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WATER and SANITATION REQUIREMENTS for ENVIRONMENTALLY SUSTAINABLE YANGON CITY

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Introduction

- Water supply and sanitation systems were established by British over the last 100 years within 30 square miles.
- Yangon City, largest business hub of Myanmar with over 5 millions population in the area of 293 sq miles.
- Population growth is 2.5 percent.
- Water consumption is 30 gallons/person/day.
- Estimated disposed sewage water is 10 gallons/person/day.
- YCDC is preparing 2040 Yangon vision master plan in which water supply and sanitation system is one of components in order to supply the growing demand of water,.

Present Situation

- **Water Supply System**

- 80% of water supply from reservoirs around Yangon City and 20% from ground water are treated in treatment plants and carried by boosted main, sub-main and distribution pipe lines to the consumer connection sources.
- Most of treatment plants are process of coagulation and flocculation, sedimentation, filtration and disinfection.
- Current water supply of YCDC is about 160 million gallons per day.

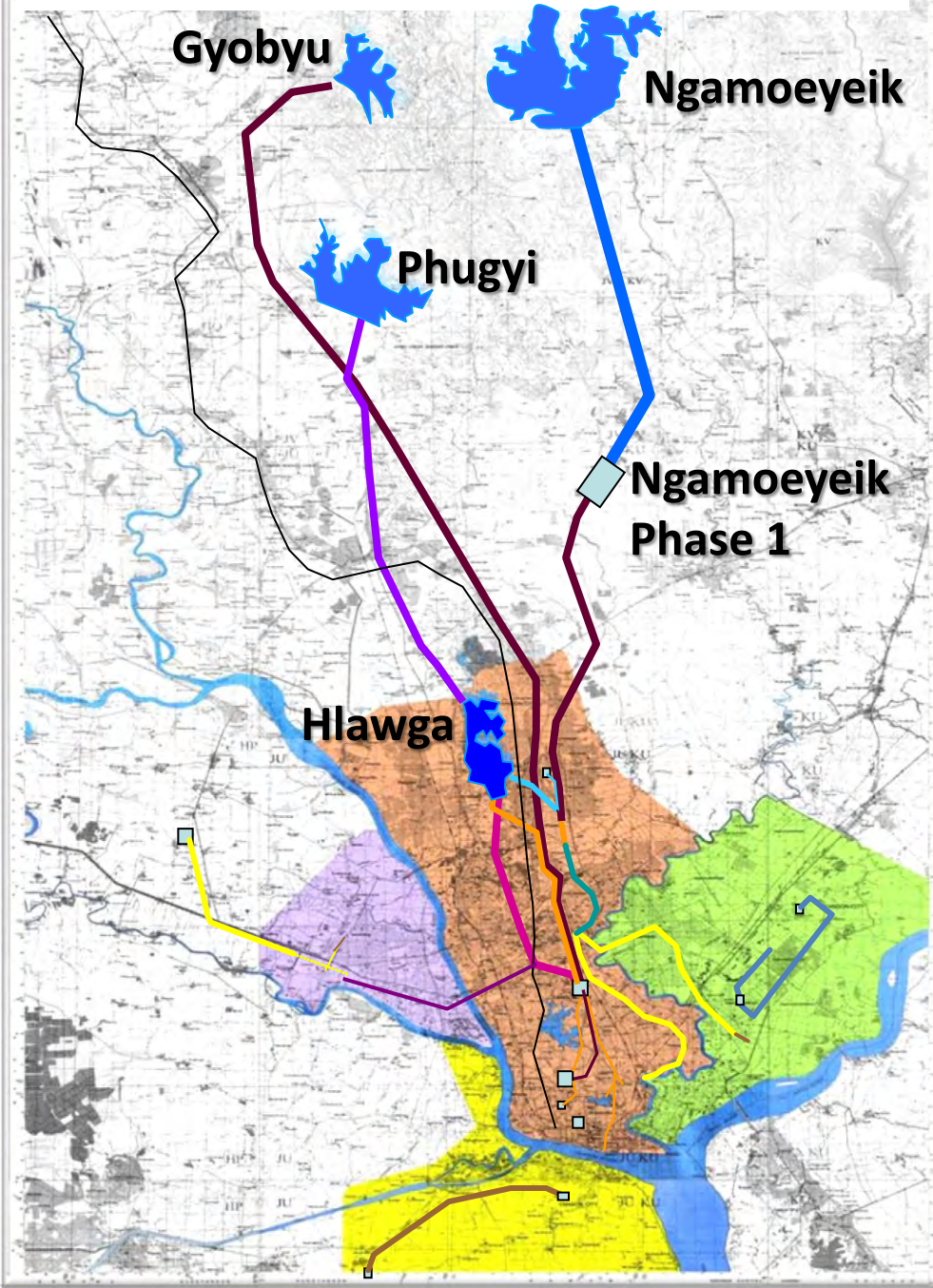
Water supply In late November 2005

Gyobyu	27mgd
Phugyi	54mgd
Hlawga	14mgd
Tubewell in YCDC	20mgd
Ngamoeyeik 1st Phase	45mgd

Total water Supply 160mgd

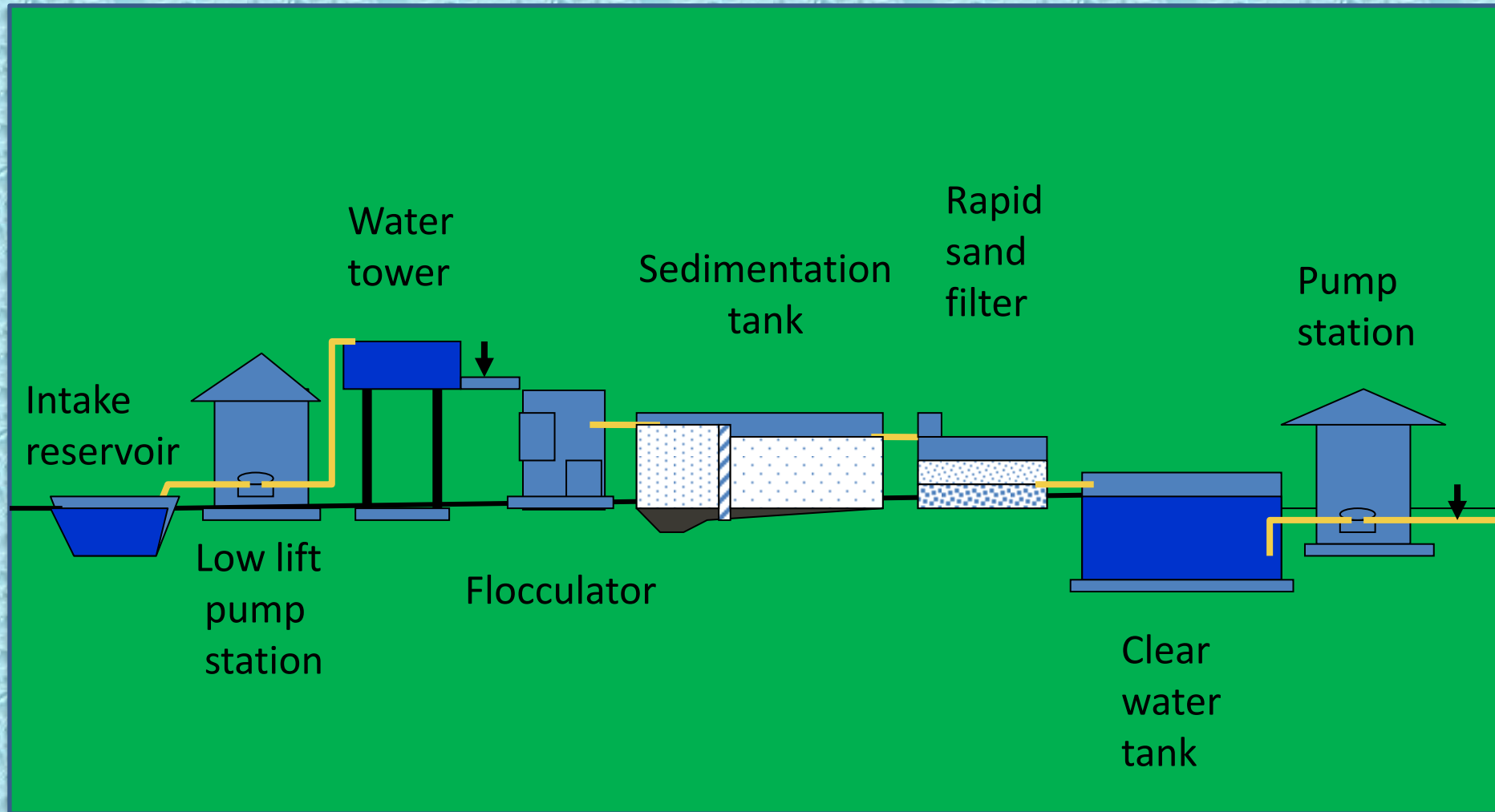
YCDC Water Supply -	62%
Non-YCDC Water Supply-	38%

Supply Reservoirs to Yangon City



Ngamoeyeik (1st phase) Water Treatment Plant

Longitudinal profile of water treatment



Ngamoeyeik (1st phase) Water Treatment Plant



Groundwater Treatment Plants



• **Swage System**

• **Sources**

Sources of swage are mostly from house-holds which are connected with underground sewer line system and individuals from private residences, estates and industrial zones within YCDC area.

• **Treatment and coverage area**

Swage and house-holds waste water are collected into anaerobic digester through pressure boosted sewer lines which were built since 1888 in downtown and two sub urban area about 35 square miles. Swage from individual septic tanks are also treated by carrying with vacuum trucks to the treatment plant.

Sewer Lines System in Down Town Area



Renovation of main underground Sewer



Renovation of Collection Chamber Tunnel



Challenges

- **High demand**
 - Water demand increases in residential and industrial zones, and also in further developments of city.
- **Weak public awareness and Law enforcement**
 - Weak law enforcement for water leakage and illegal connections. No revenue for government organization, religious institutions and traditional water festival.
- **Technical and financial issues**
 - High maintenance cost for existing water supply and sewage system.
 - Need new design for water supply and sewage systems and water losses. Income and expenditure ratio is not economically feasible.

Future Plan

- **Short-term plan**

- To accelerate the reduction of water losses by maintaining, leakage repairing.
- To establish Phase 2 Ngamoeyeik water processing plant with the capacity of > 45 million gallons per day

Construction of Phase 2 Ngamoeyeik Water Treatment Plant



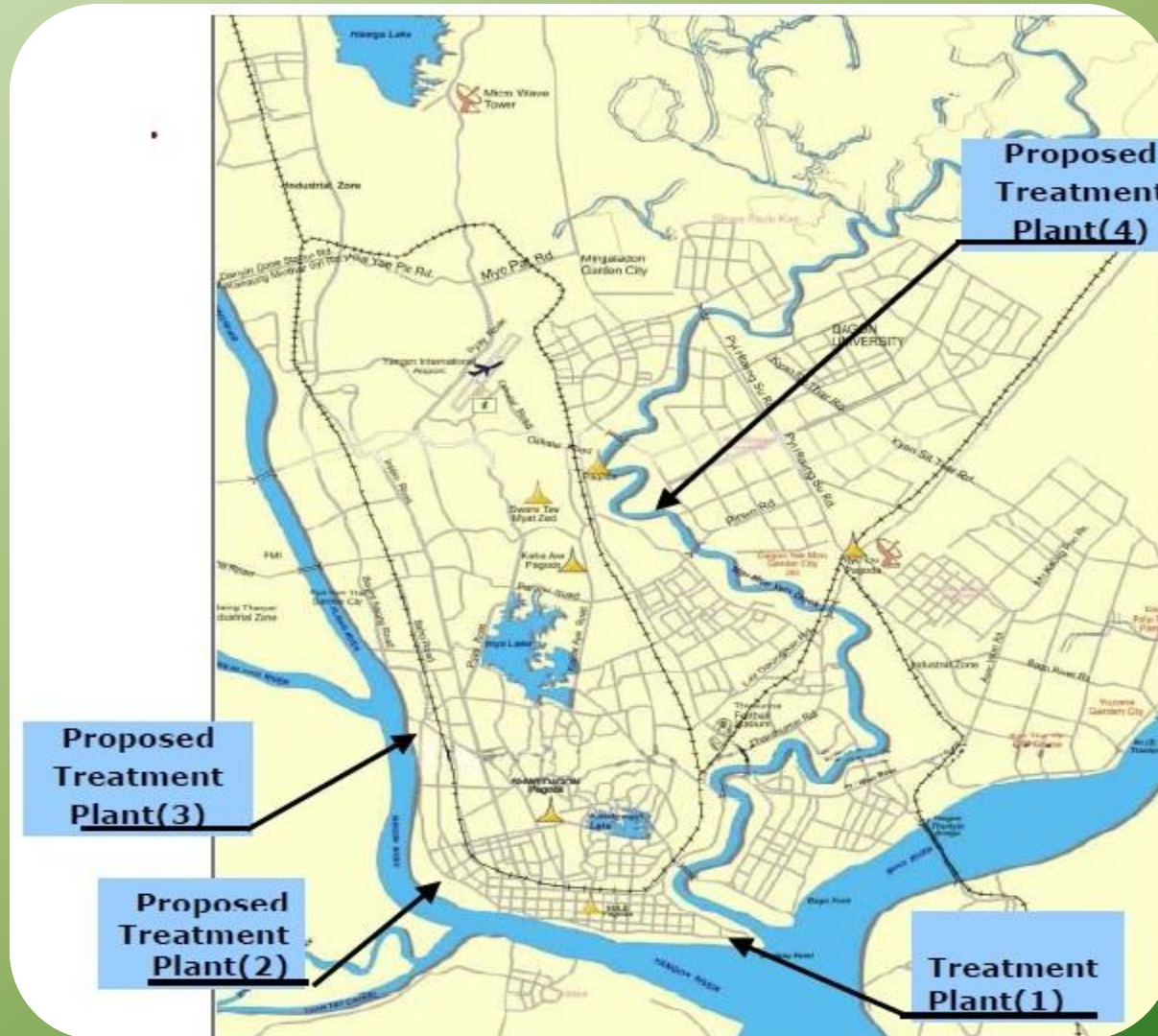
Long-term plan - 2040 Vision

- YCDC is preparing Yangon City 2040 master plan for 11 millions population.
- Water demand will be about 520 million gallons per day which needs additional three sewage processing plants.

2040 Vision for Water Requirement of Yangon City

Year	Population	Percapita consumption	Uncounted for Water (%)	Average Daily Supply (MGD)
2010	5.11	25	40	160
2020	7.15	35	35	295
2030	8.91	40	25	430
2040	11.11	40	20	520

Proposed Sewage Treatment Plant for Vision 2040



Conclusion

- Yangon is the gate way and business city in Myanmar.
- Sustainable management of water resource and improvement of water supply system in Yangon are very crucial to meet green and healthy environment for ESC in terms of improvement of living standards, extension of industrial development, promotion of food industry and prevention of water born diseases.
- YCDC is striving to meet the requirements of Yangon City's 2040 vision which is green, clean and livable biggest business city of Myanmar in the near future.