

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

Original Application No. 278/2022

IN THE MATTER OF:-

Gram Panchayat of Bhontawali

.....Applicant

Versus

Union of India & Ors.

.....Respondents

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**Respondent No. 3
HPSPCB**

Place: Paonta Sahib
Dated:- 04 -12-2023

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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
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Original Application No. 278/2022

IN THE MATTER OF:-

Gram Panchayat of Bhontawali

.....Applicant

Versus

Union of India & Ors.

.....Respondents

AFFIDAVIT ON BEHALF OF RESPONDENT NO. 3 i.e. HP
STATE POLLUTION CONTROL BOARD IN
COMPLIANCE TO ORDER DATED 27-09-2023.

May it Please Your Lordships:-

I, Pawan Sharma S/o Shri Rajendra Dev, aged 37 years, at present working as Regional Officer, H.P. State Pollution Control Board, Regional Office Paonta Sahib, District Sirmaur do hereby solemnly declare and affirm on oath as under:-

1. That the afore-cited case is pending adjudication before this Hon'ble Tribunal and was last listed on 27-09-2023 wherein following directions were passed:-

"....1. In the present case environmental compensation was imposed Rs. 7,00,000/- (Rupees Seven Lakhs only) by respondent no. 3-HPSPCB and has been deposited by Municipal Council, Paonta Sahib on 21.11.2022.

2. Respondent no. 3-HPSPCB is directed to file action plan regarding amount of environmental compensation has to be utilized for restoration of environment in the area.

Attested
4/12/22
Anuradha
Advocate & Oath Commissioner
Paonta Sahib (H.P.)
HIM/408/2016

3. Respondent no. 3-HPSPCB is directed to file affidavit detailing action plan for utilization of the amount of environmental compensation for restoration of environment in the area by carrying out plantation/other remedial activities in consultation with concerned DFO and District Magistrate, Sirmaur. The requisite affidavit in this regard be filed by DFO and District Magistrate, Sirmaur within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR supported PDF and not in the form of Image PDF.....”.
2. That in compliance to afore-cited direction, it is submitted that the HP State Pollution Control Board has levied Environmental Compensation of Rs 7,00,000/- (Rupees Seven Lakhs only) upon the Municipal Council Paonta Sahib for improper solid waste management which was deposited on 21-11-2022. The said amount has already been utilized for implementation of action plan. The component of such action plan were as follows :- (i) Area closure (fencing), (ii) Dumped Solid waste material to be uplifted /transported to designated sites, (iii) Soil deposition and leveling, (iv) Protection from flooding towards river side, (v) walking trail and plantation, (vi) Protection of river bank of river Yamuna from illicit dumping and burning of solid waste. In this regard copy of utilization certificate received from the MC Paonta Sahib is annexed as **Annexure R-3/1**.
3. That the State Board has again levied Environmental Compensation of Rs 4,00,000/- (Rupees Four Lakhs only) upon the MC Paonta Sahib on 15-6-2023 (copy annexed as **Annexure R-3/2**) for violation of provisions of Solid Waste Rules, 2016. The said amount has been deposited by the MC Paonta Sahib vide letter dated 08-9-2023, copy of which is annexed as **Annexure R-3/3**. Further to utilize the said amount for restoration of

Attested
 11/12/23
 Advocate & Oath Commissioner
 Paonta Sahib (H.P.)
 HJM/408/2016

environment in the area a meeting was held under chairmanship of Deputy Commissioner, Sirmaur at Nahan on 13-10-2023 wherein DFO, Paonta Sahib has been directed to prepare a proposal for plantation according to agro climate conditions and feasibility of area, copy of proceedings of the meeting is annexed as **Annexure R-3/4**. Accordingly an Action Plan for restoration of environment through as customized Miyawaki plantation has been prepared by Forest Department, copy of which is annexed as **Annexure R-3/5** for kind perusal of this Hon'ble Tribunal. The said action plan needs to be implemented by the concerned Forest Department for restoration of environment in the area.

That I, the above named deponent do hereby solemnly affirm and declare that the above contents of paras 1-3 of this affidavit are correct to best of my knowledge based on information derived from official records, no part of the same is wrong and nothing material has been concealed there from.

Verified at Paonta Sahib on 4th day of December, 2023.

Uur
VISHAL GUPTA
Identified by me

Certified that this affidavit has been made by
Shri. Ravjan Sharma
Oath 4/12/2023
who has been Sh. Vichet
Cupta Adv. P.S. personally
known to me. The contents of the affidavit
readover and explained to the deponent who
admits understanding well. Attested

[Signature]
DEPONENT

Attested
4/12/20
Anuradha
Advocate & Oath Commissioner
Paonta Sahib (H.P.)

M.C.P/2023- ³⁰⁴ 1942 DATE... 29/11/23

GFR 19 - A

(See Rule 212 (1))

Form of Utilization Certificate

S.No.	Letter No. and Date	Amount (Rs.)
	No.(36)PCB/MSW/SLC/Vol-III/OA No.606/2018-19264-282 dated 12.01.2023.	Rs. 700000 /- (Rupees Seven Lakhs only)
	Total	

Certified that out of Rs.700000 /- (Rupees Seven Lakhs only) of Grants-in-aid sanctioned during the years 2023 in favor of **Municipal Council Paonta Sahib** under this Ministry/Department letter No.(36)PCB/MSW/SLC/Vol-III/OA No.606/2018-19264-282 dated 12.01.2023 given in the margin and Rs. Nil on account of unspent balance of the previous year, a sum of Rs 700000 /- (Rupees Seven Lakhs only) has been utilized for the purpose of:

1. Area Closure (Fencing)/Boundry wall. Expenditure in Rs. 4.23 lakhs.
2. Soil Deposition and Leveling- Expenditure in Rs. 5.25 lakhs.

for which it was sanctioned and that the balance of Rs. Nil remaining un-utilized at the end of the year has been surrendered to HP State Pollution Control Board (vide No. Nil dated: Nil) will be adjusted towards the grants - in- aid payable during the next year.

1. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled/are being fulfilled and that I have exercised checks to see that the money was actually utilized for the purpose for which it was sanctioned

Signature *[Signature]*Designation ie
Executive OfficerDate
Municipal Council
Paonta Sahib H P

Before	After
	
<p>Photograph No. 1 shows status of SWM Site before fencing/Boundary wall.</p>	<p>Photograph No. 2 shows status of SWM Site after fencing/Boundary wall.</p>
	
<p>Photograph No. 3 shows status of SWM Site before leveling/flooring</p>	<p>Photograph No. 4 shows status of SWM Site after leveling/flooring</p>

I/205943/2023

REGD.POST

HP State Pollution Control Board
HIM Parivesh Bhawan, Phase-III, New Shimla-09
Phone No. 0177-2673766, 2673020 FAX-0177-2673018



वसुधैव कुटुम्बकम्
ONE EARTH · ONE FAMILY · ONE FUTURE

No. (16)PCB/MSW/M.C. Paonta Sahib/2020- 3539-44

Dated: 15-6-23

**Environmental Compensation for violation of provisions under
Solid Waste Management Rules, 2016 as per order by Hon'ble
NGT in O.A. No. 606/2018.**

To,

The Executive Officer
Municipal Council-Paonta Sahib,
District Sirmaur (H.P).

WHEREAS, as per the inspection report of Regional Officer, PCB, Paonta Sahib dated 08/02/2023, it has been reported that inspection of SWM site was carried out on 08.02.2023 and during the inspection following was observed: **a)** Garbage Collection Vehicles are non-compartmentalized and mixed waste is being collected and transported to the site. **b)** Unsegregated solid waste was dumped in open space. **c)** mixed waste was found in the compost pits. **d)** Domestic Hazardous waste facility in not operational till date and no hazardous waste found stored at the site.

WHEREAS, it has been further reported by Regional Office Paonta Sahib to your office vide letter no. 2944 dated 23/03/2023 that the lab analysis results for the sample of leachate collected from the Compost pits of Solid Waste Management Site in Kedarpur Paonta Sahib were not meeting with the prescribed limits w.r.t. parameters such as pH, Conductivity, Total Nitrogen, Chromium.

WHEREAS, it has been further reported that as per the inspection carried out on 02/05/2023 by Regional Office Paonta Sahib, it was found that **a)** Garbage Collection Vehicles are non-compartmentalized and mixed waste is being collected and transported to the site. **b)** Partial Segregation of waste is observed as 100% of solid waste is not segregated at the processing site.

WHEREAS, it has been further reported by Regional Office Paonta Sahib that the inspection of Solid Waste management site at Village Kedarpur, GP Bhattanwali, Tehsil Paonta Sahib was carried out on 18/05/2023 and it has been observed that **a)** Garbage Collection Vehicles are not provided with proper compartments i.e. dry and wet waste **b)** no provision of weigh bridge within the treatment facility is provided to maintain record of quantification i.e. waste collected, processed and disposed. **c)** Further manpower provided for manual segregation of the solid waste is insufficient leading to the formation of large heaps of unsegregated waste at the site. **d)** The Solid Waste is being stored in open area and no facility has been provided for collection of leachate and surface

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water runoff. There is no facility provided for leachate circulation. e) The solid waste was found scattered within and outside the SWM site premises.

WHEREAS, under the provisions of Solid Waste Management Rules, 2016, MC Paonta Shaib was required to manage and treat solid waste in a proper/scientific manner but it has been observed that no corrective steps for scientific management, handling and disposal of waste were taken. Furthermore, MC Paonta Sahib has been non-compliant to the show cause notices issued by the H.P. State Pollution Control Board till date

WHEREAS, HPSPCB, has already issued numerous notices to MC Paonta Sahib vide letter dated 08/02/2023, 14/02/2023, 23/03/2023, 03/05/2023 and 18/05/2023.

WHEREAS, the above acts and omissions tantamount to violation of the provisions of the Environment (Protection) Act, 1986/ Solid Waste Management Rules, 2016 and the directions issued by the State Board which is a punishable offence under the said Act/Rules. The said violation also attract the penal provisions as directed by the Hon'ble NGT in its order dated 28.02.2020 in O.A. No. 606/2018 titled "Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues",

WHEREAS, Hon'ble High Court in CWP No. 2369/2018 vide order dated 06.04.2023 has directed all Local bodies not to dispose of garbage/ solid waste illegally along water bodies & ensure proper collection, segregation & disposal but the aforesaid acts of yours also tantamount to violation of said Court orders.

Despite the repeated requests/correspondences and notices issued by the State Board, MC Paonta Sahib is not complying with the provisions of law and directions issued therein by the Board or the Hon'ble Court. Therefore, Environmental compensation amounting to **₹4,00,000/- (Rupees Four Lakhs only)** is hereby imposed on you for violation of Solid Waste Management Rules for violation period w.e.f. Feb, 2023 to May 2023 as per Hon'ble NGT order in OA No. 606 of 2018.

Accordingly, you are hereby directed to deposit the aforesaid amount in the account of Member Secretary, HP State Pollution Control Board, **Bank of Baroda A/c No. 54140100001617 (IFSC Code BARB0NEWSIM)** under intimation to this office within a week's time failing which action under the provisions of Environment (Protection) Act, 1986 and Solid Waste Management Rule, 2016 shall be initiated at your own risk and cost.

Also note, if the violations persists the amount of Environmental compensation shall increases besides action under Section 15 of The Environment (protection) Act, 1986, attracting imprisonment upto five years, shall be taken against you without any further opportunity.

(Anil Joshi, IFS)
Member Secretary
HPSPCB, Shimla-9

Copy to:-

1. The Pr. Secy. (Urban Development) to the GoHP for kind information please.
2. The Director, Urban Development, Talland, Shimla for kind information & and with request to issue necessary directions to concerned officials to ensure

I/205943/2023

compliance.

3. The Deputy Commissioner, Sirmaur for kind information please.
4. The President, Municipal Council, Paonta Sahib for information and compliance.
5. The Regional Officer, HPSPCB Paonta Sahib for information and further necessary action.

Signed by

Anil Joshi

(Anil Joshi, IFS)

Member Secretary

HPSPCB, Shimla-9

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न०एम०सी०पी० / इलैक्टरीसी०/ 309 023-24 - 1418
 कार्यालयनगरपालिका पांवटा साहिब जिला सिरमौर हिमाचल प्रदेश।
 दिनांक :- 08/09/2023

सेवा में,

Member Secretary
 HPSPCB, Shimla-9.
 District Sirmour H.P.

विषय:-

Regarding payment of Environmental Compensation.

महोदय,

उपरोक्त विषय के सन्दर्भ में आपके कार्यालय के पत्र संख्या No.(16)PCB/MSW/M.C.Paonta Sahib/2020-3539-44 दिनांक 15/06/2023 के द्वारा संदर्भ में आपको सूचित किया जाता है कि मु० 4,00,000- / 0 रू० का आपके खाता संख्या 54140100001617 व IFSC Code. BARBONEWSIM दिनांक 20/08/2023 को नगर पालिका परिषद द्वारा RTGS के माध्यम से भुगतान किया गया है। रिपोर्ट सूचनार्थ हेतु प्रेषित हैं।

सलग्न:- यथोपरि

भवदीय,

कार्यकारी अधिकारी,
 नगरपालिका परिषद,
 पांवटा साहिब, हि०प्र०।

पृष्ठांकन संख्या.....
 प्रतिलिपि:-

दिनांक.....

1- The Regional Officer, HPSPCB Paonta Sahib for information Please.

Suman
 कार्यकारी अधिकारी,
 नगरपालिका परिषद,
 पांवटा साहिब, हि०प्र०।

FR
RO

Mr. Intimate RO.

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MINUTES OF THE MEETING REGARDING OA NO. 278/2022 TITLED AS GRAM PANCHAYAT OF BHONTAWALI VILLAGE VS UNION OF INDIA & OTHERS HELD ON 13-10-2023 AT 03:30 PM UNDER THE CHAIRMANSHIP OF DEPUTY COMMISSIONER SIRMAUR AT NAHAN.

A meeting was held on 13-10-2023 at 03:30 PM under the chairmanship of Deputy Commissioner Sirmaur regarding OA No. 278/2022 titled as Gram Panchayat of Bhontawali Village Vs Union of India & Ors . The following were present in the meeting:-

1. Sh. Laiq Ram Verma, Additional District Magistrate, Sirmaur at Nahan.
2. Sh. Aishwarya Raj, Divisional Forest Officer, Paonta Sahib, District Sirmaur (through VC).
3. Sh. Sanjay Kumar, Executive Officer, Municipal Council, Paonta Sahib, District Sirmaur.
4. Sh. Pawan Sharma, The Regional Officer, PCB, Paonta Sahib, District Sirmaur.
5. Sh. Mohan Singh Chauhan, Range Forest officer, Paonta Sahib, District Sirmaur.

At the outset, the chairman welcomed all the participants and apprised them about the current status of the OA No. 278/2022 titled as Gram Panchayat of Bhontawali Village Vs Union of India and Ors. As per the progress in the alleged matter of the OA No. 278/2022, most of the relating work has been found to be done and the remaining has been found in progress. It has been directed in the National Green Tribunal order dated 27-09-2023, to file affidavit detailing action plan for utilization of the amount of environmental compensation for restoration of environment in the area by carrying out plantation and other remedial measures. In this regard, the point wise deliberation and decision taken in the meeting are as under:-

1. Status/ Demarcation of the land

The Regional Officer, Pollution Control Board apprised that the spot visit of the concerned site has been completed. Most of the inside part of the wall is concrete and accordingly the outside part of the wall can be used for plantation.

After discussion the chairman directed to the concerned department that the revenue status of the land should also be ascertained whether it is government land or private land and also ensure demarcation of the concerned site.

2 Identification of the trees and plants

The representative of the forest department, Paonta Sahib has apprised that the plantation of aromatic perennials plants like Gulmohar, Papri can be done at the concerned site.

The Divisional Forest Officer, Paonta Sahib has suggested that golden bamboo could also be planted in that area and this is a very ideal place for the miyawaki technique. The miyawaki method of the plantation creates a miniature forest environment.

After discussion the chairman directed to the forest department to ensure that the plants/trees should be selected according to the agro climate condition and feasibility of the area. It may also be rough and tough variety of plants/trees so that the plants can survive the harsh conditions.

3 Period of the plantation

The Divisional Forest Officer, Paonta Sahib, Sirmaur has apprised that according to the climate condition of the area the minsoon season will be best for the plantation. In this regard, the Chairman has directed that we can try some plantation in the winter season and further supplement in during the next monsoon season .

4 Distance between the trees/ plants

In this regard, the Chairman has directed that there should be a distance of 10 feet between each tree and between the distance of 10 feet aromatic bushes can be planted for the beautification of the site.

Keeping above facts into consideration, the chairman has further directed to the concerned departments to constitute a committee under the supervision of the Divisional Forest Officer, Paonta Sahib alongwith the Forest Ranger, JE-MC and others to do the needful in the matter for the procurement/variety of the plants and trees. The committee shall submit their report to the undersigned within 15 days, positively.

Apart from the direction as mentioned above, the chairman also gave the following directions to the concerned departments :-

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- The Chairman directed the Executive Officer, Municipal Council, Paonta Sahib to ensure that all the vehicles of the area which are going to the garbage plant should be covered with tarpaulin to prevent bad odour from spreading.
- It has been further directed to the Executive Officer, Municipal Council, Paonta Sahib to carry out fogging/ sanitation of the area around solid waste processing site and adjoining village area to reduce the problem of flies, mosquitoes and smell on a regular basis.
- There is an urgent need to separate solid waste processing facility/ site for the waste generated from rural areas. In the previous meeting dated 05-09-2023 direction was already issued to the Block Development Officer, Paonta Sahib and a committee of the following members was already constituted vide this office letter No. LFA-9 (OA No. 360/2018) Environmental plan/ 2023-182130 dated 19-07-2023 to identify the suitable site for installation of solid waste processing site . The name of the committee members mentioned as under :-

Sr No.	Officers	Designation
1	The Tehsildar Paonta Sahib, District Sirmaur.	Chairman
2	The Project Officer, DRDA, District Sirmaur	Member
3	The Executive Officer, Municipal Council, Paonta Sahib	Member Secy.

The Block Development Officer, Paonta Sahib, District Sirmaur was intimated vide letter No. 11693 dated 19-09-2023 that the place for installation of solid waste processing site has been identified in Gram Panchayat Jamani & Gojjar Adyen.

The chairman directed the Block Development Officer, Paonta Sahib to coordinate with all committee members and submit final report within 15 days, positively.

The meeting ended with the vote of thanks from and to the chair.

(Sumit Khimta) IAS,
Deputy Commissioner,
Sirmaur at Nahan.

Dated:- 27-10-23

Endst No. LFA (OA No. 278/2022)- 184977

Copy is forwarded for information and necessary to :-

- 1 The Additional District Magistrate, District Sirmaur at Nahan.
- 2 The Divisioanl Forest Officer, Paonta Sahib, District Sirmaur at Nahan.
- 3 The Project Officer, DRDA, District Sirmaur at Nahan.
- 4 The Executive Officer, Municipal Council, Paonta Sahib, District Sirmaur.
- 5 The Regional Officer, Pollution Control Board, District Sirmaur.
- 6 The Tehsildar, Paonta Sahib, District Sirmaur.
- 7 The Block Development Officer, Paonta Sahib, District Sirmaur.

(Sumit Khimta) IAS,
Deputy Commissioner,
Sirmaur at Nahan.



Himachal Pradesh Forest Department
Paonta Sahib Forest Division
 Email:- dfopaonta@gmail.com



Acct/APO/NGT(OA No.278/2022)/2023-2/4960

Dated: 22.11.2023.

To: -

The Deputy Commissioner
 District Sirmour (at Nahan).

Subject: -

Proposal for a customized Miyawaki Plantation around the waste treatment facility at Bhatanwali under Paonta Sahib Forest Division - in reference to OA No. 278/2022 (Gram Panchayat Bhatanwali V/s Union of India).

Sir,

With respect to the subject cited above, the DPR regarding a Miyawaki (customized) Plantation adjoining the waste treatment facility at Bhatanwali, under Paonta Sahib Forest Division - in reference to OA No. 278/2022 (Gram Panchayat Bhatanwali V/s Union of India), has been attached herewith and is being presented for your kind perusal.

Encl :- As above.

Yours faithfully,

/

Aishwarya Raj (IFS).
 Deputy Conservator of Forest
 Paonta Forest Division,
 Paonta Sahib, HP.

Endorsement No. Acct/DPR/NGT(OA No.278/2022)4961

Dated: 22.11.2023

✓ Copy is forwarded to Regional Officer, HPPCB, Paonta Sahib for information and further necessary action at your end please.

Araj

Aishwarya Raj (IFS).
 Deputy Conservator of Forest
 Paonta Forest Division,
 Paonta Sahib, HP.



Action Plan for **Restoration of Environment through a Customized Miyawaki Plantation** with reference to OA No. 278/2022 (Gram Panchayat Bhatanwali v/s UoI)



Action Plan for Restoration of Environment through Plantation with reference to OA No. 278/2022 (Gram Panchayat Bhatanwali v/s UoI)

1. Context

Scientific waste management is an imperative for sustainable urbanization. Waste treatment plants are essential tools to manage burgeoning amounts of waste emanating from our towns and cities. Nonetheless, the very nature of treating waste at such plants adds to various pressures on the adjoining areas viz. foul smell, deleterious impact on the health of people, pollution of the micro-habitat to but name a few. Hence, concerted efforts are a must to minimize their impacts on the surrounding areas. Vegetative measures via scientifically designed plantations are a promising way of ameliorating the aforementioned deleterious impacts: they can uplift the ambience, treat pollutants, address issues of foul air and make an eye-sore into an aesthetically pleasing delight.

2. Current Scenario

The under-operation waste treatment plant at Gram Panchayat Bhatanwali treats hundreds of tonnes of waste from the various wards of Paonta Sahib Municipal Area and suffers from the same externalities as detailed above viz. the polluting impact on the micro-climate as well as the foul smell emanating from the treatment facility.



Figure 1: The Northern Wall of the Treatment Facility



Figure 2: The intersection of the Northern and Western Walls of the Treatment Facility



Figure 3: Southern Wall of the Treatment Facility (facing the river)

To ameliorate the prevailing conditions, a Miyawaki Plantation in the adjoining forest land has been planned and is detailed below:



Figure 4: Google Earth Image of the Waste Treatment Facility and the adjoining polygon of proposed Miyawaki plantation

3. Miyawaki Plantation:

Rationale: Miyawakis grow around *10 times faster*, are around *30 times denser* than a normal forest, and harbour *100 times more biodiversity* and are finding rapid acceptance as means of urban afforestation in India. Also, for countries like ours, which are vulnerable to climate breakdown, they provide *30 times more green surface area* as well as have *30 times better capacity to absorb carbon dioxide* as compared to monoculture plantations.

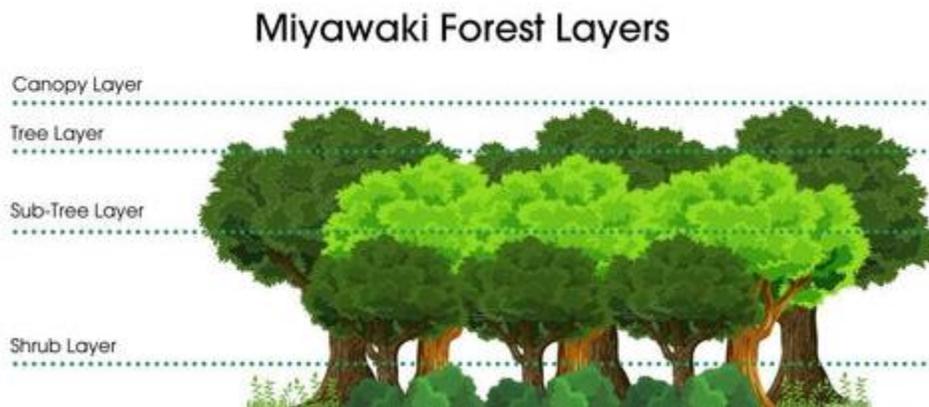


Figure 5: A representative Miyawaki Plantation

A typical Miyawaki Plantation has four primary layers to create a more natural forest. The 1) canopy Layer 2) Tree layer 3) Sub tree layer 4) Shrub layer. Native species seedlings are planted on prepared soil, very densely. This creates competition for light and seedlings grow vertically at a rapid space. As per inputs from sugiproject.com, “The denseness of growth provides a greater amount of forage for pollinators and refuge for birds. More canopy cover shades out weed and creates a cool home for insects, plus the increased leaf litter builds fertility and life in the soil.” The wide variety of trees make the entire plantation disease resilient. The soil is covered with straw to retain moisture decreasing the watering requirements. The plantation becomes self-sufficient within 2-3 years and nature completely takes over.

The proposed Miyawaki Plantation has been suitably customized for site-specific prevailing conditions. The salient features are as follows:

- The plantation has been chosen to be ***dense to create a visual wall*** around the waste treatment facility. However, the spacing has been customized to bring down the cost factor. Inspiration has been taken from some cost-effective variants of Miyawaki technique as detailed in the reference list.
- ***Evergreen species*** have been predominantly chosen for year-round foliage.
- Trees with ***higher values of Air Pollution Tolerance Index*** have been chosen as they withstand and treat polluting environments better (the scientific literature perused has been appended to the proposal).



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- Species as mentioned in the *guidelines of the Central Pollution Control Board* for developing green belts have been incorporated.
- Strict emphasis has been given on choosing **only native species** in line with the best practices of modern-day forestry (listed in section 3.1)

The total cost for the proposed Miyawaki plantation (customized) for the entire area (as demarcated) works out as Rs. 24.595 lakhs (APO attached in section 4).



3.1 List of Species Proposed* for the Miyawaki (customized) Plantation

S. No	Layer	Species	Scientific Name	Relevance
1	Canopy Layer (30m and above)	1) Semul	<i>Bombax ceiba (D, 30m)</i>	Large canopy tree for enhancing faunal biodiversity.
		2) Tun	<i>Toona ciliata (D, 45m)</i>	High APTI as per Kashyap et. al.
		3) Kadamb	<i>Neolamarckia cadamba (E, 45m)</i>	Native, umbrella shaped crown and beautiful orange flowers
		4) Baheda	<i>Terminalia bellirica (D, 50m)</i>	An important native, large tree species
2,3	Tree and Sub-Tree Layers (10-30m)	1) Shisham	<i>Dalbergia sissoo (D, 25m)</i>	Recommended by CPCB Guidelines on Green Belts
		2) Karanj	<i>Pongamia pinnata (D, 20m)</i>	Recommended by CPCB Guidelines on Green Belts
		3) Neem	<i>Azadirachta indica (E, 20m)</i>	NO _x , SO _x absorbent and filters dust particles with inherent medicinal properties. High APTI as per various studies
		4) Haldu	<i>Adina cordifolia (D, 20m)</i>	One of the important native tree species
		1) Amla	<i>Emblica officinalis (D, 18m)</i>	One of the most important native trees with medicinal properties
		2) Bamboo	<i>Dendrocalamus strictus (D, 16m, grass)</i>	Fast growing, native, good for raising a quick visual barrier
		3) Ashoka	<i>Saraca indica (E, 10m)</i>	Captures air-borne particles and reduces pollution. High APTI as per various studies.
		4) Papri	<i>Holoptelea integrifolia (D, 18m)</i>	Large canopy tree having very high APTI as per Paulsamy et. al. 2009
		5) Indian bael	<i>Aegle marmelos (D, 15m)</i>	High APTI as per Paulsamy et. al. 2009
		6) Kachnar	<i>Bauhinia variegata (D, 12m)</i>	Attractive visual appeal. In bloom for several months
		7) Chakera/garial	<i>Bauhinia semla (E, 10m)</i>	Important native tree species



		8) Khair	<i>Acacia catechu (D, 15m)</i>	Important native tree species
		9) Indian Laurel	<i>Litsea chinensis (E, 15m)</i>	High APTI as per Dubey et. al. 2023
		10) Dheu	<i>Artocarpus lacucha (D, 15m)</i>	Important middle canopy native tree
		11) Dhak	<i>Butea monosperma (D, 10m)</i>	Attractive visual appeal
4	Shrub layer (<10m)	1) Ber	<i>Ziziphus mauritiana (D, 8m)</i>	Species native to the plantation site
		2) Malabar nut	<i>Justicia adhatoda (E, 4m)</i>	Important native species
		3) Vitex	<i>Vitex negundo (P, 5m)</i>	Important native species
		4) Karonda	<i>Carissa carandas (P, 5m)</i>	Important native species
		5) Kaner	<i>Nerium indicum (E, 3m)</i>	Important native species
		6) Senjan	<i>Moringa oleifera (D, 9m)</i>	Important native species
		7) Babool	<i>Acacia nilotica (E, 7m)</i>	Recommended by CPCB Guidelines on Green Belts
		8) Aak	<i>Calotropis procera (P, 4m)</i>	Important native shrub
		9) Dhai	<i>Woodfordia fruticose (P, 3m)</i>	Important native shrub
		10) Gandhela	<i>Murraya koenigii (E, 6m)</i>	Important native shrub
		11) Ban Mirchi	<i>Murraya paniculata (E, 7m)</i>	Important native shrub
		12) Chatraon	<i>Berberis lycium (D, 4m)</i>	Important native shrub
5	Others (Herbs/Climbers/Grasses)	1) Van Haldi	<i>Curcuma decipiens (P)</i>	Important native species
		2) Nal	<i>Arundo donax</i>	Important native species
		3) Munj	<i>Saccharum munja</i>	Important native species
		4) Dub	<i>Cynodon dacylon</i>	Important native species

*Subject to availability of plants in nurseries and forests (more native species shall be added accordingly)

Please Note: E= Evergreen, D=Deciduous, P=Perennial. Trees with higher values of Air pollution tolerance are more tolerant to air pollution and ameliorating the effects of pollution and PM. The heights mentioned (in brackets in column 3) refer to the highest values attained as per literature.



4. The APO for the Miyawaki Plantation (customized) is detailed below:

APO for customized Miyawaki Plantation at Bhatanwali under Paonta Sahib Forest Division - in reference to OA No. 278/2022 - OA No. 278/2022 (Gram Panchayat Bhatanwali V/s Union of India)

Sr. No.	Scheme Name	Particular Work	Norms (in Rs.)	Quantity	Amount for proposal	Remarks
1	NGT OA No. 278/2022	Interlink-chain fencing work	Rs. 2000/Rmt	390	780000	
2		Land leveling, carriage of soil, mixing of vermicompost including cost of vermicompost and other moisture retaining materials including cocopeat etc.	L/s	L/s	250000	
3		Watering of plants in dry season through water tanker (etc).	L/s	L/s	150000	
4		Procurement/purchasing of Canopy, Tree Layer plants and shrubs	Rs. 72/Tall Plant	700	50400	The exact numbers may vary as per site specificity
			Rs. 30/shrub	3000	90000	
5		Planting of plants I/C digging and filling of pits.	Rs. 40/ Tall Plant	700	28000	
			Rs. 25/Shrub	3000	75000	
		Procurement and tying of bamboo sticks		L/S	10000	
6	5-year plantation maintenance including procurement/	Rs. 20000/Year	5 Year	100000		



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		purchasing of plants (for gap filling)				
7		Watch and Ward for five years				
		1 st year	Rs. 375/day	365	136875	
		2 nd year	Rs. 400/day	366	146400	
		3 rd year	Rs. 425/day	365	155125	
		4 th year	Rs. 450/day	365	164250	
		5 th year	Rs. 475/day	365	173375	
8		Boards and Signages	L/s	L/s	150000	
		Total Amount			2459425	



Reference list for (Customized) Miyawaki Plantation

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