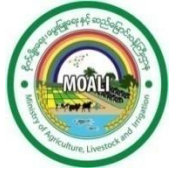


The Republic of Union of Myanmar
Ministry of Agriculture, Livestock and Irrigation
Irrigation and Water Utilization Management Department



**Control Measures for Sustainable Development of
groundwater resources in Yinmarbin (99)Ponds
Artesian zone, sagaing region**

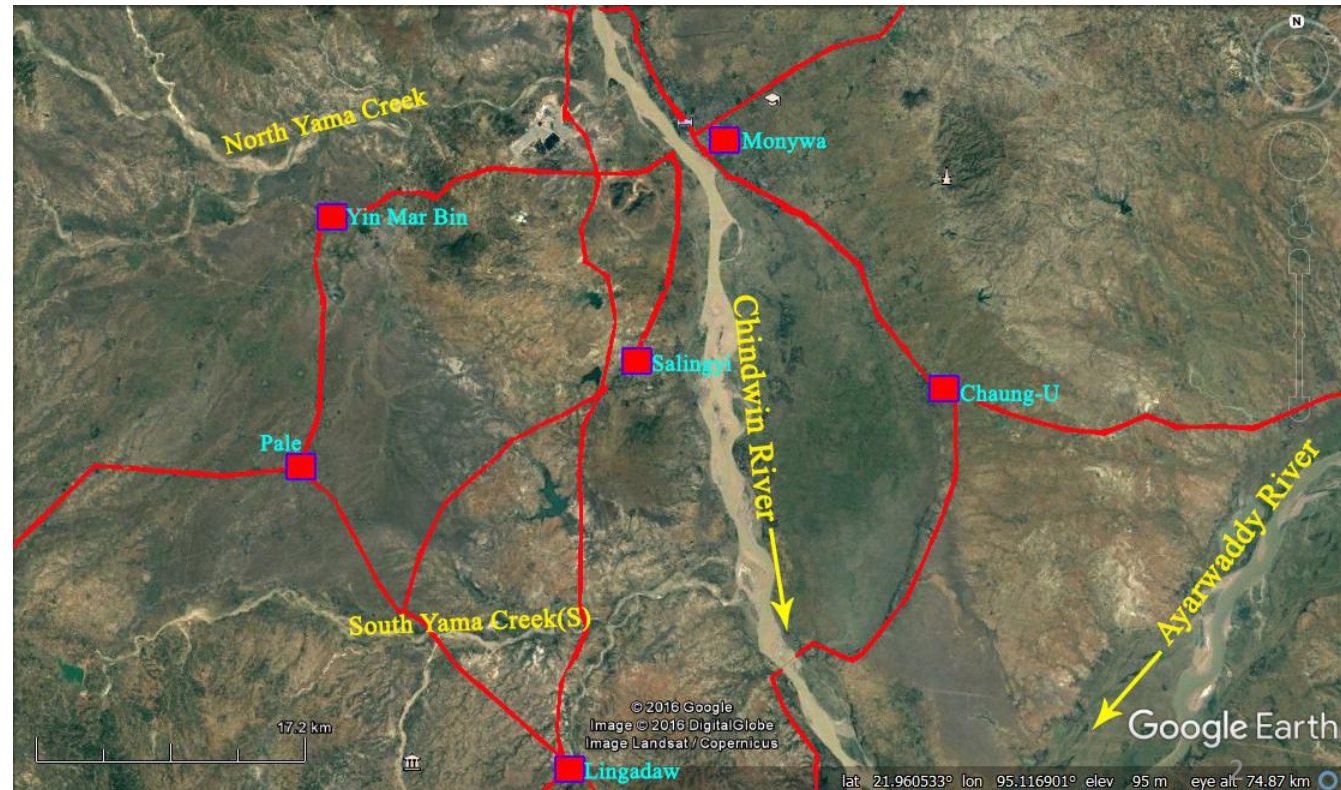
U Thu Ra (Deputy Director)

Groundwater Division

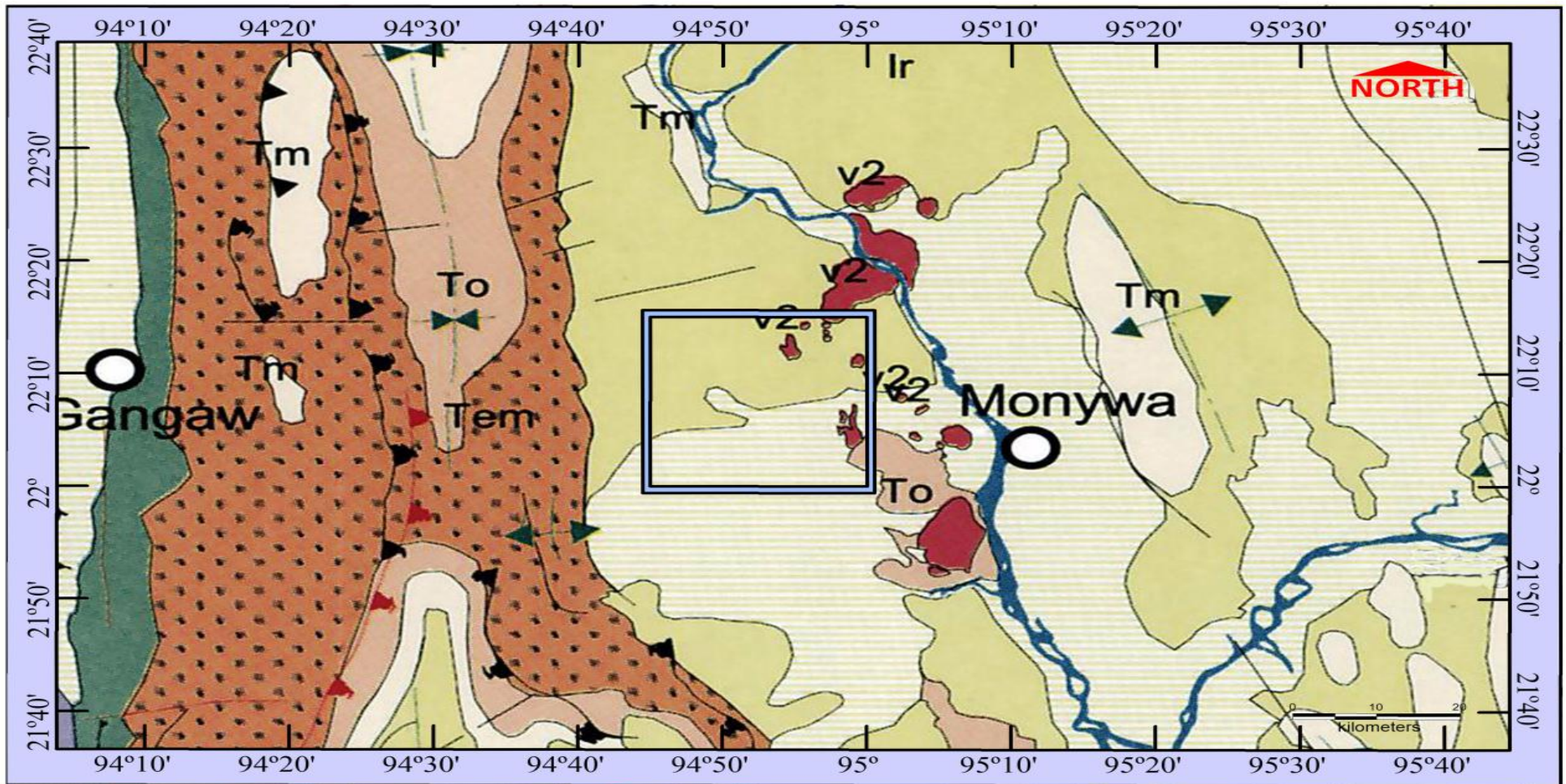
March, 2017

Location of Yinmabin Artesian Zone (99 Ponds)

- It lies between **North latitudes 22° 01'to 22°16'** and the **East longitudes 94°44'to 95° 02'**
- It covers approximately **362.70 square miles**.

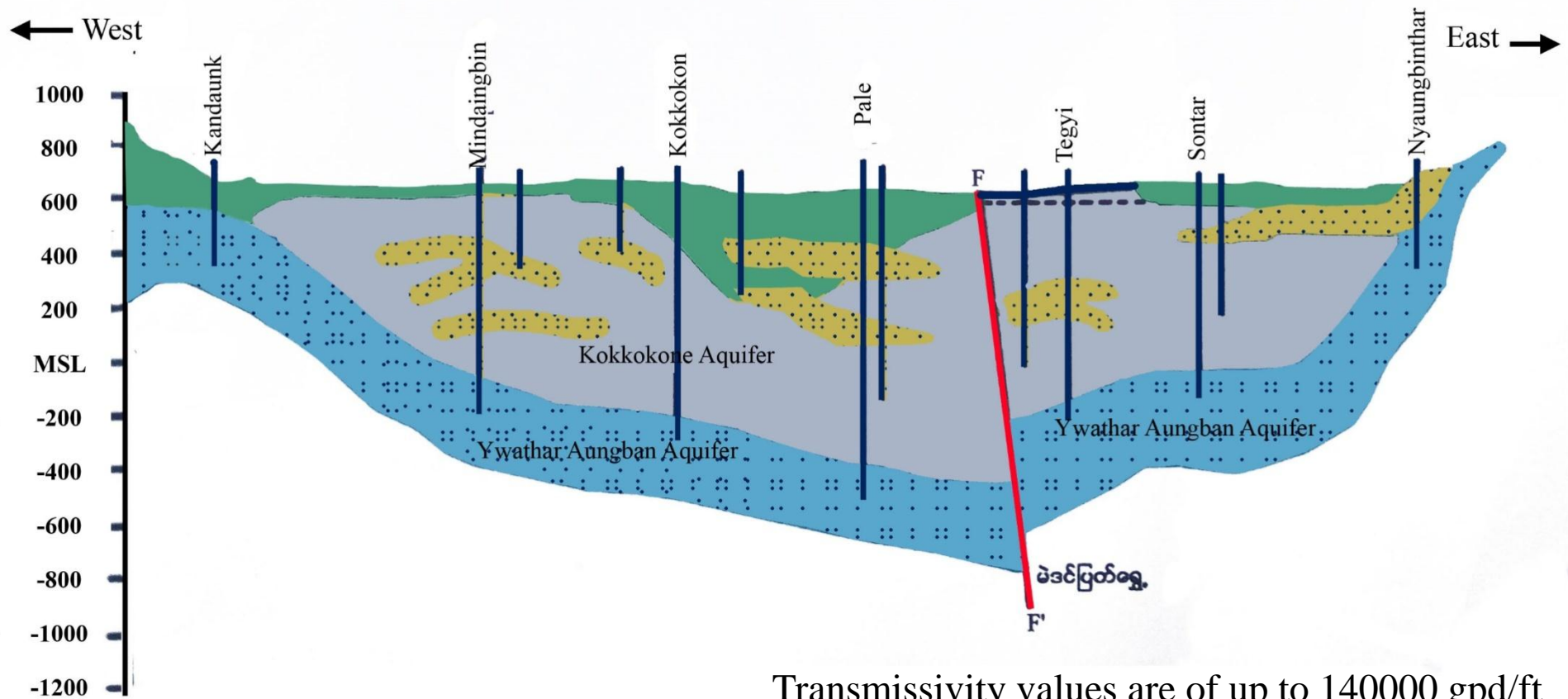


Geological Map of Yinmabin Artesian Zone (99 Ponds)



- The area lies on the Alluvium and Irrawaddian Formation
- And It was bounded by Older Peguan and Eocene rock units in the West and Igneous body in East.

CROSS-SECTION SHOWING THE DISTRIBUTION OF AQUIFERS IN 99- PONDS AREA Yinmabin Artesian Zone



- Rain falls on the Waseintaung and Pontaung ranges of the West, Alaungdawkathapha Natural Park Forest at north west, were seeped into the aquifer and flowed to the east and trapped by of the igneous bodies Sapetaung, Kyesintaung, Letpadaungtaung in the East.

**Project Area : Sagaing Region, Monywa District
Yinmabin & Salingyi Tsp.**

No. of Ponds : 99 Ponds

No. of Wells : 417 Wells

Irrigable Acre : 8181 Acres



Main Project

- Date of Commence - 1st May 1994
- Date Completed - 28th Feb 1995
- Dimension of Ponds - 200 ft x 200 ft x 8 ft (1.5 millions gal)
- Nos. of Ponds - 99 Ponds (Stone Pitched-15 Nos & Earthen - 84 Nos.)
- **Project Cost - 93.3 Mil Kyats**

Irrigation water was distributed from the ponds which collect water from 2 – 5 Artesian wells.

Before the completion of the project



Piezometric level

5 ft – 40 ft above the ground

Yield

5000 gph to 10000 gph.

After the completion of the project

After constructing 482 tube-wells

Piezometric level drop down to 0 ft to 25 ft.

- Most of the tube-wells and ponds are located at higher elevation than the surrounding as it was aim to distribute irrigation water for about 100 acres per pond.



Situation in 1999-2000

From the private sector, more than 205 irrigation wells and 85 drinking tube-wells have been developed before 1999-2000.



Piezometric level of tube-wells in 8 nos. of ponds drop down below the ground level.

Supplementary Project



➤ Date of Commence	-	8 th Feb 2000
➤ Date Completed	-	18 th April 2000
➤ Nos. of Artesian Wells	-	32 Nos.
➤ Nos. of Ponds	-	8 Nos.
➤ Dimension of Ponds	-	150 ft x 150 ft x 6 ft
➤ Project Cost	-	17.4 Mil Kyats

The government push forward to substitute 8 dried ponds by drilling 32 nos. of tubewells.

Reckless extraction makes the drop down of water table and yield in the area

Control measures in 2000

Installation of water saving devices in artesian wells of the ponds

4" Gate Valves with
Piezometric Pipes were
installed for high yield wells.



2" Gate Valves with Piezometric Pipes
were installed at low yield wells



Provision of 2” plugs to communities to control the flow of overflowing wells drilled by private

Control measures in 2000

1. Installation of gate valve

Sr.	Loc	4" Gate Valve			2" Gate Valve			2" Plug		
		Inside	Outside	Total	Inside	Outside	Total	Inside	Outside	Total
1.	R	26	2	28	73	6	79	18	1	19
2.	L	10		10	17		17	28	1	29
3.	N	25		25	40	1	41	45	1	46
4.	A	15	3	18	2	1	3			
5.	Private TW					280*				
	Total	76	5	81	132	8	150	91	3	94

* 1.5" Gate valve

Discussion with Communities (2000)

- 15 village leaders at meeting hall of 99 ponds project in 13 March, 2000
- 22 community members at meeting hall of 99 ponds project in 31 March, 2000
- VPDC office, Ywathayar in 11 April, 2000



Recent Situation

-After 21 years later, recent situation of (99) ponds are as follow-

a) Non flowing well	-	181 nos.
b) Poor flowing well	-	130 nos.
c) Over flowing well	-	138 nos.
Total	-	449 nos.

-This situation shows that discharge rate is dominantly more than recharge of this area due to piezometric level lower than piezometric level of before (99) ponds project.

Photo Records of Regulator & Piezometric Pipe Installation

N-26 Pond



N-26 Pond



Some rehabilitation activities was carried out according to Union Budget and Regional Government Budget.

N-32 Pond



N-32 Pond



Developing tube-wells to obtain Optimal Yield



Installing Gate Valves & Piezometric Pipes



Renovation of Ponds and Irrigation Structures



**17 ponds have been implemented due to Union Budget(24.89 million Ks) and
12 ponds are also implemented due to Regional Budget(11.19 million Ks)**



Discussion with Communities (2016)

- Workshop with Representative of Hluttaw, authorities concerned, Representatives of divisional levels of MOALI, INGO had held at township meeting hall of Yinmarbin (11.10.2016).



Photo Records of Workshop on “Groundwater For All, Save Our Source” in Yin Mar Bin District



U Tin Lin (Geologist)
(Deputy Director-Retired)



U Khin Aung Thein
(WASH Officer-UNICEF)

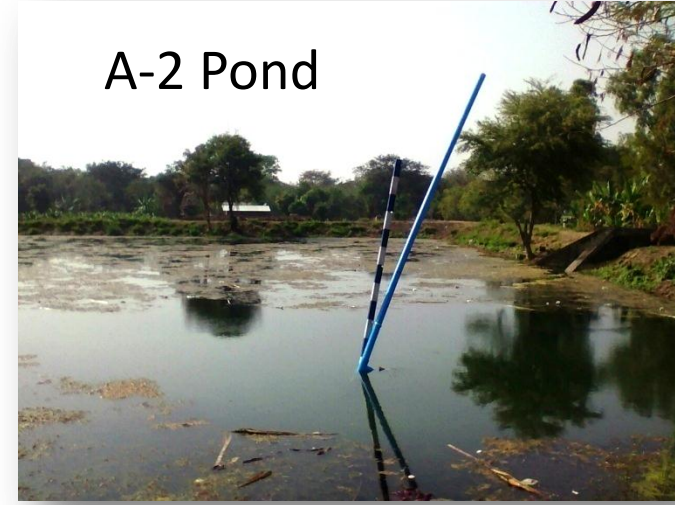


Discussion with Villager



Discussion with Villager

- Some villagers destroyed artesian wells, gate valves and piezometric pipe installations.



- So many discussions had been held to educate not to destroy the gate valve and to use effectively so that sustainable development of (99) ponds.

At present, total tube wells (2119)nos had been drilled in this area including (499)nos by our department.

It is essentially needs to control tube wells drilling without permission of authorities concerned to maintain the discharge of groundwater in this area.



Conclusion

- Weakness in community participation.
- Budget limitation
- Need to increase public awareness especially for local farmers.
- Need to strengthen cooperation and coordination among government and non-government agencies.
- Need legal enforcement to control drilling new tubewell in artesian zone.
- Need to designate regional laws and regulations to control unnecessary wastage of groundwater.
- Regular monitoring on groundwater systems of the artesian zone must be done

စာနာဝတ်မျိုးဆက်စာတွက် သန့်ရှင်းကောင်းမွန်သောကမ္ဘာမြေစား
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