

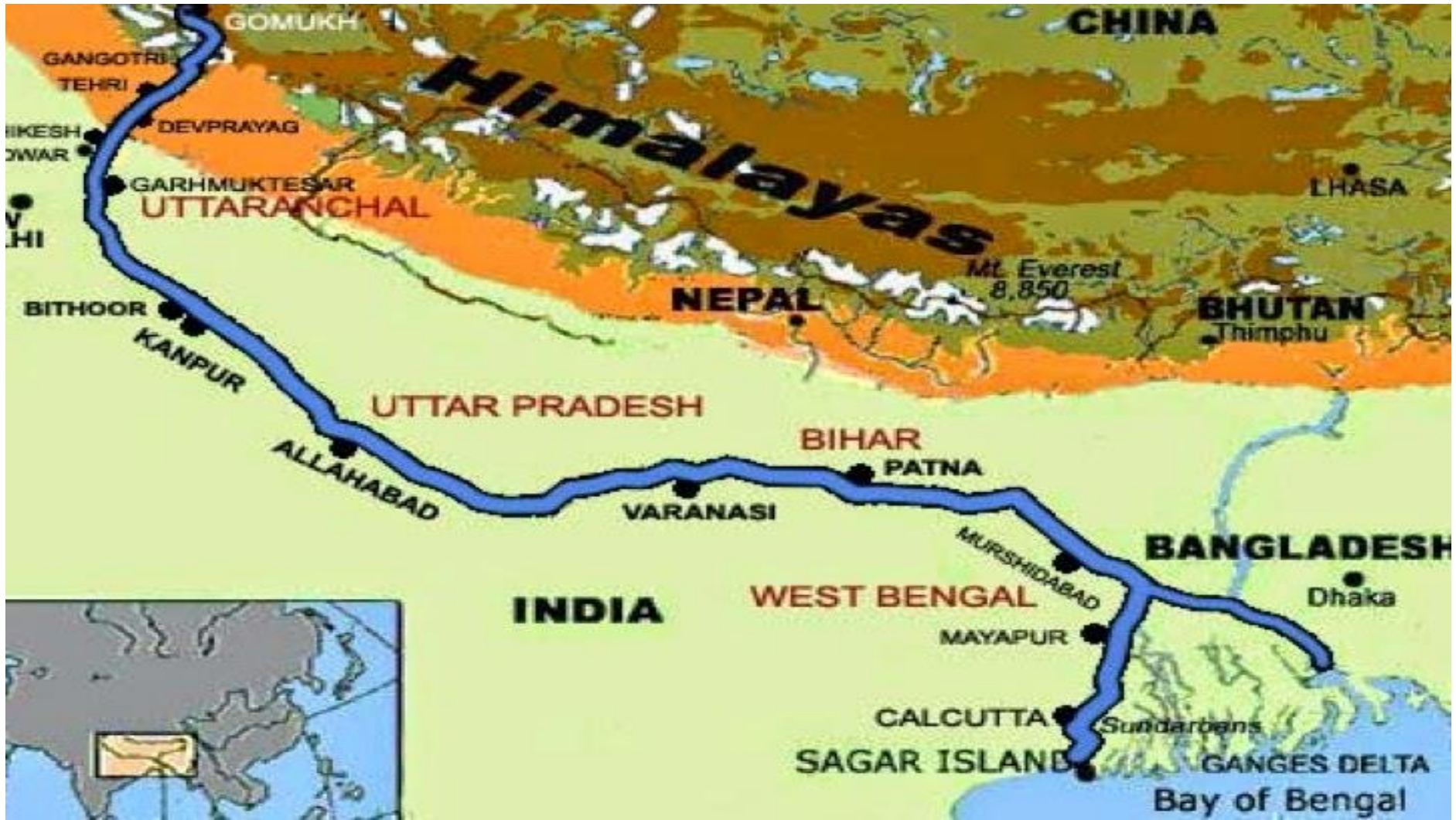
## **C-9: ECONOMIC AND ENVIRONMENTAL GEOGRAPHY**

### **Topic: Ganga Action Plan**

**B.A Honours in Geography: 4<sup>th</sup> Semester**

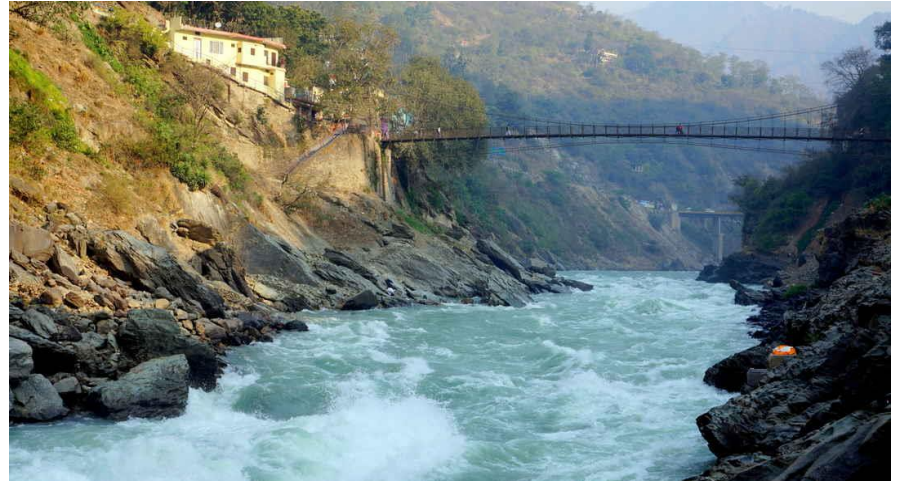
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1. Most fertile flood plains
  2. National waterways
  3. Transport and communication
  4. Economic development
  5. Religious Importance

## IMPORTANCE OF RIVER GANGA



# About Ganga Action Plan

The background of the slide is a scenic view of a city, likely Varanasi, India, situated along the banks of the Ganges river. The city is densely packed with buildings, many of which are multi-storied and feature traditional architectural elements like domes and spires. The river is visible in the foreground, with several small boats and structures along the banks. The sky is a mix of soft, warm colors, suggesting a sunrise or sunset. A large, dark blue, wavy-edged text box is superimposed over the lower half of the image, containing white text.

The Ganga Action Plan was, launched on 14 Jan. 1986 by the then Prime Minister of India Shri Rajeev Gandhi, with the main objective of pollution abatement of the river Ganga, to improve the water quality by interception, diversion and treatment of domestic sewage, and to identify grossly polluting units to prevent their toxic and industrial chemical wastes from entering the river .

Today, the Ganges is considered to be the fifth-most polluted river in the world

Why was the ganga action plan launched?





# Objectives

the main objective of pollution abatement of the river ganga , to improve the water quality by interception, diversion and treatment of domestic sewage and to identify grossly polluting units to prevent their toxic and industrial chemical waste from entering the river

Images

# The other objectives of the Indian Government's **Ganga Action Plan** are summarised as :-

- ❖ Research and Development to conserve the biotic, diversity of the river to augment its productivity.
- ❖ New technology of sewage treatment like **Up-flow Anaerobic Sludge Blanket (UASB)** and sewage treatment through afforestation has been successfully developed.  
(Up flow anaerobic sludge blanket (UASB) technology, normally referred to as UASB reactor, is a form of anaerobic digester that is used for wastewater treatment)
- ❖ Control of non-point pollution from agricultural run off, human defecation, cattle wallowing and throwing of unburnt and half burnt bodies into the river.
- ❖ Resource recovery options like production of methane for energy generation and use of aquaculture for revenue generation have been demonstrated.
- ❖ To act as trend setter for taking up similar action plans in other grossly polluted stretches in other rivers.

# Phases of ganga river

## Phase 1-

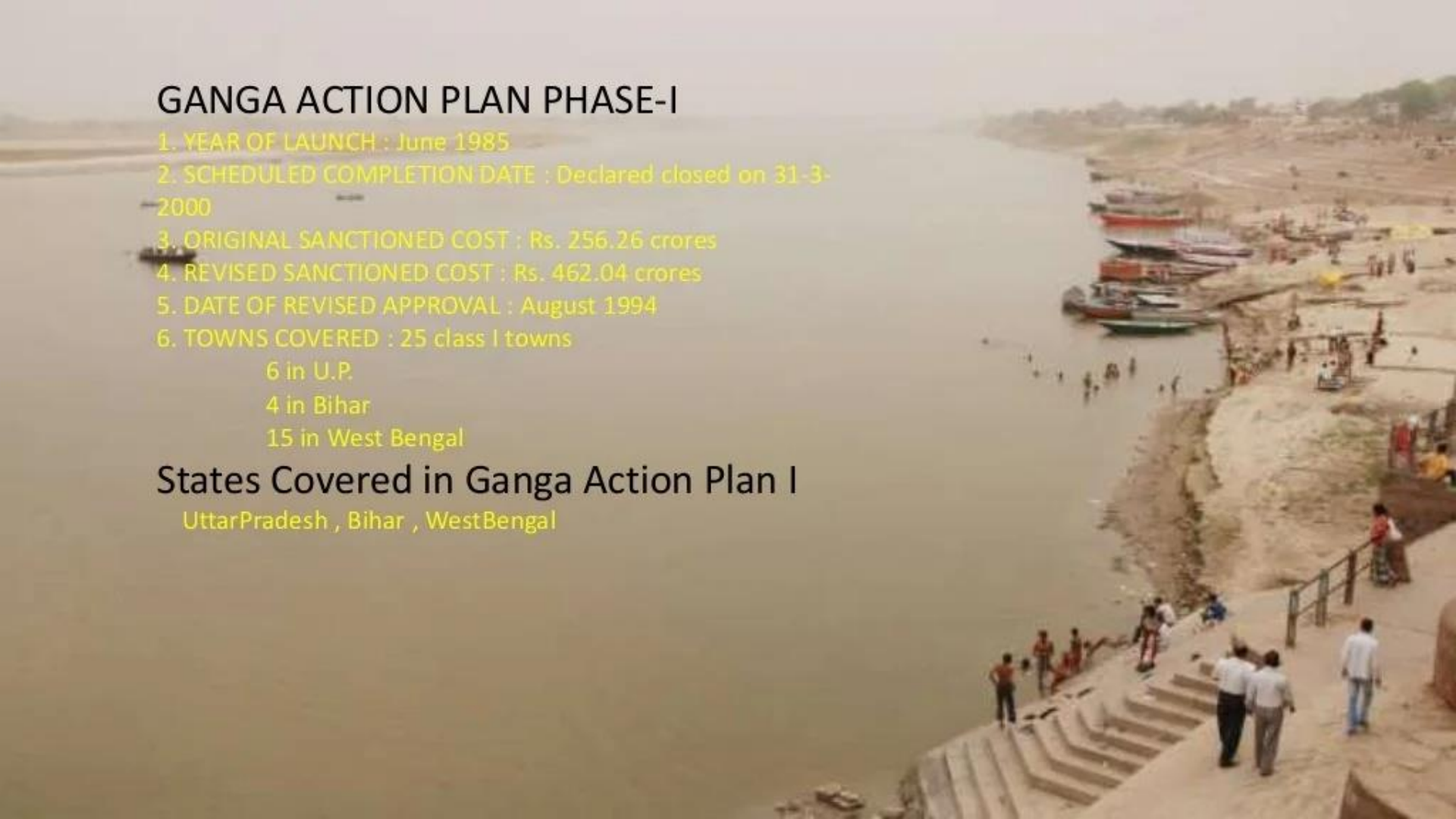
- ❑ The Ganga rises in the Garhwal Himalaya from the Gangotri Glacier, some 4100 meters above the sea level under the name of Bhagirathi. The river flows through the Himalayas till another two streams, the Mandakani and the Alakhnanda join it at Devprayag. It is below this confluence that the river is known as the Ganga proper. The Ganga Basin which is the largest river basin of the country houses about 40% population of India.
- ❑ The river after traversing a distance of 2525 kms. from its source, meets the Bay of Bengal at Ganga Sagar in West Bengal. During the course of its journey from the hills to the sea, municipal sewage from large urban centres, trade effluents from industries and polluting waste from several other non-point sources are discharged into the river resulting in its pollution.

## GANGA ACTION PLAN PHASE-I

1. YEAR OF LAUNCH : June 1985
2. SCHEDULED COMPLETION DATE : Declared closed on 31-3-2000
3. ORIGINAL SANCTIONED COST : Rs. 256.26 crores
4. REVISED SANCTIONED COST : Rs. 462.04 crores
5. DATE OF REVISED APPROVAL : August 1994
6. TOWNS COVERED : 25 class I towns
  - 6 in U.P.
  - 4 in Bihar
  - 15 in West Bengal

### States Covered in Ganga Action Plan I

UttarPradesh , Bihar , WestBengal



## GANGA ACTION PLAN PHASE-I (GAP I) DETAILS

Under GAP I, pollution abatement schemes were taken up in 25 Class-I towns in three States of U.P., Bihar and West Bengal. GAP I was declared complete on 31.03.2000 with an expenditure of Rs. 452 crore. The details are given below:

**States Covered** : 3 (UP, Bihar and West Bengal)

**Towns Covered** : 25 (UP-6, Bihar-4 and West Bengal-15)

**Schemes Sanctioned** : 261

**Schemes Completed** : 260

**Interception and Diversion** : 88

**Sewage Treatment Plants** : 34

**Low Cost Sanitation** : 43

**Crematoria** : 28

**River Front Development** : 35

**Others (afforestation)** : 32

**Sewage Treatment Capacity to be Created** : 882 MLD (35 STPs)

**Sewage Treatment Capacity Created** : 869 MLD (34 STPs)

**Total expenditure incurred** : Rs. 452 Crores.

## Achievements of GAP - I

S.No.	Station/Location	1986		2005	
		DO (mg/l)	BOD(mg/l)	DO(mg/l)	BOD(mg/l)
1.	Rishikesh	8.1	1.7	8.50	1.00
2.	Hardwar D/s	8.1	1.8	8.10	1.40
3.	Garhmukteshwar	7.8	2.2	7.80	2.00
4.	Kannauj U/S	7.2	5.5	8.50	1.70
5.	Kannauj D/S	NA	NA	7.60	4.50
6.	Kanpur U/S	7.2	7.2	6.20	4.30
7.	Kanpur D/S	6.7	8.6	4.70	5.40
8.	Allahabad U/S	6.4	11.4	8.50	5.50
9.	Allahabad D/S	6.6	15.5	8.40	3.10
10.	Varanasi U/S	5.6	10.1	8.60	2.00
11.	Varanasi D/S	5.9	10.6	8.30	2.30
12.	Patna U/S	8.4	2.0	7.44	2.00
13.	Patna D/S	8.1	2.2	8.00	2.20
14.	Rajmahal	7.8	1.8	7.40	1.80
15.	Palta	NA	NA	7.00	3.10
16.	Uluberia	NA	NA	5.40	2.60

\*\*\*Bathing Criteria: DO equal to or more than 5.0 mg/l; BOD equal to or less than 3.0 mg/l

## Cost Benefit Analysis of GAP - I

- ❖ Carried out by Harvard Institute of International Development in 1995-97
- ❖ During 1995 and beyond, both with and without the Ganga Action Plan Phase I.
- ❖ The model showed that in 1995, a total stretch of river of about 437 km between Rishikesh,UP and Rajmahal,Bihar still has biochemical oxygen demand (BOD) levels above the permissible limit of 3.0 mg/l.

PARAMETERS	THAMES	RHINE	DANUBE	GANGA
Length (in Km)	245	1320	2857	2525
Population (in million)	-	50	86	500
Restoration Time (in years)	30	50	13+	13+
Restoration Cost (in Rs. Billion)	5.0	1940.0	125.0	11.2

# About Ganga Action Plan II

The program of river cleaning was extended to other major rivers of the country under two separate schemes of GAP Phase - II and the National River Conservation Plan (NRCP). Yamuna and Gomati Action Plans were approved in April 1993 under Ganga Action Plan Phase - II. Programs of other major rivers were subsequently approved in 1995 under NRCP. After launching of NRCP in 1995, it was decided to merge GAP II with NRCP. A notification of this effect was issued on 05.12.1996.

## States Covered in Ganga Action Plan II

- Uttarakhand
- Uttar Pradesh
- Bihar
- Jharkhand
- West Bengal
- Delhi
- Haryana

## GANGA ACTION PLAN PHASE-II (GAP II) DETAILS

As GAP I addressed only a part of the pollution load of Ganga, GAP II was launched in stages between 1993 and 1996. 59 towns along the main stem of river Ganga in five States of Uttarakhand, U.P., Jharkhand, Bihar and West Bengal are covered under the Plan. The salient features of the Plan are as under:

**States Covered** : 5 (Uttarakhand, UP, Bihar, Jharkhand and West Bengal)

**Towns Covered** : 59 (Uttarakhand-10, UP-12, Bihar-13, Jharkhand-1, West Bengal - 23)

**Schemes Sanctioned** : 319

**Schemes Completed** : 200

**Sewage Treatment Capacity to be Created** : 277.28 MLD (37 STPs)

**Sewage Treatment Capacity Created** : 129.77 MLD (18 STPs)

# Causes of pollution in the Ganga -

- ❑ main causes of water pollution in the Ganges river are: the increase in the population density, various human activities (such as bathing, washing clothes, and the bathing of animals), and dumping of various harmful industrial waste into the river.
- ❑ Approximately 3 billion(3 arab) litres of raw, untreated sewage are dumped in the river on a daily basis. The amount has more than doubled in the last 20 years and experts predict another 100% increase in the following 20 years.
- ❑ Countless tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals contribute to the pollution of the Ganges by dumping untreated waste into it. Industrial effluents are about 12% of the total volume of effluent reaching the Ganges.





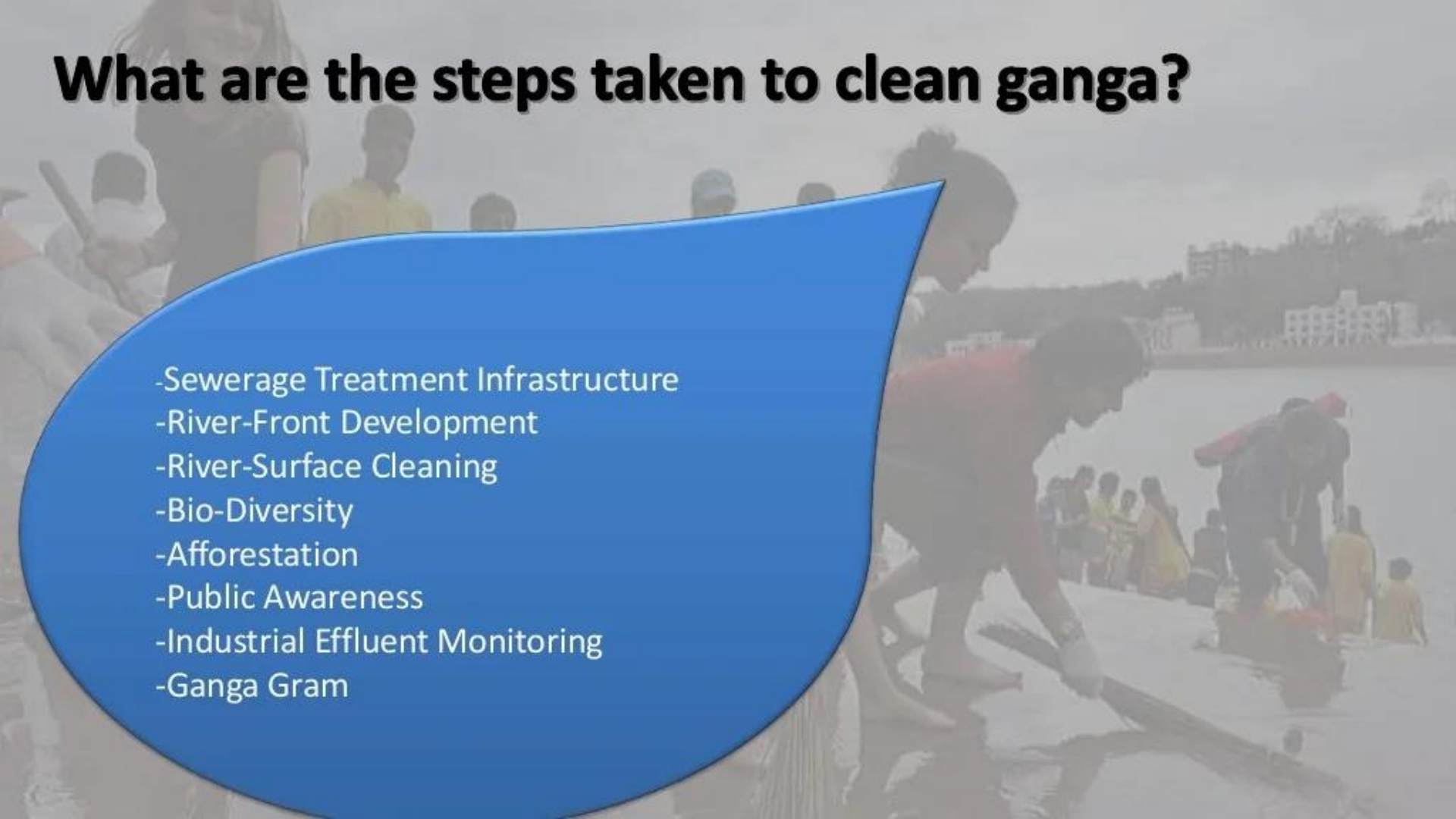
EFFECT OF POLLUTION IN GANGA .....

What diseases can you get from the Ganga river????

People who use this water risk hepatitis, typhoid, cholera, amoebic dysentery, other waterborne diseases, and a variety of skin afflictions. Despite these dangers, however, the Ganges, or Ganga in the vernacular, is the most desired destination in India.

# What are the steps taken to clean ganga?

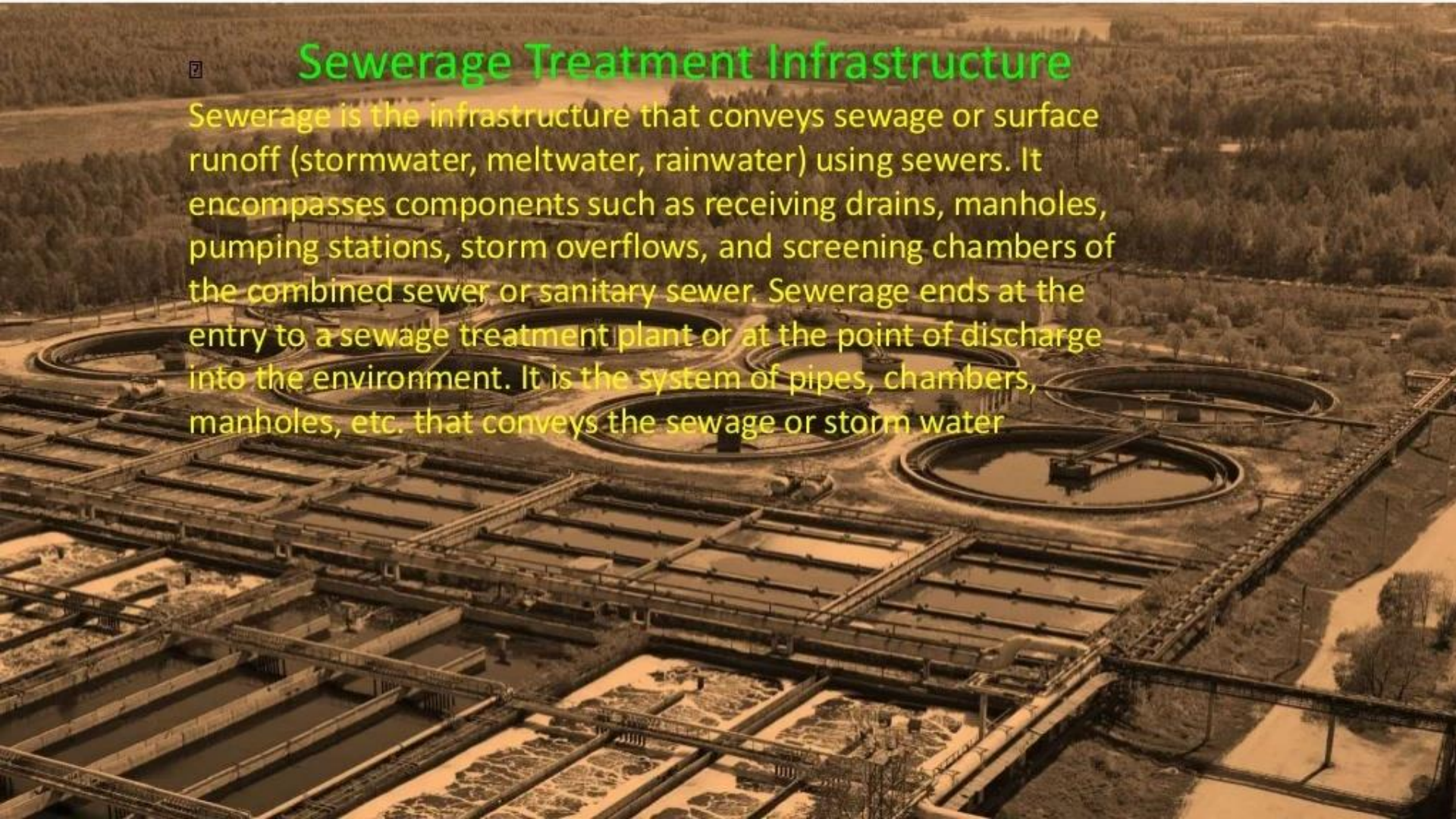
- Sewerage Treatment Infrastructure
- River-Front Development
- River-Surface Cleaning
- Bio-Diversity
- Afforestation
- Public Awareness
- Industrial Effluent Monitoring
- Ganga Gram





## Sewerage Treatment Infrastructure

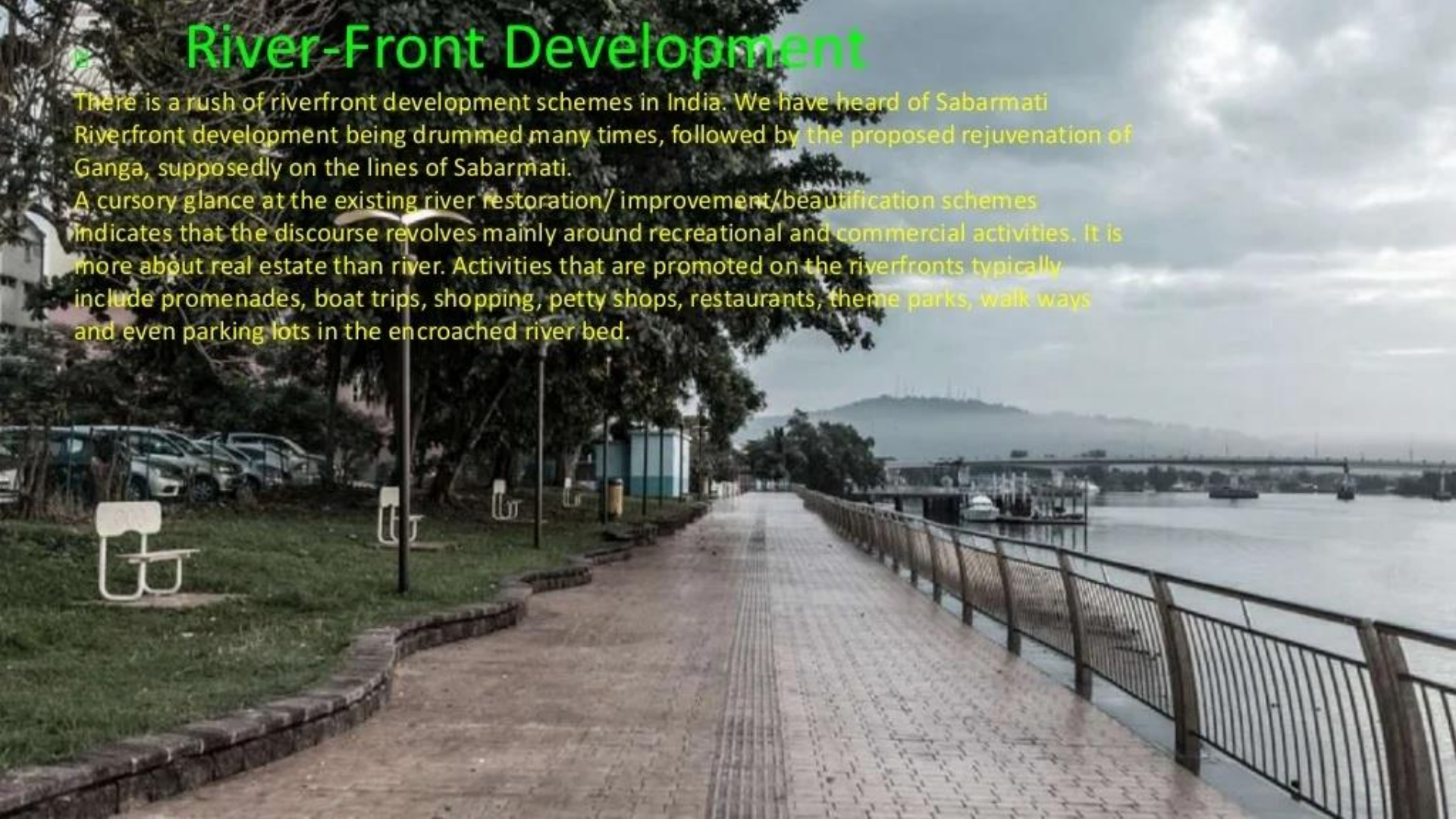
Sewerage is the infrastructure that conveys sewage or surface runoff (stormwater, meltwater, rainwater) using sewers. It encompasses components such as receiving drains, manholes, pumping stations, storm overflows, and screening chambers of the combined sewer or sanitary sewer. Sewerage ends at the entry to a sewage treatment plant or at the point of discharge into the environment. It is the system of pipes, chambers, manholes, etc. that conveys the sewage or storm water



# River-Front Development

There is a rush of riverfront development schemes in India. We have heard of Sabarmati Riverfront development being drummed many times, followed by the proposed rejuvenation of Ganga, supposedly on the lines of Sabarmati.

A cursory glance at the existing river restoration/ improvement/beautification schemes indicates that the discourse revolves mainly around recreational and commercial activities. It is more about real estate than river. Activities that are promoted on the riverfronts typically include promenades, boat trips, shopping, petty shops, restaurants, theme parks, walk ways and even parking lots in the encroached river bed.





## River-Surface Cleaning

River surface cleaning work involves collection of all kinds of floating matter in river by employing motorized machine/ equipment. The motorized machine is called as Trash Skimmer. The waste collected by Trash skimmer shall be disposed off at specified location on shoreline. The collection, transportation and disposal of waste shall be in compliance with Solid Waste Management (2016) Rules.



# Bio-Diversity




Several Bio-Diversity conservation projects are namely: Biodiversity Conservation and Ganga Rejuvenation, Fish and Fishery Conservation in Ganga River, Ganges River Dolphin Conservation Education Programme has been initiated. 5 Bio-Diversity center's at Dehradun, Narora, Allahabad, Varanasi and Barrackpore has been developed for restoration of identified priority species.





## Public Awareness:-

A series of activities such as events, workshops, seminars and conferences and numerous IEC activities were organized to make a strong pitch for public outreach and community participation in the programme. Various awareness activities through rallies, campaigns, exhibitions, shram daan, cleanliness drives, competitions, plantation drives and development and distribution of resource materials were organized and for wider publicity the mass mediums such as TV/Radio, print media advertisements, advertorials, featured articles and advertorials were published. Gange Theme song was released widely and played on digital media to enhance the visibility of the programme. NMCG ensured presence at Social Media platforms like Facebook, Twitter, You Tube etc.

The background image shows an industrial facility, likely a wastewater treatment plant. In the foreground, there are aeration tanks with turbulent, white foam on the water surface. In the middle ground, there is a concrete structure with a metal walkway and railings. In the background, a tall, cylindrical chimney with a red and white striped top is visible against a clear blue sky. The overall scene is brightly lit, suggesting a sunny day.

## Industrial Effluent Monitoring:-

Real Time Effluent Monitoring Stations (EMS) has been installed in 572 out of 760 Grossly Polluting Industries (GPIs). Closure notice have been issued to 135 GPIs so far and others have been given deadlines for compliance to stipulated norms and for installations of online EMS.

# LATEST NEWS

River Ganga Will be Completely Clean by March 2020, Promises Nitin Gadkari

Mumbai: Union minister Nitin Gadkari expressed hope on Thursday that the Ganga river will become completely clean by 2020 considering the pace at which its rejuvenation programme was in progress.

He said most of the 221 projects under the Namami Gange Mission worth Rs 22,238 crore are at advanced stages of completion.

"Considering the pace at which the works are awarded and getting completed, we are hopeful that by March 2020, river Ganga will be completely clean. It is a difficult task, but we will complete," the Water Resources and Ganga Rejuvenation Minister said.

The government's flagship project has progressed well and nearly 70-80 per cent of the work will be completed by March 2019, he added.

Gadkari said apart from cleaning the Ganga river, work is also undertaken to clean the tributaries and nallas that flow into the main river.

"All these projects are done by private players and I have not given any responsibility to any of the corporations

## LIMITED SCOPE OF GAP

- Only a part of the pollution load of the river could be tackled.
- GAP concentrated on improving the water quality of Ganga, in terms of organic pollution and dissolved oxygen.
- Only the wastewater of towns flowing through the drains to the river was targeted. Connections of household toilets to the sewer system, solid waste management, and some other vital aspects of municipal activities, which impinge on the water quality were not addressed.
- Tree cover in the Ganga basin has reduced considerably and land use pattern has changed leading to soil erosion. Sediment yield and its deposit on the river bed were also not monitored.
- Pollution load from non-point sources was addressed marginally. No attention was paid to run-off from agricultural fields, which brings non-biodegradable pesticides into the river.
- Only Class-I towns on the banks of rivers were taken up. Thus a large number of urban settlements remained outside the purview of the Plan.
- Several parameters such as heavy metals, pesticides, nitrogen and phosphorous were not monitored. These parameters have become important with increased industrialization and urbanization.