

**On ground evaluation of the issue of colossal
environmental degradation in the prominent pilgrim
track regions of Uttarakhand**



**Order dated 12.08.2022 of the Hon'ble NGT in the matter of OA
No. 561/2022**

A report submitted to the Hon'ble National Green Tribunal

By

MoEF&CC, Dehradun, Uttarakhand

CPCB, Lucknow, Uttar Pradesh

UKPCB, Dehradun, Uttarkahnd

and

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Prepared by:

In pursuant to the order dated 12.08.2022 of the Hon'ble NGT in the matter of OA No. 561/2022, joint inspection of pilgrim places referred in the present document was carried out during October 06-15, 2022 by a team comprising following officials:

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**JOINT INSPECTION REPORT ON COLOSSALECOLOGICAL DESTRUCTION IN
PILGRIM TRACK REGIONS OF UTTARAKHAND
IN THE MATTER OF
URVASHI SHOBHNA KACHARI VS UNION OF INDIA & ORS.
(O.A. NO. 561/2022)**

1. Background

In the case of Urvashi Shobhna Kachari v. Union of India &Ors. (O. A. No. 561/2022), the Hon'ble NGT, Principal Bench, New Delhi issued an order on August 12, 2022, requesting a factual report on the ecological damage occurring near and around sacred pilgrim trails in sensitive and rich biodiversity regions of Uttarakhand as a result of a rapid rise in the number of mules/horses and pilgrims using the following Tracks:

- A. Kedarnath Track
- B. Hemkund Sahib Track
- C. Yamunotri Track
- D. Gangotri Track

The relevant paragraph of the Hon'ble NGT order is as below: -

"5. In our view, the matter requires consideration as substantial question relating to environment has arisen which require adjudication by this Tribunal. However, before proceeding further, we find it appropriate that a factual report be obtained for which we constitute a joint Committee comprising Regional Director, CPCB, Uttarakhand a nominee of MoEF&CC, Uttarakhand, State PCB and a nominee of G.B. Pant Institute of Himalayas. The said Committee would submit its report within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.

List for further consideration on 16.12.2022."

Copy of the referred order of Hon'ble NGT is enclosed at **Annexure-1**.

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2. Site Inspection

Uttarakhand is called as a Dev Bhoomi *i.e.* the land of Gods. There are numerous temples there that date back thousands of years. The most well-known of them are the temples found in the Char Dham, which is the collective name for Badrinath, Kedarnath, Gangotri, and Yamunotri. In Hinduism, the Char Dham yatra is venerated and holds enormous importance. Every Hindu is expected to benefit from the Char Dham Yatra and receive the blessings of the gods who adorn the shrines at least once in their lifetime. A Sikh shrine and pilgrimage site called Hemkund Sahib (sometimes written Hemkunt), formally known as Gurudwara Shri Hemkund Sahib Ji, is located in the Chamoli district in addition to these pilgrimage locations.

The 'Char Dham' (four (divine) abodes) primarily refers to a hugely popular Hindu pilgrimage route in the Himalayas. The four abodes are Yamunotri (dedicated to the river and goddess Yamuna), Gangotri (dedicated to the river and goddess Ganga), Kedarnath (dedicated to Shiva), and Badrinath (dedicated to Vishnu). Given the harsh climate, the Char Dham is only open for pilgrims from April/May to October/November (Aukland, 2017). Char Dham Yatra is an excessive job creator for Uttarakhand state. During the COVID 19 outbreak, cancellation of the Yatra during restricted only to pilgrims from the state has meticulously ruined the livelihoods related to religious tourism in the state. The previous season of char Dham created over Rs 1,100 crore with a record of approximately 36 lakh devotees visiting Kedarnath, Badrinath, Yamunotri and Gangotri. Covid-19 had inflicted a loss of 22 crores on the bus operators of the Char Dham Yatra route during the peak months of May and June. Also, a loss of 30 crores has been suffered by the taxi, max and tempo operators. Various small traders like palki holders, horse holders, pithu holders as well as other sellers highly depend on the Char Dham yatra for their earnings. They make enough earnings during this period to sustain themselves throughout the year. As per the Uttarakhand Government report coronavirus (COVID-19) has caused a loss

of around ₹200-250 crore to the hospitality industry in Uttarakhand, which contributes around 30% of GDP of the state (Painuly & Goutami, 2020).

Hemkund Sahib and Valley of Flowers are also one of the popular trek routes in Uttarakhand. Govind Ghat (1828 m) is on the way to Badrinath. There is a beautiful Gurudwara with facilities for lodging and eating (langar) here. A bridle trek from Govind Ghat leads to the Valley of Flowers (17 km) and Hemkund Sahib (19 km).

In the year 2021, the number of tourists were 243012, 199409, 19909, 10398, 33771, and 33311 in Kedarnath, Badrinath, Hemkund Sahib, Valley of Flower, Gangotri and Yamunotri respectively (Fig. 1) (Uttarakhand tourism department, 2022). From the year 2000, highest increase was observed in Kedarnath followed by Yamunotri, Gangotri, Badrinath, and Valley of flowers.

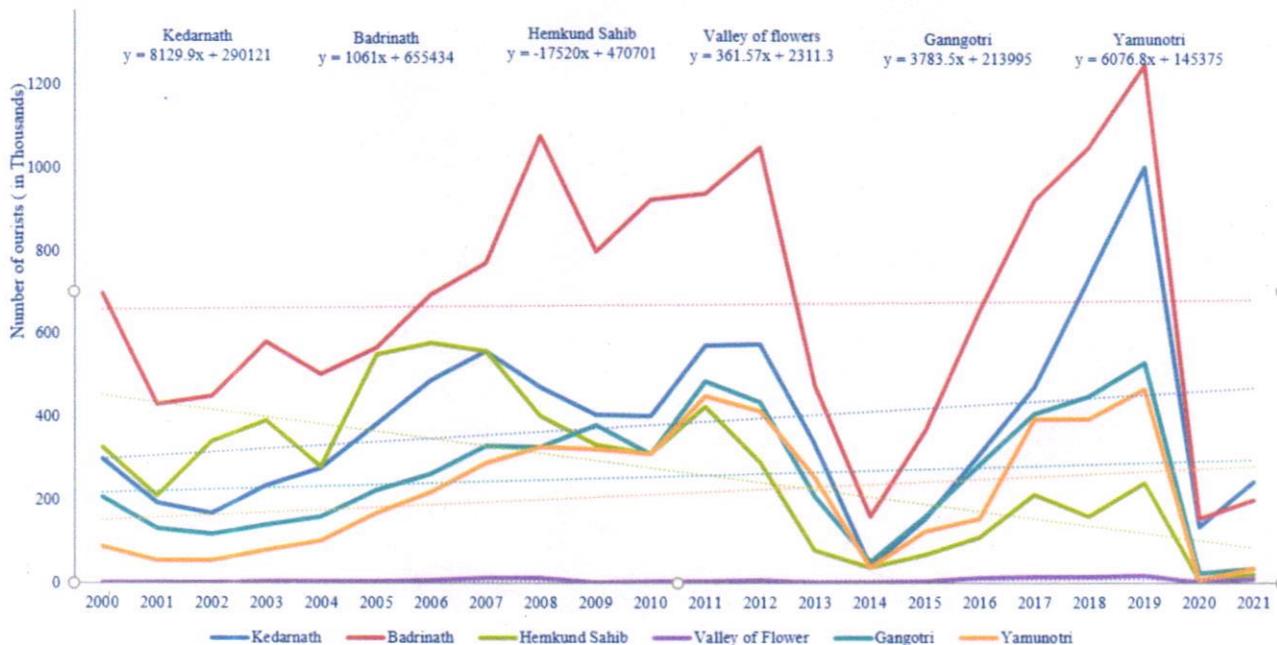


Fig 1. Tourist influx in the selected study area

All of the Chardham pilgrimage sites, including Hemkund Sahib, saw a rise in pilgrimage in last few years, which led to an increase in pollution from the disposal of solid waste, plastic waste, liquid waste, and other waste due to human activity as well as from mules and other animals used to transport supplies and pilgrims. There are more pilgrims in May and June than in any other month of the year, which could make the pollution issue worse. At all

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those pilgrimage sites, it is crucial for the correct management and treatment of waste (both solid and liquid).

In accordance with the reference NGT order, the team investigated all four pilgrim routes and spoke with the local government. On the basis of an investigation of each pilgrim's treks, the following significant information, remarks, and recommendations are suggested:

3. Eco-sensitivity and present status of the areas

The Mandakini River is situated near the Kedarnath Wildlife Sanctuary and coming down from the slopes of Kedarnath peak. It is observed that during pre-monsoon, the disturbance across the lower reaches of the Mandakini River increases due to high tourist influx, which further results in high discharge from nearby localities (Rawat et al., 2019).

The Valley of Flowers National Park lies in the main valleys of Alaknanda and Dhauri Ganga. Given the status of World Heritage site in 2005 Valley of Flower National Park is one amongst the nine zones. The valley offers a rich plethora of unique floral wealth out of which 31 rare and endangered plant species including 11 species listed in the Red Data Book (RDB) of the Indian plants recorded within the Valley of Flowers National Park (Gupta et al., 2018). In this area waste composition consists glass bottles of mainly soft drinks and wine, polyethylene sheets and bags, plastic containers for milk and jerry cans, tin containers for tinned food items, gas cylinders and wrappers of ready-made food items (Maggie, biscuits). The bulk density of the waste ranged from 78 to 171 kg m⁻³ within the trekking and expedition areas. The per capita waste generation ranged from 200 to 300 g day⁻¹ in the hill spots and from 200 to 288 g day⁻¹ in the trekking and expedition locations, respectively. In terms of the physical composition of waste, biodegradable waste (RBW + BW) dominates in the hill spots. In the expedition cum trekking areas NBW dominated – 66.4% of the total in the Pindari valley and 84.5% in the Valley of Flowers (Kuniyal, 2005).

The Gangotri-Gaumukh trek is in the Gangotri national Park area. Solid waste management is maintained in the trek route. However, proper resting stall for

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equines is only available in starting point of Gangotri. No stalls are available in Cirwasa and Bhojwasa area.

The problem of solid waste management (SWM), particularly in these Yamunotri trekking area, is one of the major issues to be tackled amongst other environmental problems. If this fast growing problem is not tackled in time, it may create, directly or indirectly, many other dreadful and incurable health hazards for the visitors and the communities attached to the region (Kuniyal et al., 2003). The highland pilgrimages, dumping of waste and litter in the open spaces and in the water bodies leads to air and water pollution (Sati, 2015), (Maiti et al., 2022). The waste generated by trekkers and campers is left behind in such delicate locations due to a lack of waste management education and awareness program and the absence of any formal management system for the appropriate collection of solid waste (Thakur et al., 2021). The present status of solid waste management of the study area is given in table 1 and the correlation between generated solid waste and tourist influx is given in Fig.2.

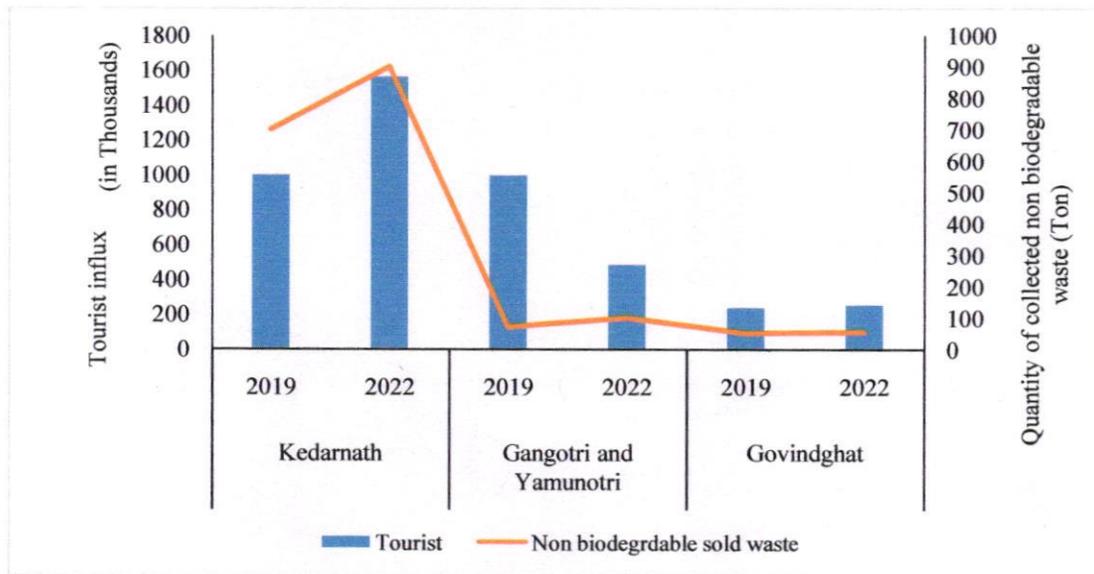


Fig 2. Correlation between tourist influx and solid waste generation in the study area ($r^2 = 0.83$)

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Table 1. Present status of waste management system in the study area

Name of Pilgrim Place	Kedarnath	Shri Hemkund Sahib	Gangotri, Yamunotri
Name of Urban Local Body	Zila Panchayat Uttarkashi	Eco Development Committee Bhyundar	Zila Panchayat Uttarkashi
Name of agency engaged for cleaning of pilgrim track and solid waste management	Zila Panchayat Rudraparyag	Eco Development Committee Bhyundar	Zila Panchayat Uttarkashi
Total number of manpower deputed for cleaning of track	80	46 sweepers	60 No. at Yamunotri Track. 03 No. at Gangotri Track.
Number of manpower deputed for cleaning of track per Km	80 (1 km par parson cleaning Khankhra to Sonparyag)	2 men per km and remaining for Ghangaria market	02 No per Kmin Yamunotri track. 03 No Total at Gangotri Gomukh Track.
Collection and Disposal method of non-biodegradable waste	Nagar pallika Rudraprayag Trenching ground	Collected and brought to the dumping zone Ghangari and further send to Pulna dumping yard.	Inorganic waste is collected by sweeper and compacted.
No. and capacity of Shredder/Compactor installed for non-biodegradable waste near pilgrim track (if any)	Nil	01- compactor at Pulna in installation process.	Compactor machine - 1 No. capacity - Dally Average generation - 2.50 Qtl.

3.1 Kedarnath Track, Uttarakhand

Kedarnath temple is located in Rudraprayag district, on the Garhwal Himalayan range on the shores of Alaknanda river, a tributary of Ganga in the state of Uttarakhand, India at Elevation of approx. 3583 m above the sea level. According to Hindu legends, the temple was initially built by the Pandavas, and is one of the twelve Jyotirlingas, the holiest Hindu shrines of Shiva. The Pandavas were supposed to have pleased Shiva by doing penance in Kedarnath. The temple is open to the general public only between the months of May and October. During the winters, the *vigraha* (deity) of the temple is carried down to Ukhimath to be worshipped for the next six months. The temple is not directly accessible by road and has to be reached by a 18 kilometres uphill trek from Gaurikund. Pony, mule, manchan service and Helicopter services are available to reach the temple and complete Kedarnath darshan. As informed by the Rudraprayag administration, the Temple opens for the pilgrims on 4.00 am to 4.00 pm

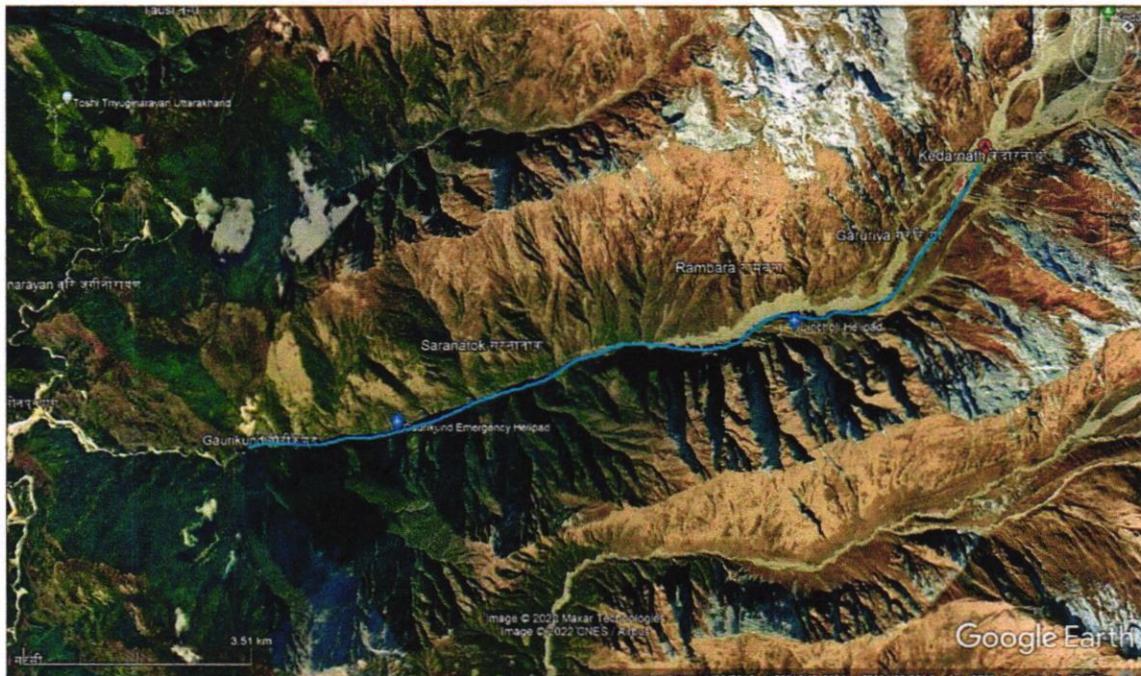


Fig 3. Kedarnath Temple Track, Uttarakhand (Source: Google Earth)

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3.1.1 Solid Waste and Plastic Waste Management:

- i. Zila Panchayat, Rudraprayag(hereafter referred as "agency") is authorized agency for management of solid and plastic waste in entire track.
- ii. M/s Shulabh International Pvt. Ltd. has been given the job of clearing up waste along the Gaurikund-Kedarnath Track by Zila Panchayat Rudhraprayag.
- iii. According to reports, 80 sweepers were assigned to clear the track from Khankhra to Sonprayag. However, during investigation it was observed that the tracks had not been cleaned. The track was smeared in poop, solid trash, and plastic waste.
- iv. No waste processing plant was built at Rudraprayag for management of solid and plastic waste generated from Kedarnath track. According to reports, solid and plastic waste are collected and dumped into Nagar Palika trenching area, which is against the Solid Waste Management Rules 2016 and Plastic Waste Management Rules, 2016 as amended.
- v. Very poor solid/plastic waste management was noticed during the inspection. The agency hasn't given adequate details about the methods for collecting, transporting, and disposing of solid and plastic waste.
- vi. The quantity of non-biodegradable waste collected by the agency from 2019 to 2022 (Table 2) is as below:

Table 2. Collection of non-biodegradable waste from the Kedarnath Track

Year	2019	2020	2021	2022
Quantity(in Kg)	700	200	300	900

- vii. During the visit, equine excrement, solid garbage, and plastic waste were observed on and around the track and in the valley.
- viii. It was also observed that some locations had soak pit toilets that were overflowing with waste, and others had non-working toilets.
- ix. It was remarked during the visit by the inspection team that the public toilets appeared insufficient for pilgrims.
- x. The agency also informed the team that more people visit between May and July each year than during other months. During peak hours, the possibility of

a very bad scenario regarding the management of solid/plastic garbage and track cleaning cannot be ruled out.

- xi. It has also been observed that the number of pilgrims has exponentially increased since the Covid 19 pandemic. The following graph shows the number of visitors registered to attend the Kedarnath Dham Yatra from 2019 to 2022:

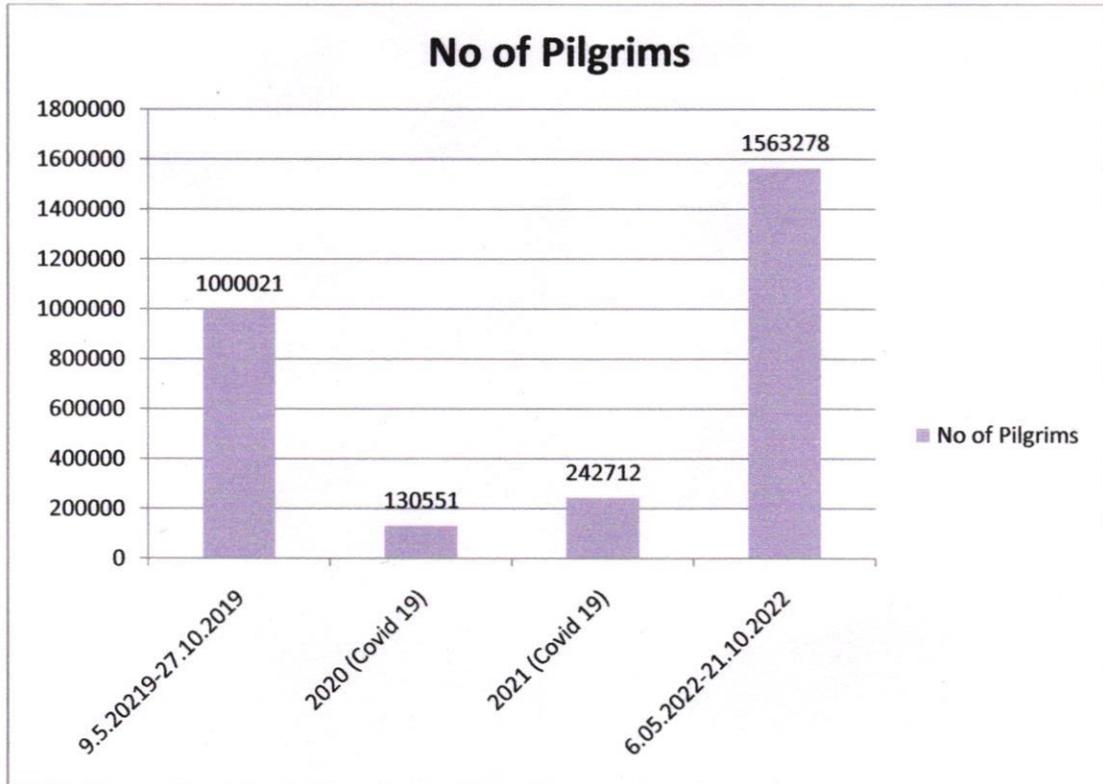


Fig 4. Number of Pilgrims visited at Kedarnath

- xii. It is evident from above graph that 15,63,278 pilgrims visited in 2022 as compared to 1,30,551 and 2,42,712 pilgrims in year 2020 and 2021 respectively.
- xiii. Govt. of Uttarakhand has restricted number of pilgrims to 13,000 per day. But, during interaction with local people, number exceeded during May to July of every year.

3.1.2 Equines/Mules and its waste management:

- i. Zila Panchayat, Rudraprayag (hereafter referred as "agency") is authorized agency for management of Equines/mules in the track. It is informed that

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tender is awarded to agency/contractor for management of Equines/mules based on bidding process.

- ii. During the visit, the handling of the excrement and wastewater produced by equine and mules lacked a mechanism. Dung was either laying on track or swept to side of the tracks.
- iii. The shelter and space available for horses and mules were likewise insufficient.
- iv. According to data provided by the agency, the number of registered mules/equines deputed in the Kedarnath track is as follows:

Table 3. Number of registered mules in the Kedarnath Track

Year	2019	2020	2021	2022
Registered mules/equines	7636	372	1744	8761

- v. The committee has received no information from Zila Pachayat, Rudraprayag, regarding the number of dead mules or horses, the number of insured mules, the status of postpartum care, or the status of the deputies serving as veterinary doctors in Kedarnath for mules or horses.
- vi. During discussions with some mule owners, it was learned that during peak season, the number of mules and horses increased in comparison to the number of registered mules and horses.
- vii. It is informed that if any mules/equine die during tracking, the insurance provider takes 3–4 days to verify the factual status for reimbursement of losses. After being verified by the insurance provider, dead mules and horses are buried using deep burial methods.
- viii. Due to delay in the process of physical verification of dead mules/equines, the equine's body may begin to degrade, complicating disposal through deep burial.
- ix. The committee was informed during the visit that when the number of pilgrims was higher, the owners of mules and horses strove to make the most excursions possible in a single day, harming the mules and horses in the process.

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- x. During the visit, it was observed that there appeared to be more pilgrims than infrastructure for managing pilgrim traffic, solid garbage, plastic waste, and the manure of mules or horses.
- xi. It is also informed that the number of the pilgrims increased during some special days on Hindu calendar.

3.2 Gangotri Track, Uttarakhand

Gangotri, one of the chardhams (the most sacred pilgrimage circuits in northern India with four holy destinations), is in Uttarkashi, a small town with the temple of Goddess Ganga at its heart. Gangotri is nestled among lofty Garhwal Himalayan peaks, glaciers, and dense forests and is one of the highest pilgrimages in India (approx. 3,415 m). Gangotri offers stunning vistas all around. According to Hindu legends, the most sacred of all rivers, the Ganges (or Ganga), descended from heaven to earth at Gangotri when Lord Shiva released the mighty river from his locks. The actual origin of the river is at Gaumukh in the Gangotri glacier, 18 km away from Gangotri and accessible by trekking. After it originates in Gaumukh, the river is known as Bhagirathi, and it acquires the name "Ganga" after the river Alaknanda merges into it near the town of Devaprayag. Every year on Diwali, the temple closes and reopens on Akshaya Tritiya. In winter, the idol of the goddess is kept at Mukhba village, near Harsil.



Fig 5. Gangotri to Gomukh Track, Uttarakhand (Source: Google Earth)

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3.2.1 Solid Waste and Plastic Waste Management:

- i. Zila Panchayat Uttarkashi (hereafter referred as "agency") is authorized agency for management of solid and plastic waste in entire track.
- ii. It is reported that only three (03) sweepers were deputed to clean the track from Gangotri to Gomukh. However, during the inspection, it was Observed that the tracks had not been cleaned. The track was littered with dung, solid waste, and plastic waste.
- iii. There is no waste processing plant at Gangotri to manage the solid and plastic waste generated from Gomukh. The waste is being collected and disposed off in Nagar Palika trenching ground Barkot. This is in violation of the provisions of the Solid Waste Management Rules 2016 and the Plastic Waste Management Rules, 2016 as amended.
- iv. During the visit, very poor management of solid and plastic waste was observed. The agency has not provided a proper collection, transportation, and disposal system for solid and plastic waste.
- v. The quantity of non-biodegradable waste collected from Gangotri and Yamunotri by the agency during 2019 to 2022 is as below: -

Table 4. Amount of non-biodegradable waste collected from Gangotri and Yamunotri

Year	2019	2020	2021	2022
Quantity(in qq)	70	Nil	Nil	100

- vi. During the visit, plastic waste, solid waste and equines dung were found near the track and nearby track valley.
- vii. The graph indicating number of registered people visit during Gangotri yatra from 2019 to 2022 is depicted in fig 6.

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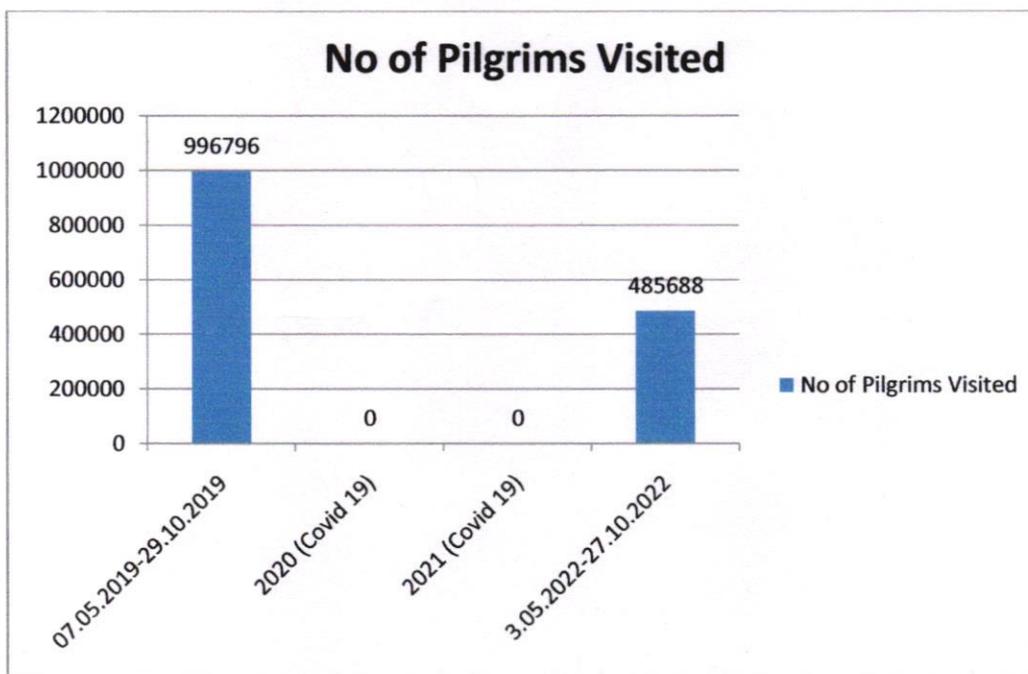


Fig 6. Number of Pilgrims visited at Yamunotri and Gangotri

- viii. It is evident from above graph that 4,85,688 pilgrims visited in 2022 as compared to 9,96,796 pilgrims in year 2019.
- ix. It is also informed that during May to July of every year, crowd escalates higher number as compared to other months. Possibility of very poor situation with respect of solid/plastic waste management as well as track cleaning cannot be ruled out during peak time.
- x. Govt. of Uttarakhand has restricted number of pilgrims to 8000 per day. But, during interaction with local people, number exceeded during May to July of every year.

3.2.2 Equines/Mules and its waste management:

- xi. Zila Panchayat, Uttarkashi (hereafter referred as "agency") is authorized agency for management of Equines/mules in the track. It is informed that tender is awarded to agency/contractor for management of Equines/mules based on bidding process.
- xii. During the visit, the handling of the excrement and wastewater produced by equine and mules lacked a mechanism. Dung was either laying on track or swept to side of the tracks.

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- xiii. The shelter and space available for horses and mules were likewise insufficient.
- xiv. Number of registered mules/equines deputed in Gangotri to Gomukh track as per information provided by the agency is presented in Table 5.

Table 5. Number of registered mules/equines deputed in Gangotri to Gomukh track

Year	2019	2020	2021	2022
Registered mules/equines	15	0	0	15

- xv. The committee has not received information from Zila Pachayat, Uttarkashi, regarding the status of postpartum procedures performed and the status of deputising veterinary doctors on track for Mules and horses.
- xvi. During interaction with some of owner of mules, it is informed that during peak season mules/equines were also increased as against registered mules/equines.
- xvii. It is informed that if any mules/equine died during tracking, insurance provider takes time to verify the factual status for reimbursement of losses. Dead body of mules/equines is disposed off by deep burial methods after verification by insurance provider.
- xii. Due to delay in the process of physical verification of dead mules/equines, the equine's body may begin to degrade, complicating disposal through deep burial.
- xiii. The committee was informed during the visit that when the number of pilgrims was higher, the owners of mules and horses strove to make the most excursions possible in a single day, harming the mules and horses in the process.
- xviii. During the visit, it was observed that there appeared to be more pilgrims than infrastructure for managing pilgrim traffic, solid garbage, plastic waste, and the manure of mules or horses.
- xix. During visit, it was observed that on some special days on Hindu calendar the number of the pilgrims increased drastically.

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3.3 Yamunotri Track, Uttarakhand

Yamunotri, also known as Jamnotri, is the source of the Yamuna River and the seat of the goddess Yamuna in Hinduism. It is located in the Garhwal Himalayas district of Uttarkashi. The Yamunotri Temple is dedicated to the Yamuna, the second-most sacred river after the Ganges. A dip in the River Yamuna is said to protect one from untimely death. Devotees either walk or ride a palanquin or a pony to reach the temple (around 3,233 m above sea level) from Janki Chatti, a steep trek of about 14 km that takes about 3 to 4 hours. The temple of Yamuna closes its portals as winter approaches on Yama Dwitiya (the second day after Diwali or on Bhai Dooj) and then reopens again. On Akshaya Tritiya (occurring in April/May), Devi's winter address is Kharsali village, where she reaches in a palanquin and will remain for the entire period of winter.

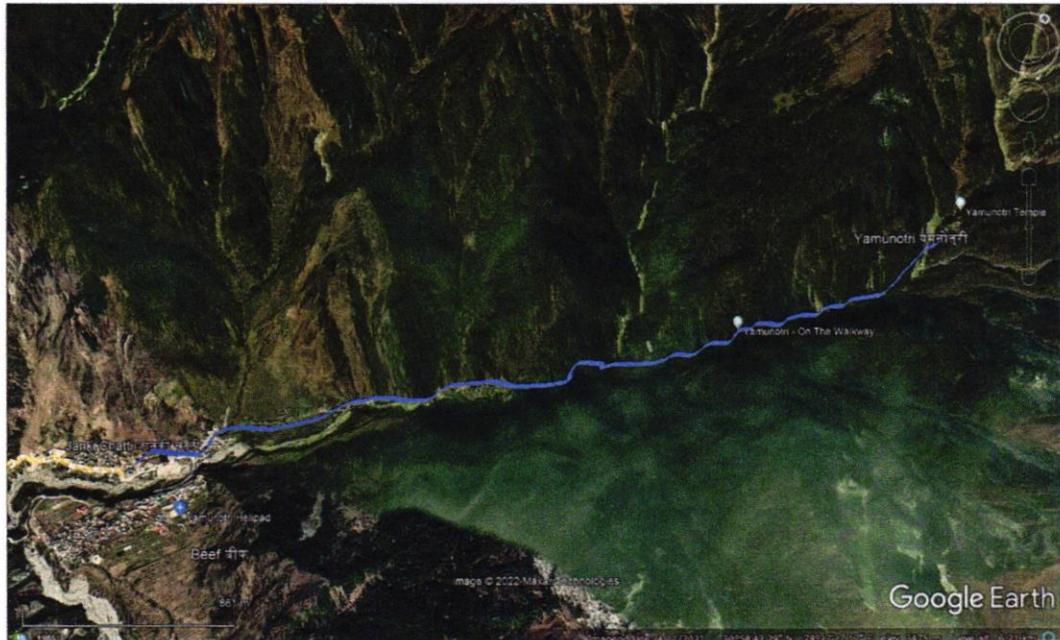


Fig. 7. Yamunotri Track, Uttarakhand (Source: Google Earth)

3.3.1 Solid Waste and Plastic Waste Management

- i. Zila Panchayat Uttarkashi (hereafter referred as "agency") is authorized agency for management of solid and plastic waste in entire track.
- ii. The Yamunotri track was allegedly cleaned by sixty (60) sweepers. However, during the inspection, it was observed that the tracks had not been cleaned.

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Dungs, solid waste, and plastic waste were either on or in a track valley leading to the Yamunotri River.

- iii. Janki Chatti has no waste processing plant for the treatment of solid and plastic waste generated by track. According to reports, solid waste and plastic waste are collected and disposed off in Nagar Palika trenching grounds, in violation of the provisions of the Solid Waste Management Rules, 2016 and the Plastic Waste Management Rules, 2016 as modified.
- iv. The agency has installed compactor for plastic waste, but it wasn't operational.
- v. During visit, very poor management of solid/plastic waste was observed. Agency has not provided proper collection, transportation and disposal system for solid and plastic waste.
- vi. The quantity of non-biodegradable waste collected (Gangotri and Yamunotri) by the agency from 2019 to 2022 is presented in Table 6.

Table 6. Amount of non-biodegradable waste collected (Gangotri and Yamunotri)

Year	2019	2020	2021	2022
Quantity(in Kg)	70	Nil	Nil	100

- vii. During the inspection, plastic waste, solid waste, and horse dung were observed close to the track and in the valley next to the track.
- viii. During the visit, the soak pit toilet system that was installed in some locations was found to be full of waste and some toilets were found to be dysfunctional.
- ix. It was observed during the visit that the public toilets appeared insufficient for pilgrims.
- x. It is also informed that during May to July of every year, crowd escalates higher number as compared to other months. Possibility of very poor situation with respect of solid/plastic waste management as well as track cleaning cannot be ruled out during peak time.
- xi. The graph indicating number of registered people visit during Yamunotri and Gangotri yatra from 2019 to 2022 is depicted below in fig 8.

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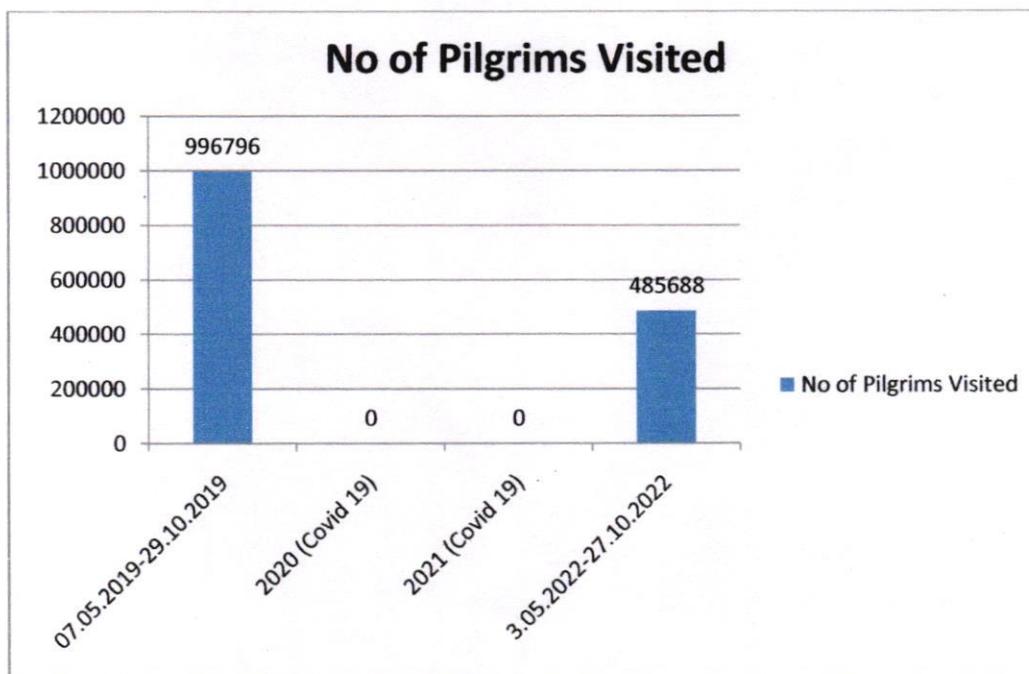


Fig 8. Number of Pilgrims visited at Yamunotri and Gangotri

- xii. It is evident from above graph that 4,85,688 pilgrims visited in 2022 as compared to 9,96,796 pilgrims in year 2019.
- xiii. During visit, there was no solid waste/ equine dung collection pit and plastic waste management system was developed in Yamunotri Track.
- xiv. Govt. of Uttarakhand has restricted number of pilgrims to 5000 per day. But, during interaction with local people, number exceeded during May to July of every year.

3.3.2 Equines/Mules and its waste management:

- xv. Zila Panchayat, Uttarkashi (hereafter referred as "agency") is authorized agency for management of Equines/mules in the track. It is informed that tender is awarded to agency/contractor for management of Equines/mules based on bidding process.
- xvi. Number of registered mules/equines deputed in Janki Chatti to Yamunotri track, number of dead mules/ equines and insured mules/ equines as per information provided by the agency is presented in Table 7.

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Table 7. Number of registered mules/equines deputed in Janki Chatti to Yamunotri track

Year	2019	2020	2021	2022
Registered mules/equines	1500	0	0	2900
Insured mules/equines	50	0	0	1200
Dead mules/equines	68	0	0	35

- xvii. The shelter and space that were offered to horses and mules were likewise insufficient.
- xviii. During the visit, it was observed by the committee that there was no developed mechanism for managing the excrement and wastewater produced by equine and mules. Dung was swept to the side of tracks.
- xix. Zila Pachayat, Uttarkashi has not provided information to the committee regarding the status of postpartum procedures and the situation of the appointment of veterinary doctors to the Gomukh and Yamunotri track for Mules and Equines.

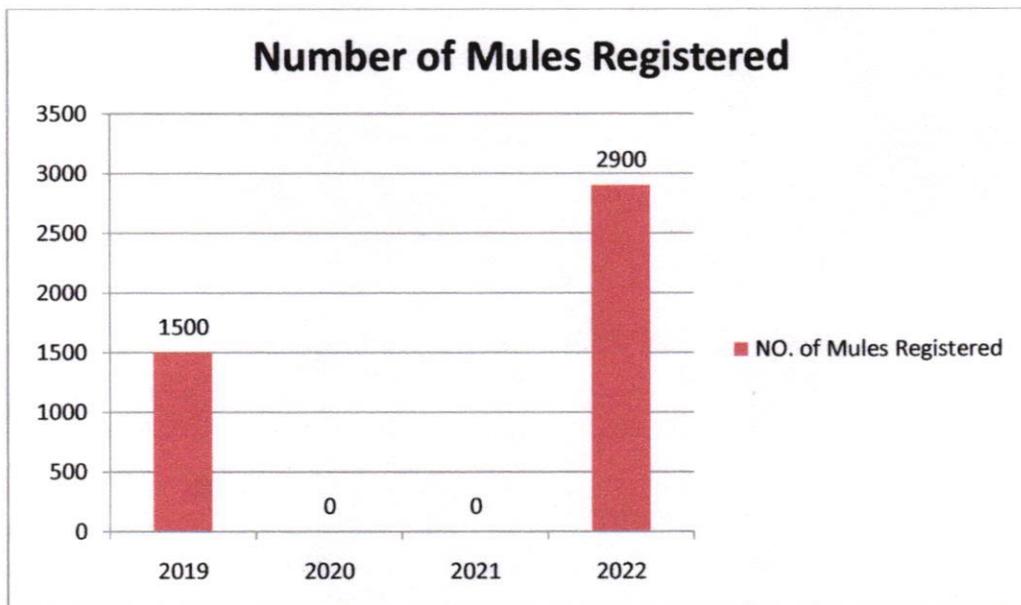


Fig 9. Number of Mules registered at Yamunotri and Gangotri

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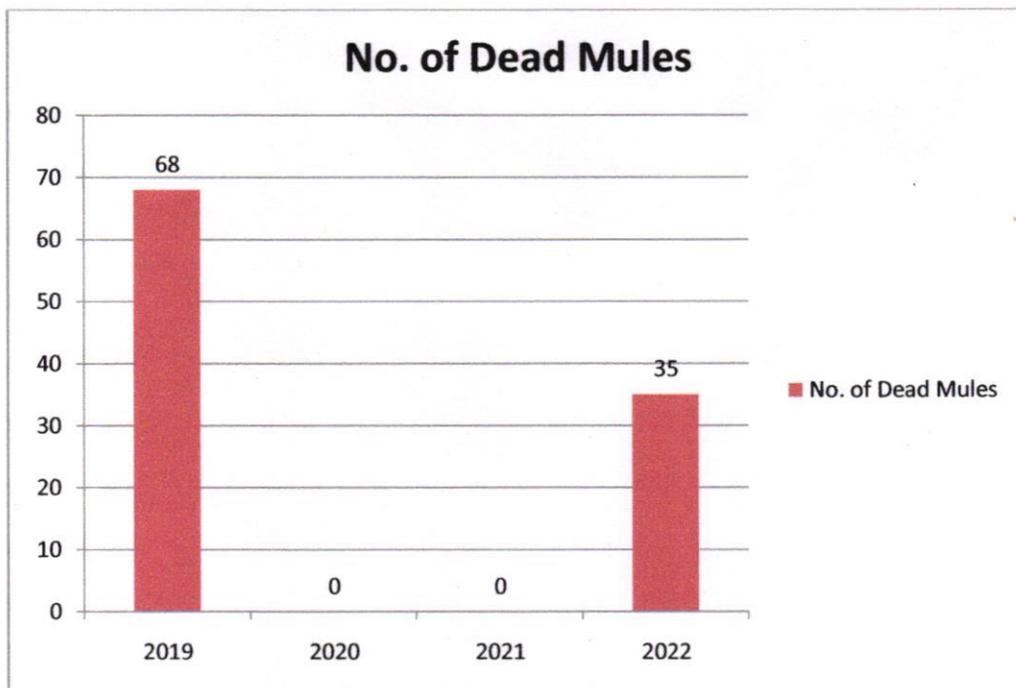


Fig 10. Number of Mules death at Yamunotri and Gangotri

- xx. Interaction with mule owners revealed that during peak season, the number of mules and horses was also higher than the number of registered mules and horses.
- xxi. If any mules or horses die during tracking, the insurance provider takes time to verify the factual status for reimbursement of losses. After being verified by the insurance provider, dead mules and horses are buried using deep burial methods.
- xxii. Due to delay in the process of physical verification of dead mules/equines, the equine's body may begin to degrade, complicating disposal through deep burial.
- xxiii. The committee was informed during the visit that when the number of pilgrims was higher, the owners of mules and horses strove to make the most excursions possible in a single day, harming the mules and horses in the process.
- xxiv. During the visit, it was observed that there appeared to be more pilgrims than infrastructure for managing pilgrim traffic, solid garbage, plastic waste, and the manure of mules or horses.

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xxv. It is also informed that the number of the pilgrims increased during some special days on Hindu calendar.

3.4 Hemkund Sahib Track, Uttarakhand

Hemkund Sahib (also spelled Hemkunt), formally known as *Gurudwara Shri Hemkund Sahib Ji*, is a Sikh place of worship and pilgrimage site in Chamoli district, Uttarakhand, India. This beautiful gurudwara is situated at an altitude of around 4,329 m, on the bank of the pristine Hemkund Lake. Surrounded by snow-capped peaks, the gurudwara's picturesque natural settings and trek routes, including the one to the Valley of Flowers, make it a popular destination for trekkers and tourists. Himganga, a small stream, originates from the lake. It is said Lakshmana, the younger brother of Lord Rama from the epic Ramayana, regained his health by meditating on the banks of Hemkund after the severe injuries he received in the war. The Lakshmana temple is said to have been built at the place where Lakshmana meditated. Among the essential seven day stretch of June and the principal seven day stretch of October, is the Hemkund Sahib Yatra Uttarakhand broadly wide-spread. Because of snow, it's inapproachable from October to April. It can likewise, Sikh pioneers show up to re-establish the course, called "Kar Seva." Hemkund Sahib is the world's loftiest Gurudwara.

Despite being validated in Guru Gobind Singh's biography, Shri Hemkund Sahib stayed resigned for right around two centuries.

It is the world's The Valley of vegetation is without a doubt near Hemkund Sahib, which is an UNESCO worldwide chronicled past site on the web. It is recognized for its elevated bloom covered glades and particular foliage. In like manner, it's the world's handiest Gurudwara that stick at any such high pinnacle.

About 3 kilometres (1.9 mi) from Gobinddham is the 5-kilometre (3.1 mi) long Valley of Flowers. The Indian Government has declared this valley a national park. It is situated in Nanda Devi Bio Reserve, and all activities are carefully regulated to preserve the valley in pristine condition.

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Total length of Govinddham to Hemkundsahab is approx. 19 kilometres. Helicopter service is also available between Govinddham to the village of Ghangaria . This track can also be covered either by walk or by mules/equines.



Fig 11.Hemkund Sahib Track, Uttarakhand (Source: Google Earth)

3.4.1 Solid Waste and Plastic Waste Management:

- i. The Chamoli Zila Panchayat is the authorised agency for the management of solid and plastic waste throughout the track. It has formed an Eco Development Committee, Bhyunder is in charge of waste cleaning and management.
- ii. It is reported that forty-six (46) sweepers were deputed to clean the tracks of Hemkund Sahib. However, during the inspection, it was observed that the tracks had not been cleaned. The track was littered with dung and solid waste.
- iii. There were no waste processing plant was established for the management of solid and plastic waste generated from track. It is reported that solid waste

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is collected and disposed of at the Pulna dumping ground, contrary to the provisions of the Solid Waste Management Rules, 2016.

- iv. Plastic garbage reportedly gets delivered to Nijamabad vendors for recycling..
- v. Poor solid and plastic waste management was seen throughout the inspection. Solid and plastic garbage are not properly collected, transported, or disposed of by the agency.
- vi. The quantity of non-biodegradable waste collected by the agency from 2019 to 2022 is presented in table 8.

Table 8. quantity of non-biodegradable waste collected by EDC, Bhyundar rom Hemkund Sahib trek and Valley of flower

Year	2019	2020	2021	2022
Quantity	51 ton	Nil	Nil	55 ton

- xxvi. During the inspection, plastic waste, solid waste, and horse dung were observed close to the track and in the valley next to the track.
- xxvii. It was also observed during the visit that the public toilets appeared insufficient for pilgrims.
- vii. It is also informed that during May to July of every year, crowd escalates higher number as compared to other months. Possibility of very poor situation with respect of solid/plastic waste management as well as track cleaning cannot be ruled out during peak time.
- viii. It is also observed that there is increase in number of pilgrims after Covid 19 pandemic. The graph indicating number of registered people visit during Hemkund Sahib from 2019 to 2022 is depicted in fig 11.

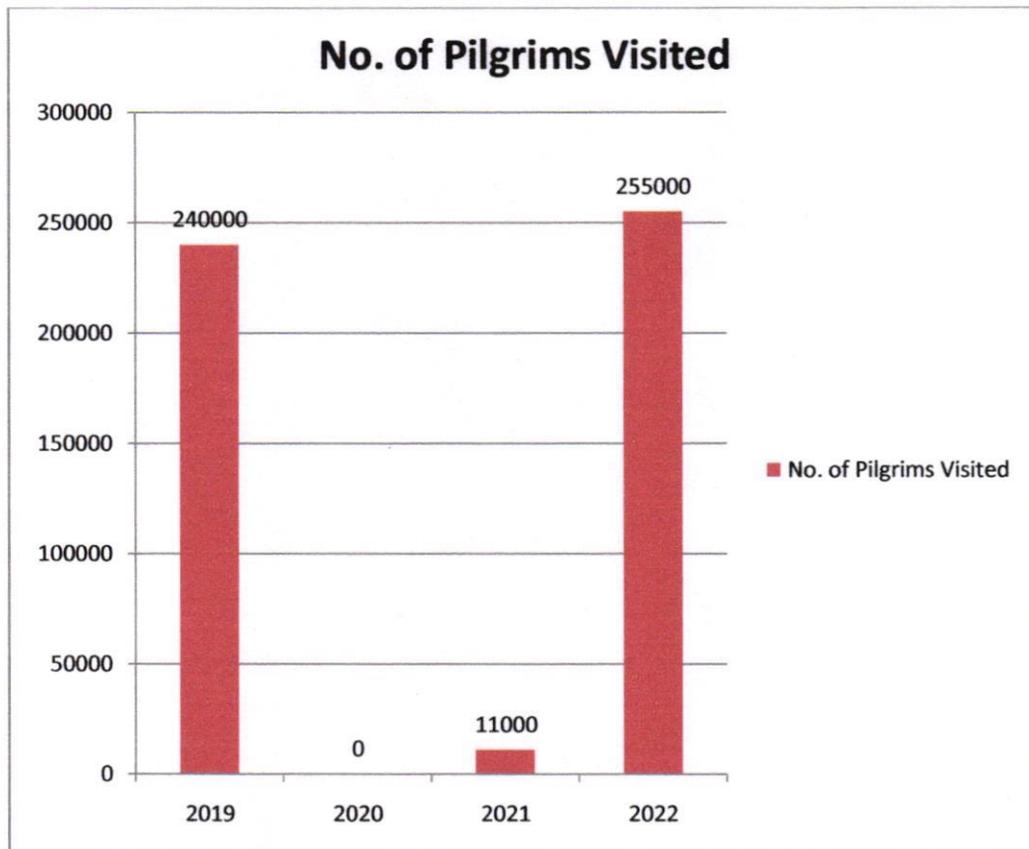


Fig. 12. Number of Pilgrims visited at Hemkund Sahib

- ix. It is evident from above graph that 2,55,000 pilgrims visited in 2022 as compared to 11,000 and 2,40,000 pilgrims in year 2021 and 2019 respectively.
- x. It is also informed that during May to July of every year, crowd escalates higher number as compared to other months. Possibility of very poor situation with respect of solid/plastic waste management as well as track cleaning cannot be ruled out during peak time.

3.4.2 Equines/Mules and its waste management:

- xi. Zila Panchayat, Chamoli (hereafter referred as "agency") is authorized agency for management of Equines/mules in the track.
- xii. It is informed that tender is awarded to agency/contractor for management of Equines/mules based on bidding
- xiii. During visit, there was no system for management of dung and effluent generated from equine, mules developed. Dung was sweep to side of the tracks.
- xiv. Shelter/space provided for equines/mules was also inadequate.

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- xv. Number of registered mules/equines deputed, dead mules/equines and percentage of insured mules/equines as per information provided by the agency is presented in table 9.

Table 9. Number of registered mules/equines deputed in Hemkund sahib track

Year	2019	2020	2021	2022
Registered mules/equines	1100	0	500	1200
No. of dead mules/equines	30	Nil	15	24
Percent of insured mules/equines	30%	Nil	Nil	60%

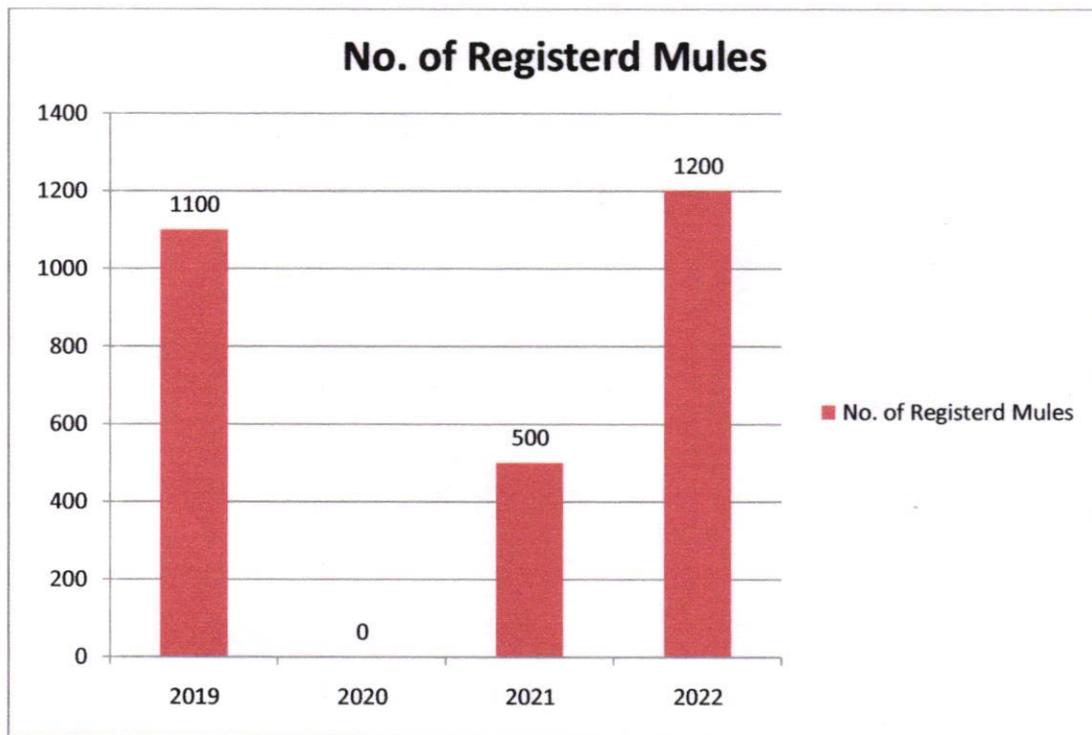


Fig. 13. Number of registered mules

- xvi. The agency has not provided the committee with information on the status of postpartum procedures performed or the status of deputising veterinary doctors for Mules and equines.
- xvii. It has been reported that dead mules/equines are buried deeply.

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- xviii. During the visit, it was observed that the number of pilgrims seemed higher in terms of the installed and available infrastructure to manage the pilgrim's traffic, solid waste, plastic waste, and mule's dung.
- xix. During visit, it was informed by the committee that when number of pilgrims was high, the owners of mules/ equine try to get maximum trips in single days, due to those mules get suffers.
- xx. It is also informed that the number of the pilgrims increased during some special occasion.

4. Gaps and required action

The committee has identified following gaps and the action plan required for maintaining the proper solid waste management is presented in Table 11.

Table 10. Gaps and required plan of action in the study area

S.No.	Gaps	Plan for Action
1.	Equine entry in the trek routes is not regulated. A large number of animals can cause ecological disturbance of the pristine areas.	A socio-ecological criteria-based equine carrying capacity should be assessed and the number of equines should be restricted as per the study. These involves extensive research which may be done through a Govt. institution.
2.	Proper management and monitoring practices about the equine health and facilities are not available in the areas	For equine stalls, the Indian Standard CODE OF PRACTICE FOR EQUINE HOUSING 1964 should be followed.0
3.	Solid waste management facility is not properly available in the areas (except Gangotri-Gaumukh trek route)	Management practices like source segregation of waste, establishment of small and large bio composting pits should be implemented in the area. Disposal of all solid waste should be carried out in

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	route)	<p>solid waste should be carried out in accordance with the Solid Waste Management Rules,2016.</p> <p>Shredder and compactor are needed for the reducing the bulk volume of the plastic waste. Disposal of plastic waste should be carried out in accordance with the Plastic Waste Management Rules, 2016 as amended.</p>
4.	Data on water and soil quality is not available.	Soil and water quality should be monitored in regular manner for the adjacent rivers e.g., Bhagirathi, Yamunotri, Saraswati and Mandakini.All the basic parameters (physical, chemical and biological) should be monitored regularly so that the impact of tourism and equines on soil and water quality can be assessed.
5.	There has been no report or research done so far on the direct effect of tourist in flow on biodiversity loss in the concerned areas.	A detailed scientific study is needed to be carried out in all the four-pilgrimage area for the assessment of floral and faunal diversity around dumping sites, with long-term monitoring of the impact of tourist inflow on biodiversity.
6.	Lack of awareness among tourists and the local community about the impact of tourism on the environment.	As tourism has shown a drastic increase in the last few years, sustainable tourist activities should be practiced by both local communities as well as by the tourists.

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5. Concluding Remarks and Recommendations:

It is evident from the above observation that solid and plastic waste management is very poor in the pilgrim tracks, viz. Kedarnath, Yamunotri, and Hemkund Saheb. However, Gangotri-Gomukh trek has moderate level of management for solid waste which need to be strengthened. On the track, there was solid and plastic waste as well as mules/equines dung. No proper collection, transportation and disposal system for solid waste, plastic waste and dung was observed. Waste is swept to the side of the track by sweepers working to clean the tracks. The shelter/ghodapadav was found to be in extremely poor condition. In comparison to registered mules/equines, there are fewer and smaller shelters. All four pilgrim tracks have a dung heap at the shelter place. Disposal mechanism of dead body of mules/equines is not defined. Hence, Zila Panchayat, Chamoli, Rudraprayag and Uttarkashi may be directed to comply with following recommendations:

- a. An initial level carrying capacity assessment of mules/equines on the track path is being done by GBPNIHE using preliminary data provided by the district authorities/agencies (**Annexure-2**). However, a socio-ecological criteria based extensive study is required for the carrying capacity assessment of all the pilgrim tracks through reputed govt. Institute and accordingly allow pilgrims to visit. A system for managing and regulating people in pilgrimage locations, especially during peak season, should be developed (April, May and June).
- b. The agency shall collect all solid and plastic waste, and site-specific mechanisms for its collection and transportation should be devised.
- c. The agency needs to setup a solid waste processing plant. All solid waste should be properly treated/disposed off as per the Solid Waste Management Rule, 2016.
- d. Plastic waste should be collected and disposed off through registered recyclers.
- e. The agency should provide adequate space at ghodapadav/shelter. Dung generated from shelter and track should be cleaned at regular interval and









disposed off as per the Solid Waste Management Rule, 2016. Dung at track should be cleaned at regular interval and immediately send to treatment area.

- f. Agency should ensure proper treatment of liquid waste generated from mules/equines.
- g. The State Government or Agency should provide a team of veterinarians to every pilgrimage site to ensure adequate care of mules and horses and to prevent animal abuse.
- h. A system should be established to make sure that the post-mortem and verification of insured deceased mules doesn't take too long, and that they are disposed of in accordance with CPCB guidelines.
- i. Regular surveillance is required to ensure compliance with the above recommendations as well as proper enforcement of the Solid Waste Management Rules, 2016 and the Plastic Waste Management Rules, 2016, as amended.

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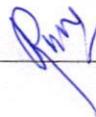
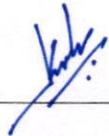
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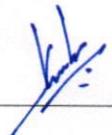
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Item No. 01

(Court No. 1)

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

(By Video Conferencing)

Original Application No. 561/2022

Urvashi Shobhna Kachari

Versus

Applicant

Union of India & Ors.

Respondent(s)

Date of hearing: 12.08.2022

**CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER**

Applicant: Mr. Raj Panjwani, Senior Advocate with Ms. Esha Dutta, Advocate

ORDER

1. This is an application under Sections 14, 15 and 18 of National Green Tribunal Act, 2010 read with Rule 24 of the National Green Tribunal (Practices and Procedures) Rules, 2011 seeking preservation of ecology in and around the holy pilgrim tracks in the sensitive and bio-diverse regions of Uttarakhand which shall be compromised due to exponential increase of equines and pilgrims in the State. It is stated that the number of pilgrims and tourists has drastically and exponentially increased after Covid-19 pandemic in the State of Uttarakhand particularly in respect of pilgrims to Kedarnath Dham, Hemkund Sahib, Gangotri Gomukh Dham and Yamonotri Dham.

2. Badrinath-Kedarnath Temple Committee had recently stated that till the evening of 11.06.2022, total number of pilgrims reaching

Uttarakhand chardham are a whopping 19,04,253 (Nineteen lakh, 10 four thousand, two hundred fifty three pilgrims). The corresponding pollution caused by such a large influx of humans is staggering. Moreover, such a high number of people on the tracks, aggravated by the sheer number of equines is downright unsustainable and dangerous, considering the existing infrastructure in the State. These concerns are magnified annually during the months of May-June-July when the frequency of pilgrim footfall escalates. These tracks are predominantly in the districts of Rudraprayag (Kedarnath track), Chamoli (Hemkund Sahib track), and Uttarkashi (Yamunotri & Gomukh tracks). To assist the increasing number of humans on the various pilgrim tracks, approximately 20,000 equines are used for ferrying people and carrying supplies.

3. Recently, State Government has issued Governments orders dated 30.04.2022 and 10.05.2022 recommending regulation of number of pilgrims in aforesaid holy tracks and the same is given in the form of chart as under:-

Name of Track	Length of Track	District	Agency in charge of management	No. of equines plying on track	No. of pilgrims permitted on track
Kedarnath track	18 Kms	Rudraprayag	Respondent No. 5 (District Magistrate of Rudraprayag)	12000-14000	13000
Hemkund Sahib track	19 Kms	Chamoli	Respondent No. 7 (Apar Mukhya Adhikari of the Zila Panchayat of Gopeshwar)	2000-3000	Not specified
Yamunotri track	14 Kms	Uttarkashi	Respondent No. 6 (Apar Mukhya Adhikari of	6000-8000	5000

			the Zila Panchayat of Uttarkashi)		
Gomukh-Gangotri track	18 Kms	Uttarkashi	Respondent No. 6 (Apar Mukhya Adhikari of the Zila Panchayat of Gopeshwar)	200	8000

4. In the additional affidavit applicant has given the track on which maximum pollution is being caused, as under:

A. District Rudraprayag (Kedarnalh Dham)

Total length of the track - 18 Kilometers
Starting point - Gaurikund Ghoda Padav
End Point - Rudrapoint Ghoda Padav
Number of equines used 12,000 to 14,000

Nearest water body-River Mandakini (Tributary of River Alaknanda which in turn flows into the River Ganges).

B. District Chamoli (Hemkund Salhib)

Total length of the track - 19 Kilometers
Starting point - Pulna
End Point - Hemkund Sahib (via Ghaghariya)
Number of equines used 2,000 to 3,000

Nearest water body -River Alaknanda (Source Stream of River Ganges).

C. District Uttarkashi (Gangotri-Gomukh Dham)

Total length of the track - 18 Kilometers
Starting point Gangotri Dham (Ghoda Padav - 700m from temple)
End Point -Gomukh
Number of equines used 200

Nearest water body River Bhagirathi (Headstream of the River Ganges)

D. District Uttarkashi(Yamunotri Dham)

Total length of the track - 5 Kilometers (18 kilometers from Hanuman Chatti)
Starting point - Janki Chatti Ghoda Padav
End Point - Yamunotri Dham Ghoda Padav
Number of equines used - 6,000 to 8,000

Nearest water body - River Yamuna (Tributary of the River Ganges).”

5. In our view, the matter requires consideration as substantial question relating to environment has arisen which require adjudication by this Tribunal. However, before proceeding further, we find it appropriate that a factual report be obtained for which we constitute a joint Committee comprising Regional Director, CPCB, Uttarakhand a nominee of MoEF&CC, Uttarakhand, State PCB and a nominee of G.B. Pant Institute of Himalayas. The said Committee would submit its report within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.

List for further consideration on 16.12.2022.

A copy of this order be forwarded to the Regional Director, CPCB, Uttarakhand, MoEF&CC, Uttarakhand, State PCB and G.B. Pant Institute of Himalayas by e-mail for compliance.

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

August 12, 2022
Original Application No. 561/2022
A

Management plan at Chardham

1. Equine physical carrying capacity

As per IS 2734 (1964), the floor area to be provided for each average-size animal should be 3.5*3.0 m. In the concerned trek routes usually, equines are used in pairs in the trek routes (Code of Practice for Equine Housing, FAD 5: Livestock Feeds, Equipment, and Systems). Therefore, presently we have considered a 16 m length is required for each pair (equine 1st (3.5m) + gap (2m) + equine 2nd (3.5m) +gap for another group (7m)). Following the above, the carrying capacity of the equines is mentioned in the table 11.

Equine

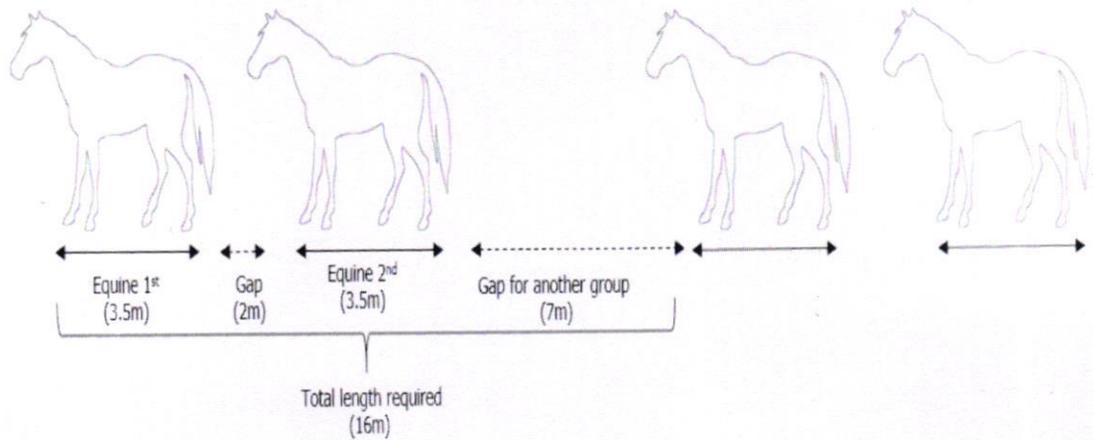


Fig. 14. Length required for each equine pair

Table 11. Carrying capacity of equines in the trek route

Name of the trek	Length of track (in Km)	Carrying capacity of equine units (1 pair of equines, Q)	Total number of equines may be allowed (TN = Q*2)
Kedarnath	18	1125	2250
Hemkund sahib	19	1187.5	2375
Gangotri	18	1125	2250
Yamunotri	7	437.5	875

2. Equine housing and feeding

Further, for equine stalls, the Indian Standard CODE OF PRACTICE FOR EQUINE HOUSING 1964 should be followed.

If considering feed of the equines, at Govindghat and Kedarnath area, the mules mostly feed on hay, brought from Ramnagar and Haldwani's markets. Besides giving hay and gram (channa) to the mules, they also purchase grass from the local villagers. The practice of grass selling began in the Bhyundar valley. Approximately, a mule eats on an average 8-10 kg grass per day that costs around Rs 100 and the total cost of maintenance of a mule is more than Rs 100 per day which also includes gram (channa) which is an essential dietary requirement. Sometime due to a smaller number of tourists it becomes hard for mule owners to bear this expenditure on mules. The local mule owners of nearby valleys go back home and come again once they are sure that the tourists are coming in sufficient numbers. Whereas, the mule owners from larger distances such as (Najibabad, Bijnor, Ramnagar etc) have no option but to stay back till the Gurudwara at Hemkund was closed for winter. They, purchase grasses from Ghangria market, which had set an example of community management and sharing of resources by the community itself. The successful management of grass economy by the Bhyundar people despite the fact that the grasslands in Bhyundar valley are disputed and Forest Dept. is also one of the

stakeholders highlights the concept of collective decision making and full participation of the villagers under the concepts of social equity and incorporation of indigenous management systems. Thus, the traditional systems of utilization of natural resources and the concept of community participation in decision making functions well (Kala & Farooquee, 2017). Such practices may be promoted in the concerned trek areas so that the mule owners could get their equine feed from local resources.

3. Solid waste management

The following actions are suggested for management of solid waste in the area:

1. Source segregation of waste should be done and for that least two eco-friendly waste bins (biodegradable +nonbiodegradable) are required in every 100 m distance of the trek routes.
2. Collected waste should be managed weekly in every trek route.
3. Establishment of small and large microbial biocomposting pits (1 m × 1 m × 1 m - 3 m × 1 m × 1 m) for management of biodegradable waste (Kuniyal, 2005a, 2005b) is recommended in every 5 km distance.
4. For mule dung, drainage system may be built throughout the trek routes and collected dung may be converted to bio gas. For this purpose, Further, mule dung based biogas production units may be promoted in the areas.(Chauhan & Saini, 2015).
5. For non biodegradable waste, could be brought back to the starting point of each trek route. One shredder and waste compactor each is needed for every pilgrim place.

Photo gallery in the matter of OA No 561 of 2022 Urvashi ShobhnaKachari Vs Union of India

Photo Gallery of Hemkund Sahib, Uttrakhand





Photo Gallery of Kedarnath, Uttrakhand





Photo Gallery of Gangotri, Uttarakhand

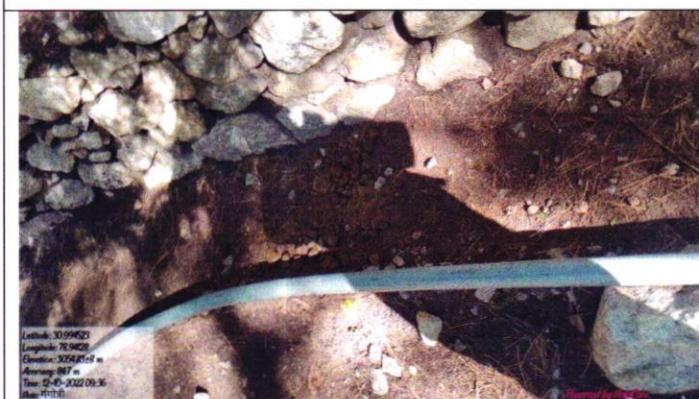
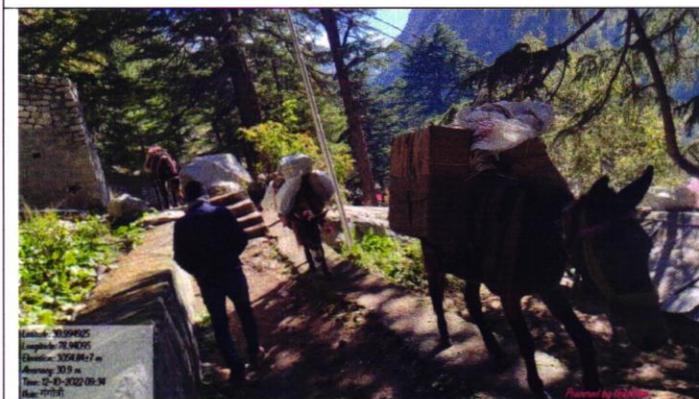


Photo Gallery of Yamunotri, Uttrakhand

