



Water and Sanitation Division
Department of Building, Ministry of Construction



Watershed Management for Controlling Municipal Wastewater in
South East Asia

Current and Future Challenges of Water Environment and Wastewater Management in Myanmar

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13th December 2017

Outline

- Background
- Organization and Departments
- Role of waste water management
- Over view of waste water management
- Challenges and issues
- Require action plan
- Concluding remarks



Background



Background Information

Situated in	- South East Asia
Area	- 261,228 square miles - 677,000 sq km
East to West	- 582 miles
North to South	- 1275 miles
Climate	- Tropical monsoon (3 seasons)
Population	- About 54.6 million (2017)
Density	- 80 per sq km
Administrative	- 14 states/divisions - 66 Districts (325 Townships)

Annual growth rate : 2.02 %

Traditional Water Resource : Rivers , natural or artificial lakes , ponds and underground water

Water pollution caused by : Both industrial and Domestic wastes directly discharge into the water body



Organization and Department

Organizations related to Building Construction

Department of Building, Ministry of Construction

- Committee for Construction Project Appraisal
- Committee for Construction (Capital)
- Committee for the Quality Control of High-Rise Building Construction Projects (CQHP)

Local Authorities

- Yangon City Development Committee
 - Engineering Department (Building)
 - High-Rise Inspection Committee
- Mandalay City Development Committee
- Nay Pyi Taw Development Committee
- Town Development Committees

Wastewater Treatment Related Ministries

(Various agencies and department engaged in wastewater sector)

Agency/Department	Ministry/City/Others	Type of Sanitation Facility
Yangon City Development Committee	Yangon	- Sewerage, septic system, Pit latrine with slab - Activated sludge wastewater treatment plant
Naypyitaw City Development Committee	Naypyitaw	- Sewerage, septic system, Pit latrine with slab wastewater treatment plant
Mandalay City Development Committee	Mandalay	- Septic tank system - Oxidation pond
Water and Sanitation Division Building Department	Construction	- Septic tank system
Department of Development Affairs	Border Affairs	-Septic tank system , Pit latrine with slab
Environmental Sanitation Division Department of Health	Health and Sports	- Systematic latrine Construction



Role of waste water management

Role of Waste Water Management

Waste Water Management

Plan: (a) development of city and town sanitation standard

(b) improvement and rationalization of wastewater disposal system

(c) experiences and example set by the two major cities

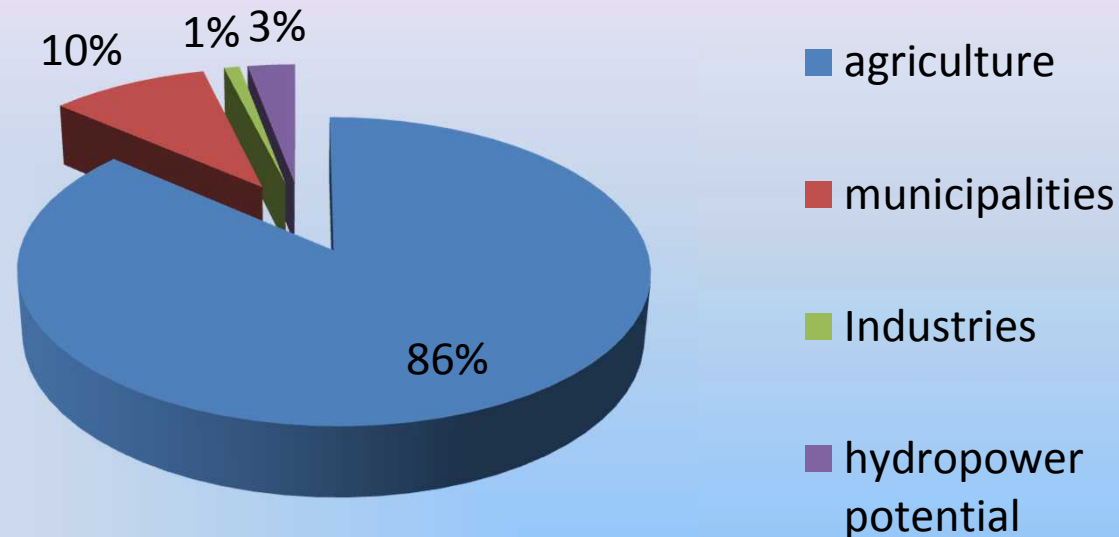
Global awareness : ASEAN'S vision 2020

Own guide line : Myanmar Agenda 21 (1997)



Over view of waste water management

Sector of Water Usage in Myanmar



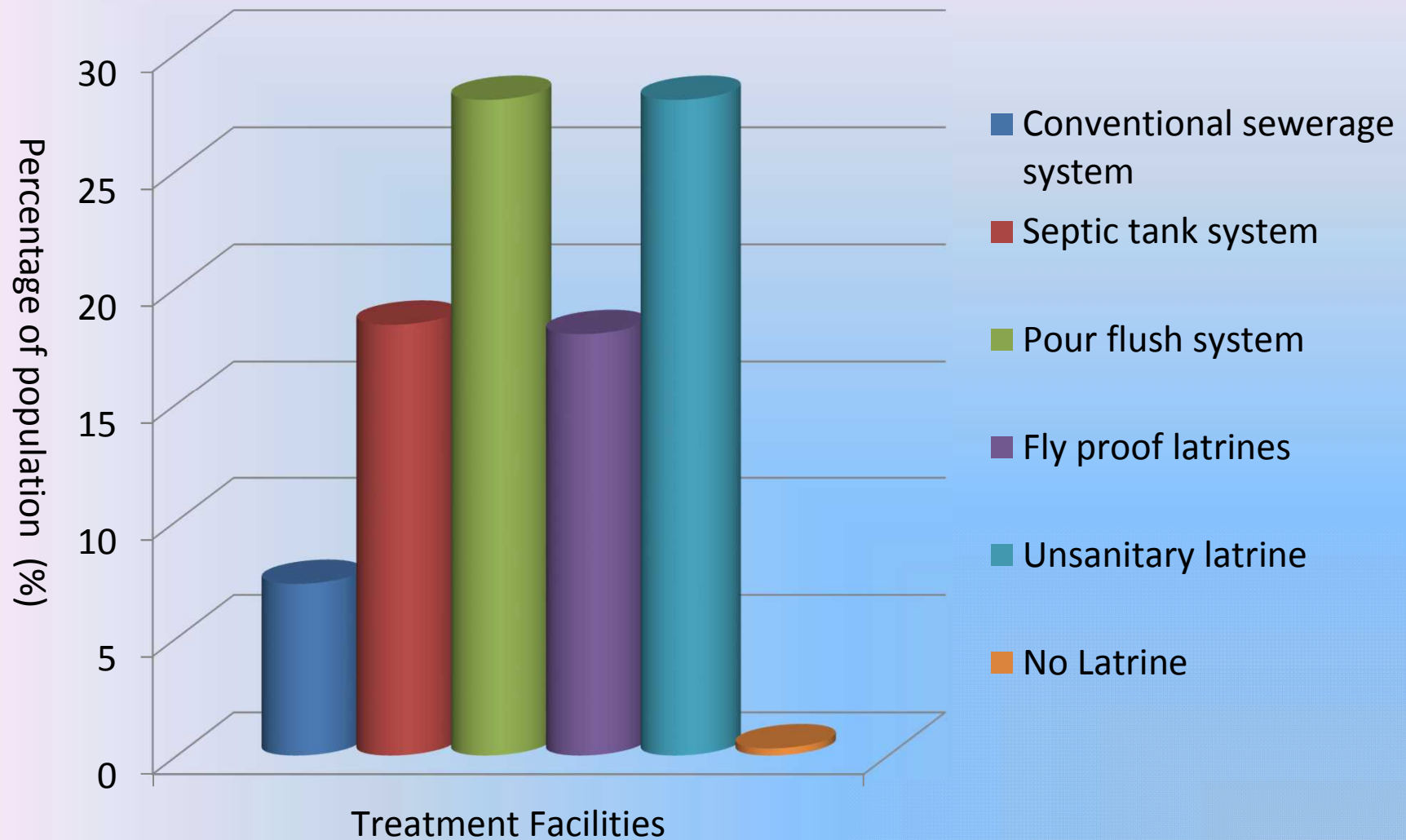
- Total water withdrawal is less than 5% of the renewable resource available
- Approximately 91% of the total water withdrawal comes from surface water and 9% from groundwater.
- Groundwater is mostly used for domestic purposes.
- Impact assessments will be needed to ensure that these projects do not compromise other uses, notably for agriculture.

Achievement of Selected Millennium Development Goal Targets (%)

Plan and Targets for Improved Services	Included in Plan	Coverage Target (%)	
		Year	2016
Urban sanitation	✓	70	2016
Rural sanitation	✓		
Sanitation in schools	✓	100	2016
Sanitation in health facilities	✓	70	2016
Urban drinking-water supply	✓	70	2016
Rural drinking-water supply	✓	100	2016
Drinking-water in schools	✓	100	2016
Drinking-water in health facilities	✓	80	2016

All data represented in this country highlight document is based on country responses to GLAAS questionnaire unless otherwise stated. COUNTRY HIGHLIGHTS • MYANMAR • GLAAS 2014

Status of Sewage Treatment in Myanmar



Source – Progress in drinking water and sanitation. Joint monitoring programme 2015.

Activities of MOC

Water development exhibitions at Head Office of MOC, Naypyitaw

SUSTAINABLE DEVELOPMENT GOALS ရေနှင့် သန့်ရှင်းမှုဆိုင်ရာ လုပ်ငန်း

WATER AND SANITATION THE PATHWAY TO A SUSTAINABLE FUTURE

THE NEGOTIATION OF A NEW SET OF GLOBAL DEVELOPMENT GOALS IN 2015 WAS A UNIQUE OPPORTUNITY TO MAP A PATHWAY TO A BETTER FUTURE FOR THE PEOPLE AND ALL OF ITS PEOPLE.

GOAL 6 – ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL – IS CENTRAL TO REALISING THIS VISION

SEE BELOW HOW MEETING INDIVIDUAL TARGETS IN GOAL 6 WILL DRIVE PROGRESS ACROSS THE WHOLE SPECTRUM OF SOCIAL, ENVIRONMENTAL AND ECONOMIC SOGS.

6.1 SAFE DRINKING WATER

- EVERY 15 SECONDS A CHILD DIES FROM A PREVENTABLE WATER BORNE DISEASE
- 200 MILLION HOURS – THE TIME WOMEN & GIRLS SPEND FETCHING WATER EVERY DAY

6.6 WATER-RELATED ECOSYSTEMS

- GROUNDWATER PROVIDES DRINKING WATER TO AT LEAST 50% OF THE GLOBAL POPULATION
- THE EFFECTS OF CLIMATE CHANGE & URBANIZATION WILL IMPACT THE WATER-CYCLE, INCLUDING VITAL GROUNDWATER RESERVES

6.2 SANITATION AND HYGIENE

- MORE THAN 1 IN 7 PEOPLE HAVE NO ACCESS TO IMPROVED SANITATION, & IN 7 STILL PRACTICE OPEN DEFECATION
- SOME COUNTRIES LOSE AS MUCH AS 7% OF GDP BECAUSE OF INADEQUATE SANITATION

6.5 INTEGRATED WATER RESOURCES MANAGEMENT

- 2/3 OF THE WORLD'S POPULATION COULD FACE WATER STRESS BY 2025
- ACCESS TO WATER POSES THE BIGGEST SOCIETAL AND ECONOMIC RISK OVER THE NEXT TEN YEARS

6.3 WATER QUALITY

- OVER 80% OF WASTEWATER WORLDWIDE IS DUMPED – UNTREATED – INTO WATER SUPPLIES
- 2 MILLION TONS – AMOUNT OF HUMAN WASTE DISPOSED IN WATER COURSES EVERY DAY

6.4 WATER EFFICIENCY

- 70% – AMOUNT OF TOTAL WATER CONSUMPTION USED FOR AGRICULTURE
- 85% – INCREASE IN WATER DEMANDS CAUSED BY RISING ENERGY PRODUCTION BY 2025

KEY: LINKED GOALS

ရေဆိုးသန့်စင်မှုစနစ် (Wastewater Treatment System)

HYBRID SYSTEM

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1. Large Scale Wastewater Treatment System

ဧရာဝတီတနာအိမ်ရာစီမံကိန်း - ရေဆိုးသန့်စင်မှုစနစ် တည်ဆောက်မှု

1. Settler

2. Anaerobic Baffled Reactor

3. Anaerobic Filter

1. Settler

2. Anaerobic Baffled Reactor

3. Anaerobic Filter

Decentralized Wastewater Treatment System supervised by MOC



- Sewage System of Naypyitaw
- Sewage System of Mandalay

Existing Sewage System of Naypyitaw

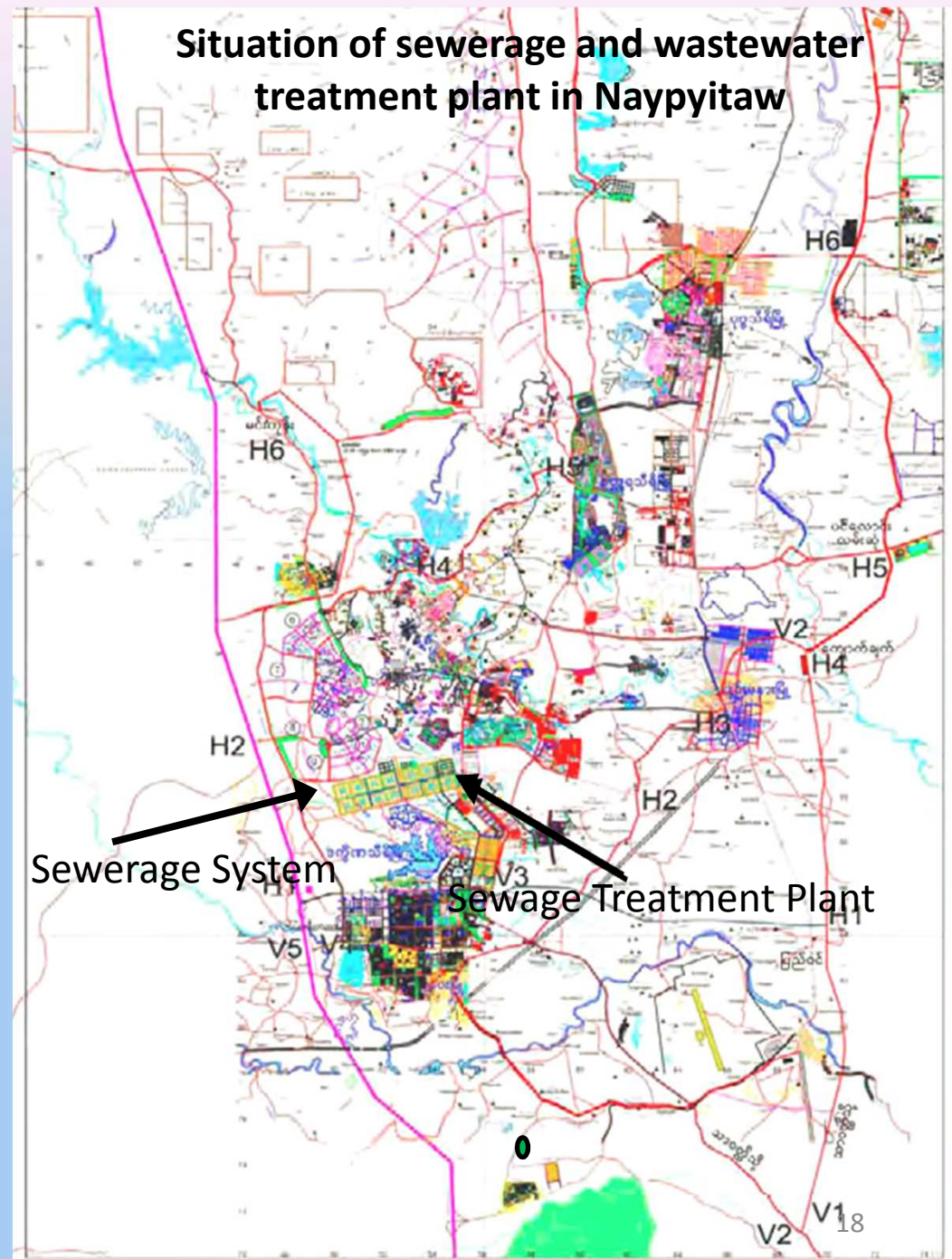
- 20% of new constructed area using sewage treatment plant (Aerobic System)
- 80% using Septic Tank (Anaerobic System) and Pit Latrine with slab
- Sewage collection is combined system
- Sewer pipes are directly connected with waste water treatment plant

Properties Of Wastewater inlet

Biochemical Oxygen Demand (BOD,20* C)	250mg/lit
Suspended Solids (SS)	220mg/lit
Total Organic Carbon (TOC)	160mg/lit
Chemical Oxygen Demand (COD)	500mg/lit

Properties of Treated Water

Biochemical Oxygen Demand (BOD,20* C)	20mg/lit
Suspended Solids (SS)	30mg/lit
Chemical Oxygen Demand (COD)	60mg/lit



EQUALIZATION TANK FOR SEWAGE COLLECTION



AERATION TANK



TREATED WATER COLLECTION OR
RETENTION POND

Future Plan of Sewage Treatment Plant in Naypyitaw



Current Wastewater Management in Mandalay

Main content of system are

Number of Septic Tank - over 35000

Type of System – Oxidation

Pond(Facultative + Aerobic Pond)

Daily Wastewater discharge – 15000 gal/day



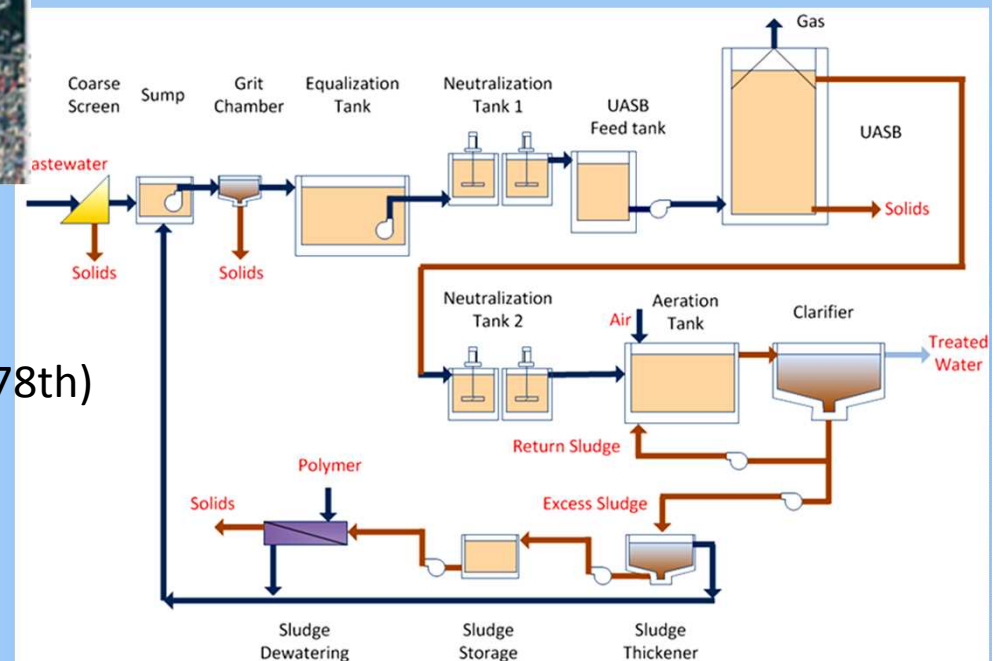
Source- Mandalay City Development Committee)

Proposed pilot sewerage and wastewater treatment system in Mandalay



Inner City Area (Between 26th x 35th & 71st x 78th)

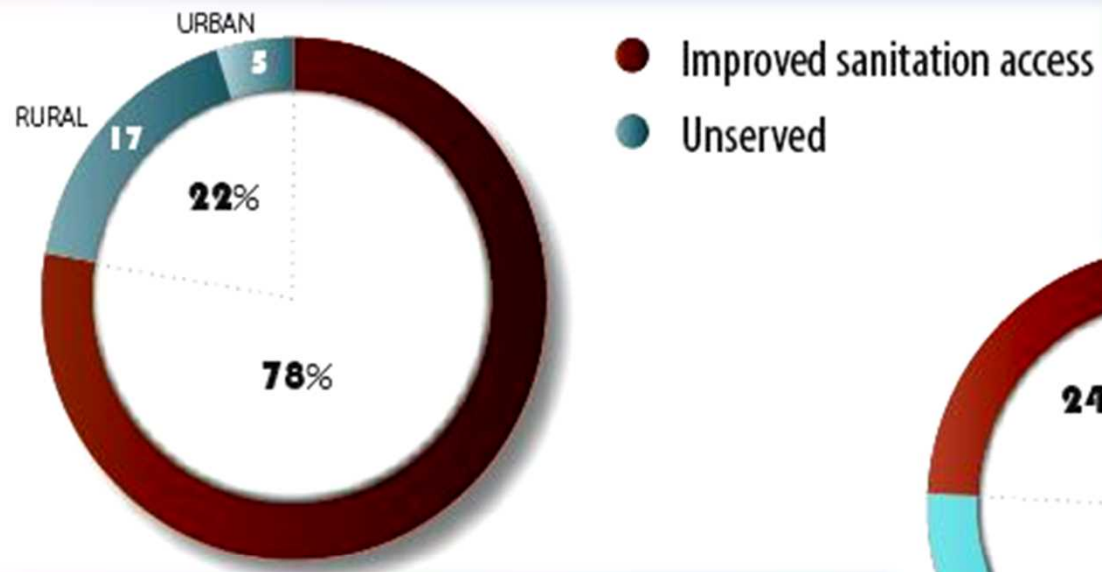
Pilot Area (Between 35th x 37th 71st x 78th)



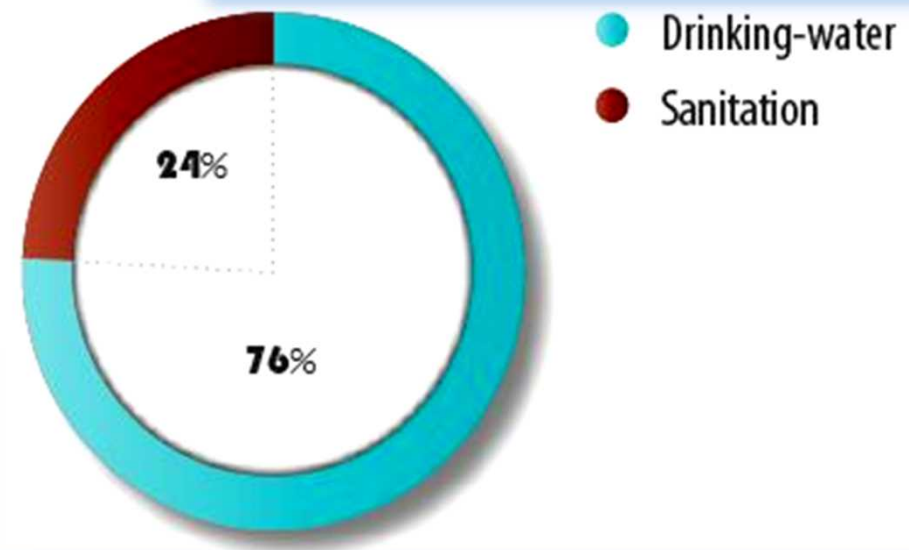
(Source- Mandalay City Development Committee)

EQUITY IN FINANCE

Funds are reported to be largely directed to drinking-water services, however, the number of un-served is greater for sanitation services..



Population with access to improved sanitation facilities



Disaggregated WASH expenditure



Challenges and issues

Challenges and issues

- .
- Serious shortage of adequate sanitation infrastructure like industrial waste treatment plant
- Weakness in wastewater treatment and water management sector are limited manpower and technical supporting
- Budget limitation; Finance Arrangement for Effective investment/Asset Management
- Difficulty in the change of awareness to practice among communities
- Less Sustainability due to low cost technology



Require Action Plans

Require Action Plan

- Playing as an important role in waste water management for this – Participation of stakeholders ,concerned Authorities, Companies, Public & CSOs
- Collaboration between ministries with best management practice; to enhance organizational capacity and effectiveness of water resources coordination system
- Enhancement and consolidation the existing systems; function the operation, maintenance and rehabilitation of facilities safely, reliably and efficiently
- Enforcement on the guidelines; using minimum sewage effluent guidelines and water quality criteria and monitoring on Physical operations
- Providing the necessary test equipment and Build sewage treatment facilities and in accordance with national policies and capabilities
- Capacity building at both government and private sectors



Concluding and Remarks

Concluding Remarks

Although water resources in Myanmar are generally abundant, localized pollution threatens to render water sources unsuitable for future or downstream uses. This threat results from the virtual absence of any form of treatment of domestic or industrial wastewater and the failure to conduct environmental impact assessments for major development projects.

So, we need to establish a beneficial framework and effective mechanism for managing, developing and protecting water and related resources in an environmental and economical sound manner in order to meet the needs of the people of Myanmar.

Thank you for your

time and interest

