

Introduction to Infrastructure Planning

Institute of Architecture and Planning,
Nirma University

Lecturer:
Prof Swati Kothary


Overview

This 3 ECTS course is an elective course that will be taught by Dr Swati Kothary at Nirma University to B Arch (Bachelors in Architecture) students. The elective is offered to students of VIII, IX and X semesters.

The main course objective is to introduce basic concepts of essential structure to students at the city level. The focus will be more on water supply, stormwater drain, sewerage & sanitation and solid waste management. Other services will be introduced. The main objectives are:

- To define the lifeline infrastructure of a city.
- To identify the significance of lifeline infrastructure to human settlements, environment, public health and hygiene.
- To inculcate knowledge about stormwater drainage system, water supply system, wastewater drainage system, solid waste management and other services.
- To acquaint the students with the principles of demand, supply, and management of different resources in an urban fabric.



 Dashboard

 **Site home**

 Calendar




Class Online Platform: <https://lms.nirmauni.ac.in/course/view.php?id=5353>


Modules Content


- Lecture
- Assignments
- Reading Materials



 Dashboard

 **Site home**

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Nirma University LMS

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by [LMS Admin](#) - Saturday, 19 September 2020, 3:23 PM


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Minor Specialization

★ Introduction to Infrastructure Planning



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Research Methodology IANU July2022

Course overview

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Semester overview

+ My favorites

- Winter term 2021/2022

+ Research Methodology IANU July2022 

+ Subject Specific (IANU July2022) 

+ Summer term 2021

- Winter term 2020/2021





+ Introduction to Infrastructure Planning 

+ Professional Practice for Planners 

+ Regional Planning 










+ Valuation 













- Summer term 2020

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-  **Calendar**
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Month All courses New event

← August 2021 September 2021 October 2021 →

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2  L...	3	4	5
6  W...  A...	7	8	9  L...	10	11	12
13  Ai...  N...  S...	14	15	16	17  L...	18	19
20	21	22	23	24	25	26
27	28	29  S...	30			

- #### Events key
-   Hide site events
 -   Hide category events
 -   Hide course events
 -   Hide group events
 -   Hide user events
 -   Hide other events





Monthly view

August 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September 2021






Mon	Tue	Wed	Thu	Fri	Sat	Sun

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Month ▾
All courses ▾

New event

◀ September 2021
October 2021
November 2021 ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				1	2	3
4	5	6	7	8  N...	9	10
11  S...	12	13  St...	14	15	16	17
18	19	20	21	22	23	24
25  A...	26	27	28	29  C...	30	31

Export calendar
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- ### Events key
-   Hide site events
 -   Hide category events
 -   Hide course events
 -   Hide group events
 -   Hide user events
 -   Hide other events

Monthly view

September 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun



 2ARME71

 Participants

 Badges

 Competencies

 Grades

 General

 21 June - 27 June

 28 June - 4 July

 5 July - 11 July

 12 July - 18 July

 19 July - 25 July

 26 July - 1 August

Introduction to Infrastructure Planning

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/ [Assignment 3: Population Projection](#)

Assignment 3: Population Projection

Choose one place and according to its growth make population projection for the population till 2051.

This is an individual assignment

Separate groups: All participants

Grading summary

Hidden from students

No

Participants

24



 2ARME71

 Participants

 Badges

 Competencies

 Grades

 General

 21 June - 27 June

 28 June - 4 July

 5 July - 11 July

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 26 July - 1 August

Introduction to Infrastructure Planning

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Sanitation

Find and share interesting statistics from the Swachh Survekshan done in India till now.

You can use PPT for the same.

Grameen - 2018,2019

<https://swachhbharatmission.gov.in/SBMCMS/ssg.htm>

Urban - 2017,2018,2019,2020,2021

<http://swachhbharaturban.gov.in/>



 2ARME71


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/ [Solid Waste Management](#)

Solid Waste Management

Choose a city that has been a part of Swachh Survekshan since 2016.

Discuss about its growth and measures that the Urban Local Body took to improve the positioning.

In case of retardation in progress, Identify the reasons.

Separate groups: All participants

Grading summary

Hidden from students

No



 2ARME71

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Street Design

With the help of Better Streets Better Cities please choose and design any one street for Street lighting and various services.

Separate groups: All participants

Grading summary

Hidden from students	No
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Participants	24
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Submitted	19
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2ARME71

Participants

Badges

Competencies

Grades

General

21 June - 27 June

28 June - 4 July

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26 July - 1 August

Introduction to Infrastructure Planning

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/ [Analyse a City based on its performance in Infrastructure](#)

Analyse a City based on its performance in Infrastructure

Using the Ease of Living Index and Municipal Performance index 2020 choose a city and analyse it for its performance in Infrastructure.

I am sending the reference documents via email.

Separate groups: All participants

Grading summary

Hidden from students

No



2ARME71

Participants

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21 June - 27 June

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/ [Final LPW assignment - Individual](#)

Final LPW assignment - Individual



Choose any topic from all the infrastructure services we have covered; Water Supply, Storm Water Drains, Sewerage and Sanitation, Solid Waste Management, Other Services - Gas pipeline, Telecom, streetlights, Financing of Infrastructure and development and maintenance

Identify an issue/ progress/ conflict/ development related to it

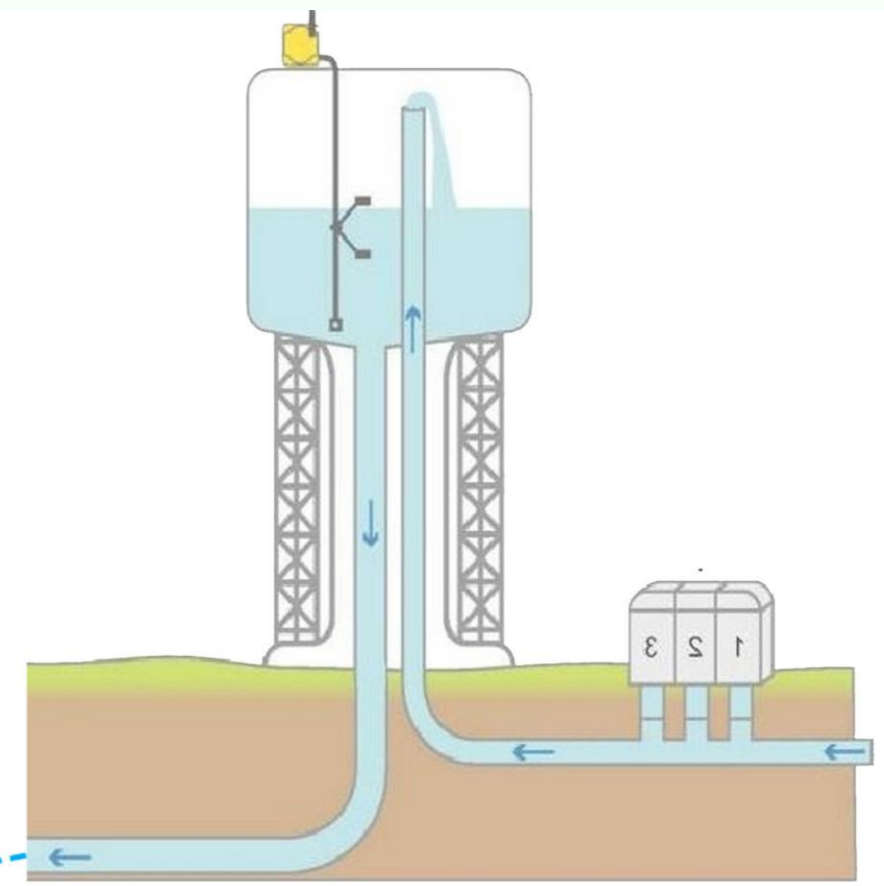
Study 3 most cited papers and make a note on it (maximum 3 pages)

I may schedule a viva sometime in November.

Separate groups: All participants

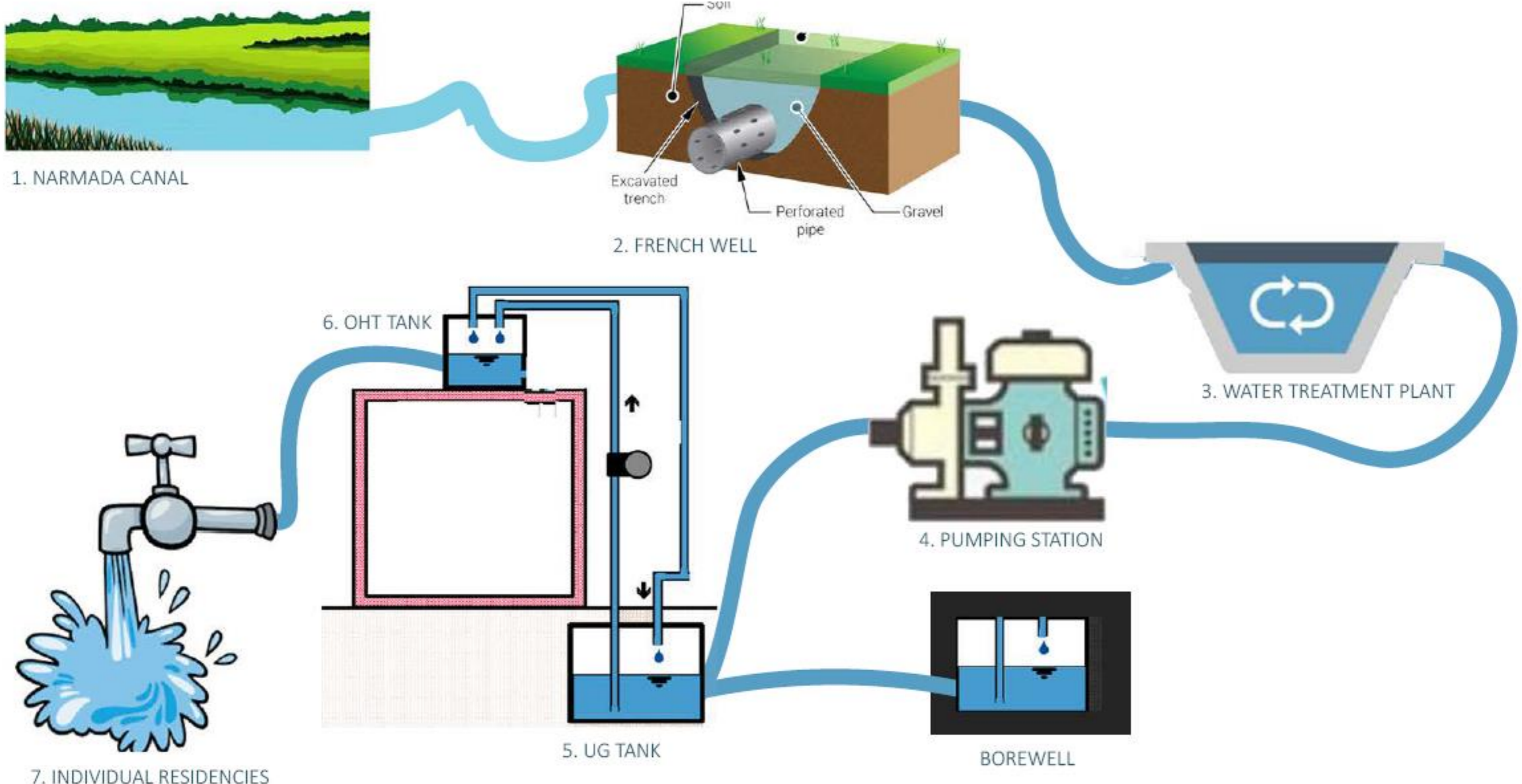
Grading summary

Water Supply: Source to Taps



1. The main source of water is the Narmada Canal.
2. From there water goes to 5 Frenchwells .
3. From the French wells, water goes to WTP. AMC currently operate 3 major Water Treatment Plants namely Kotarpur, Raska, Jaspur. The water treatment plant supplying water to my area is Kotarpur. It has 830 MLD Capacity .
4. After treatment water goes to the pumping station.
5. Second source of water is the bore well, which supplies water to the units throughout the day.
6. The capacity of the underground water tank is 1 lakh litres. It receives water from Narmada 6hours a day.
7. From the UGT, water goes to the overhead tank by hydraulic pressure system
8. From the overhead tank . the water goes to the residencies . There are two wings ,both contain 44 houses each. Average water consumed per wing is 13,500 litres per day (drinking, cleaning, bathing, all purposes)

The Entire Process of Water Supply- From Water Reservoir to Individual Houses



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Bachelors of Architecture

Student(s): Drashti Bhavsar, Mahek Ruparelia, Faiz Agharia

Faculty: Dr Swati Kothary

Introduction to Infrastructure Planning (New Course)

URGENT Cross-Cutting Theme:

Integrative Smart Green & Blue Urban Planning, including science, policy and management for adaptation, mitigation and urban NBS

Credits:

3 ECTS

Type of Course:

Elective

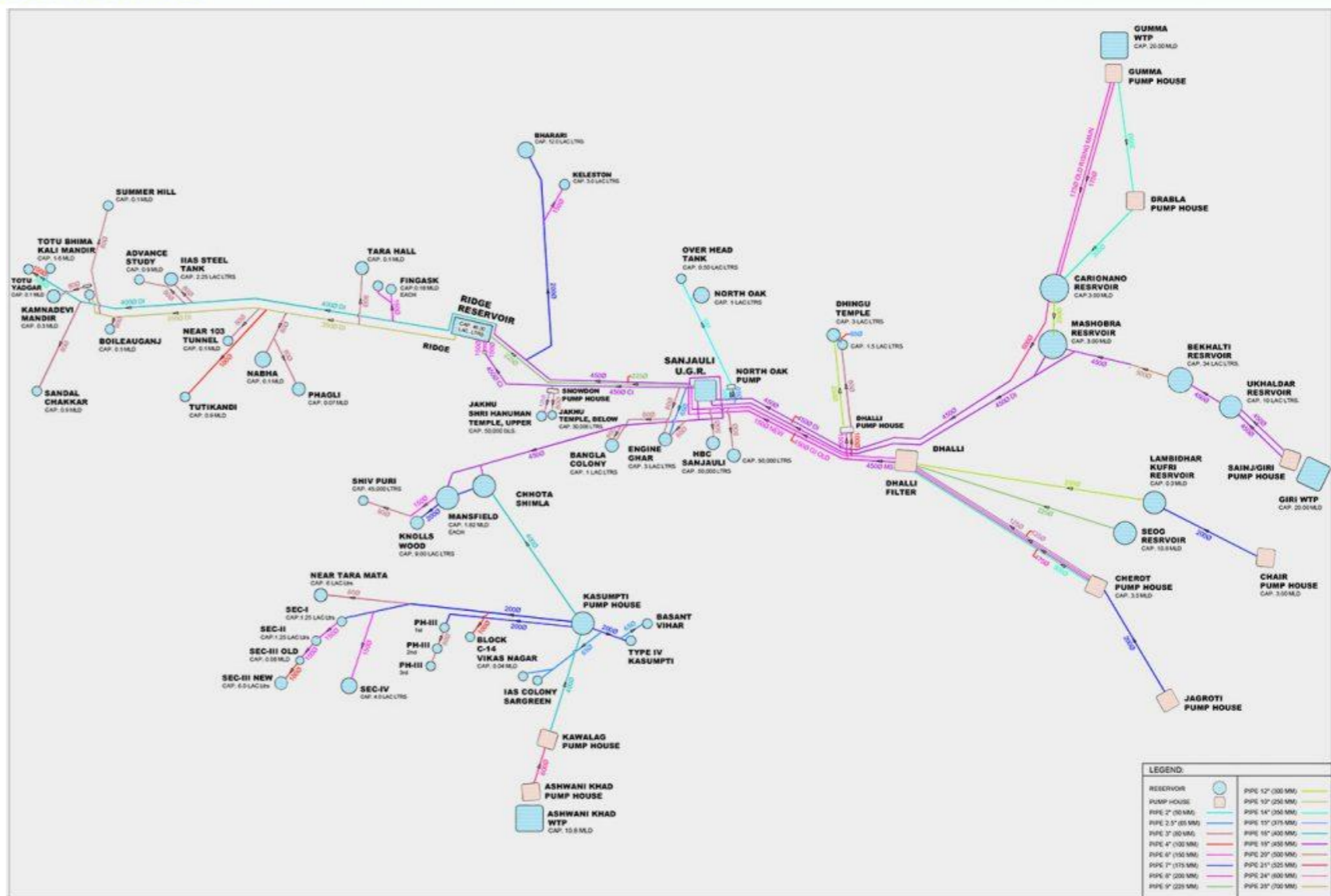
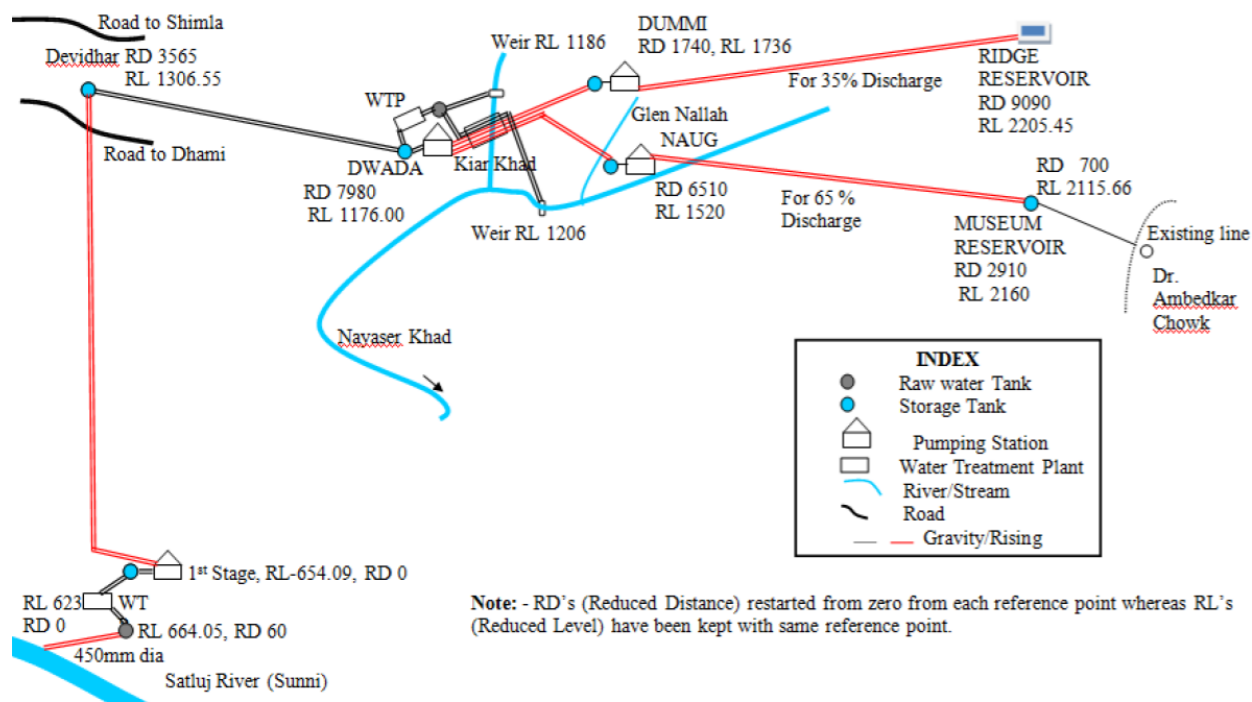
Semester:

VIII Sem

Year:

2018

SHIMLA

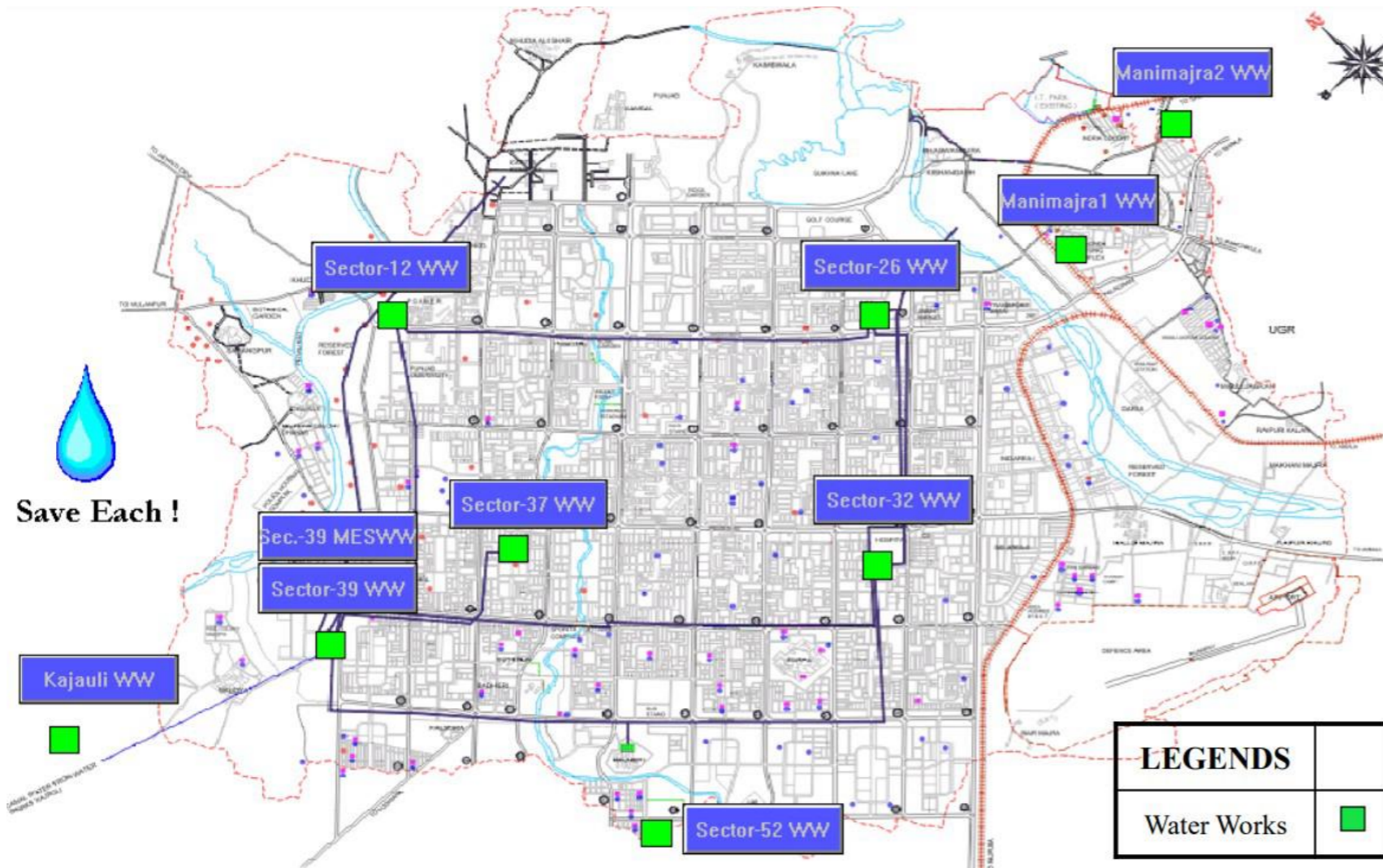


- Shimla has more than century old lift water supply systems and one of its kinds in India. The water is lifted at an average head of 1470 meters from the various sources and transported by the high pressure water conveyor system to the reservoir situated at the outskirts of Shimla city.
- The Shimla water supply scheme started in 1875 with the capacity of 4.54 MLD, catering to a population of 16,000.

SOURCE	CAPACITY (IN MLD)
Dhali Catchment	1.80 MLD
Churat Nallah	4.8 MLD
Chair Nallah	2.5 MLD
Nauti Khad	19.75 MLD
Ashwani Khad	10.8 MLD
Giri Khad	20 MLD
Gumma	3.65 MLD



CHANDIGARH



Upto Year 1983 - Underground Water (Tube wells)

After 1983 to

- Underground Water (200 nos. Tube wells) - 20MGD.
- Canal Water - 67MGD.

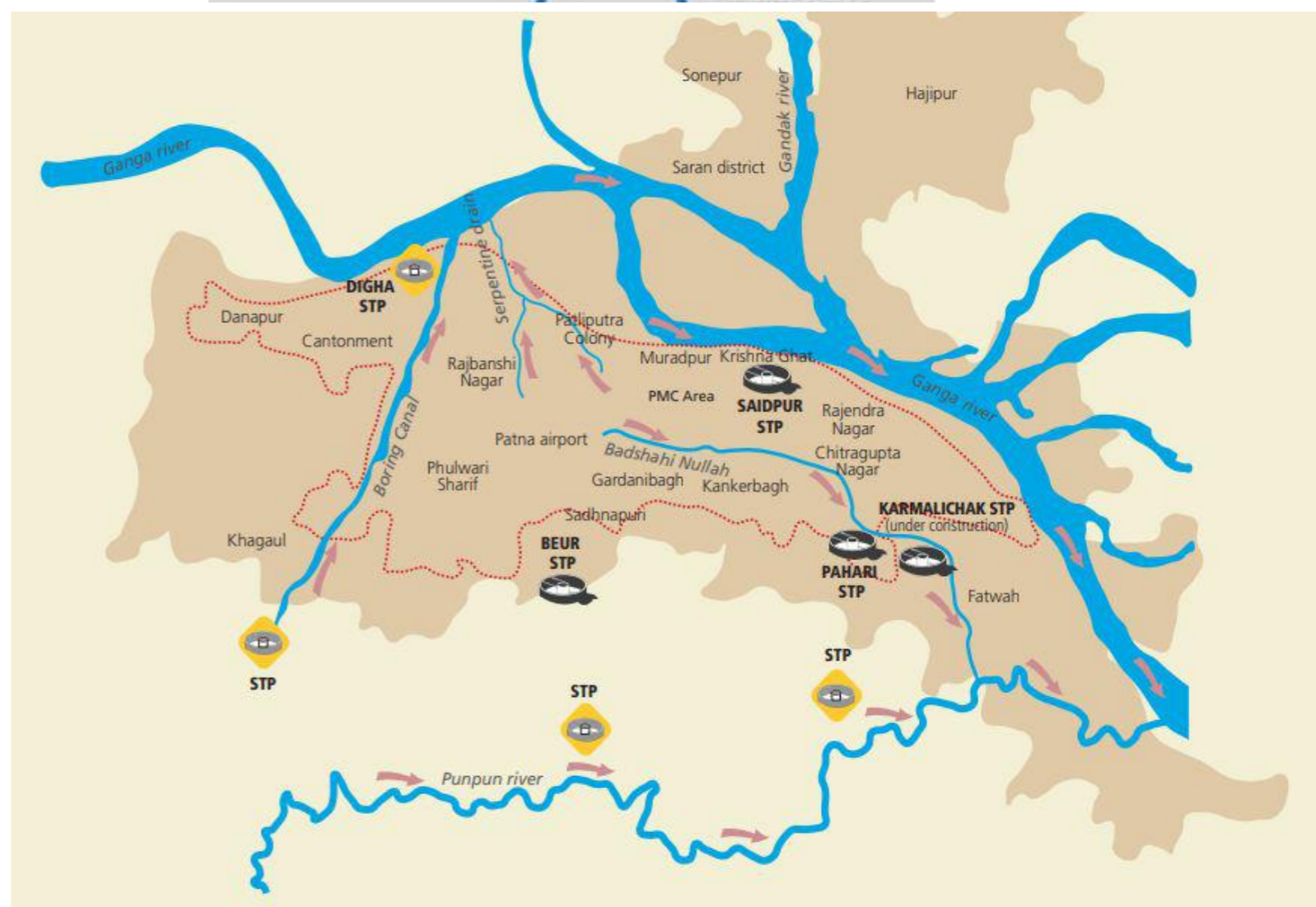
From Bhakra Main Canal Flowing at a distance of 27.4 Km from Chandigarh.

PATNA

The Ganga flows by Patna. The city is embanked on all sides by a four-feet high wall (with gaps in between to act as passageways) to prevent it from being inundated by floods in the river. Even with such a generous source of surface water, the PWB does not rely on the Ganga for supplying water to the city.

This can be attributed to the fact that Patna is located in a high-yielding groundwater zone, which has remained the primary source of water supply here.

According to the State Ground Water Board of Bihar, the area has quaternary alluvium soil, which is highly favourable for the development of water-rich aquifers. The average depth of the groundwater table in this region is 5.58 m in the pre-monsoon season and 3.12 m post-monsoon.



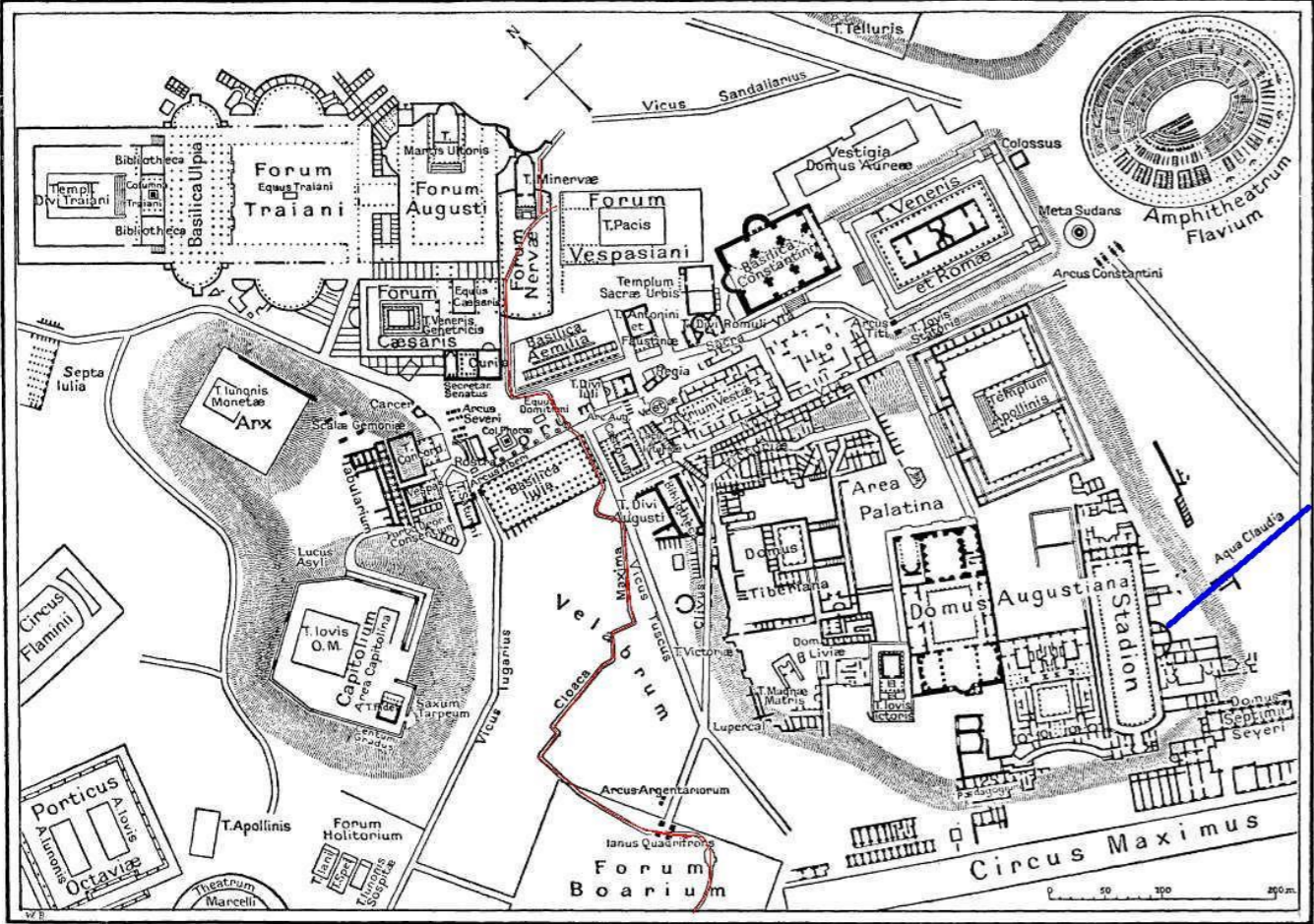
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Bachelors of Architecture
Student(s): Gresha Shah, Sanjoli Kumawat, Neha Agarwal, Kaustub Varsat
Faculty: Dr Swati Kothary

Introduction to Infrastructure Planning (New Course)
URGENT Cross-Cutting Theme: Integrative Smart Green & Blue Urban Planning, including science, policy and management for adaptation, mitigation and urban NBS
Credits: 3 ECTS **Type of Course:** Elective
Semester: VIII Sem **Year:** 2018

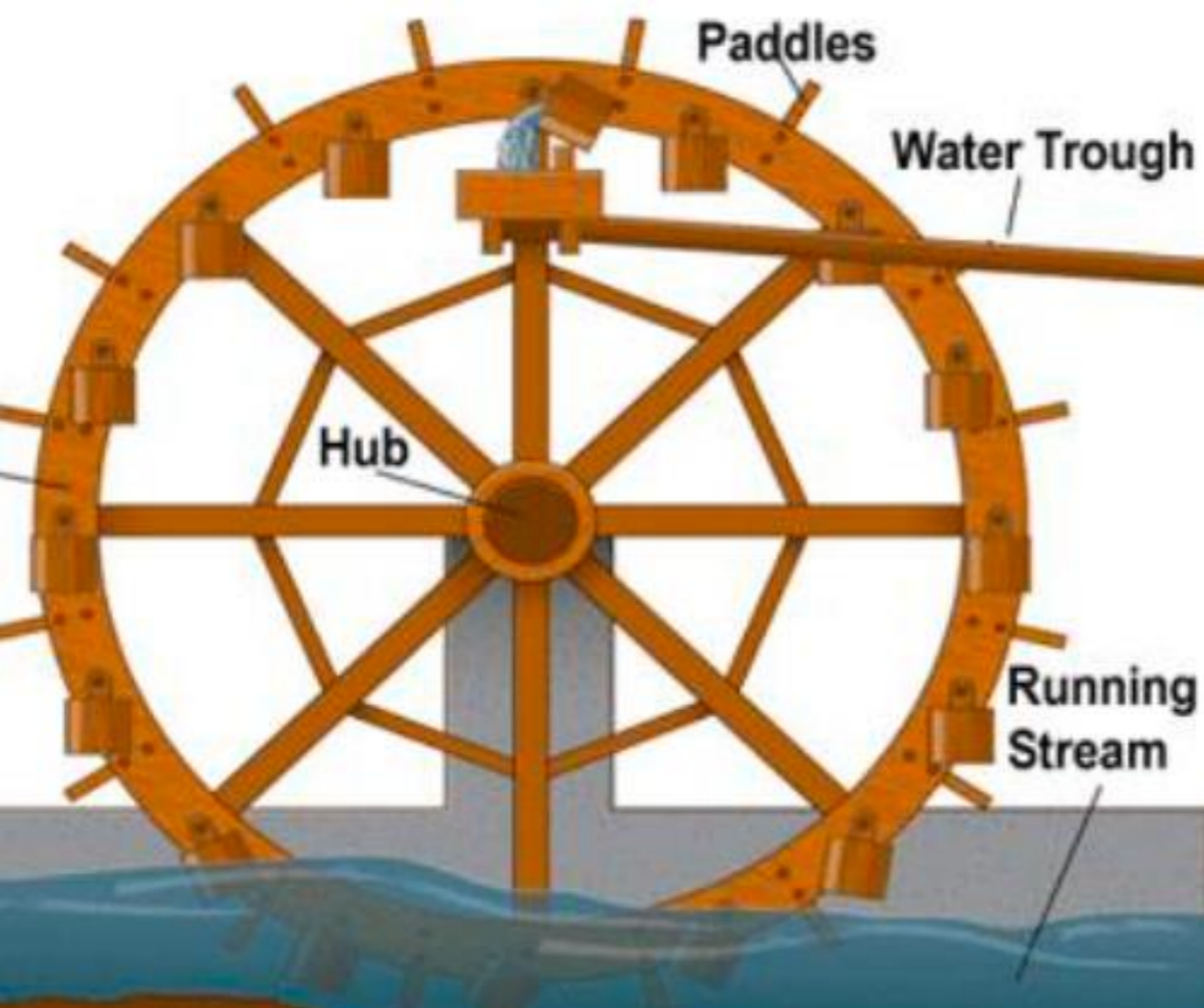


Cloaca Maxima- Rome



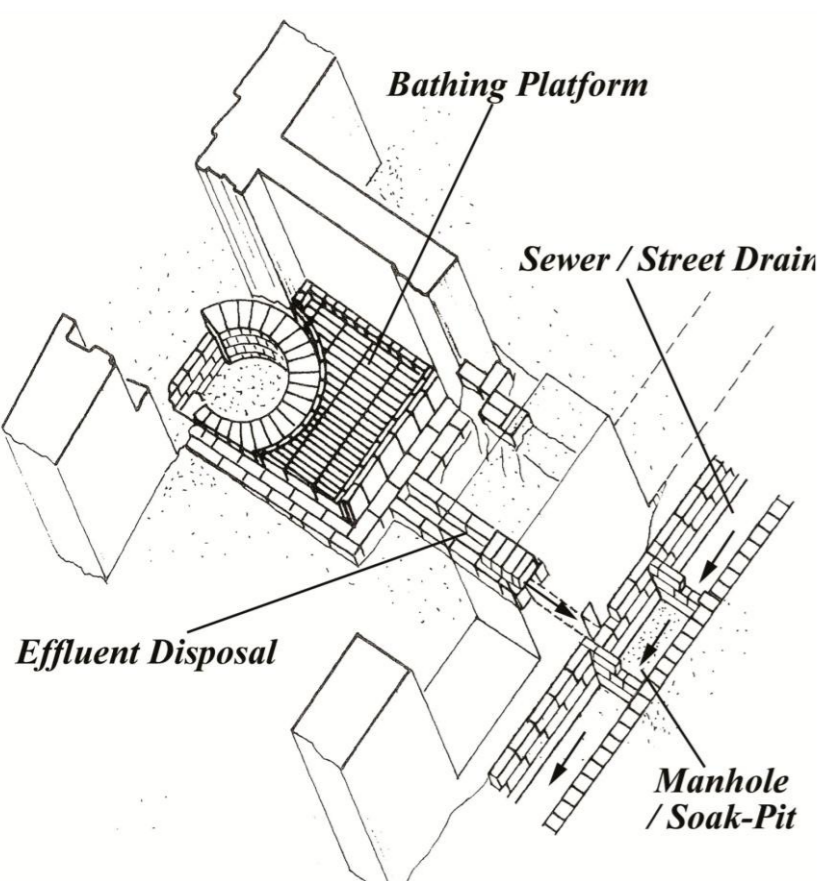
At the beginning of the sewer's life it consisted of open-air channels lined up with bricks centered around a main pipe. At this stage it might have had no roof. However, wooden holes spread throughout the sewer indicate that wooden bridges may have been built over it, which possibly functioned as a roof.

Water Wheels- Ancient Egypt



The water wheels worked the shadoofs. A shadoof was simply a counterweight system, a long pole with a bucket on one end and a weight on the other. Buckets were dropped into the Nile, filled with water, and raised with water wheels.

Drains- Harappa



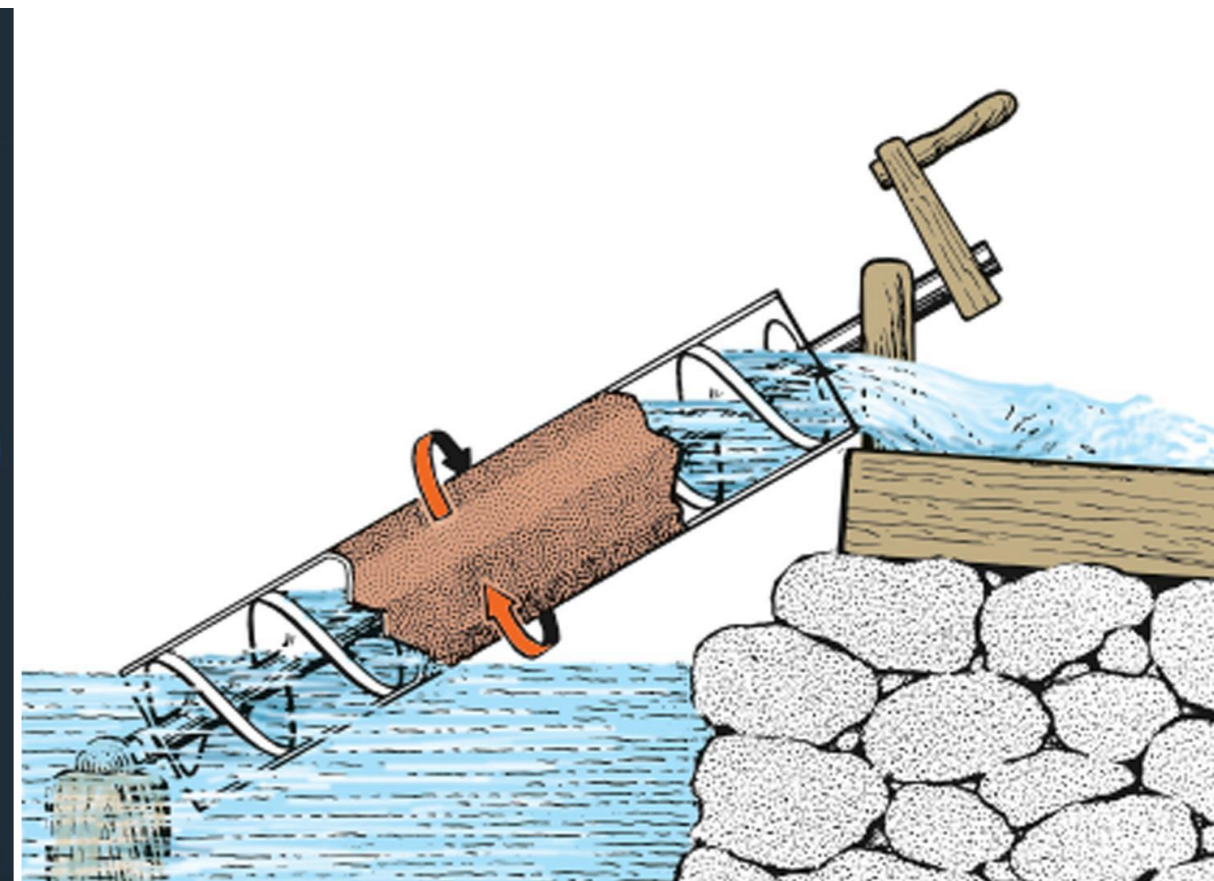
The brickwork prevented the dirty water from leaking. Wooden screens stopped the solid wastes from being washed away with the water.

Khadin/ Dhora



An ingenious construction designed to harvest surface runoff water for agriculture. Its main feature is a very long (100-300 m) earthen embankment built across the lower hill slopes lying below gravelly uplands.

Archimedes Screw



The Archimedes screw is one of the earliest hydraulic machines. A positive-displacement pump traps fluid from a source and then forces the fluid to move to a discharge location.

Departments for Urban Development



Ministry of Housing and Urban Affairs
Government of India



Ministry of Urban Development
Government of India



Ministry of Housing and Urban Affairs
Ministry of Human Resource Development
Government of India



GOVERNMENT OF INDIA
MINISTRY OF POWER



NITI Aayog



Departments for Transportation



GOVERNMENT OF ASSAM
TRANSPORT
ASSAM STATE TRANSPORT CORPORATION



GOVERNMENT OF ASSAM
TRANSPORT
COMMISSIONERATE OF TRANSPORT



GOVERNMENT OF ASSAM
TRANSPORT
INLAND WATER TRANSPORT

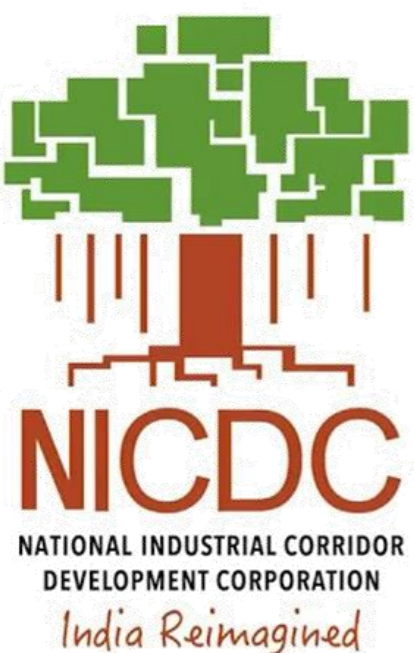


Urban Development Authorities



Infrastructure is a major sector that propels overall development of the Indian economy. The Secretariat for Infrastructure in the Planning Commission is involved in initiating policies that would ensure time-bound creation of world class infrastructure in the country. This section focuses on power, bridges, dams, roads and urban infrastructure development. Details of the projects, organizations, policies, timelines, schemes, spending on infrastructure are provided for the users.

National Schemes



National Institute of Urban Affairs

pppinindia.gov.in
Public Private Partnerships In India



Smart City
MISSION TRANSFORM-NATION



एक कदम स्वच्छता की ओर