

Nay Pyi Taw Development Committee

Engineering Department of Water Supply and Sanitation

Nay Pyi Taw Water Supply and Water Treatment

About Us

Engineering Department of Water Supply and Sanitation is one of the largest departments in Nay Pyi Taw Development Committee. We are responsible for providing clean, safe potable water, for treating wastewater and for servicing water infrastructure, including

- 13 dams
- 31 impoundments
- 3 rubber dams
- 209 underground tube wells
- 10 slow sand water treatment plants
- 1 rapid sand water treatment plant
- 35 pump stations
- 10 steel trestles, 5 concrete elevated tanks
- 1 waste water treatment plant
- 847.2 km pipeline in water and sewer networks.

There are 141 staffs and 135 workers are working for Nay Pyi Taw city water supply and sanitation works.

Our Vision

- Good teamwork, good service, good future.
- To manage our organization and water resources to meet evolving regulatory requirement, water supply needs and customer expectations in the future.

Our Mission

- To Provide safe, efficient and effective water and waste water services in Nay Pyi Taw.
- We are targeting to supply 50 million gallons per day in next 20 years.
- To adopt a customer-oriented approach in our services.
- To make the best use of resources and technology in our striving for continuous, improvement in services.

Water Resources

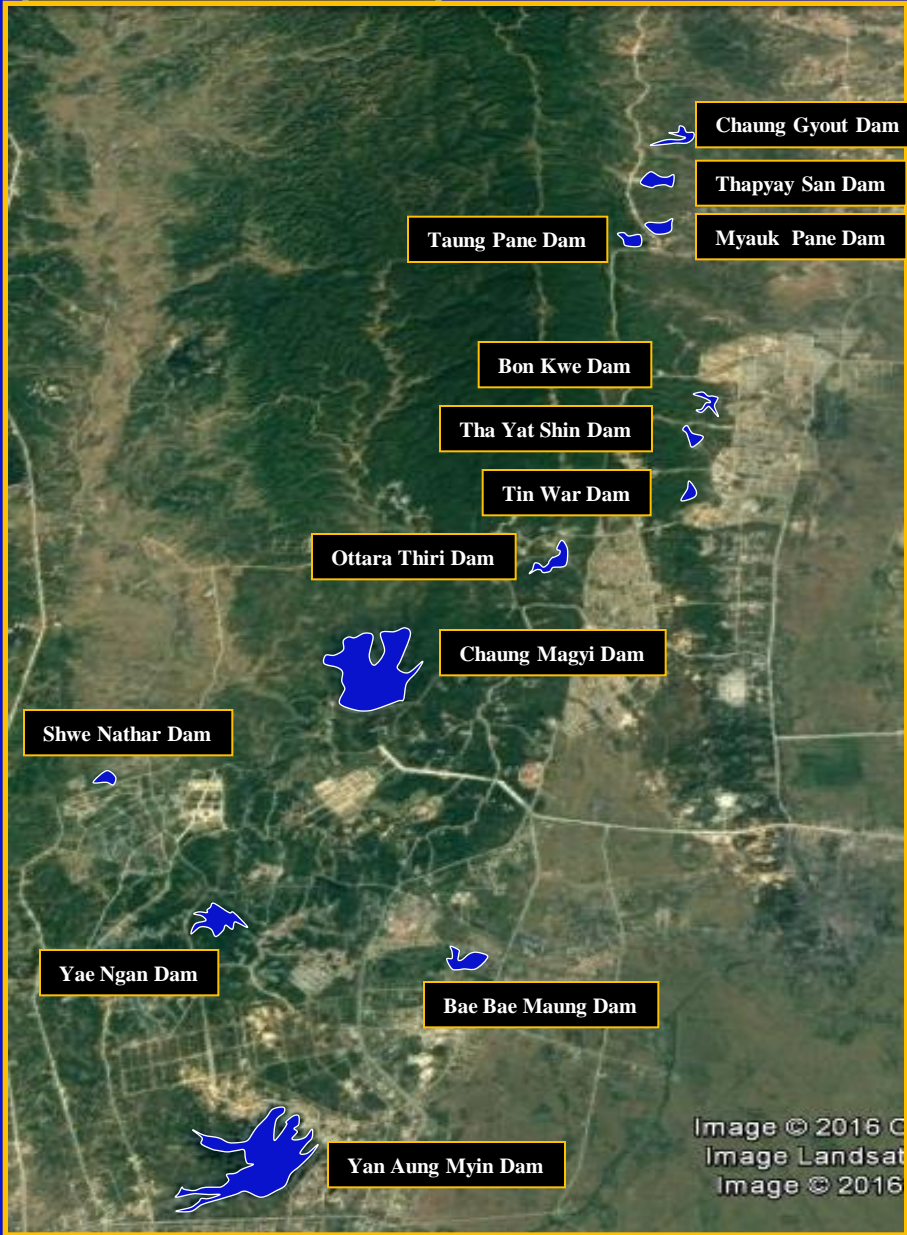


Image © 2016 C
Image Landsat
Image © 2016

Water Supply System

Water Resources



Pontoon



Treatment Plants



(Storage Tanks)



(Ground Tanks, Overhead Tanks)



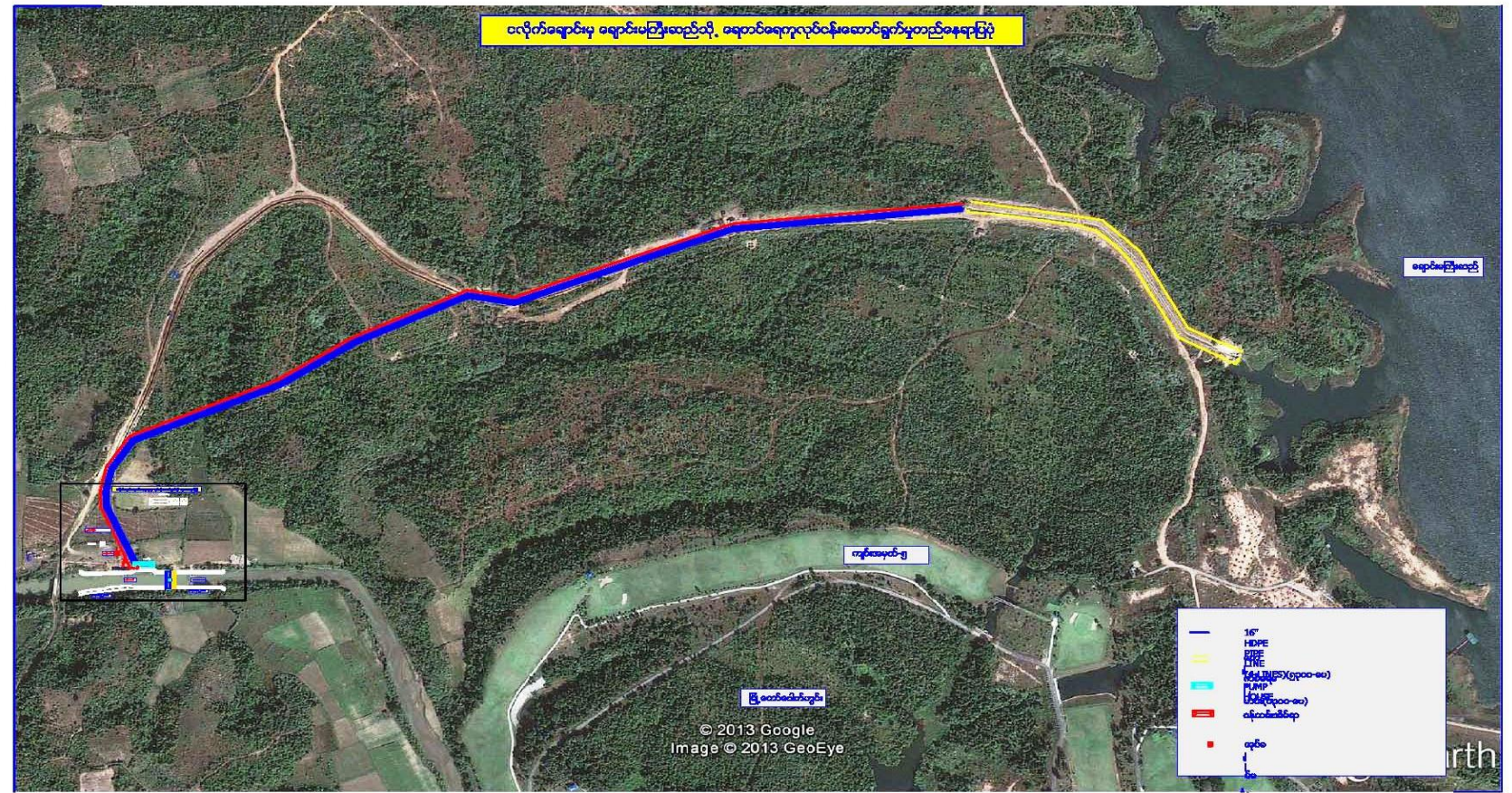
Users



Basic Data of NPT waterworks

Population Served	127988
Number of service connections	10496
Total length of distribution pipe	847km
Total capacity of facilities	19.8 MGD
Total distribution amount per day	15 MGD

Auxiliary Water Supply System for Chaung Magyi Dam



Built in 2008 beside Nga Laik Creek (near Chaung Magyi Dam).
City Growth (population increase, water demand increase), Climate change, less rain fall.

Current Situtation of Water Supply in Nay Pyi Taw

Daily water supply amount is 15 million gallons.

Sr.	Township	Population (Township)	Area (sq.km)	Urban Population (2015)	Coverage(%)
1	Zayar Thiri	97864	556.69	35106	-
2	Pobba Thiri	87550	253.48	44437	100%
3	Ottara Thiri	55050	898.88	23955	100%
4	Zabu Thiri	84665	83.60	104596	100%
5	Dakhina Thiri	32416	133.09	23194	1%
6	Pyinmana	156290	1124.70	72010	6.8%
7	Leway	261519	2116.77	30208	-
8	Tatkon	205875	1951.65	41613	-
	TOTAL	981229	7118.89	375189	~50%

-About 50% of urban area has city water supply system.

-The rest urban area has source of water from **tube well or shallow well.**

Population Served: 127988

***We are targeting to supply 50 million gallons per day in next 20 years.**

Current Project of Nay Pyi Taw City Water Supply (Extension 16" PVC Pipe Line Project)

&Hk;(24)teD;a&puf&HkrS o&uf&Sif;ESifY bHkuGJqnfrsm;&dS
a&pkueffrsm;odkYa&ulay;ydkYjcf;vkyfief;



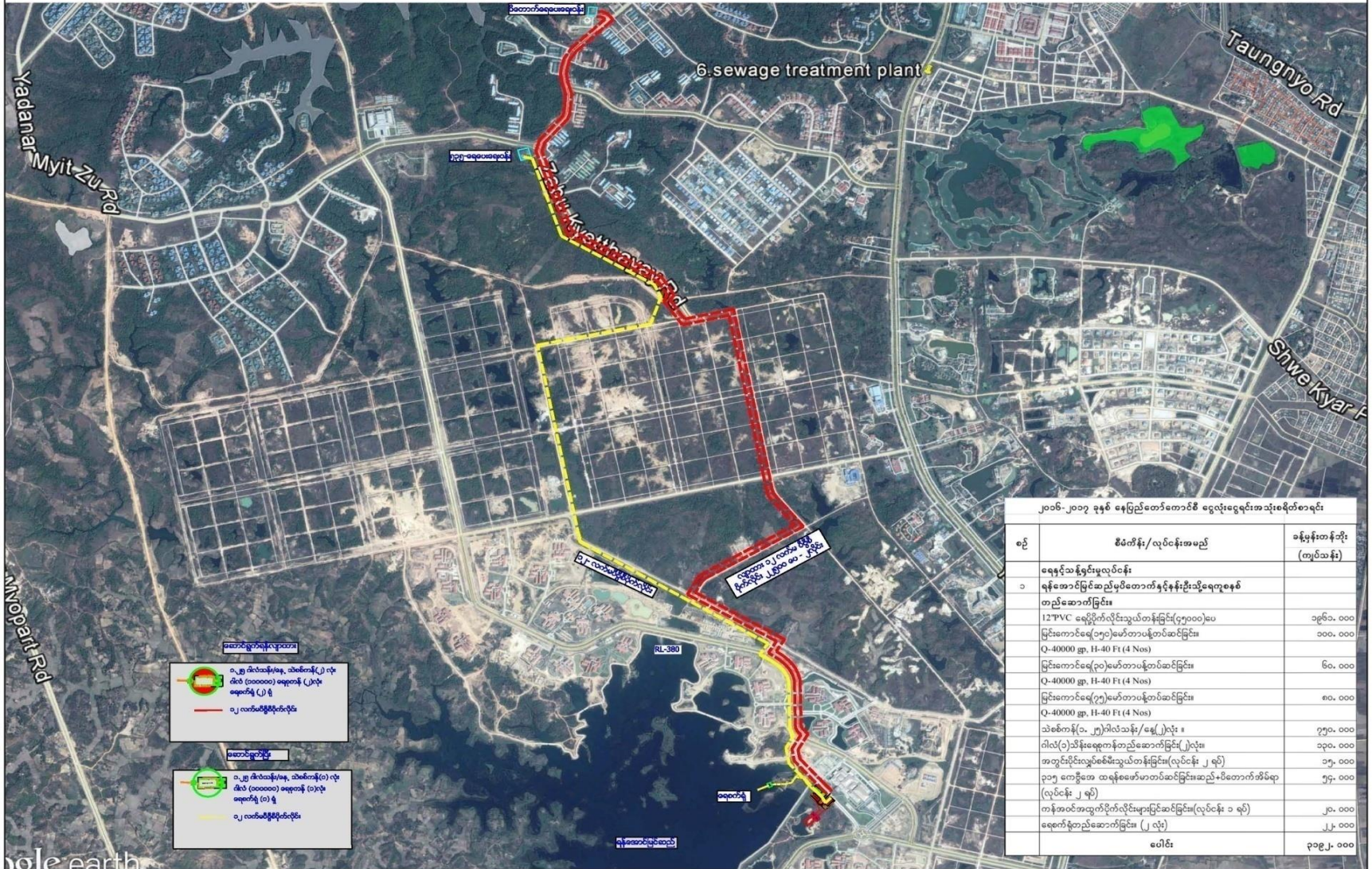
Google earth
Image © 2016 CNES / Astrium
© 2016 Google

water distribution station
Office -24

2 mi

Current Project of Nay Pyi Taw City Water Supply (Extension 12" PVC Pipe Line Project)

ရန်အောင်မြင်သည်မှ ပိတောက်အိမ်ရာရေးဆွဲရေးသို့ ရေကူးမြို့တစ်ခြမ်းလှိုင်နန်း (ဂါလံ (၂၅)သိန်း / ရက်)



၂၀၁၆- ၂၀၁၇ ခုနှစ် နေပြည်တော်စတင်စီ ငွေလုံးငွေရင်းအသုံးရေစိုက်စာရင်း

စဉ်	စီမံကိန်း / လုပ်ငန်းအမည်	ခန့်မှန်းစာရင်း (ကျပ်သန်း)
ရေနှင့်သန့်ရှင်းမှုလုပ်ငန်း		
၁	ရန်အောင်မြင်သည်မှပိတောက်ရွာနန်းသို့ရေကူးစနစ် တည်ဆောက်ခြင်း	
	12" PVC ရေပိုက်လမ်းသည်တန်းခြင်း (၄၅၀၀၀)ပေ	၁၉၆၁. ၀၀၀
	မြင်းကောင်ရေ (၅၅၀) ဖော်တာပန်တပ်ဆင်ခြင်း	၁၀၀. ၀၀၀
	Q-4000၀ ဂျ. H-40 Ft (4 Nos)	
	မြင်းကောင်ရေ (၃၀) ဖော်တာပန်တပ်ဆင်ခြင်း	၆၀. ၀၀၀
	Q-4000၀ ဂျ. H-40 Ft (4 Nos)	
	မြင်းကောင်ရေ (၅၅) ဖော်တာပန်တပ်ဆင်ခြင်း	၈၀. ၀၀၀
	Q-4000၀ ဂျ. H-40 Ft (4 Nos)	
	သစ်စီမံခန့်ခွဲမှု (၁. ၂၅) သိန်း / နေ့ (၂၅) ရက်	၅၅၀. ၀၀၀
	ဂါလံ (၁) သိန်း ရေစိုက်စနစ် တည်ဆောက်ခြင်း (၂) လုံး	၁၃၀. ၀၀၀
	အတွင်းပိုင်းလှိုင်စီမံခန့်ခွဲမှု (လှိုင်စီမံ ၂ ရပ်)	၁၅. ၀၀၀
	၃၀၅၅ ဧက စီမံခန့်ခွဲမှု အစီအစဉ်အောက်တွင် မြင်းကောင်ရေ (၅၅) ဖော်တာပန်တပ်ဆင်ခြင်း (လှိုင်စီမံ ၂ ရပ်)	၅၅. ၀၀၀
	ကန်အင်အတွက် လှိုင်စီမံခန့်ခွဲမှု (လှိုင်စီမံ ၁ ရပ်)	၂၀. ၀၀၀
	ရေစိုက်စနစ် တည်ဆောက်ခြင်း (၂ လုံး)	၂၂. ၀၀၀
	စုစုပေါင်း	၃၀၉၂. ၀၀၀

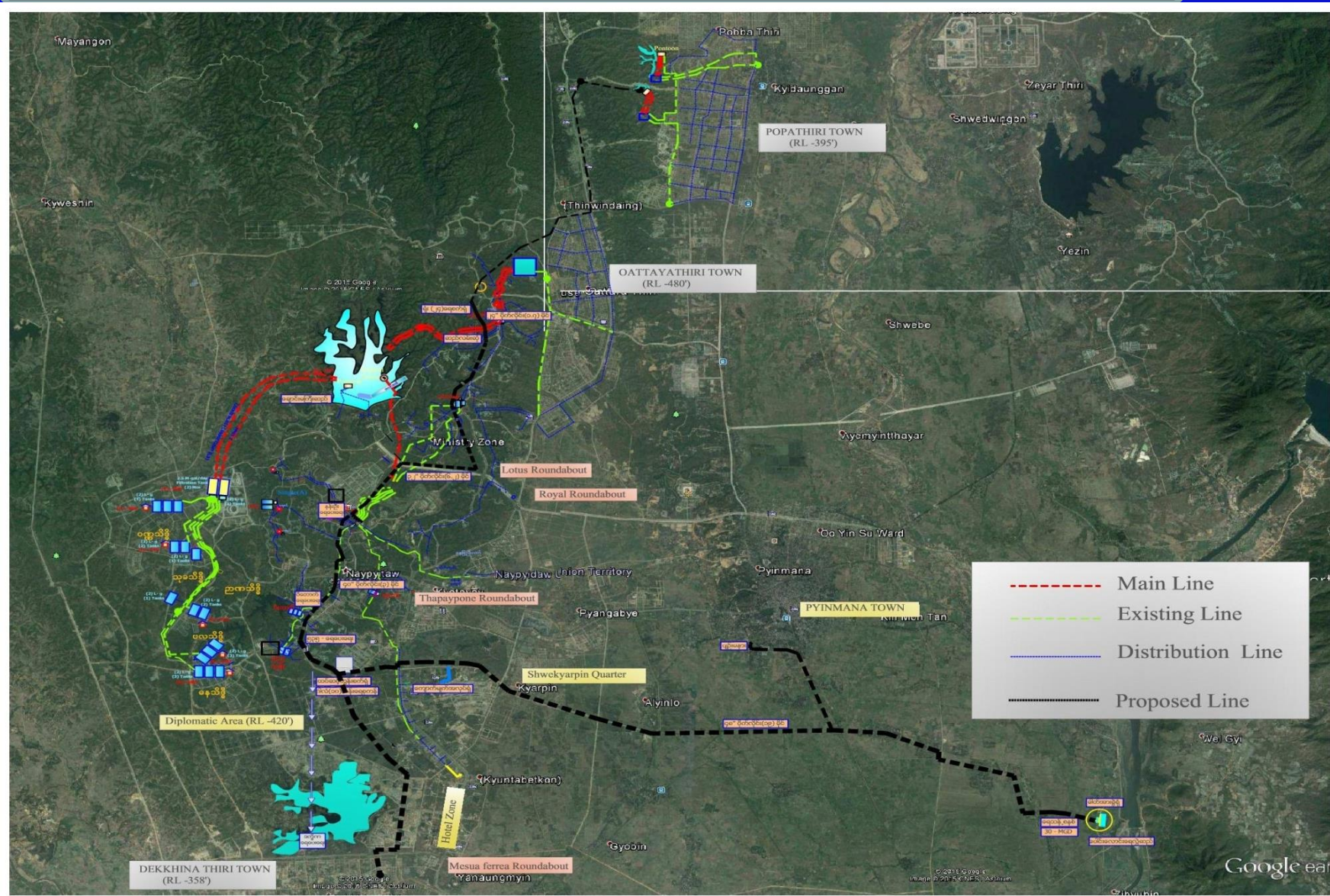
အသုံးပြုရန် လိုအပ်သည့်

၁.၅ ရက်သန်း/ရက် သစ်စီမံခန့်ခွဲမှု (၂) လုံး ရက် (၁၀၀၀၀၀) ခရုထွက် (၂) လုံး ခရုထွက် (၂) ရက်
 ၁.၅ လက်မ ပိုက်လမ်း

အသုံးပြုရန် လိုအပ်သည့်

၁.၅ ရက်သန်း/ရက် သစ်စီမံခန့်ခွဲမှု (၁) လုံး ရက် (၁၀၀၀၀၀) ခရုထွက် (၁) လုံး ခရုထွက် (၁) ရက်
 ၁.၅ လက်မ ပိုက်လမ်း

Master Plan of Nay Pyi Taw City Water Supply (Paung Laung River Project)

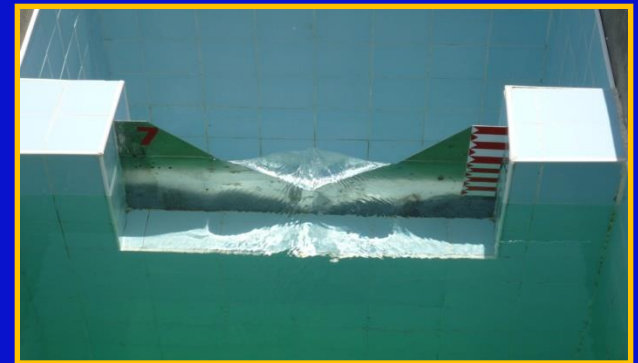


Water Treatment Plants of Nay Pyi Taw

Purification Plant	Plant Capacity (million gallon per day)	Treatment Method	Remark
SSTP No.(1)	7.5	Slow Sand Filtration Method	
SSTP No.(2)	5.0	Slow Sand Filtration Method	
SSTP No.(3)	2.5	Slow Sand Filtration Method	
Yan Aung Myin	1.25	Slow Sand Filtration Method	
Paddauk	0.75	Slow Sand Filtration Method~	
Shwe Kyar pin	1.5	Slow Sand Filtration Method	
Zabuthiri Hospital	0.25	Slow Sand Filtration Method	
Guest House (1)	0.125	Slow Sand Filtration Method	
Kyauk Myat	0.75	Slow Sand Filtration Method	
Nyaung Pin Gyisu	0.25	Slow Sand Filtration Method	
Total	19.8		

*** (1.25 MGD) * 2 Slow Sand Treatment Plants are under construction.

Water Treatment Plants of Nay Pyi Taw



Water Quality

	Before	After
Total Coliform(CFU)	5.5	1.1
Electrical Conductivity	420	415
Turbidity	3.1	0.65
PH	7.54	7.16
Total Hardness	100	100
Calcium	16.5	16
Magnesium	14.4	14
Carbonate	Nil	Nil
Bicarbonate	60	60
Total Alkalinity	60	60
Chloride	15	15
Iron	0.3	0.1

Advantages

- Simple to construct treatment unit
- Simple to operate and maintain
- No mechanical power
- Use of chemical is usually not necessary

According to WHO, "Under suitable circumstances, slow sand filtration may be not only the cheapest and simplest but also the most efficient method of water treatment.

Water Quality

Water Analysis Reports (Slow Sand No.1)

Bacteriology Test (Slow Sand No.1)

Date	Name of Inlet	Tank 1 V-Notch Flow (h) inch						Inlet	Tank 2 V-Notch Flow (h) inch						Clear Water Tank	Tank 3 V-Notch Flow (h) inch					
		U ₁	U ₂	U ₃	U ₄	U ₅	U ₆		U ₁	U ₂	U ₃	U ₄	U ₅	U ₆		U ₁	U ₂	U ₃	U ₄	U ₅	U ₆
8.1.2017		Sat	Susp					Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good		

LEGEND
 Unsati Unsatisfactory for drinking purpose Susp Suspicious for drinking purpose
 Sati Satisfactory for drinking purpose Good Excellent for drinking purpose

Physical Tests (Clear Water Tank, Slow Sand No.1) 8.2.2017

Parameters	Results	Unit	Limits (WHO Standards)	Remarks
pH	7.15		7-8.5	
Turbidity	0.76	N.T.U	<5	
EC	415	us/cm	<1000	

Chemical Tests (Clear Water Tank, Slow Sand No.1) 6.1.2017

Parameters	Results	Unit	Limits (WHO Standards)	Remarks
Total Hardness	100	mg/l	<100-500	
Calcium	16	mg/l	<75-200	
Magnesium	14.4	mg/l	<30-150	
Carbonate	Nil	mg/l	<250	
Bicarbonate	70	mg/l	<250	
Total Alkalinity	70	mg/l	<250	
Chloride	15	mg/l	<200	
Iron	0.15	mg/l	<0.1-1	Greater than desirable limit

Conclusion : Base on the above results, this water is safe potable water.

20 samples of distributed water from 7 different locations were tested in physical, chemical and biological test once time per month and the results were registered at the Department of Water Supply and Sanitation.



DEFENCE SERVICES MEDICAL RESEARCH CENTRE MOLECULAR DIAGNOSTIC LABORATORY NAY PYI TAW Water Bacteriology Report

Location : Slow sand(1) Tank (1) Unit (1) Source : Pipe Water
 Collected on : 3/8/2016 1800 Accession No : W1635
 Received on : 3/8/2016 1800
 Issued on : 25/8/2016 1200

Result of Analysis

Physical Quality
 Appearance : Clear
 Colour : Transparent
 Odour : Nil
 Temperature : -

Chemical Quality
 Turbidity : NTU
 Conductivity : us/cm
 Free Chlorine : -

Bacteriological Quality
 Coliform : <1.1 CFU/100 ml
 Fecal Coliform : Absent
 Esch. coli : Absent
 Remark : Excellent for drinking purpose..

Assay Information Method

100ml of water sample was taken from the specified source with aseptic procedure. 10 x 10 ml was inoculated into each test tubes containing 10 ml of double strength Lauryl Tryptose Broth. The tubes were incubated at 37°C for 24-48 hour and looked for the presence of growth and gas production (Presumptive Coliform Test). The positive tubes were inoculated again into Brilliant Green Bile Broth tubes (Confirmed Coliform Test) and EC Broth (Faecal Coliform Test). They were incubated at 35 °C x 48 hours and 44.5 °C x 24 hours respectively for the presence of growth and gas production. The positive Faecal Coliform tubes were inoculated again on EMB agar for 24 hours for the growth of Lactose Fermenting colonies (Escherichia coli Test). The positive colonies were gone on Bio-chemical Tests with IMVIC. The results were read with MPN index tables.

Reference

AWWA, APHA, WEF, 9221 B Standard Total Coliform Fermentation Technique. 9221 E Faecal Coliform Procedure. Standard Methods for the Examination of Water and Wastewater. 20th Edition. Volume 2. 1998: 9-48,49,54,55.

Reported by

May Khine Zow Oo
 MOLECULAR DIAGNOSTIC LABORATORY
 DEFENCE SERVICES MEDICAL RESEARCH CENTRE



DEFENCE SERVICES MEDICAL RESEARCH CENTRE MOLECULAR DIAGNOSTIC LABORATORY NAY PYI TAW Water Bacteriology Report

Location : Slow sand(2) Tank (1) Unit (7) Source : Pipe Water
 Collected on : 3/8/2016 1800 Accession No : W1635
 Received on : 3/8/2016 1800
 Issued on : 25/8/2016 1200

Result of Analysis

Physical Quality
 Appearance : Clear
 Colour : Transparent
 Odour : Nil
 Temperature : -

Chemical Quality
 Turbidity : NTU
 Conductivity : us/cm
 Free Chlorine : -

Bacteriological Quality
 Coliform : <1.1 CFU/100 ml
 Fecal Coliform : Absent
 Esch. coli : Absent
 Remark : Excellent for drinking purpose..

Assay Information Method

100ml of water sample was taken from the specified source with aseptic procedure. 10 x 10 ml was inoculated into each test tubes containing 10 ml of double strength Lauryl Tryptose Broth. The tubes were incubated at 37°C for 24-48 hour and looked for the presence of growth and gas production (Presumptive Coliform Test). The positive tubes were inoculated again into Brilliant Green Bile Broth tubes (Confirmed Coliform Test) and EC Broth (Faecal Coliform Test). They were incubated at 35 °C x 48 hours and 44.5 °C x 24 hours respectively for the presence of growth and gas production. The positive Faecal Coliform tubes were inoculated again on EMB agar for 24 hours for the growth of Lactose Fermenting colonies (Escherichia coli Test). The positive colonies were gone on Bio-chemical Tests with IMVIC. The results were read with MPN index tables.

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NAY PYI TAW DEVELOPMENT COMMITTEE ENGINEERING DEPARTMENT (WATER SUPPLY & SANITATION) WATER QUANTITY TEST RESULTS FORM

Report on ၁၅/၀၈/၂၀၁၇ ခု ဝန်ထမ်းစာရင်း : Sample of Water အိမ်ထောင်စု
 Brought by ဦးကျော်စွာ (၄.၀၅.၁၇) At ၁:၀၀ PM On ၀၇.၈.၂၀၁၇
 (Time) (Date)
 Tested On ၀၇.၀၈.၂၀၁၇ At ၇:၀၀ AM
 (Date) (Time)

General Properties	Results	W.H.O Standard For Drinking Water	
		Desirable	Imperative
PH	7.04	7-8.5	6.5-8.2
Total Hardness	100	100	500
Calcium	16	75	200
Magnesium	14.4	30	150
Carbonate	0	< 250	250
Bicarbonate	70	< 250	250
Total Alkalinity	70	< 250	250
Chloride	15	200	600
Iron	0.15	0.1	1

Remark Satisfactory for drinking purpose.

Tested By

 မာမိ
 မော်လမြိုင်မြို့နယ်
 အိမ်ထောင်စု
 ရေပေးစနစ်ဦးစီးဌာန

Approved By

 ဒေါ်ခင်စုစု
 အိမ်ထောင်စု
 ရေပေးစနစ်ဦးစီးဌာန

Head Of Department
 Engineering Department
 (Water Supply & Sanitation)

Laboratory

BOD Meter



Photo Meter



PH, Turbidity Meter



DO Meter



Digital Balance



Our laboratory can provide physical and chemical quality tests of our water from dams, tubewells, distribution tanks and treatment plants. For biological test, we send water samples to Defence Services Medical Research Center, Nay Pyi Taw.

Thank You