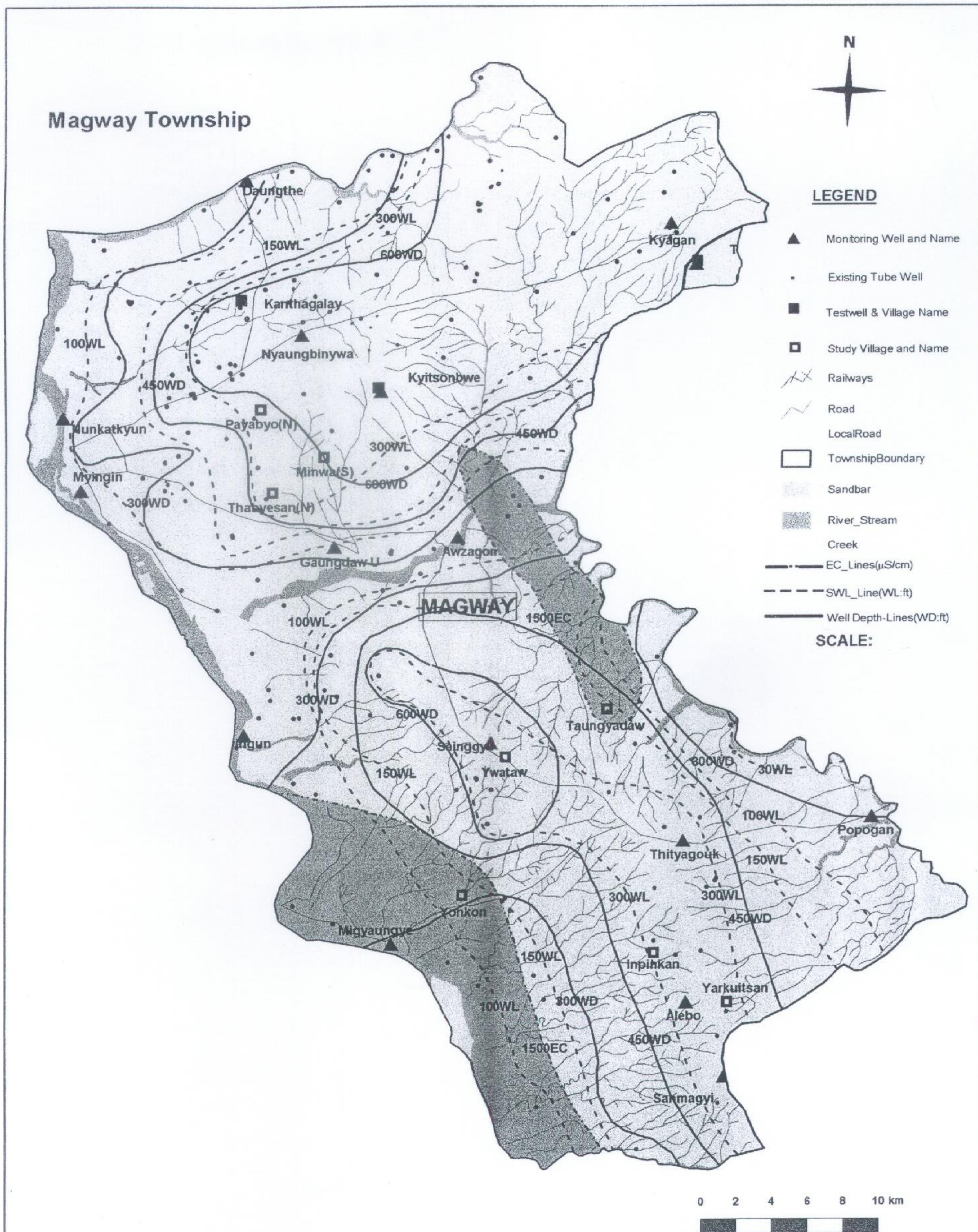


Fig 3.2.3.1 (8/11)

Ground Water Zoning Map of Magway Township

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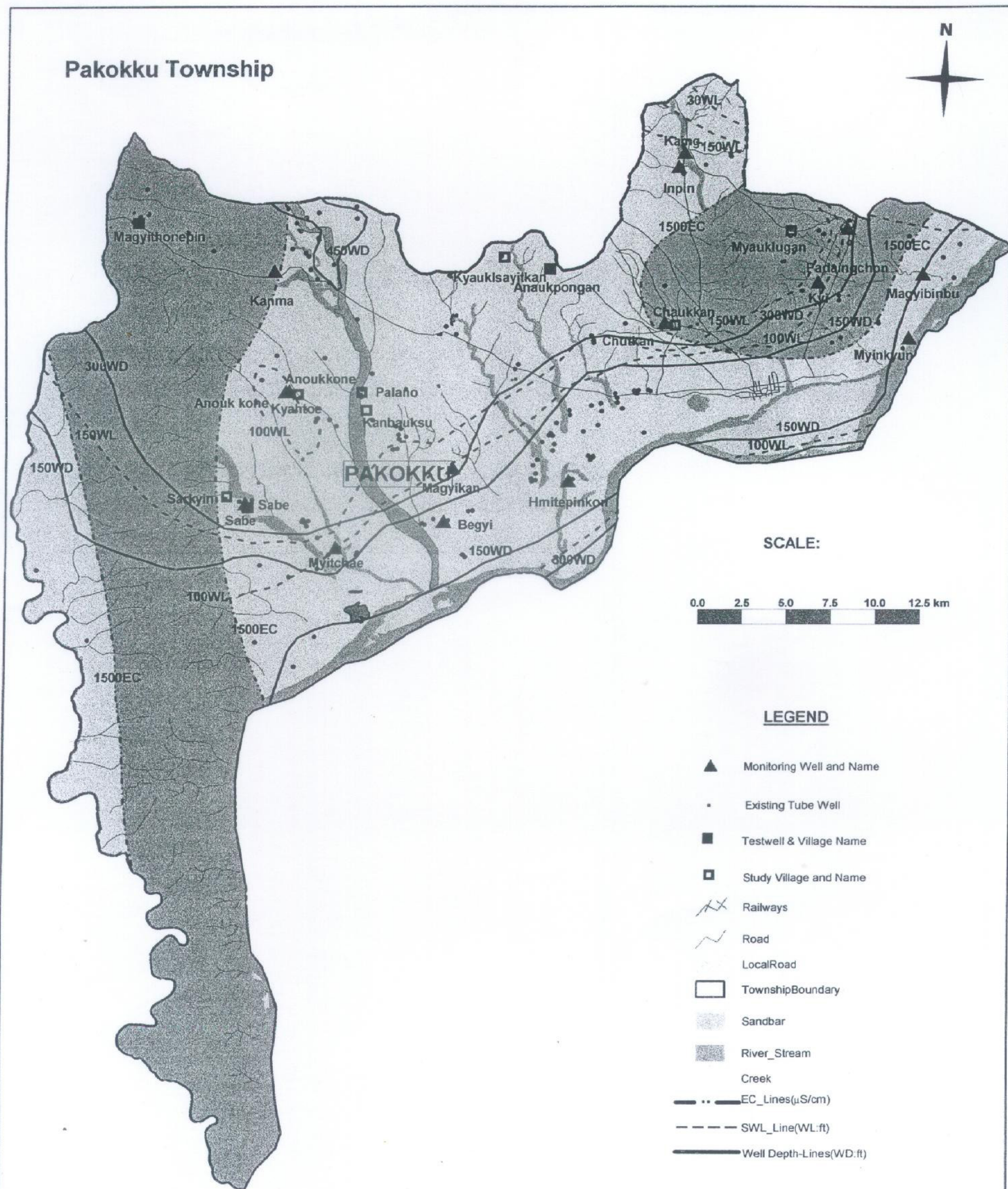
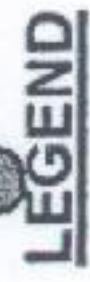


Fig 3.2.3.1 (9/11)

Ground Water Zoning Map of Pakokku Township

The Study on Water Supply Systems in Mandalay City and in the Central Dry Zone



Ground Water Zoning Map of Myothit Township

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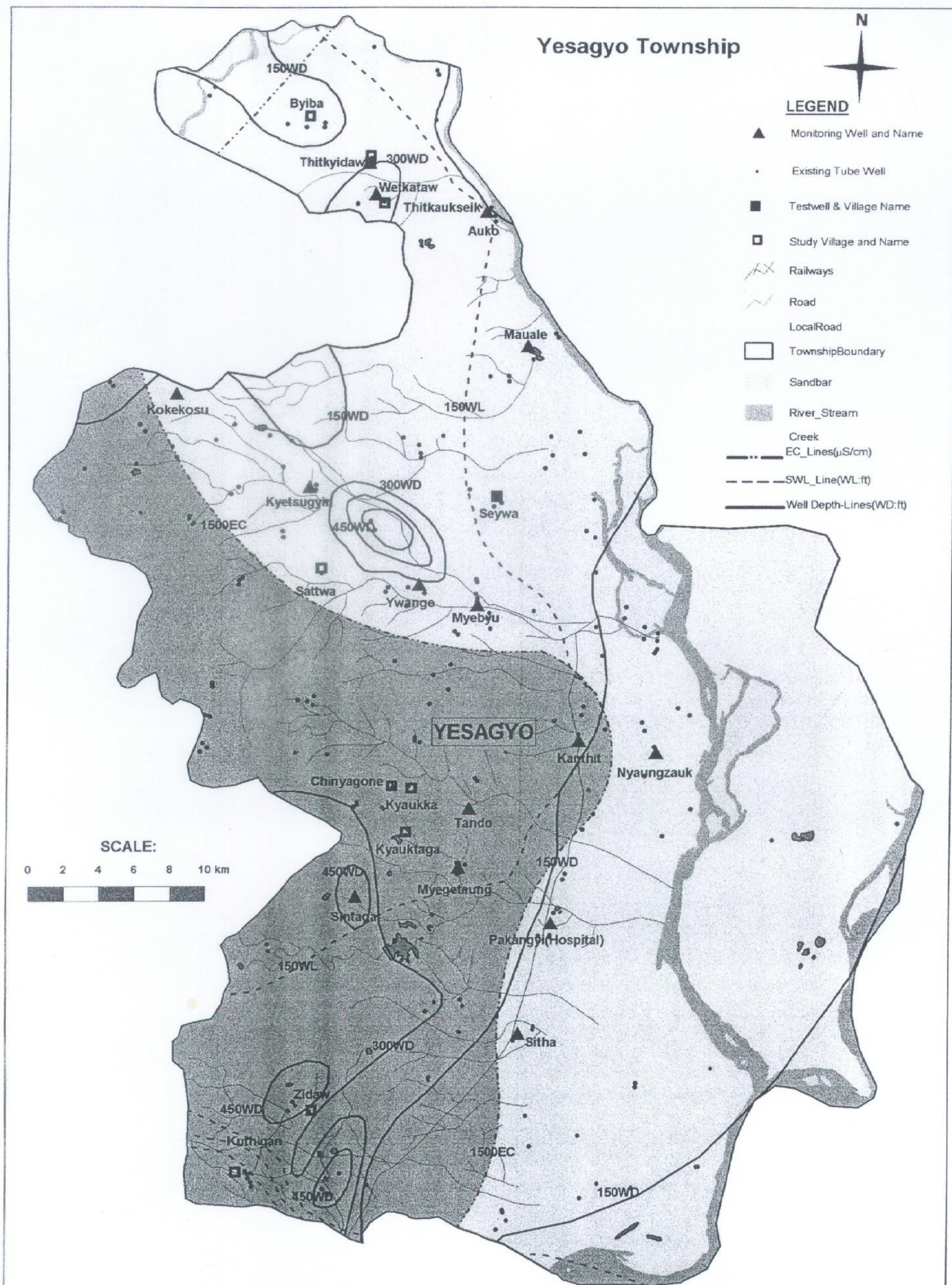


Fig 3.2.3.1 (11/11)

Ground Water Zoning Map of Yesagyo Township

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