



Regulations and Standards on Decentralized Domestic Wastewater Treatment

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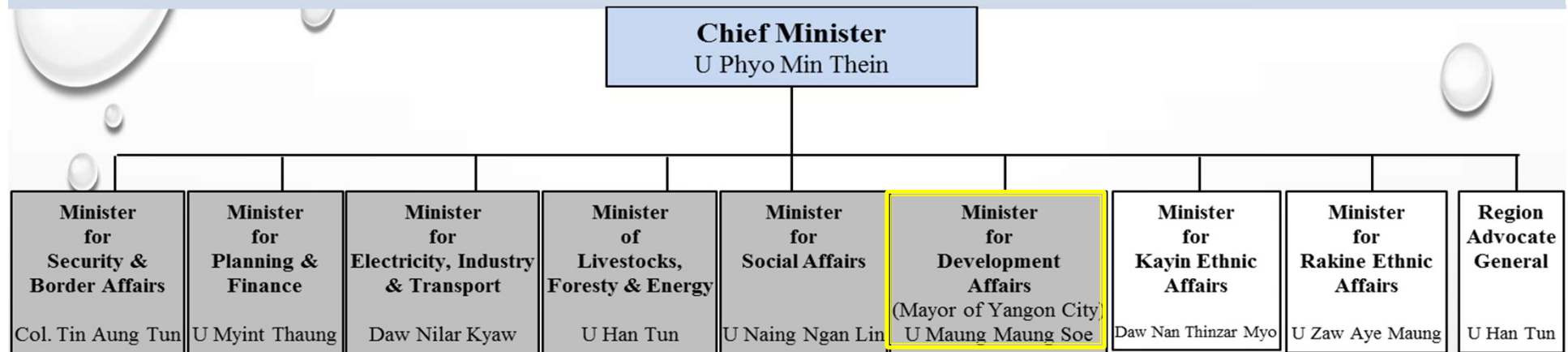
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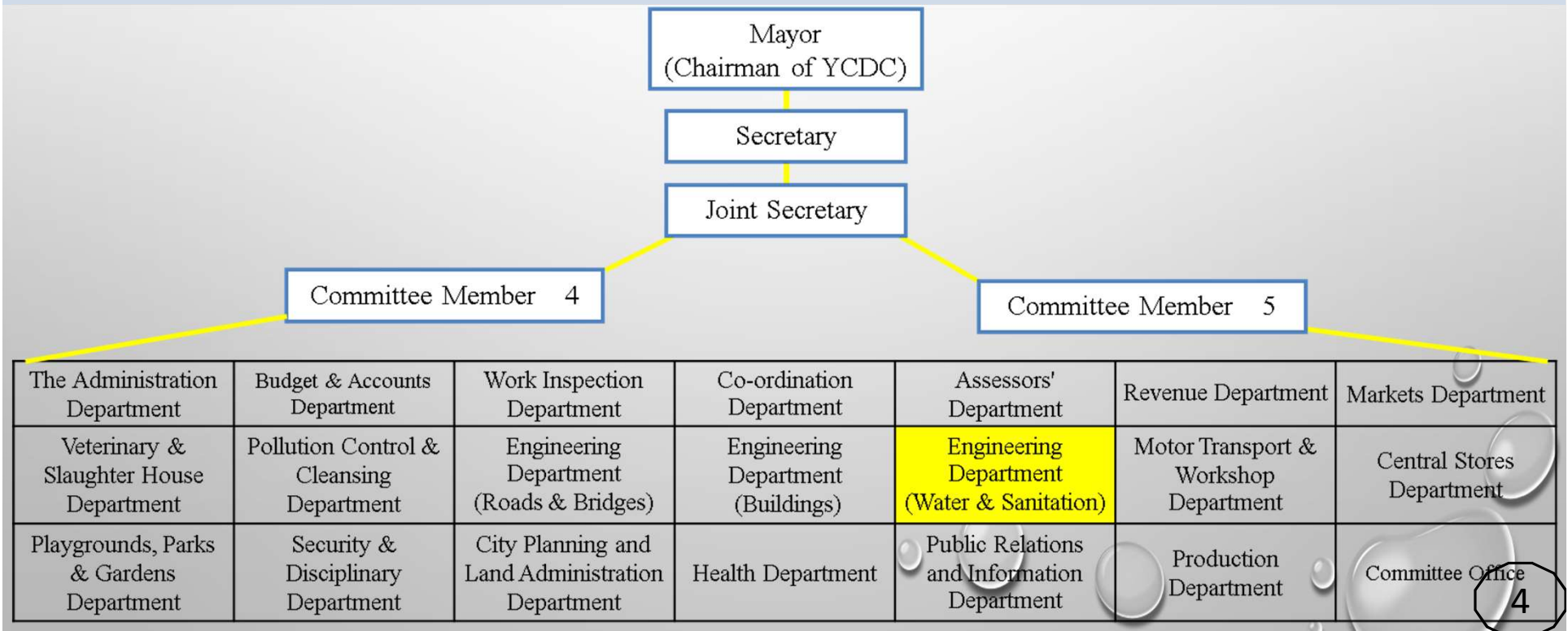


Introduction of Institutional Framework for Sanitation Management

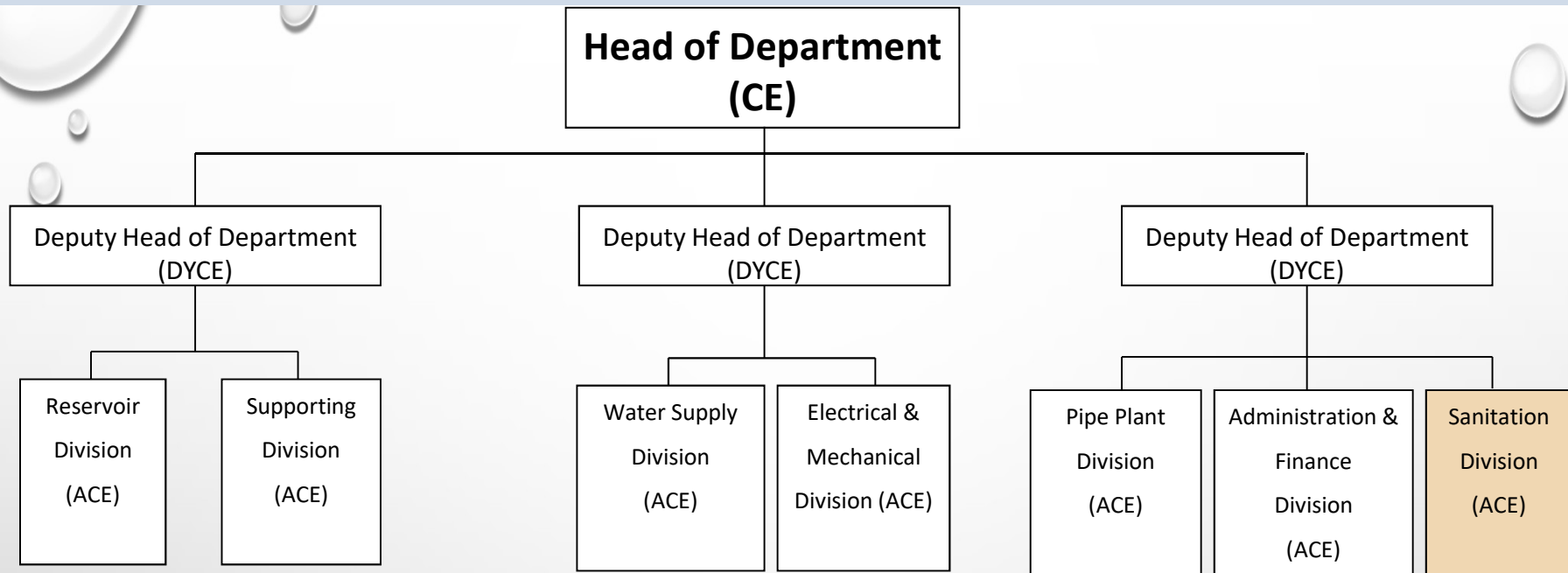
Organization Chart of Yangon Region Government



Organization Chart of Yangon City Development Committee



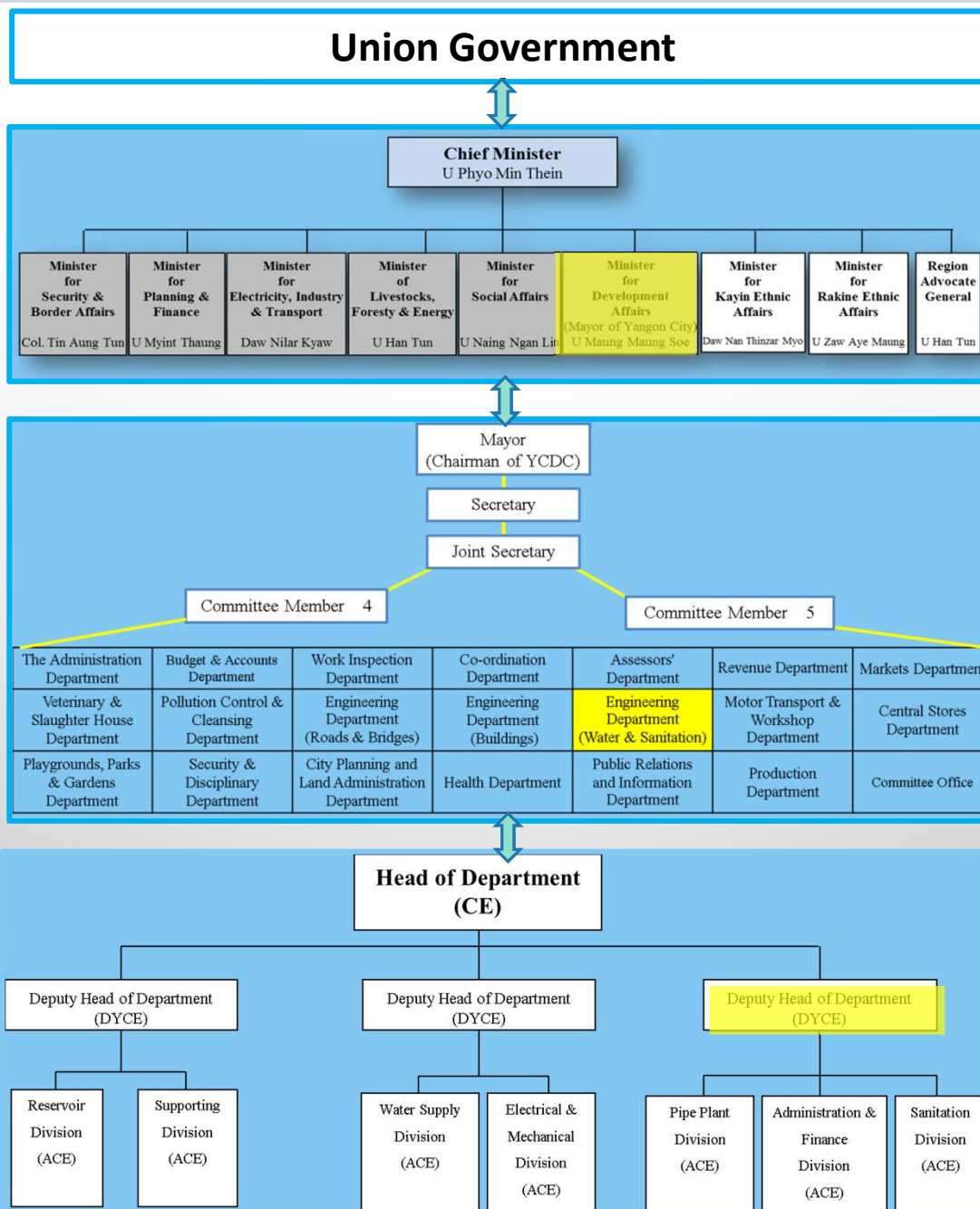
Organization Chart of Engineering Department (Water & Sanitation)



Division Set-Up for Sanitation Management



Legal Framework for Existing Wastewater Management System





Existing Sanitation Management

Main Responsibilities of Sanitation Division

■ Functions of Sanitation Division

1. Sewage pipe cleaning and de-sludging
2. Driving, Maintenance for Air Compressors and Shoe Ejectors
3. Formulation of programs and projects for expanding of sewage pipes (sewers) and sewage tanks
4. Innovative creation for improvement of sewage disposal system in line with the character of City
5. Purchasing of equipment, machineries and modern machines

Existing Sewerage System in CBD Area

History of Yangon City Sewerage System

- Establish -1888 (22 sewage ejector)
- Service -for serve 40,000 people
- Extension -1929(40 sewage ejector)
- Service - for serve 240,000 people
- Cover Area -9 sq km(3.5 sq miles) in Central Business District (CBD)
- Company - HUGES & LANCASTER (ENGLAND)
- Shone Hydro – Pneumatic Ejector



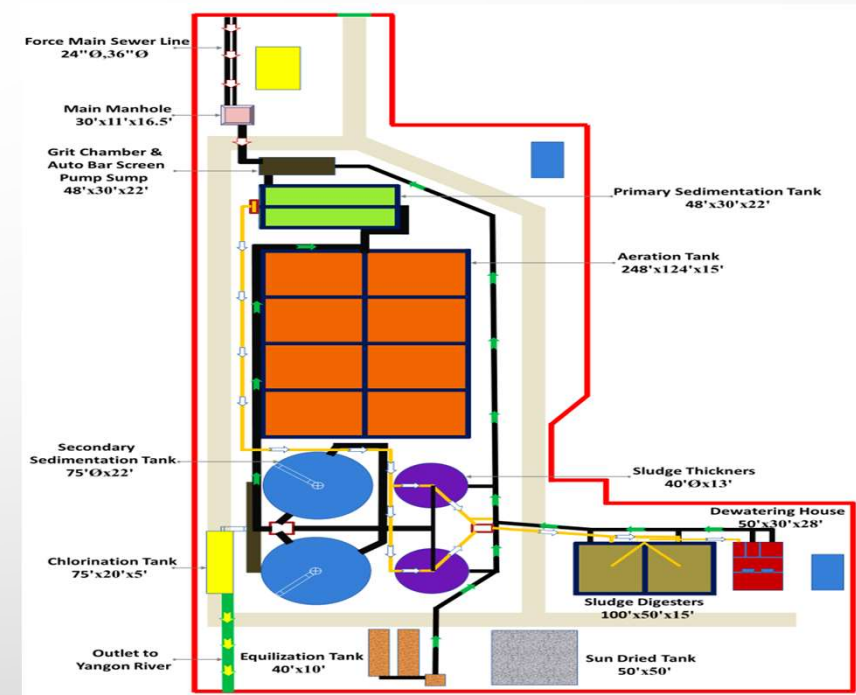
Wastewater Treatment Facility

- Conventional Sewerage System (In CBD)

Sewage Treatment Plant in Botataung Township



- Year of Establishment - 12th April 2003
- Year of Completion - 17th January 2005
- Volume of Daily Treatable sewage - 3.25MGD
- Developer City - Myanmar Engineers of Yangon Development Committee
- Cost of Project Kyat - USD0.96 Millions + (Myanmar 2065.7 Millions)
- Areas of Plant - 5.56 Acres



Design Criteria:

- | | |
|-----------------------------|----------------------------|
| Area of Plant | - 5.56 acres |
| Design population | - 300,000 |
| Daily wastewater discharge- | - 14775m ³ /day |
| BOD influent | - 600mg / l |
| BOD effluent | - 20 to 60 mg / l |
| Suspended solid influent | - 700 mg / l |
| Suspended solid effluent | - 40 ~ 70 mg / l |

Main Challenges and Issues



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(d)

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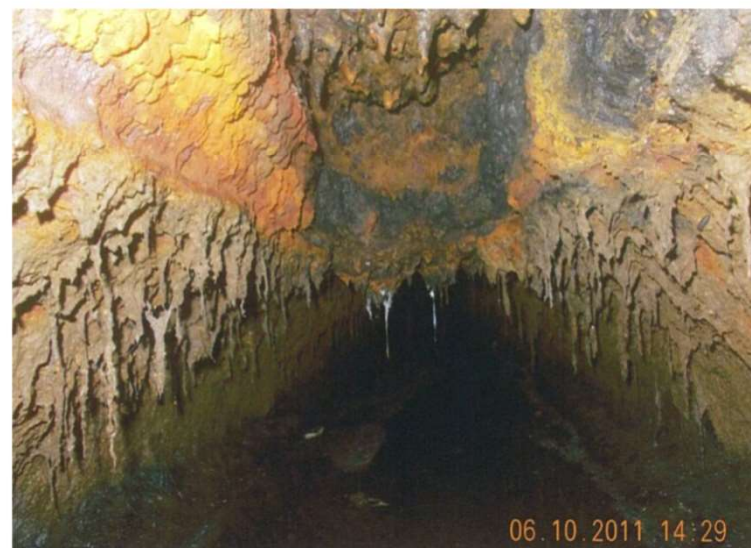
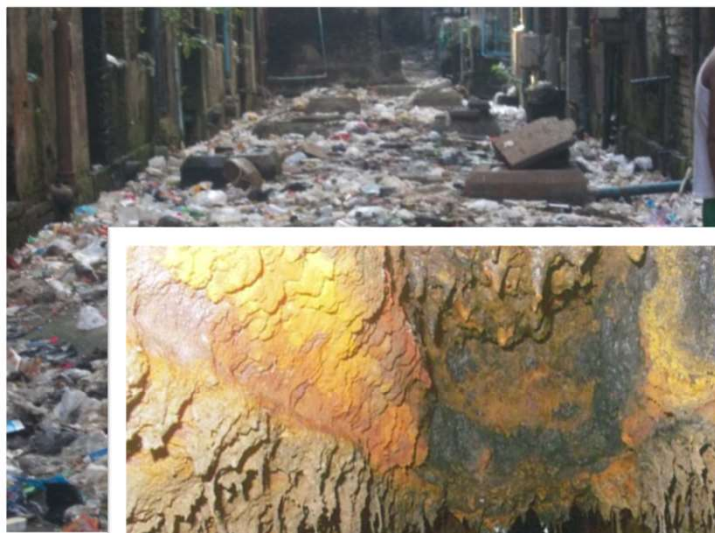
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Condition of Standards and Guidelines for Sanitation Sector

List of Myanmar's Laws related to Water & Sanitation Sectors

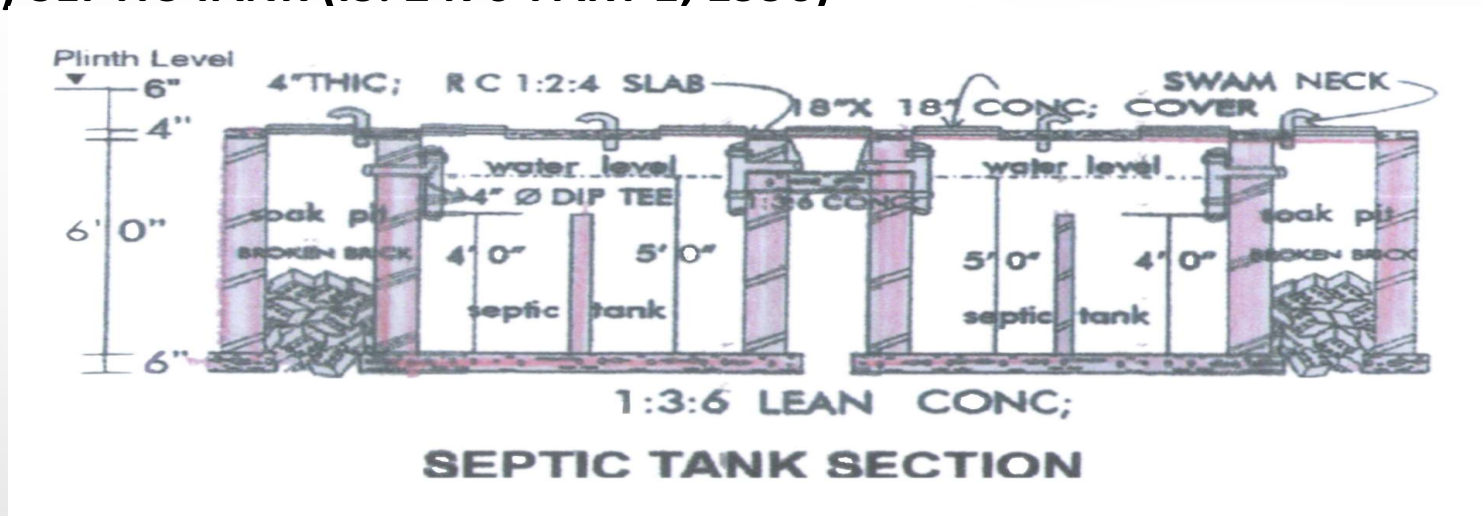
Name & Sectors	Relative Fields
The essential Supplies and Service Act,1947	Provisions for regulation water supply and environmental sanitation in rural areas, to “maintain service essential to the life of the community, if essential
The Yangon Water- works Act-1885	Prohibiting on the pollution of water works in the city of Yangon
The city of Yangon municipal act, 1922 (The law Amending the city of Yangon Municipal Act,1941)	Provisions relating to environmental sanitation, pollution of air and water and public health.
The underground water act,1930	Prohibitions on accessing and using underground water without license
The city Yangon development law, 1990 (Amended in 1995 and 1996)	Provisions relating to environmental sanitation , pollution of air and water, and public health
The development committee law,1993	Provisions relating to environmental sanitation, pollution and water, and public health
The Mandalay City Development law,1992	Provisions relating to environmental sanitation , pollution of air and water, and public health
Yangon City Development Law, 2013(Amended in 2014)	Provisions relating to environmental sanitation , pollution of air and water, and public health

Institutions in Myanmar on Water & Sanitation Related Issues

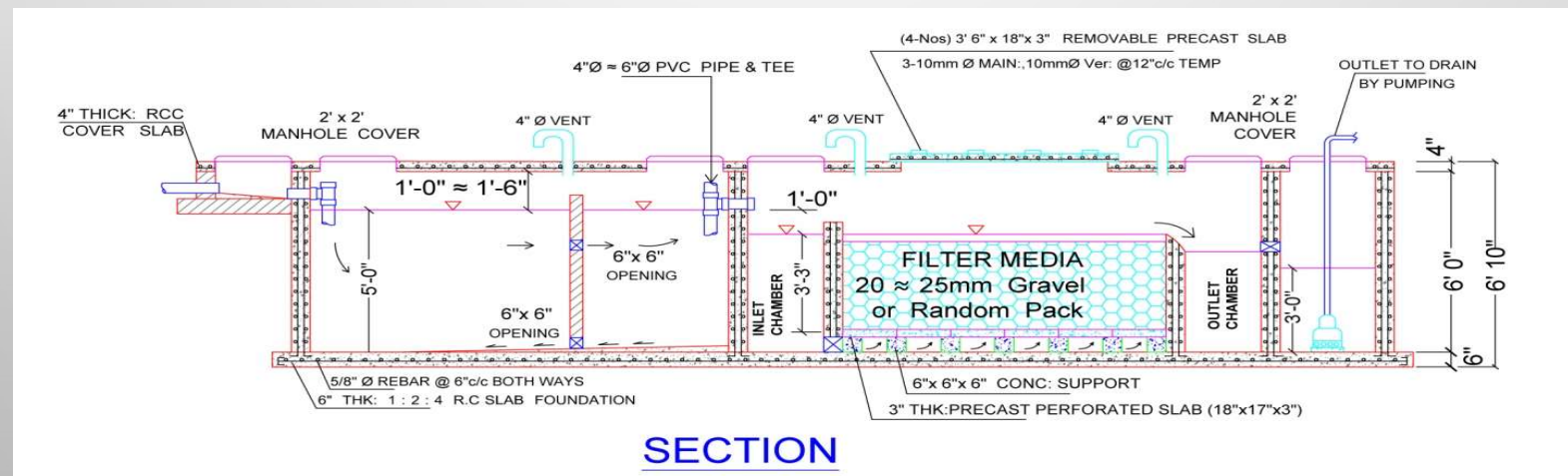
Agency	Functions
Department of Meteorology and Hydrology	Water Assessment of major rivers Data Collection and analysis
Directorate of Water Resources and Improvement of River Systems	Ensuring safe navigation on rivers and creeks; protecting the river systems for the beneficial utilization of the public, monitoring of water quality river training, river dredging, navigation, river bank protection and river water quality monitoring
Irrigation and Water Utilization Management Department	Provision of irrigation water to farmland, and monitoring of water quality irrigation water supply, construction, operation and maintenance of irrigation dams and flood protection embankments, agriculture water quality monitoring.
	Pump Irrigation and rural water supply
Forest Department	Reforestation and Conservation of Forests
Environmental conservation Department	Environmental conservation and management
Department of Hydroelectric Power	Hydropower Generation
Factories	Industrial use, water treatment
Myanmar Fishery Enterprise	Fishery works, monitoring and controlling water body
Department of Rural Development	Domestic and rural water supply and sanitation
Department of Health	Environmental Health, Water quality assessment and control, monitoring water quality
Department of Human Settlement and Housing Development	Domestic water supply
City Development committees	City water supply and sanitation, water conservation and protection works
Myanmar Engineering Society	Water resources management related activities, especially consultation
Technology University	Training and Research
Township level	Organizing water needs, conservancy needs

Standards for Decentralized Domestic & High-Rise WWT System

(1) SEPTIC TANK (IS: 2470-PART 1, 1996)

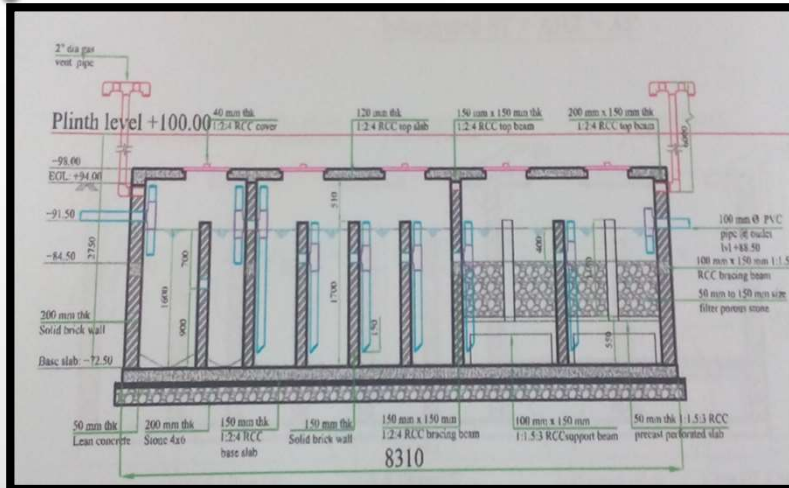


(2) UP-FLOW ANAEROBIC FILTER (IS: 2470- PART 2, 2001)



Standards for Decentralized Domestic & High-Rise WWT System

(3) BORDA Decentralized Wastewater Treatment System



B.E.H.S (1) Tamwe, Yangon (7m³/day)

Standards for Decentralized Domestic & High-Rise WWT System

(4) JOHKASOU



Location : Mahabandoola Park
Capacity : Max 5m³/day



Location : U Oattama Park
Capacity : Max 80m³/day



Location : YCDC Staff Training School
Capacity : Max 10m³/day



Location : Night Market (Merchant Road)
Capacity : Max 20m³/day

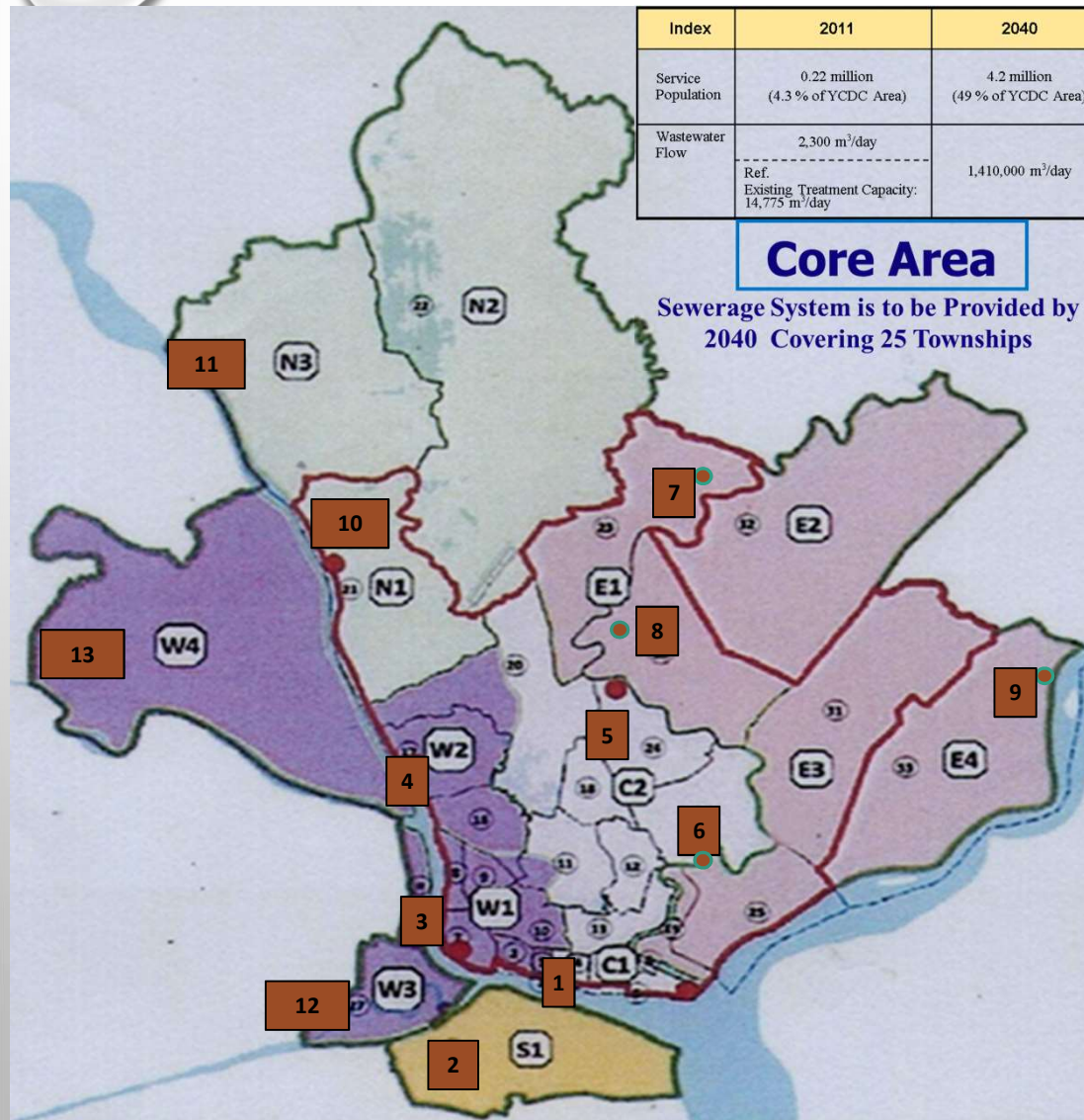
Standards for Decentralized Domestic & High-Rise WWT System

(5) Membrane Bio-Reactor System



YCDC Officer Housing(30m³/day, 38m³/day)

Master Plan for Sewerage System (2040 - Greater Yangon)



No	Zone	Townships
1	C1	Pabedan, Kyoutada, Botahtaung, Pazundaung
2	S1	Dala
3	W1	Lanmadaw, Latha, Dagon, Some part of Bahan, Some part of Kyemyintdaing, Alone, Sanchaung, Some part of Kamaryaut
4	W2	Hlaing , Some part of Kamaryaut, Some part of Mayangone
5	C2+E1	Some Part of Bahan, Mingalartaungnyunt, Tarmwe, South Okkalapa, Thingungyun, Yankin, Some part of Mayangone, North Dagon, North Okkalapa
6	C2+E1	Thingungyun
7	C2+E1	North Okkalapa, Mingalardon
8	E1 + E2	North Dagon, East Dagon
9	E3 + E4	Dawbon, Tarkaeta, South Dagon, Dagon (Seikkan)
10	N1	Insein
11	N3	Shwe Pyi Tar
12	W3	Kyeemyindine, Seikkyi-Kanaungto, Seikkan
13	W4	Hlaingtaryar



Thank You Very Much for Your Attention

