

## **RESPONSIBILITY AND LIABILITY OF UPSTREAM CITIES FOR THE PUBLIC NUISANCE TO THE DOWNSTREAM CITIES ALONG THE RIVER GANGA**

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### ***Abstract***

*Along its 2,525 km path from Gaumukh to the Bay of Bengal, along the Indo-Gangetic Plains of northern India, the Ganga acts as a lifeline for approximately 400 million people, primarily in the states of Uttarakhand, Uttar Pradesh, Bihar, and West Bengal. The river is conducive for agriculture, industrial activities, fisheries, etcetera, wherein these activities are particularly concentrated, between Haridwar and Varanasi. The Ganga gets heavily polluted in the Middle Zone. The said pollution, which amounts to a Biological Oxygen Demand Load of 55.59 tonnes per day in Uttar Pradesh, affects the personal health and comfort of the people in the downstream communities of Bihar. The lower number of untapped drains and a lesser number of industries allow the Ganga to self-purify itself within Bihar, where the average Biological Oxygen Demand reduces significantly. Heavy metals like cadmium, cobalt, chromium, copper, iron, selenium, lead and zinc enter the Ganga from the Kanpur-Unnao industrial area, which is laden with approximately 1,635 functional units of tanneries. The ongoing and non-emergent pollution in the Ganga disallow the downstream communities to approach the court under Section 133 of the Code of Criminal Procedure, 1973; however, the said communities can take the recourse of Section 268 of the Indian Penal Code, 1860 (for public nuisance), and Sections 2 and 24 of the Water (Prevention and Control of Pollution) Act, 1974. A civil court is approachable for the tort of public nuisance, wherein the industries, municipal bodies and civic authorities in the polluting areas of Uttar Pradesh must not only pay damages to the said communities for their respective share in the pollution of the Ganga but also pay the cost of restoring the environmental degradation of the Ganga in their respective polluted areas.*

**Keywords:** River Ganga, Heavy Metal Pollution, Public Nuisance, Polluter Pays Principle, Tortuous Liability.

## Introduction

The River Ganga (hereinafter referred to as the “**Ganga**”) starts as the assemblage of the River Bhagirathi and the River Alaknanda at Devprayag, wherein the former is nursed directly by the Gangotri and Khatilang glaciers, at Gaumukh, in the narrow gorges of the Himalaya Mountains whilst the latter is fed directly by the Satopanth and Bhagirathi Kharak glaciers at Badrinath.<sup>1,2</sup> The Ganga flows south and east from the Himalayas, wherein it flows for a distance of approximately 2,525 km through the Indo-Gangetic Plains of northern India before emptying itself into the Bay of Bengal. The river acts as a lifeline for approximately 400 million people.<sup>3</sup> From a socio-economical standpoint, the average discharge of 1,000-60,000 cubic metres per second from glacial melt, snow-melt, monsoon runoff and groundwater resources, and an average Total Annual Sediment Flux of 262-680 MT,<sup>4</sup> makes the river conducive for agriculture (90 per cent of the withdrawn water), hydroelectric power generation, fishery, transportation, etcetera.<sup>5</sup> The Ganga also serves a religious purpose for Hindus. Hindus believe that the sight and the touch of the river (*Gangaajal*) cleanses one of their sins, pain and suffering, wherein a dip in the water supposedly bestows one with heavenly blessings and prosperity.<sup>6</sup> Many people approach the river with the confident belief that a ritualistic dip or a wash would grant them their prayers from Goddess Ganga.<sup>7</sup> Hindus believe that the ashes of a dead Hindu, when bought and immersed in the Ganga would result in their soul reaching salvation whilst liberating them of their earthly sins.<sup>8</sup>

The Ganga can be distinctly divided into three zones: **Upper Zone** (from Gaumukh to Haridwar), **Middle Zone** (from Haridwar to Varanasi), and **Lower Zone** (from Varanasi to Ganga Sagar). Most of the human interventions and anthropogenic activities are within the Middle Zone, whereby widespread dumping of untreated pollutants from agricultural,

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<sup>1</sup> Shikha Goyal, *What is the origin of holy river Ganga?*, JAGRAN JOSH (Mar. 20, 2020, 3:59 PM), <https://www.jagranjosh.com/general-knowledge/what-is-the-origin-of-holy-river-ganga-1536924684-1>.

<sup>2</sup> Brijmohan Bisht, *Alaknanda River*, eUTTARANCHAL (Dec. 01, 2020), <https://www.euttaranchal.com/uttarakhand/alaknanda-river.php>.

<sup>3</sup> Amanda Briney, *Geography of the Ganges River*, THOUGHT CO. (May. 24, 2019), <https://www.thoughtco.com/ganges-river-and-geography-1434474>.

<sup>4</sup> Munsur Rahman et al., *Recent sediment flux to the Ganges-Brahmaputra-Meghna delta system*, 643 SCI. TOTAL ENVIRON. 1054, 1058-1062 (2018).

<sup>5</sup> Golam Rasul, *Water for growth and development in the Ganges, Brahmaputra, and Meghna basins: an economic perspective*, 13(3) INTL. J. RIVER BASIN MANAGEMENT 387, 387-388 (2015).

<sup>6</sup> Subhamoy Das, *The Ganges: Hinduism's Holy River*, LEARN RELIGIONS (Apr. 12, 2019), <https://www.learnreligions.com/ganga-goddess-of-the-holy-river-1770295>.

<sup>7</sup> Rachel Cohen, *Holy Ground: Hindus and the Ganges River*, IMB (Jan. 04, 2019), <https://www.imb.org/2019/01/04/holy-ground-hindus-and-the-ganges-river>.

<sup>8</sup> Jayaram V., *Symbolic Significance of the Descent of Ganga*, HINDU WEBSITE (n.d.), <https://www.hinduwebsite.com/ganges.asp> (last visited Oct. 10, 2022).

industrial and domestic sources are seen in this zone.<sup>9</sup> According to Toxic Link, a Delhi-based organisation, Haridwar, Kanpur, and Varanasi have recorded microplastic pollution from industrial discharge and the packaging of religious items and offerings, wherein microplastics like Polyacetylene, Polypropylene, Polyamide, etcetera, were found in abundance at the Assi Ghat in Varanasi and Dohri Ghat in Kanpur.<sup>10</sup> Common pollutants are animal/ human carcasses, heavy metals, suspended solids, phenols, dyes, pesticides, fertilizers, acids, cyanides, etcetera.<sup>11</sup>

In 1992, world leaders and delegates from 178 nations attended the ‘Earth Summit’ or the United Nations Conference on Environment and Development in Rio de Janeiro.<sup>12</sup> The Rio Declaration requires every human being to meet the needs of the present without comprising the ability of future generations to meet their own needs, i.e. the declaration acknowledges the limited carrying capacity of Earth in the context of the use of natural resources for the benefit of present and future generations, wherein socio-economic development and environmental protection are the “interdependent and mutually reinforcing pillars” of sustainable development.<sup>13</sup>

#### *Current Scenario*

The Ganga is subjected to approximately 3,000 MLD of industrial effluents per day, wherein effluents originate from the Pulp & Paper Industries (Uttarakhand), Metal-Works Factories, Distilleries, Tanneries and Sugar Industries (Uttar Pradesh), and Jute & Textile Factories and Tanneries (West Bengal); additionally, the river receives approximately ten million tonnes of chemical fertilizers per year and approximately 21,000 tonnes of chemical pesticides per year.<sup>14</sup>

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<sup>9</sup> VINOD TARE ET AL., RIVER GANGA AT A GLANCE: IDENTIFICATION OF ISSUES AND PRIORITY ACTIONS FOR RESTORATION 6 (IIT Kanpur ed., 2010), [https://nmcg.nic.in/writereaddata/fileupload/33\\_43\\_001\\_GEN\\_DAT\\_01.pdf](https://nmcg.nic.in/writereaddata/fileupload/33_43_001_GEN_DAT_01.pdf).

<sup>10</sup> *Microplastics concentration in Ganga more than any other major world river, finds new study*, DOWN TO EARTH (Jul. 22, 2021), <https://www.downtoearth.org.in/news/water/microplastics-concentration-in-ganga-more-than-any-other-major-world-river-finds-new-study-78069>.

<sup>11</sup> Jitendra Kumar et al., *Man-Made Impact on Ganga River and Fisheries*, AQUAFIND (n.d.), [http://aquafind.com/articles/Man\\_Made\\_Impact\\_On\\_Ganga\\_River.php](http://aquafind.com/articles/Man_Made_Impact_On_Ganga_River.php) (last visited Oct. 10, 2022).

<sup>12</sup> United Nations, “*The Rio Declaration on Environment and Development*” and *Introduction to Chapter 7 from Agenda 21 (United Nations Conference on Environment and Development) (1992)*, “*Millennium Development Goals*” and “*Millennium Declaration*” (2002), in THE SUSTAINABLE DEVELOPMENT READER 79, 80 (Stephen M. Wheeler & Timothy Beatley eds., 2014).

<sup>13</sup> GÜNTHER HANDL, DECLARATION OF THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT (STOCKHOLM DECLARATION), 1972 AND THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT, 1992 3-4 (United Nations Audiovisual Library of International Law ed., 2012).

<sup>14</sup> S. K. Tandon & R. Sinha, *The Ganga River: A Summary View of a Large River System of the Indian Sub-Continent*, in THE INDIAN RIVERS: SCIENTIFIC AND SOCIO-ECONOMIC ASPECTS 61, 71 (Dhruv S. Singh ed., 2018).

The river, in Uttar Pradesh, gets plagued with varying concentrations of cadmium, cobalt, chromium, copper, iron, manganese, nickel, lead and zinc, wherein the portion of the river in the Kanpur-Unnao industrial area is subjected to very high levels of cadmium, chromium and selenium from anthropogenic inputs (~90 per cent of the pollutants have an anthropogenic source in relation to the natural background concentrations), high levels of organic carbon, zinc and copper (~50 to 75 per cent), and moderate levels of cobalt, nickel and lead (~25 per cent).<sup>15</sup> Industrial effluents from tanneries in Kanpur alleviate the chromium concentration in the river by 30-fold.<sup>16</sup> In Varanasi, heavy metals like zinc, nickel, chromium, lead and copper are reported in very high concentrations in discharges from sewage treatment plants; additionally, manganese and iron are detectable in the industrial effluents near Varanasi.<sup>17</sup> Researchers suggest that the water contamination is highest at Narora Barrage and Jajmau, Kanpur due to point source discharges from tanneries, wherein Narora Barrage is heavily contaminated with cadmium and copper while Jajmau, Kanpur is heavily contaminated with lead and zinc.<sup>18</sup>

India accounts for approximately 13 per cent of global leather production, wherein India produces about three billion sq. ft. of leather per year from its access to about 20 per cent of the world's cattle; consequently, the labour-intensive industry of 4.42 million people produces 9 per cent of the world's footwear (the second largest producer of leather footwear and garments in the world).<sup>19</sup> According to the Council for Leather Exports, Uttar Pradesh accounts for approximately 31.35 per cent of total exports of leather, leather-based products and leather footwear from India.<sup>20</sup> Some estimates peg the number of tanneries in India to about 1,600, wherein 18 per cent of them are located in Uttar Pradesh (~378 tanneries).<sup>21</sup> Kanpur is the centre for buffalo-based leather in India, whereby the tanneries in the Jajmau area and the town of Unnao house nearly 1,635 functional units, which specialize in sole leather, finished

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<sup>15</sup> Dipak Paul, *Research on heavy metal pollution of river Ganga: A review*, 15 ANN. AGRAR. SCI. 278, 280 (2017).

<sup>16</sup> K. R. Beg & S. Ali, *Chemical contaminants and toxicity of Ganga river sediment from up and down stream area at Kanpur*, 4 AM. J. ENVIRON. SCI. 362, 362-366 (2008).

<sup>17</sup> Paul, *supra* note 20, at 281.

<sup>18</sup> Durgesh N. Goswami & Sharda S. Sanjay, *Determination of heavy metals, viz. cadmium, copper, lead and zinc in the different matrices of the Ganges river from Rishikesh to Allahabad through differential pulse anodic stripping voltammetry*, 1(5) INT. J. ADV. RES. CHEM. SCI. 7, 9 (2014).

<sup>19</sup> Seerat Kohli, *Sector: Leather*, INVEST INDIA (Oct. 17, 2022), <https://www.investindia.gov.in/sector/leather#:~:text=The%20Leather%20industry%20in%20India,exchange%20earnings%20for%20the%20country>.

<sup>20</sup> C. R. Chaudhary, *Growth of Leather Industry*, PRESS INFORMATION BUREAU (Dec. 27, 2018, 11:44 AM), <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1557419>.

<sup>21</sup> Sandeep K. Gupta & Sanjeev Gupta, *Kanpur (India) Leather Cluster - A SWOT analysis*, RESEARCH GATE (Feb. 1, 2014), [https://www.researchgate.net/publication/321475030\\_Kanpur\\_India\\_Leather\\_Cluster-A\\_SWOT\\_analysis](https://www.researchgate.net/publication/321475030_Kanpur_India_Leather_Cluster-A_SWOT_analysis).

leather, industrial shoes, saddle-based products and leather garments.<sup>22</sup> About 2,500 MLD<sup>23</sup> industrial waste and effluents are dumped directly into the Middle Zone, particularly between Kannauj and Varanasi, such that 58 per cent of the grossly polluting industries in the said section are tanneries.<sup>24</sup>

According to the Centre of Science and Environment, 60 per cent of the population residing in the 21 cities along the Ganga dump their untreated sewage and sludge directly into the river, especially near Kanpur, Prayagraj, Varanasi and Patna, where the faecal sludge gets dumped into the waters.<sup>25</sup> An independent survey by the Ministry of Urban Development reveals that approximately 242 drains discharge sewage directly into the Ganga without being treated, wherein 205 of the said drains do not have any screen to prevent the solid waste from flowing freely into the river.<sup>26</sup>

In the Upper Zone city of Haridwar, the Total Coliform (hereinafter referred to as the “TC”) ranges from 50 to 1,600 (VIP Ghat and Vishnu Ghat), while the Faecal Coliform (hereinafter referred to as the “FC”) ranges from 2 to 33 (Har Ki Pauri); however, bathing rituals during isolated incidents like the Ardhkumbh pushes the TC to 1,475 (average value, in MPN/100ml, along the river in Haridwar) and the FC to 352.30 (average value in MPN/100ml).<sup>27</sup> It is worth noting that the safe limit for FC is 2,500, wherein the average value of FC (MPN/100ml), in 2021 (January to May), for Uttarakhand, Uttar Pradesh, Bihar and West Bengal is approximately 23.81, 3,823.66, 41,999.69, and 36,960 respectively.<sup>28</sup>

At the heart of Ganga’s pollution, there are overburdened and inadequate sewage treatment plants along the river. For example, the capacity of Kanpur’s main sewage treatment facility caps at less than three-fourths of the total toxic waste produced in the tanneries; additionally, frequent power outages in the city prevent the treatment plant from working at a desirable

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<sup>22</sup> *Id.*

<sup>23</sup> Million of Litres per Day/ MegaLitres per Day.

<sup>24</sup> Ekabal Siddiqui & Jitendra Pandey, *Assessment of heavy metal pollution in water and surface sediment and evaluation of ecological risks associated with sediment contamination in the Ganga River: a basin-scale study*, ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, Feb. 2019, at 2.

<sup>25</sup> Shobita Dhar, *21 cities in Ganga basin dump 60% of excreta into river: CSE report*, THE TIMES OF INDIA (Nov. 13, 2020), <https://timesofindia.indiatimes.com/home/environment/21-cities-in-ganga-basin-dump-60-of-excreta-into-river-cse-report/articleshow/79211328.cms>.

<sup>26</sup> Priscilla Jebaraj, *70% towns along Ganga let out garbage directly into the river: study*, THE HINDU (Jan. 12, 2019), <https://www.thehindu.com/sci-tech/energy-and-environment/70-towns-along-ganga-let-out-garbage-directly-into-the-river/article25981284.ece>.

<sup>27</sup> H. Kulshrestha & S. Sharma, *Impact of mass bathing during Ardhkumbh on water quality status of river Ganga*, 27(2) J. ENVIRON. BIOL. 437, 438 (2006).

<sup>28</sup> Bishweswar Tudu, *Data on Pollution Levels of Ganga and Yamuna Rivers*, PRESS INFORMATION BUREAU (Nov. 25, 2021, 5:47 PM), <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1776180>.

capacity.<sup>29</sup> The multicoloured streams of toxic waste, from blue to black, enter into the river without most of it being properly treated,<sup>30</sup> wherein a significant quantity of the polluted water is taken into the agricultural fields around Kanpur since the farmers have no choice due to the scarcity of irrigation water for agriculture; consequently, the foam-laced water causes stunted growth of the crops.<sup>31</sup> Farming with contaminated water acts as a vector for toxins to enter the food chain. The polluted water has become unfit for the survival and proliferation of fish; consequently, fishing communities are forced into looking at other forms of livelihood due to a staggering decline in fish in the Ganga, wherein some communities in the downstream areas have changed their diet in entirety because the “limited” fishes are laden with toxic metals and tanning oils.<sup>32</sup>

Pollution also comes from non-point sources like religious ceremonies and rituals in Varanasi. The 88 ghats in the city allow people to release the ashes of their dead relative(s) into the Ganga. At Manikarnika Ghat, cremation takes place on grand cremation pyres by members from the lower castes, wherein 100 bodies get cremated at the ghat per day over a 10-hour window.<sup>33</sup> Poor Hindus that cannot afford the cremation charges choose to put the body of their dead relative into the river without being cremated.<sup>34</sup>

The extensive practice of departing the dead in Varanasi has led to an exponential rise in the number of dead bodies in the Ganga. In 2015, 100 terribly decomposed bodies surfaced in the district of Unnao, wherein the bodies were supposedly part of the last rites performed in

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<sup>29</sup> Pete McBride, *Industry on the Banks: Deep Inside Kanpur's Tanneries*, NATIONAL GEOGRAPHIC (Aug. 6, 2014), <https://www.nationalgeographic.com/photography/article/industry-on-the-banks-deep-inside-kanpurs-tanneries>.

<sup>30</sup> Owing to less than 20% of the total toxic waste being adequately treated by the Central Processing Unit of Kanpur.

<sup>31</sup> Sean Gallagher, *India: The Toxic Price of Leather*, PULITZER CENTER (Feb. 4, 2014), <https://www.bloombergquint.com/business/why-kanpurs-tanneries-are-at-the-centre-of-a-fight-to-save-the-ganga>.

<sup>32</sup> Naizam Jaffer, *Tanneries, the Ganges and how WWF is driving change*, MISSION GANGA (n.d.), <https://mission-ganga.thewaternetwork.com/article-FfV/tanneries-the-ganges-and-how-wwf-is-driving-change-B4D-9ZIVrQWMDkNQHN-JPQ> (last visited Oct. 15, 2022).

<sup>33</sup> Shantanu G. Ray, *In Varanasi, a Lifetime Spent in a World of Death*, THE NEW YORK TIMES (Mar. 16, 2014), <https://india.blogs.nytimes.com/2014/03/16/in-varanasi-a-lifetime-spent-in-a-world-of-death/?mcubz=0>.

<sup>34</sup> Geeta Pandey, *More than 100 bodies recovered from India's Ganges*, BBC NEWS (Jan. 14, 2015), <https://www.bbc.com/news/world-asia-india-30808745>.

Varanasi.<sup>35</sup> The dead bodies add to the microplastics in the Ganga due to the non-degradable plastics used to wrap the religious offerings and dead bodies.<sup>36</sup>

### *Research Objective*

For this paper, we are only concerned with the main stem of the Ganga. It is evident from the discussion above that the human settlements, municipal bodies, and industrial establishments located along the Ganga in the Middle Zone contribute significantly to the pollution of the Ganga by way of untreated effluents and domestic sewage. We will focus on the public nuisance and tortuous pollution purported by the Middle Zone (Uttar Pradesh) onto the communities residing in the downstream areas of the Lower Zone (Bihar). The responsibility and liability of the Middle Zone shall be gauged in the light of the Code of Criminal Procedure, 1973 (hereinafter referred to as the “**Code**”), and the principles of the Rio Declaration.

The question about responsibility shall be further treated with the Doctrinal Legal Research Method and the Applied Method so as to rigorously analyse existing legislative statutes in India by way of the Code and the Water (Prevention and Control of Pollution) Act, 1974 (hereinafter referred to as the “**Water Act**”).

### **Analysis**

An analysis by CPCB into the status of drains discharging into the Ganga in the post-monsoon period of 2020 yields the results as noted in Table 1. Herein, “**BOD**” stands for Biological Oxygen Demand in the water. The average BOD (mg/L) in discharges from untapped drains<sup>37</sup> in Uttarakhand, Uttar Pradesh, Bihar and West Bengal is approximately 45.76 (entirely domestic sewage), 49.42 (mixed effluents from domestic and industrial sources), 37.90 (mostly domestic sewage) and 56.88 (mixed effluents) respectively.<sup>38</sup> The Water Quality Analysis of River Ganga by the CPCB in 2020 yields the following results, as noted in Table 2.

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<sup>35</sup> Mayank Jain, *Why did 100 decomposed bodies float back up in Ganga?* SCROLL (Jan. 15, 2015), <https://scroll.in/article/700489/why-did-100-decomposed-bodies-float-back-up-in-ganga>.

<sup>36</sup> Unnati Sharma, *High presence of microplastics in Ganga, level of pollution maximum in Varanasi, study says*, THE PRINT (Jul. 22, 2021), <https://theprint.in/india/high-presence-of-microplastics-in-ganga-level-of-pollution-maximum-in-varanasi-study-says/700876>.

<sup>37</sup> The measurable values are derived from untapped drains discharging directing into the Ganga. This excludes outlets from Sewage Treatment Plants (hereinafter referred to as the “**STP**”). Average BOD is calculated on the basis of individual values of BOD measured from each untapped drain.

<sup>38</sup> CENTRAL POLLUTION CONTROL BOARD, STATUS OF POST-MONSOON 2020 MONITORED DRAINS DISCHARGING INTO RIVER GANGA AND ITS TRIBUTARIES (BANGANGA, RAMGANGA, KALI-EAST, PANDU, ETC.) 1 (2021) [https://cpcb.nic.in/ngrba/Identified\\_drains\\_postmonsoon-2020.pdf](https://cpcb.nic.in/ngrba/Identified_drains_postmonsoon-2020.pdf).

Sr. No	State	No. Of Drains	Total Flow (MLD)	No. Of Tapped Drains	Average BOD (mg/L): B <sub>1</sub>	No. Of Outlets from STP
1.	Uttarakhand	25	141.13	9	45.76	3
2.	Uttar Pradesh	154	2185.04	47	49.42	2
3.	Bihar	19	609.48	0	37.90	0
4.	West Bengal	56	6627.45	3	56.88	0

**Table 1: Status of Drains Discharging into the Ganga<sup>39</sup>**

Sr. No	State	No. Of Monitoring Stations	Average BOD (mg/L): B <sub>2</sub>	Maximum BOD Recorded/ Monitoring Station(s)
1.	Uttarakhand	13	1.25	4/ Rishikesh
2.	Uttar Pradesh	30	2.99	6.5/ Assi Ghat (Varanasi)
3.	Bihar	34	2.41	6.7/ Bhagalpur
4.	West Bengal	14	3.21	7.75/ Tribeni, Near Burning Ghat

**Table 2: Water Quality Analysis of River Ganga<sup>40</sup>**

Researchers suggest that in the absence of any sources of industrial pollution, the Ganga can self-purify itself, whereby an analysis between 2007 and 2016 shows that the heightened BOD (5.5-9.2 ppm<sup>41</sup>) in Uttar Pradesh reduced to 2.0-2.8 ppm in Bihar.<sup>42</sup> Tables 1 and 2 reveal that Bihar has the lowest number of drains discharging directly into the river; additionally, Bihar has the lowest value of B<sub>1</sub>. The untreated effluents from tanneries and other industries cause a sharp increase in BOD in Uttar Pradesh because of the presence of heavy metals, salts, etcetera, in the said effluents. The BOD decreases in Bihar because of a lower pollution load (609.48

<sup>39</sup> *Id.*, 2-17.

<sup>40</sup> CENTRAL POLLUTION CONTROL BOARD, WATER QUALITY DATA OF RIVERS UNDER NATIONAL WATER QUALITY MONITORING PROGRAMME (NWMP) 11-15 (2020) [https://cpcb.nic.in/wqm/2020/WQuality\\_River-Data-2020.pdf](https://cpcb.nic.in/wqm/2020/WQuality_River-Data-2020.pdf).

<sup>41</sup> Parts Per Million.

<sup>42</sup> Ayesha Mariya et al., *The pristine nature of river Ganges: its qualitative deterioration and suggestive restoration strategies*, 191 ENVIRON. MONIT. ASSESS 542, 552-553 (2019).

MLD) than that of Uttar Pradesh (2185.04 MLD), whereby the self-purifying capacity of the Ganga gets rid of the pollutants from Uttar Pradesh whilst decreasing the BOD, as seen in Table 2. The self-purifying property of the Ganga might be attributable to a higher resident population of rich biodiversity (ex: diatoms, bacteriophages, etcetera) and Transparent Exopolymeric Particles in the Ganga, wherein the unique biochemistry is said to promote the removal of nutrients and heavy metals from the river water via sedimentation.<sup>43</sup>

One can conjecture that the said capacity of the Ganga is at play in Bihar. One can ideate that the pollution in Uttar Pradesh is carried forward to Bihar. Although Bihar has no tapped drains, interim measures are already underway on seven of the said drains, including the Rajapur Drain, which had been the most polluting in Bihar, with a discharge of 173.11 MLD, as of 2020.<sup>44</sup> The widespread ‘untapped’ drains in Uttar Pradesh result in a collective discharge, with a BOD Load (Tonnes Per Day) of 55.59 into the Ganga, as against the BOD Load of 9.09 released by the drains in Bihar.<sup>45</sup>

Between December 2017 and March 2018, the Saprobic Score of the Ganga varied between 3.60 to 5.55 in Uttar Pradesh and 4.64 to 5.25 in Bihar, wherein ‘Severe Pollution’ was detected at Bridge 2 at Kanpur (0.0), Between Road Rail Bridge Bhruti Near Panki (0.0), and the Bathing Ghat at Varanasi (1.67) in May 2017.<sup>46</sup>

A nuisance becomes an actionable tort if and only if it is associated with a wrongful act that causes loss, damage, annoyance or inconvenience to another individual, whereby nuisance is the unlawful interference with a person’s enjoyment of some right(s); consequently, if a particular nuisance affects the reasonable convenience of the public at large (or a class of people), then the nuisance becomes a public nuisance.<sup>47</sup> Section 268 of the Indian Penal Code, 1860 (hereinafter referred to as the “IPC”) would allow the communities in the Lower Zone, particularly in Bihar, to bring action against municipal authorities and polluting industries (like tanneries) in cities like Kanpur and Varanasi. The municipal authorities in such cities may be primarily guilty of the following actions/ omissions:

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<sup>43</sup> *Id.*, 565-566.

<sup>44</sup> CENTRAL POLLUTION CONTROL BOARD, *supra* note 45, at 15.

<sup>45</sup> *Id.*, 14-15.

<sup>46</sup> CENTRAL POLLUTION CONTROL BOARD, BIOLOGICAL WATER QUALITY ASSESSMENT OF THE RIVER GANGA (2017-18) 13-16 (2018) <https://cpcb.nic.in/uploads/healthreports/Biological-Water-Quality-Assessment-2018.pdf>.

<sup>47</sup> S. K. KAPOOR, LAW OF TORTS & CONSUMER PROTECTION ACT 250-251 (Central Law Agency ed., 8th ed. 2010).

- a. Not setting up adequate and functional STPs to treat domestic discharges and toxic effluents from industrial establishments.
- b. Not checking, supervising and vigilantly auditing the operations of the said industries in light of norms and directions prescribed by the Central Government.
- c. Not supervising and construing the activities at the ghats in Varanasi in light of legislative statutes and directions prescribed by the Central Government and the CPCB.

The communities in Bihar suffer from a common injury/ annoyance, which is an outcome of the dumping of wastes (with levels of pollutants above the permissible limit) into the Ganga. It is worth noting that the said dumping of wastes amounts to public nuisance due to the following reasons:<sup>48</sup>

- i. The unreasonable act of dumping unchecked and untreated sewage and effluents causes injury and annoyance to, and interference with the physical comfort and personal health of every person alike, whether sick or healthy, wherein the communities in Bihar do not suffer because of some particular sensitivity to the said act(s). Any reasonably ordinary person living along the Ganga in Bihar suffers equally because of the heavy metals in the river. The degree, proximity (neighbouring state) and intensity (heavy pollution) of discomfort and inconvenience to an ordinary and reasonable person are such that the interference is substantial.
- ii. The dumping of untreated wastes is a continuing wrong and ongoing state of affairs over a time period of many years and not a temporary or isolated act.<sup>49</sup>
- iii. It does not matter whether the wastes had been dumped in good faith or bad faith because the act itself causes a legal injury<sup>50</sup> to the said communities towards their fundamental right to the enjoyment of pollution-free water, which is enshrined within their Right of Life under Article 21 of the Constitution of India, 1950.<sup>51</sup>
- iv. The pollutants may cause some physical harm to the people and their livelihood (ex: agriculture, etcetera) in Bihar. It is a known fact that the negative externalities imposed by an upstream industry (by way of heavy metal pollution) increase the downstream industries' cost of production (negatively affecting its production).<sup>52</sup>

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<sup>48</sup> J. N. PANDEY, *LAW OF TORTS WITH CONSUMER PROTECTION ACT AND MOTOR VEHICLES ACT* 396-409 (Central Law Publications ed., 8th ed. 2011).

<sup>49</sup> *Stone v. Bolton*, All ER 237 (1949).

<sup>50</sup> *Brandford Corporation v. Pickals*, AC 587 (1895).

<sup>51</sup> *Subhash Kumar v. State of Bihar & Ors.*, 1 SCR 5 (1991).

<sup>52</sup> Amitrajeet A. Batabyal & Seung J. Yoo, *A Theoretical Analysis of Costs, Waste Treatment, Pollution in the Ganges, and Leather Production by Tanneries in Kanpur, India* 4-7 (Rochester Institute of Technology, Working Paper No. 114284, 2022).

The tortuous nature of pollution was upheld by Hon'ble Justice S. S. Ahmad, whereby he submitted that pollution is 'a tort committed against the community' as a whole; additionally, the court opined that the powers of the judiciary can be invoked under a writ petition in order to make the polluter not only pay compensation for the restoration of the damaged environment but also pay damages to the victims for the polluting actions of the polluter.<sup>53</sup> The court can ask the polluter to pay exemplary damages so as to act as a deterrent for others.<sup>54</sup> Section 133 of the Code can be invoked to remove any public nuisance at the behest of a conditional order in a summary case by a District Magistrate, Sub-Divisional Magistrate, or any other Executive Magistrate, wherein the said nuisance can get removed from any 'public' place. Under Section 133, the court can desist someone from carrying on the conduct of their trade or occupation, or can remove or regulate the same in such manner as may be directed if the trade or occupation is injurious to the health of the community. The pollution of the Ganga in Uttar Pradesh has been in existence for a long time, wherein the pollution is not emergent, and the non-intervention of the court shall not cause any irreparable and immediate injury to the communities in Bihar. Section 133 cannot be invoked if the nuisance has been in existence for a long time without any change in circumstances.<sup>55</sup> The non-urgency of the issue compels the downstream communities to approach the civil court for an effective remedy.

Section 2, Clause E of the Water Act upholds the pollution of the Ganga by means of sewage effluents (Clause G) discharged from domestic sewerage systems/ open drains, and trade effluents (Clause K) from industries and tanneries of Kanpur. Mass bathing and other religious rituals are associated with careless use of shampoos, soaps, and detergents; additionally, polythene, clothes, food, flowers, leaves, milk, ghee, curd, coins, etcetera, are discarded into the river along with other religious offerings like *diyas*.<sup>56</sup> The solid and liquid substances pollute the Ganga by altering its physical and biochemical properties (ex: BOD, TC, FC, etcetera), which renders the water harmful to public health and safety in the downstream communities. If an industry or STP permits the drainage of any polluting, poisonous or noxious matter into the Ganga, then the same is prohibited in law if the pollutants in the discharge in question do not adhere to standards laid down by the authorities (Section 24).<sup>57</sup>

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<sup>53</sup> M. C. Mehta v. Kamal Nath & Ors., W.P.(C) No. 000182/1996 (2000).

<sup>54</sup> *Id.*

<sup>55</sup> Asharfi Lal v. The State, AIR All 215 (1965).

<sup>56</sup> Sanjay Dwivedi et al., *Self-cleansing properties of Ganga during mass ritualistic bathing on Maha-Kumbh*, 192 ENVIRON. MONIT. ASSESS. 221, 222 (2020).

<sup>57</sup> The Water (Prevention and Control of Pollution) Act, 1974, No. 6, Acts of Parliament, 1974, India.

Principle 16 of the Rio Declaration requires the polluter to bear the cost of pollution by internalising the environmental costs, with due regard to the public interest at hand. The 'Polluter Pays' Principle requires the polluter to compensate the victims and individual sufferers of pollution while bearing the cost of restoring and reversing the environmental degradation, wherein the Supreme Court of India held that the 'Polluter Pays Principle' of sustainable development is part of the environmental law of India.<sup>58</sup> It is worth noting that the said principle places an absolute liability on the polluter to pay till the ecological damage caused by them is restored, wherein a 'one time payment/ compensation' by the polluter may not be enough.<sup>59</sup>

Pollution in the form of heavy metals, inorganic salts, oils, etcetera, from Uttar Pradesh can be the basis for a criminal approach or/ and civil approach by the downstream communities in Bihar owing to the public nuisance suffered by them:

1. Criminal Approach under Section 268 of the IPC.
2. Civil Approach for the tortuous wrong of public nuisance, whereby the polluters in Uttar Pradesh (industries, municipal bodies and civic authorities) are to pay damages to the victims of the pollution for their actions/ omissions regarding pollution.

### **Conclusion**

The decrease in the Average BOD (mg/L) from 2.99 in Uttar Pradesh to 2.41 in Bihar reveals that the self-purifying capacity of the Ganga removes the heavy metals from the water via sedimentation in Bihar (in the absence of any major industrial and domestic sources of pollution). The untreated effluents from tanneries in Kanpur and other industries, along with the widespread religious activities in Varanasi, cause a sharp increase in BOD in Uttar Pradesh. The widespread untapped drains in Uttar Pradesh result in the discharge of a BOD Load (Tonnes Per Day) of 55.59 into the Ganga, as against the BOD Load of 9.09 released by the drains in Bihar. It can be hypothesized that the heavy metals, salts, etcetera, are carried into Bihar from Uttar Pradesh.

The unreasonably high presence of heavy metals and other pollutants due to unchecked dumping of untreated sewage and industrial effluents causes injury and annoyance to and interference with the physical comfort and personal health of the people in the downstream communities. Although the said people cannot invoke Section 133 of the Code due to the non-

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<sup>58</sup> *Vellore Citizens Welfare Forum v. Union of India & Ors.*, SC 2715 (1996).

<sup>59</sup> *The All India Skin and Hide Tanners & Merchants Association v. The Loss of Ecology (Prevention and Payment of Compensation) Authority & Ors.*, Writ L.R. 183 (D.B.) (2010).

emergent existence of the pollutants in the Ganga for a long-time, the same people can approach a civil court to seek damages for the tortuous act of public nuisance at the hands of the industries, municipal bodies and civic authorities in the polluting areas of Uttar Pradesh like Kanpur and Varanasi. The 'Polluter Pays Principle' shall be absolutely applied to the wrongdoers for their actions/ omissions, wherein the respective wrongdoer will not only pay damages to the victims in the downstream communities for their respective share in the pollution of the Ganga but also pay the cost of restoring and reversing the environmental degradation of the Ganga in their respective polluted areas.