

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 533/2024

IN THE MATTER OF:

News item titled "Ganga Brahmaputra basins to feel impact of climate change: Report" appearing in the Millenium Post dated 21.03.2024


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PLACE: NEW DELHI

DATED: 07.03.2025

THROUGH


**GIGI C GEORGE ADVOCATE
STANDING COUNSEL (UOI)
NATIONAL GREEN TRIBUNAL
CH. NO. 457, L.B-I
DELHI HIGH COURT
MOB. 9810625315**

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.533/2024

IN THE MATTER OF:

News item titled "Ganges Brahmaputra basins to feel impact of climate change: Report" appearing in the Millenium Post dated 21.03.2024

REPLY AFFIDAVIT ON BEHALF OF SECRETRAY,
DEPARTMENT OF WATER RESOURCES, RIVER
DEVELOPMENT AND GANGA REJUVENATION, MINISTRY OF
JAL SHAKTI, GOVERNMENT OF INDIA (RESPONDENT NO 2)

I, O P Gupta S/o Sh. P C Gupta Aged 52 Years presently posted as Senior Joint Commissioner (PP), Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001, has been duly authorized and hereby solemnly affirm and declare as under: -

1. That, I have been authorized by the competent authority, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India to file the present reply. I have gone through the relevant files and records of the present case maintained in our office.
2. That, in the aforementioned matter, the Hon'ble NGT has taken suo-motu cognizance, based on the news item appeared in 'Millenium Post



ओ.पी. गुप्ता / O.P. GUPTA
वरिष्ठ संयुक्त आयुक्त (नीति एवं योजना) / Sr. Jt. Commissioner (PP)
जल संधित मंत्रालय / Ministry of Jal Shakti
जल संरक्षण, नदी विकास एवं गंगा संरक्षण विभाग
Deptt. of Water Resources, River Development
and Ganga Rejuvenation
भारत सरकार / Govt. of India
श्रम शक्ति भवन, नई दिल्ली-110001
Shram Shakti Bhawan, New Delhi-110001

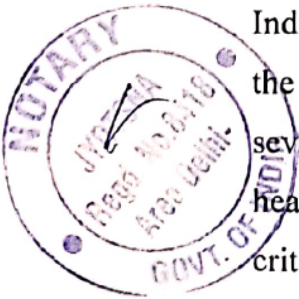
dated 21.03.2024 titled "Ganges Brahmaputra basins to feel impact of climate change: Report".

3. That the Hon'ble Tribunal, vide order dated 22.06.2024, has impleaded the following as respondents and directed to filing their response at least one week before the next date of hearing:

- i. Central Pollution Control Board through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.
- ii. Secretary, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
- iii. Secretary, Ministry of Forest Environment and Climate Change, Indira Prayakaran Bhawan, Jorbagh Road, New Delhi-110003.

4. That, Hon'ble NGT vide order dated 15.05.2024 issued notice to all the Respondents.

5. That, the concerns raised in the news article referred in Hon'ble NGT order dated 15.05.2024 are regarding alarming impact of climate change on South Asia's major river basins, including the Ganges, Indus and Brahmaputra. It is also mentioned in the news article that the indiscriminate discharge of sewage and industrial waste has severely polluted the water posing significant risks to both human health and the environment. It also claims that the monsoon season critical for replenishing water resources, now brings devastating floods while dry seasons worsen water scarcity and expresses in this



ओ.पी. गुप्ता / O.P. GUPTA
 परिसर सचिव (नदी एवं सरोवर) / Sr. Jt. Commissioner (PP)
 जल शक्ति मंत्रालय / Ministry of Jal Shakti
 जल संयोजन, नदी विकास एवं गंगा संवर्धन विभाग
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 भारत सरकार / Govt. of India
 श्रम शक्ति भवन, नई दिल्ली-110001
 Shram Shakti Bhawan, New Delhi-110001

regard that climate-related hazards disproportionately affect vulnerable groups, including women, people with disabilities and marginalized communities.

6. That, Ministry of Jal Shakti-respondent no.2 has filed reply affidavit 15.11.2024 enclosing therewith the project report on snow and glaciers changes and their impacts on melt runoff in Himalayan Basins prepared by National Institute of Hydrology, Jal Vigyan Bhavan, Roorkee on March-2022. Concluding part of the said report states that:-

“As per the climate change-based assessment, the comparative assessment of snow cover and runoff components under historical SSP245, and SSP585 scenarios reveals significant changes driven by climate change. The historical period (1951-2014) shows relatively stable snow cover and runoff patterns, with snowmelt being the dominant source of water. However, projections under SSP245 and SSP585 indicate profound shifts in these dynamics. Under SSP245 moderate emissions lead to a gradual decline in snow cover and snowmelt runoff with increases in rainfall and glacial melt contributing more significantly to total runoff. Snowmelt decreases by 14.75% and 44.45% in the near and far future, respectively while glacial melt and rainfall increase substantially. The scenario reflects a slow but steady transition from snow-driven to rain and glacier-driven runoff, particularly after 2050. In contrast, SSP585 with higher emissions, shows much more drastic changes. Snow cover and snowmelt decline sharply with a 53.77% reduction in snowmelt

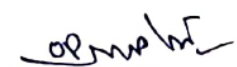


ओ.पी. गुप्ता / O.P. GUPTA
 परिसर सार्वजनिक आयुक्त (नैतिक एव योजना) / Sr. Jt. Commissioner (PP)
 जल शक्ति मंत्रालय / Ministry of Jal Shakti
 जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग
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 Shram Shakti Bhawan, New Delhi-110001

runoff by 2090. Rainfall and glacial melt increase significantly especially after mid-century resulting in more extreme total runoff fluctuations. These trends highlight the amplified hydrological impacts under higher emissions. with intensified rainfall events and accelerated glacier retreat driving future water availability Overall the data emphasize the urgent need for climate mitigation to prevent severe reductions in snow cover and to manage the increasing variability in water resources.”

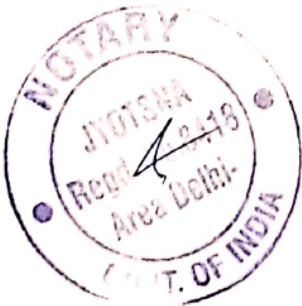
7. That, it is humbly submitted that, as Intergovernmental Panel on Climate Changes (IPCC) assessment reports elaborated about the effect of temperature increase and glacier retreats in the Indian Himalayan basins. The study titled “Snow and glacier changes and their impacts on melt runoff in Himalayan Basin” was conducted for purely R&D purpose for analyzing the climate change impacts on Himalayan basin and to test the applicability of spatial process in hydrology (SPHY) model for separating the different runoff components. Baspa river is a major tributary of Satluj river, and out of the total basin, around 18-20% area is covered by glaciers and permanent snow covers. Therefore, the Baspa basin was selected to analyze the effect of snow and glacier changes and their impacts on melt runoff components. The glaciers showed a noticeable change in the glacier area in the Baspa basin. The findings of the study showed that the contribution from glacier melt runoff has been found to reduce, while snowmelt contribution has increased in past years due to changes in glaciers and snow covers in the Baspa basin. In this study, the spatial process in hydrology (SPHY) model was explicitly tested




ओ.पी. गुप्ता / O.P. GUPTA
 वरिष्ठ सहायक आयुक्त (सीओ एवं वॉजल) / Sr Jt Commissioner (PP)
 जल शक्ति मंत्रालय / Ministry of Jal Shakti
 जल संयोजन, नदी विकास एवं गंगा संरक्षण विभाग
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 Shram Shakti Bhawan, New Delhi-110001

to separate the snowmelt and glacier melt runoff contributions from the total runoff as previously the separation”.

8. That, it is humbly submitted that, NIH Roorkee has conducted workshops/trainings through the NIH's capacity building program on the above aspects for various state water resources engineers, scientists, academicians and researchers.
9. That, it is humbly submitted that, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, has established a “Centre for Cryosphere and Climate Change Studies” at National Institute of Hydrology (NIH), Roorkee to conduct studies on Himalayan Cryosphere and Dynamics so that the effect of climate change on Himalayan glaciers and melt runoff can be analyzed. NIH Roorkee under the Centre for Cryosphere and Climate Change Studies has started working on different glaciers in Indian Himalayan regions such as Gangotri glaciers (Uttarakhand), Triloki glaciers (Himachal Pradesh) and Milam glaciers (Uttarakhand) to analyze the glacier changes and their impacts on melt runoff.



[Signature]
Deponent

ओ.पी. गुप्ता / O.P. GUPTA
परिष्कृत आयुक्त (नगरी एवं योजना) / Sr Jt Commissioner (PP)
जल शक्ति मंत्रालय / Ministry of Jal Shakti
जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग
Deptt. of Water Resources, River Development
and Ganga Rejuvenation
भारत सरकार / Govt. of India
श्रम शाखा भवन, नई दिल्ली-110001
Shram Shala Bhawan, New Delhi-110001

Verification

I IDENTIFY THE DEPONENT WHO
SIGNED THIS DOCUMENT AND I
AFFIRM THAT HE IS THE PERSON WHO
SIGNED IT WHO
I BELIEVE

Verified at New Delhi on 07 MAR 2025 March, 2025 that the averments
and facts mentioned herein above are true and correct to the best of
my knowledge and belief and nothing material has been concealed
there from



O.P. Gupta
Deponent

DECLARATION BY THE DEPONENT
I, O.P. Gupta
Age ... / Date of Birth ...
Residing at ...
Do hereby declare that the facts and circumstances mentioned above
are true and correct to the best of my knowledge and belief and
nothing material has been concealed therefrom.

Adv GIGI C. George

I, the undersigned, a Notary Public, do hereby certify that the
contents of the above declaration have been read over and explained
to him/her & same are true and correct to the knowledge
of me.

Notary, Delhi (India)

07 MAR 2025

ओ.पी. गुप्ता / O.P. GUPTA
वरिष्ठ सचिव आरूपा (नीती एवं योजना) / Sr. Jt. Commissioner (PP)
जल शक्ति मंत्रालय / Ministry of Jal Shakti
जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग
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