

WATER POLLUTION



WELCOME



WATER

POLLUTION

OF GANGA

RIVER



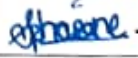




Vivekanand College, Kolhapur

A Project Report On

WATER POLLUTION OF GANGA RIVER

For the partial fulfillment of Certificate Course in
'Environmental Studies'

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UNDER THE GUIDANCE OF
Prof. ABHIJIT S. KADAM

2022-2023



Rajdhani
DATE / /

CERTIFICATE

Vivekanand college, Kolhapur.

Department of Commerce [B.Com II]

Year : 2022-2023

This is to be certify that project report entitled "Water Pollution of Ganga River" submitted by Saniya Makandar, Sharvari Sarnaik, Sanika Farane, Pallavi Puneekar, Bhagyashree Padganur
In partial fulfilment of Environmental studies project in B.Com Commerce department during the academic year 2022-2023.

Place: Kolhapur

Date :

Prof. A.S. Kadam
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DECLARATION

Rajdhani

DATE / /

To,
The Principal
Vivekanand College, Kolhapur.

Respected Sir,

We the undersigned, students declare that project report entitled "Water Pollution of Ganga River" is submitted by us under the guidance of Mr. A.S. Kadam. It is our original work. The empirical findings in this project are based on the data collected by us and authentic to the best of our knowledge. The presented is copied from any other source.

Date:

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Acknowledgement

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Chapter No.-1

Rajdhani

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Introduction

"Environment can be defined as a sum total of all the living and non-living elements and their effects that influence human life."

Environment is everything that is around us. It can be living or non-living things. It includes physical, chemical and other natural forces. Living things live in their the environment. They constantly interact with it and adapt themselves to the conditions in their environment.

• What is the Environment?

An environment is everything that is around us, which includes both living and non-living things such as soil, water, animals and plants, which adapt themselves to their the surroundings. It is nature's gift that helps in nourishing life on earth.

The environment plays an important role in the existence of life on the planet earth. The word environment is derived from the French word "Environ" which means "surroundings." An ecosystem refers to all the living and non-living things present in the environment. It is a foundation of the biosphere which determines the health of the entire planet.

Ecology and Environmental science are the branches of life science, which mainly deal with the study of organisms and their interactions with other organisms and their environment.

• Importance of Environment :-

Environment plays an important role in healthy living and the existence of life on planet earth. Earth is the home for different living species and we all are dependent on the environment for food, air, water and other needs. Therefore, it is important for every individual to save and protect the environment.



Introduction Of Topic

• Introduction :-

Water pollution is a serious problem in India as almost 70% of its surface water resources and a growing percentage of its groundwater reserves are contaminated by biological, toxic, organic, and inorganic pollutants. In many cases, these sources have been rendered unsafe and for human consumption as well as for other activities, such as irrigation and industrial needs. This shows that degraded water quality can contribute to water scarcity as it limits its availability for both human use and for the ecosystem.

In 1995, the Central Pollution Control Board (CPCB) identified severely polluted stretches on 18 major rivers in India. Not surprisingly, a majority of these stretches were found in and around large urban areas. The high incidence of severe contamination near urban areas indicates that the industrial and domestic sectors' contribution to water pollution is much higher and their relative importance implied in the Indian economy. Agricultural activities also contribute in terms of the overall impact on water quality. Besides, a rapidly depleting groundwater table in different parts, the country faces another major problem on the water front - groundwater contamination - a problem which has affected as many 19 states, including Delhi. Geo-genic contaminants, including salinity, iron, fluoride, & arsenic have affected groundwater in over 200 districts. spread across 19 states.

Objectives

• Objectives are mentioned as below :-

- ⇒ To study the concept of water pollution.
- ⇒ To study the Ganga river water pollution in detail.
- ⇒ To study the various sources of Ganga river pollution.
- ⇒ To study the effects of Ganga river pollution.
- ⇒ To suggest control or remedial measures for Ganga river pollution.
- ⇒ To take review of action taken by Government to control Ganga river pollution.

Research And Methodology

• Study Area :-

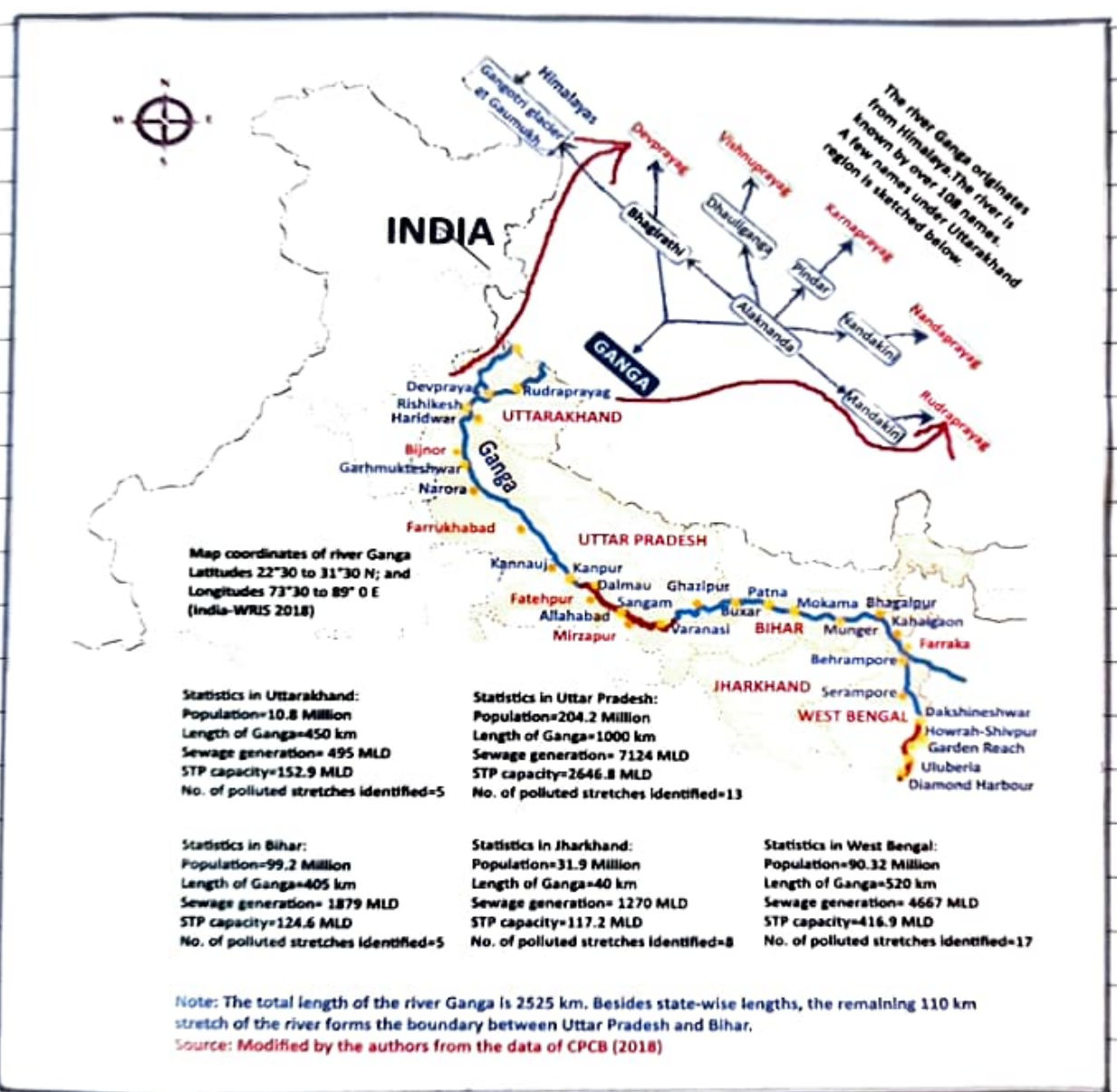
The Ganges also called 'The Ganga' is the third largest river on the Indian sub-continent. The Ganga river travels through Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Delhi, etc. The beginning of the main stem of Ganges is from Devprayag. Length of the river is 2525 km (1.569 m²) and the Basin size is the 1016124 km² (392328 sq. mi⁴).

The Ganges (¹/gʌndʒiːz/ GAN-jeez) (in India: Ganga (¹/gʌŋgə/ GANG-ə): In Bangladesh: Padma (¹/pʌdmə/ PUD-mə)) [5] [6] [7] [8] is a trans-boundary river of Asia which flows through India and Bangladesh. The 2.704 km (1,680 mi) river rises in the western Himalayas in the India state of Uttarakhand. It flows south and east through the Gangetic plain of North India receiving the right-bank tributary. The Yamuna, which also rises in the western Indian Himalayas, and several left-bank tributaries from Nepal that account for the bulk of its flow. [9] [10] In West Bengal state, India, a feeder canal taking off from its right bank diverts 50% of its flow southwards, artificially connecting it to the Hooghly river. The Ganges continues into Bangladesh, its name changing to the Padma. It is then joined by the Jamuna, the lower stream of the Brahmaputra, and eventually the Meghna, forming the major estuary of the Ganges Delta, and emptying into the Bay of Bengal. The Ganges

The Ganges - Brahmaputra - Meghna system is the third largest river on the earth by discharge.

- | | |
|----------------|---|
| • Location : | Devprayag, the beginning of the main stem of the Ganges |
| • Mouth : | Bay of Bengal |
| • Location : | Ganges Delta |
| • Length : | 2,725 km
(1,693 mi) [2] |
| • Basin Size : | 1,200,000 km ²
(460,000 sq mi) [3] |

Area Map



Secondary Method

In secondary method, we search some websites for getting information on water pollution of Ganga River.

Also we read some books, newspaper and the articles on water pollution of Ganga River and some websites and links of water pollution of Ganga River.

• Website :- [https://simple.m.wikipedia.org/wiki/Ganges-](https://simple.m.wikipedia.org/wiki/Ganges)

Article

A hand-drawn version of the Google logo, where each letter is filled with a different color: 'G' is blue, the first 'o' is red, the second 'o' is yellow, 'g' is blue, 'l' is green, and 'e' is red. The letters are thick and have a slightly irregular, hand-painted appearance. A large, faint watermark of the word 'Google' is visible in the background behind the hand-drawn logo.

Newspaper

- The Hindu Website: hinduexistence.org.

GANGA CLEANING DEADLINE: 2018-19

Tasks to be completed by then

▶ Sewage Infrastructure: Setting up Sewage Treatment Plants (STPs) in all 118 towns

▶ Projects are ongoing in 50 towns

▶ Projects will be allotted in remaining 68 towns by June 2016

▶ Tapping (disallowing untreated water from flowing into river) all 144 drains; 65 have already been tapped

▶ Setting up Central Effluent Treatment Plants (CETPs) at main industrial clusters and make it sustainable

▶ Provision of public amenities at Char Dham Yatra and Ganga Sagar



Plantation of medicinal plants along 2,525 km long Ganga

▶ River front management at 7 identified locations including Kedarnath, Hardwar, Allahabad, Varanasi, Kanpur and Patna

▶ 100% sanitation coverage for 1,657 Gram Panchayats

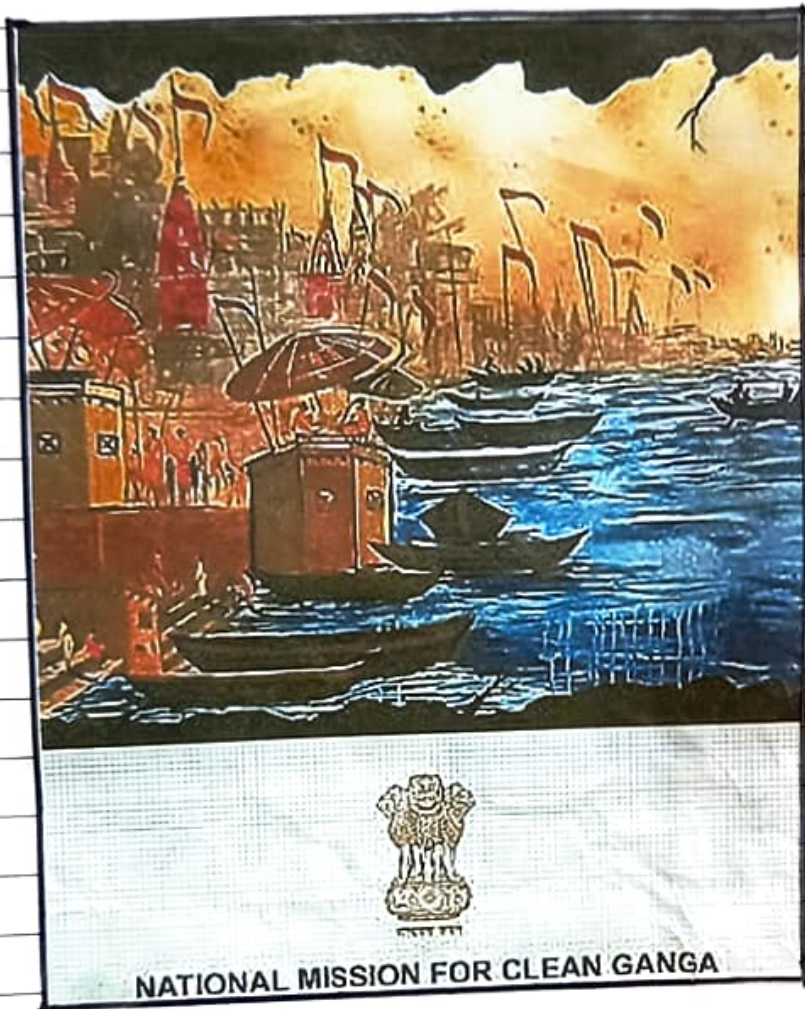
▶ Raising 4 battalions (4,000 personnel) of Ganga Task Force

- involving ex-servicemen along Ghats

▶ Setting up a workforce of trash collectors by involving urban local bodies (ULBs)

▶ Conservation of aquatic life - special attention to dolphin, turtles and ghariyals

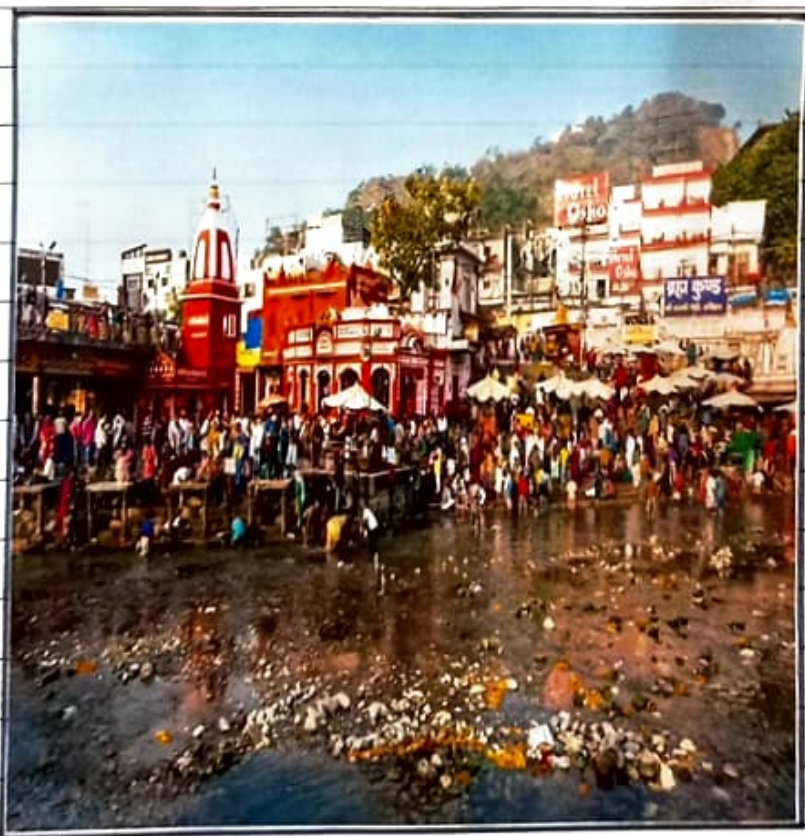
GANGA ACTION PLAN



At present, the National Mission for clean Ganga is not only limited to cleaning, but also aims to improve its ecology & conserve its biodiversity but ensuring ecological flow and protecting wetlands and springs. It is also focusing on rejuvenating smaller rivers. In addition, the National Mission for Clean Ganga is studying other rivers such as Yamuna and Ramganga and developing an environmental flow analysis (e-flow) of Yamuna and its key tributaries. The mission will also focus on strengthening institutions at the grassroot level & implementing community diver programmes.

Reporting

There is a lot of pollution in the Ganges because many locals tends to release their waste into it. This causes a lot of sickness like cholera, hepatitis, typhoid, and amoebic dysentery. The presence of coliform bacteria in the waters has increased well above normal. This is a major cause of water pollution. These diseases cause about a third of the deaths in India every year. That is why the government has started a multi-crore project called as 'The Ganga Action Plan' [GAP].



Causes

The main causes of water pollution in the Ganga river are the disposal of human sewage and animal waste, increasing population density, and the disposal of industrial waste into the river. The causes are mentioned as follows-

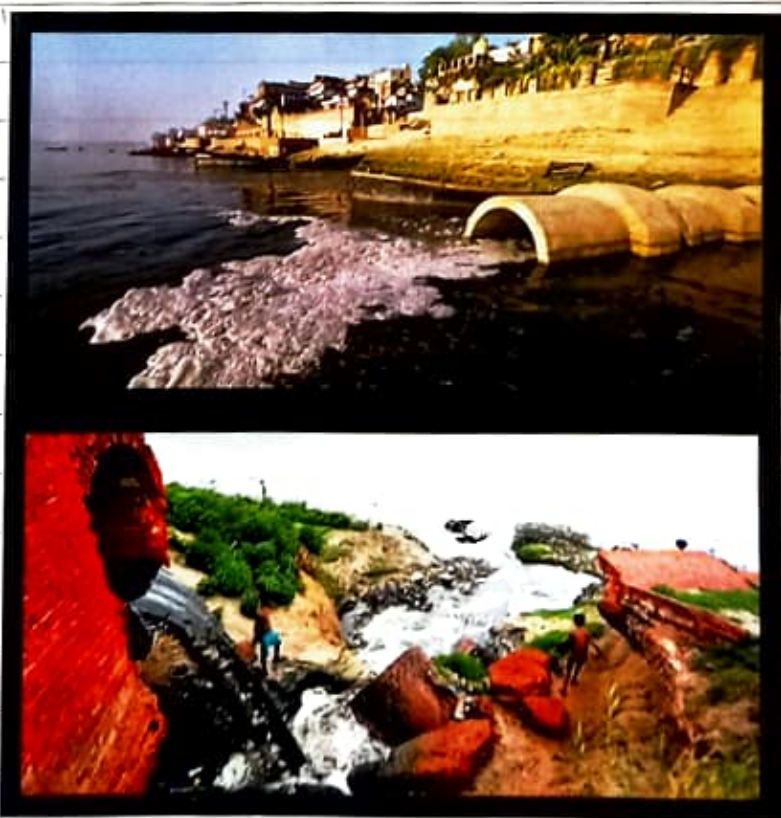
• Human Waste =

The river flows through 100 cities with populations over 100,000; 97 cities with population between 50,000 to 100,000, and about 48 towns. A large proportion of the sewage water with higher organic load in the Ganges is from this population through domestic water usage.

• Industrial Waste =

Because of the establishment of large number of industrial cities on the bank of Ganges like Kanpur, Prayagraj, Varanasi and Patna, countless tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals proper and grow along with this and actively play a role in polluting the Ganges by dumping untreated waste into it. The Ganges by dumping untreated waste into it. One coal-based power plant on the banks of the Pandu River, a Ganges tributary near the city of Kanpur, burns 600,000 tons of coal each year and

produces 210,000 tons of fly ash. The ash is dumped into ponds from which a slurry is filtered, mixed with domestic wastewater, and then released into the Pandu river. Fly ash contains toxic heavy metals such as lead and copper. The amounts of parts per million of copper released in the Pandu before it even reaches the Ganga is a thousand times higher than in uncontaminated water. Industrial effluents are about 12% of the total volume of effluent reaching the Ganges. Although a relatively low proportion, they are a cause for major concern because they are often toxic and non-biodegradable. Plastic and industrial waste, such as wastewater from the factories that sit on the banks of the Ganga, is another cause of pollution. The most worrying problem facing the river is its increasing lack of water. Water for irrigation is being removed faster than the rainy season can replenish it.



• Religious Traditions =

During festival seasons, over 70 million people bathe in the Ganges to cleanse themselves of their past sins. Some materials like food, waste or leaves are left in the Ganges, which are also responsible for its pollution. Traditional beliefs hold that being cremated on its banks and floating down the Ganges will cleanse the sins of those who die and carry them directly to salvation. In Varanasi alone, an estimated forty thousand bodies are cremated every year and are deposited into the Ganga. Because of many families cannot afford the high cost of sufficient quantities of cremation wood, many of the bodies deposited into the Ganges are only half-burnt.



Effects

Deteriorating water quality is damaging the environment, health conditions and the global economy. The president of the World Bank, David Malpass, warns of the economic impact: "Deteriorating water quality is stalling economic growth and exacerbating poverty in many countries." The explanation is that when biological oxygen demand - the indicator that measures the organic pollution found in water - exceeds a certain threshold, the growth in the Gross Domestic Product (GDP) of the regions within the associated water basins falls by a third. In addition, here are some of the other consequences:

• Marine Life =

The results of mercury analysis in various specimens collected along the basin indicated that some fish muscles tended to accumulate high levels of mercury. Of it, approximately 50-84% was organic mercury. A strong positive correlation between mercury levels in muscle with food habit and fish length was found.

The Ganges river dolphin is one of few species of fresh water dolphin in the world. Listed as an endangered species, their population is believed to be less than 2000. Hydroelectric and irrigation dams along the Ganges that prevent the dolphin from travelling up and down river is the main reason for their reducing population. The Ganges softshell turtle is found in the Ganges, Indus and Mahanadi river systems of Pakistan, Northern

India, Bangladesh, and southern Nepal. This turtle inhabits deep rivers, streams, large canals, lakes and ponds, with a bed of mud or sand. According to the international union for conservation of nature, freshwater turtle species are vulnerable. Due to their long lifespan and high trophic level in the aquatic food web, turtles are vulnerable to heavy metals pollution, a major kind of pollution in the Ganges.



• Wild Life =

Some of the dams being constructed along the Ganges basin will submerge substantial areas of nearby forest. For example, the Kotli-Bhel dam at Devprayag will submerge 1200 hectares of forest, wiping out the forest area and eventually the wildlife.

• Human Beings =

An analysis of the Ganges water in 2006 and 2007 showed significant associations between water-borne/enteric disease and the use of the river for bathing, laundry, washing, eating, cleaning, utensils, and brushing teeth. Water in the Ganges has been correlated to contracting dysentery, cholera, hepatitis, as well as severe diarrhoea which continues to be one of the leading causes of death of children in India.

During the summer and monsoon, hospital wards teem with children who need treatment for waterborne diseases - but according to S.C. Singh, a paediatrician at Varanasi Shiv Prasad Gupta Hospital, their parents rarely mention that they have been swimming in the river. They don't appear to have made the connection, he says.



Diarrhea



Vomiting



Typhoid



Diphtheria



Hepatitis



Kidney Damage



Nerve Disorders



Skin Lesions

Control Measures

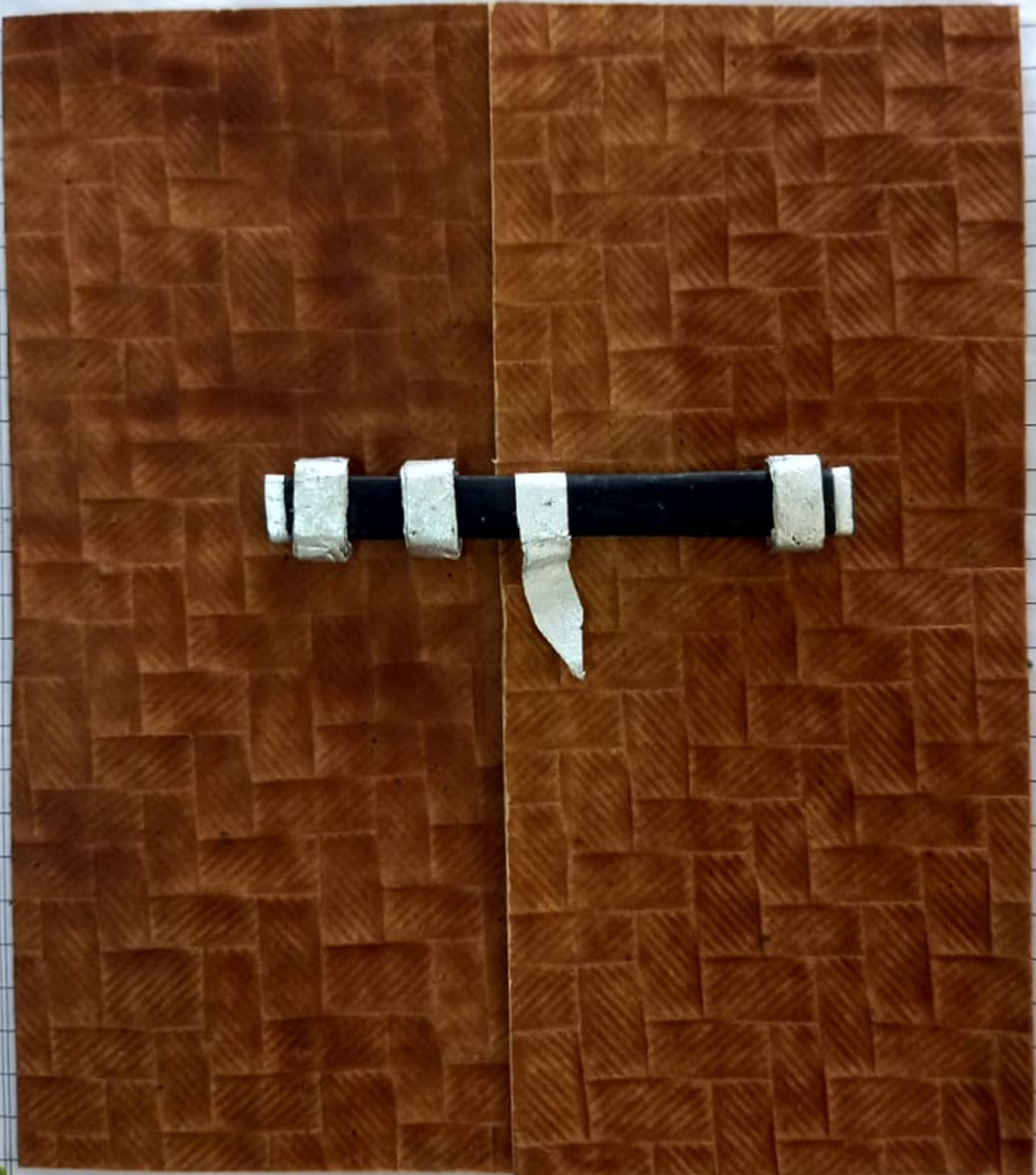
Half of the world's inhabitants will live in water-scarce areas by 2025, so every drop of polluted water today is an irreparable loss for tomorrow.

That's why, we must prevent water pollution with measures like the following :-

- * Reduce CO₂ emissions to prevent global warming and acidification of the oceans.
- * Reduce the use of chemical pesticides and nutrients on crops.
- * Reduce and safely treat waste water so that, as well as not polluting, it can be reused for irrigation and energy production.
- * Restrict the use of single-use-plastics that end up floating in rivers, lakes and oceans, many as microplastics.
- * Maintenance of minimum ecological flows in the river Ganga with the aim of ensuring water quality and the environmentally sustainable development.
- * Collection, analysis and dissemination of information being relating to environmental pollution in the river Ganga.

- DATE: / /
- * Investigations and research regarding problems of the environmental pollution and conservation of the river Ganga.
 - * Creation of special purpose vehicles, as appropriate for implementation of works vested with the authority.
 - * Monitoring and review of implementation of various the programmes or activities taken up for prevention, control and abatement of pollution in the river Ganga.
 - * Insurance of directions under section 5 of the Environment (Protection) Act 1986 (29 of 1986) for the purpose of exercising and performing all or any of the above functions and to take such other measures as the authority deems necessary or expedient for achievement of its objectives.
 - * The Environment (Protection) Act, 1986 for the purpose of exercising and performing these functions and for achievement of its objectives.
 - * Development of river basin management plan and regulation of activities aimed at prevention, control and abatement of pollution in the river Ganga to maintain its water quality, and to take such other measures relevant to river ecology and management in the Ganga Basin states.

Conclusion



Conclusion

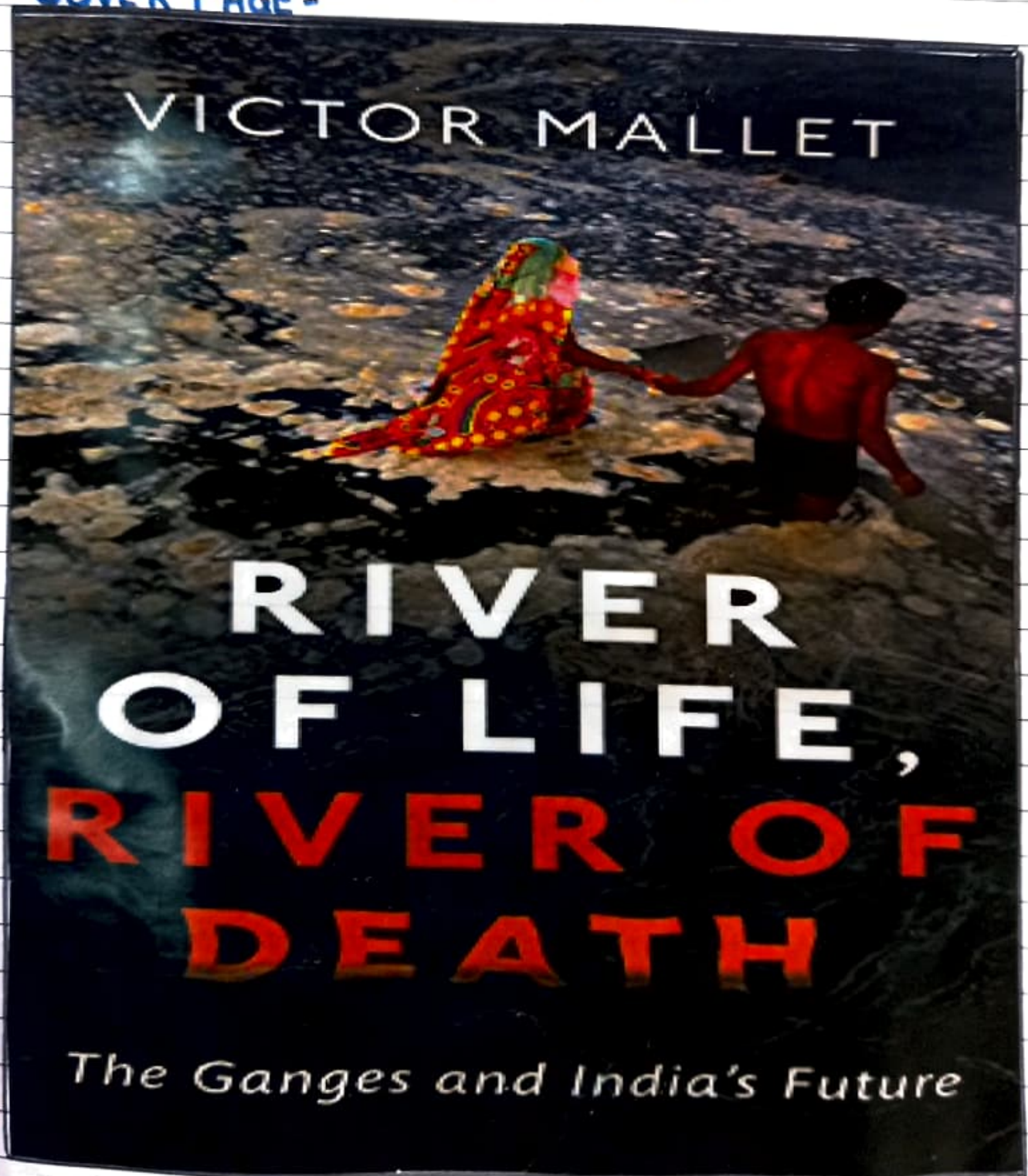
Water pollution is a serious issue that future generations have to face and fix. Soon enough most of the world will be fighting over water.

Solutions are to reduce the pollution and also to educate young children about the issue, cleaning projects and more natural resources. A major solution that would make a big change but will need a big change but will need a big sacrifice is that factories are not built near rivers and lakes etc.

Therefore, water pollution is indeed a very serious concern because it is not only has an impact on health and but also can have negative effects on various industries and agriculture. It is therefore highly important to devise methods to reduce the level of water pollution that we are currently facing.

Bibliography

• COVER PAGE -



Book Review

The book is well written and easy to read, even for a non-specialist audience... there is much to learn from River of Life, River of Death, and it is to be hoped that Mallet will repeat his journey down the Ganges in a decade or two to update us on the fath of this extraordinary river - Kenneth Bø Nielsen, University of Oslo, Pacific affairs.

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THANK

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