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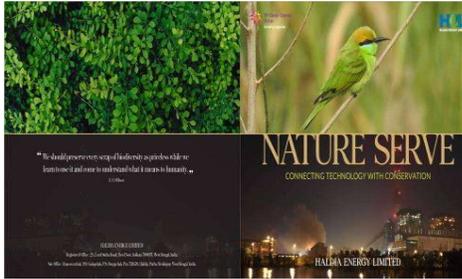
**BIODIVERSITY CONSERVATION AT HALDIA ENERGY LIMITED**



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Haldia Energy Limited (HEL), a group company of the RP-Sanjiv Goenka Group, has a 2 x 300 MW coal-based thermal power plant located at Jhikurkhali village near Haldia town in Purba Medinipur district in the Indian state of West Bengal. Since its inception, HEL has been striving for sustainable growth with biodiversity conservation as one of the most critical aspects in the course of its journey.

Sustainability (being equally responsible for people, planet, profit), being one of the core values of the group, has always been of prime significance and a guiding light for HEL in shaping up its operating principles.



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## HEL NATURE CONSERVATION VALUES



HALDIA ENERGY LIMITED

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- Haldia Energy Limited (HEL), since its inception, has been striving hard for the sustainable growth of its business.
- Environment Management is among the critical areas to ensure that the operational aspects do not lead to failure in complying with environmental norms and statutes.
- Moreover, we aim to leave a positive impact on the surrounding atmosphere for generations to come.



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## BIODIVERSITY CONSERVATION AT HALDIA ENERGY LIMITED



HALDIA ENERGY LIMITED

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HEL Biodiversity Conservation

- Butterfly Conservation Park
- Medicinal Herb Garden
- Across 106 acres Greenbelt  
 (Home to several species of flora and fauna comprising a few species of fauna which have been included in the IUCN Red List under the 'Least concern' category, such as the **Jungle Cat, Golden Jackal, Monitor Lizards, Green Sand Piper and Civet** among others)
- Spice Garden
- Pakhi Sangam-Water Bird Area
- Miyawaki Forest
- Panchayat Vatika

A Joint Initiative of West Bengal Biodiversity Board, Govt. of West Bengal and Haldia Energy Ltd

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## BUTTERFLY FLIES CONSERVATION



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**Why Butterfly garden:**

- Butterflies are bio indicators of a healthy environment and healthy ecosystem. The butterflies are indicators of good ambient air qualities in the plant. Butterflies are the second largest group of pollinators next to honey bees, which is an added advantage. Areas rich in butterflies are rich in other invertebrates and other species of food chain. These are important components of terrestrial community structure.
- HEL developed **"TITLI RANI"** or Butterfly Conservation Park at site on 2019.
- Presently, about 17 butterfly species, belonging to 5 families have been recorded from the HEL plant area.







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## PROJECT "RISHI KRISHI" ECHOING INDIAN AYURVEDA LEGACY



HALDIA ENERGY LIMITED



**IMPORTANCE OF Medicinal Plants Conservation:**

- Many of the important and useful species are on the verge of extinction due to over-exploitation and habitat destruction. More than 95% of the medicinal plants are collected from the wild; a number of them have become endangered in their natural habitats.
- To conserve the rare therapeutic species and at the same time to pay gratitude and nurture the thousands years old Indian tradition of herbal cure, HEL has been developed a Medicinal plant (Ayurvedic) garden named **"RISHI KRISHI"**.
- This herbal medicinal plant garden consists of 100 invaluable species of medicinal plants within Plant premises.

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## PRESERVING BIODIVERSITY

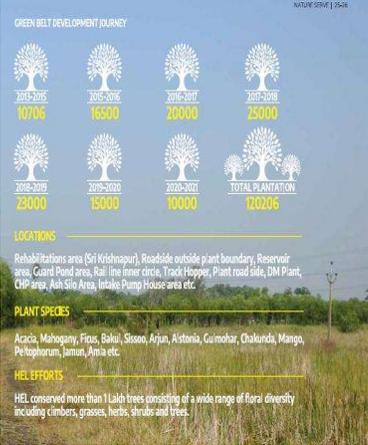


HALDIA ENERGY LIMITED

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**Anthropogenic interferences like urbanization and industrialization can cause migration or local extinction of various species of native biodiversity. Furthermore, the rapid degradation of major ecosystems is a grave concern and it is important that the industrial development in an area is coupled with conservation mandates.**

- **Plants are the green wealth of the planet Earth. They not only supply Oxygen but also reduce Carbon Dioxide and act as natural air conditioners.**
- **HEL started plantation programme within its compound in 2013 .**
- **A biodiversity conservation park has been established *comprising ponds, large water bodies and natural vegetation which now harbours a variety of local flora and fauna.***



**GREEN BELT DEVELOPMENT JOURNEY**

2013-2015	2015-2016	2016-2017	2017-2018
10706	16500	20000	25000
2018-2019	2019-2020	2020-2021	TOTAL PLANTATION
23000	15000	10000	120206

**LOCATIONS**  
Rehabilitations area (Sri Krishnagar), Roadside outside plant boundary, Reservoir area, Guard Pond area, Rail line inner circle, Track Hopper, Plant road side, DM Plant, CHP area, Ash/Silo Area, Intake Pump House area etc.

**PLANT SPECIES**  
Aracia, Mahogany, Ficus, Bakul, Sisoo, Arjun, Aistonia, Guimohar, Chakunda, Mango, Petioleporum, Jamun, Amia etc.

**HEL EFFORTS**  
HEL conserved more than 1 Lakh trees consisting of a wide range of floral diversity including climbers, grasses, herbs, shrubs and trees.

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## PLANTATION MANAGEMENT?



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## FAUNAL BIODIVERSITY



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**BIRDS**

- Birds are sensitive to the overall habitat quality and biodiversity of a particular place. 38 bird species belonging to 30 families have been sighted inside HEL.
- Large numbers (more than 500) of Lesser Whistling Teals (*Dendrocygna javanica*) were recorded from the waterbodies of the HEL plant.
- The landscape and Water Pond of HEL plant are perfectly suited for these birds, since these water bodies provide suitable habitat as well as security.




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## FAUNAL BIODIVERSITY



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Black Hooded Oriole



Coppersmith Barbet



Asian Koel



Long Tailed Shrike

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## FAUNAL POPULATIONS AT HEL



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**Golden Jackal :**

The Golden Jackal (*Canis aureus*) is found all across the green belt areas of HEL facility. HEL plant is supporting a sizable population of these endangered species, varying







**Jungle Cat & Small Indian Civet :**

The Jungle Cat & Small Indian Civet have been spotted on multiple instances at the green belt and plantation area around HEL facility.

IUCN Red List under the 'Least concern' category, includes the Jungle Cat, Golden Jackal, Monitor Lizards, Green Sand Piper and Civet among others.

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## HALDIA ENERGY LIMITED UNVEILS "NATURE SERVE" AN ILLUSTRATIVE BOOK ON BIODIVERSITY



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**Dr. S. Kerketta, Director, Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi, Government of India unveiled Nature Serve on 20.11.2021 at Kolkata**





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**PROJECT “SWAD KA BAGICHA”**  
**HEL SPICE GARDEN**



HEL  
HALDIA ENERGY LIMITED

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HEL has established a Spice Garden “SWAD KA BAGICHA” at its premises. The spices garden project aims to conserve and produce different types of spices inside the plant. The garden accommodates 30 different types of species which includes Bay leaf (Tej Patta), Cardamom (Elaichi), Cinnamon (Dalchini), Clove (Laung), Cumin (Zeera), Nutmeg (Jaiphal), Pepper (Kaali Mirch), Turmeric (Haldi) etc., originating from some specific geographical locations of India.

Apart from culinary use, spices also have an important place in the field of medicine. They are known to have several properties which are beneficial for human health.

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**INTANGIBLE BENEFITS**



HEL  
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- As a result of the conservation initiatives, the conservation area now harbours 50 species of trees, shrubs and herbs along with 100 different types of Ayurvedic medicinal plants, 30 different types of spices and 30 varieties of butterflies.
- Further, 38 bird species belonging to 30 families have been recorded on the campus.
- Large numbers (more than 500) of Lesser Whistling Teals (*Dendrocygna javanica*) were also recorded from the water bodies inside the HEL plant.
- Moreover, the plant area, also provides a safe and secure habitat for various faunal populations and mammalian species such as the Golden Jackal (*Canis aureus*), Jungle Cat (*Felis chaus*), and Small Indian Civet (*Viverricula indica*) roam freely within the plant area without being disturbed.
- In the 106 acres of plantation within the plant premises, about 1,22,206 trees are thriving, which have absorbed around 1,95,638 tonnes of CO<sub>2</sub>. Another positive impact of plantation in and around the plant is the increase of Soil Organic Carbon (SOC), which is also a unique sink of carbon.

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## PROJECTS

# "PANCHAYAT VATIKA AND MIYAWAKI FOREST"

(A Joint Initiative of West Bengal Biodiversity Board, Govt. of West Bengal and Haldia Energy Ltd)



H2L  
HALDIA ENERGY LIMITED

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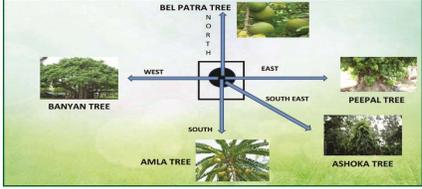




### PANCHAVATI VATIKA



(A JOINT INITIATIVE OF WEST BENGAL BIODIVERSITY BOARD, GOVT. OF WEST BENGAL AND HALDIA ENERGY LTD.)



HALDIA ENERGY LIMITED





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**Report on**

## Carbon Storage by Native Plant Community and Associated Abiotic Environment in and around the Haldia Energy Limited

**Prepared by**

Techno India University, West Bengal





**techno india university**  
WEST BENGAL

Under Act of State Legislature vide Act - West Bengal Act of 2012 (No. 1203-L, 16th August, 2012) and recognized by UGC



**Haldia Energy Limited, Haldia, West Bengal**  
April 2023

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**Carbon sequestration in Plantation areas,  
Greenbelt and Lawn in & around Thermal Power Plant**



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**CARBON SEQUESTRATION CERTIFICATE**

**CARBON SEQUESTRATION  
Verification and Validation Audit  
REPORT cum CERTIFICATE**  
April, 2023

Presented to  
**Haldia Energy Limited, Haldia**  
For Offsetting  
**1, 95,638.57 MT of CO<sub>2</sub>**  
(Within 106 Acres of Land Areas covered with Diverse  
Floral Species since 2013 in & Around the Plant)

*Antara Chakraborty*  
Dr. ANTARA CHAKRABORTY  
Department of Energy Science & Engineering, IIT Bombay  
By **Dr Antara Chakraborty**  
PhD, Carbon Nanomaterials  
Department of Energy Science and Engineering,  
Indian Institute of Technology Bombay



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**REPLICATION POTENTIAL OF PROJECT  
WITHIN SECTOR AND CHALLENGES**



HALDIA ENERGY LIMITED

- West Bengal is an eastern Indian state that stretches from the Himalayas through the Gangetic plains to the Bay of Bengal and harbours several geophysical features and associated biodiversity that is represented by the Indian subcontinent.
- Before the HEL power plant was conceived in the Jhikurkhali village, the land was mostly low-lying with seasonal waterlogging. Such habitat is typical of Gangetic West Bengal, particularly South Bengal, which has the potential of harbouring a diversity of flora and fauna.
- However, there was hardly any wildlife in Haldia due to the dearth of natural forest cover. Moreover, a few species, that were once common to this rural landscape became rare due to loss of habitat, hunting activities and lack of acceptance by people as they are often associated with the destruction of poultry and domestic livestock.
- A biodiversity conservation park has been established comprising ponds, large water bodies and natural vegetation which now harbours a variety of local flora and fauna.
- Moreover, a safe and secure environment ensured by the plant, helped biodiversity not only to sustain but also to flourish within the plant.

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### GREEN STEWARDSHIP UNDERTAKEN BY HEL (BEST PRACTICES )



HEL  
HALDIA ENERGY LIMITED

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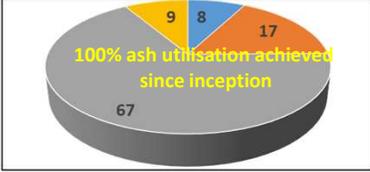
Commissioned a 30 kWp roof top solar plant in the Administrative building



The automatic organic waste composter gives organic compost using kitchen and garden waste



Conversion of the Administrative Building to a Platinum Category Green Building certified by IGBC



Utilization of Ash FY 22-23 (figures in %)

100% ash utilisation achieved since inception

■ Ash based blocks ■ Indian Cement Plants ■ Cement Plants ■ Structural filling



HEL introduced Battery Operated Car (Tata Nexon EV) to put its best foot forward in the environment's friendliness and CO2 reduction

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### GOI-UNDP-BIOFIN PROJECT (2022-23)



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The GoI-UNDP Biodiversity Finance Initiative (BIOFIN) programme, is aimed at identifying and incentivizing innovative & sustainable biodiversity conservation projects in India. The biodiversity conservation initiative of HEL has been shortlisted in the soon to be released publication of GoI-UNDP

#### Natural Diversity



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## MAJOR LEARNINGS FROM THE PROJECT IMPLEMENTATION



HEL

- Nature makes human development possible but our relentless demand for the earth's resources is accelerating extinction rates and devastating the world's ecosystems.
- HEL biodiversity conservation journey over the last ten years, makes us feel proud and happy. To implement the power plant, HEL maintained the original site setting to a large extent, protecting the integral native ecological diversity and enriching green belt development.
- The power plant came up and enclosed the native ecological diversity along with their habitats within its site boundary.
- Haldia Energy Limited carries out a number of projects that ensure harmony between its development and respect for conservation of Biodiversity.
- However, the journey in improving the Biodiversity has only started, as HEL look into the future, it must endeavour to contribute continually and sustainably towards a Greener planet.

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HEL

# *Thank You*

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