HINDUSTAN ZINC LIMITED (RAJPURA DARIBA MINES)

HIMANSHU SHARDA

ENVIRONMENTAL ENGINEER

HINDUSTAN ZINC
Zinc & Silver of India

vedanta
transforming elements

DEVELOPMENT OF A BIODIVERSITY PARK

52 Bigha (10ha.) of land adjacent to Mataji ka Kheda irrigation pond was lying unused for the past 37 years.

The area was covered with invasive species like Prosopis Juliflora had made that area barren with poor soil fertility and poor soil quality. Because of this, plantation done in patches in that area couldn't sustain.

The land had become uneven and barren which had made the area uninhabitable for migratory birds which are a common sight at Rajpura Dariba Complex., it had to be levelled and the soil needed to be enriched for proper growth and development of plants and trees.

52 Bigha (10 ha.) was cleared off, the invasive species by JCB's and land was levelled with help of Bob Cat.

Soil treatment involving process of enrichment of soil through Fertilizers (Urea and NPK mix of 20:10:10) along with Mix Organic Manure (Neem Cake) and vermi-compost was carried out

50000 pits were dug and filled with the enriched soil to sustain the growth of plantation

Around 42 species and 50,000 saplings were planted.

More than 150 species of flora and fauna will be attracted to the Biodiversity Park leading to an improvement in the Biodiversity Index in that area.

BRIEF ON THE PROCESS

- LAND CLEARING AND LEVELLING
- SOIL TREATMENT
- PIT PREPARATION
- PLANTATION OF SAPLINGS

TRIGGER OF THE PROJECT

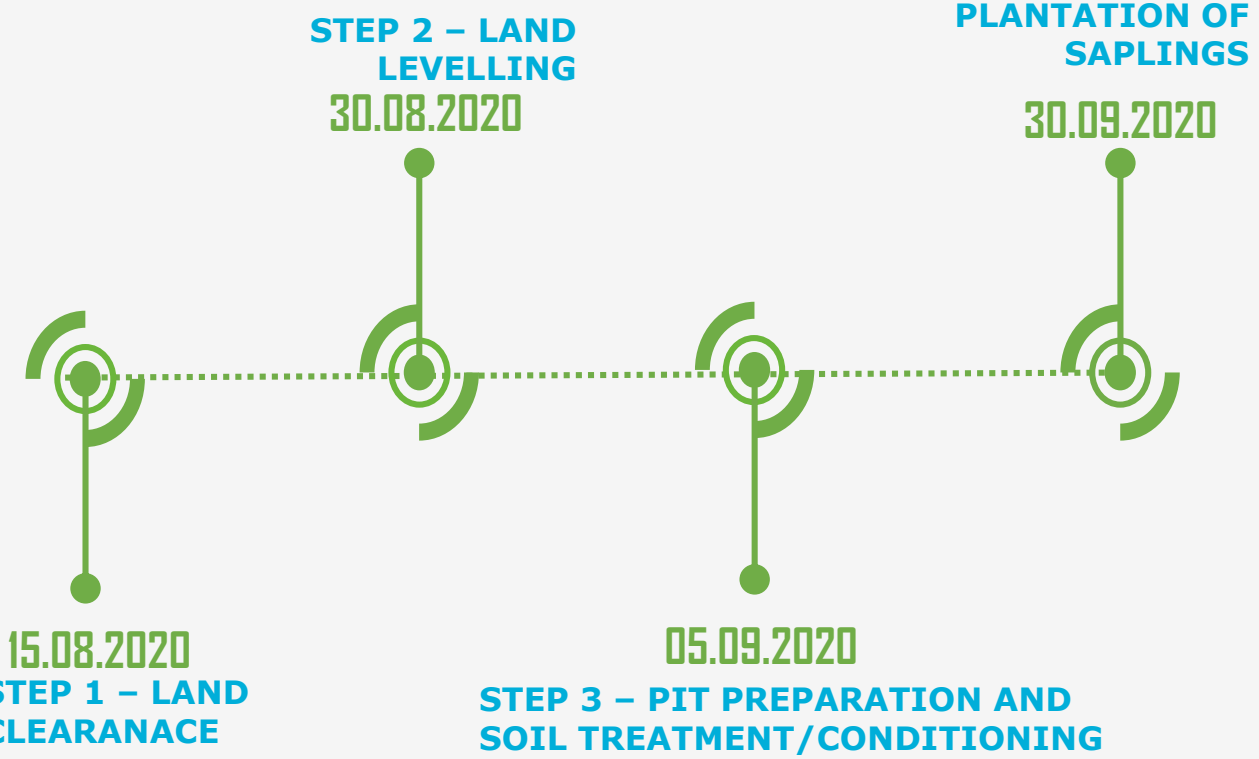
- Environmental sustainability is one of the core values embodied in the HZL philosophy, by aiming to serve the community and the planet for the best possible future. (Biodiversity Policy)
- To develop a park/ separate patch of plantation for the native species and migratory birds due to water bodies availability in nearby areas.
- Create favorable conditions for bird nesting, roosting due to water and food availability in the nearby vicinity.
- Reclamation of barren land available within the lease area.

UNIQUENESS OF THE PROJECT

- **50,000 plants in a single stroke** : What makes this project unique is the fact that in a 10 ha. of land ,50,000 saplings were planted in one go within a cycle of 45 days which included processes like clearing of land off invasive species like prosopis Juliflora, land levelling, digging of pits, soil enrichment and treatment, planting of 50,000 sapling of 42 different species.
- **Highly Dense plantation of 5000 plants/ha.**: Generally plantation with density of 1000-2500 plants/ha. is planted, In this project, high density plantation of 5000plants/ha. was carried out which will lead to higher Biodiversity index.
- **Soil treatment and conditioning**: Soil treatment involving process of enrichment of soil through Fertilizers (Urea and NPK mix of 20:10:10) along with Mix Organic Manure (Neem Cake) and Vermicomposting was carried out.
- **Special species** : Species were chosen based on nativity, compatibility and sustainability of growth to create a sustainable and effective plantation.

- Date of commencement : 15.08.2020
- Date of completion of project : 30.09.2020

MAJOR MILESTONES OF PROJECT ACCOMPLISHMENT



CHALLENGES FACED AND BRIEF ON COUNTERING

PROBLEM STATEMENT

TECHNICAL CHALLENGE - BARREN AND UNEVEN LAND

TECHNICAL CHALLENGE - POOR SOIL FERTILITY & POOR SOIL QUALITY

ADMINISTRATIVE CHALLENGE - ENCROACHMENT BY MISCREANTS

MAINTENANCE CHALLENGE - PLANTATION DONE IN PATCHES IN THAT AREA COULDN'T SUSTAIN

SOLUTION

- All invasive species like Prosopis Juliflora were uprooted and all land was got cleared.
- Thereafter levelling of the land was done to improve the aesthetic look with some undulation for naturality.

- Soil treatment involving process of enrichment of soil through Fertilizers (Urea and NPK mix of 20:10:10) along with Mix Organic Manure (Neem Cake) and Vermicompost was carried out.

- The encroachment was removed amicably, without any objection or nuisance from anyone, now the total area is fenced.

- A plan for maintenance of the plantation for the next 4 years had been executed which lead to the plants and trees becoming self sustaining and creating a rich sustainable ecosystem.

DRONE VIDEO – DURING PIT DIGGING STAGE

TANGIBLE AND INTANGIBLE BENEFITS

- IMPROVED GREEN COVER WITH PLANTATION OF 50000 SAPLINGS OF 42 DIFFERENT SPECIES
- ATTRACTION FOR NATIVE AND MIGRATORY BIRD (DURING THE WINTER SEASON)
- IMPROVED BIODIVERSITY INDEX OF THE LOCATION
- RECLAMATION OF THE AREA COVERED WITH INVASIVE AND WILD SPECIES
- REMOVING ENCROACHMENT AND TAKE AREA UNDER POSSESSION
- IMPROVE SOIL FERTILITY & MOISTURE RETENTION CAPACITY
- IMPROVE ESTHETIC LOOK OF THE AREA
- GOING BEYOND COMPLIANCE AND GIVING BACK TO NATURE

REPLICATION POTENTIAL OF THE PROJECT

- The project is replicable across industries subject to availability of land.

BEFORE

AFTER

REPLICATION POTENTIAL OF THE PROJECT

TECHNICAL PUBLICATIONS

Yamuna Biodiversity Park

Once the lifeline of civilisations and cities that thrived on its banks, the river Yamuna now has inadequate water flow and heavy load due to pollution. It has a stretch of nearly 48 km with a river bed of 97 km² in the National Capital Territory of Delhi. The rescue and restoration of the lost native biodiversity and riverine ecosystem was launched through Yamuna Biodiversity Park. The park covers two different areas comprising native floodplains of the river in phase I and active floodplains in phase II. Phase I comprises 157 acres near village Wazirabad on which the work started around 2002. Native grass and plant species were planted. Phase II of the park covers an area of 300 acres and consists of a mosaic of wetlands, grasslands and floodplain forests. With the restoration of the wetlands and plantation of native species along with proper landscaping of diversity of resident and migratory birds such as Grey Herons, Painted Storks, Spoonbills, Open-billed Storks, Red-crested Pochards, Wagtails and Sandpipers, the park now hosts a wide range of ecosystems indigenous to the Yamuna river basin and supports more than 1,500 plant and animal species.

Spread across 456 acres of land near Wazirabad village, Yamuna Biodiversity park is located on the flat of alluvial plains of the river Yamuna. The park is a biologically rich landscape of grassland communities, a wide variety of fruit yielding species of plants and a rich repository of medicinal herbs. The park also nurtures native flora and fauna that existed 100 years ago and then became extinct locally.

Aravalli Biodiversity Park

The Aravallis are among the oldest mountain ranges having evolved about 1,500 million years ago, and extend from Gujarat through Rajasthan to Haryana and Delhi. The spurs of the Aravallis are popularly known as the Delhi Ridge in Delhi, which is divided into the Northern, Central, South Central and Southern Ridge. Extensive mining of mica, sandstone, china clay, badarpur and gravel over several decades had left the dense forest supporting a wide range of ecosystems such as tropical moist forests, scrubs and grasslands, of south central Ridge, barren and degraded with wide deep pits and denuded hillocks. The Supreme Court issued an order in 1996 that prohibited DDA from allowing any construction activity on 560 acres of the land.

The Aravalli Biodiversity Park, has brought the unique natural heritage of Delhi back in this area. DDA got the park developed by a dedicated team of scientists from Delhi University under leadership of Professor C.R. Babu at CEMDE.

Stretching across 692 acres of scenic landscape, Aravalli Biodiversity Park is located on South Central Ridge near the posh Vasant Vihar colony of South Delhi. The park provides a picture perfect landscape and biodiversity for protection of the natural Aravalli ecology. To further enrich the ecology, the depression area has been converted into orchidarium, and Fernarium for educational interests. It has specialized parks such as Butterfly Park, Sacred Groves, Medicinal and Herbal Garden.

From a barren piece of land in 2004 to a lush-green sanctuary hosting birds, mammals, reptiles, rare ayurvedic plants, butterflies and other insects, the Aravalli Biodiversity Park is an ecological transformation of the degraded land, which holds a torch to other similarly degraded areas.

Yamuna Biodiversity Park and Aravalli Biodiversity Park
Source : Implementation of India's National Biodiversity Action Plan 2019

VISITS FOR LEARNINGS

- Statutory authorities/ Policy Makers
- Other Industries

SOCIAL MEDIA

Case Studies published in Various public domain platform

- HZL Annual Report/ Sustainability Report
- Vedanta Annual/ Sustainability Report
- HZL Website
- Social media – Twitter/ Facebook / LinkedIn

ACHIEVING NATIONAL BENCHMARKS/STANDARDS

INTERNAL BENCHMARK / STANDARD – BIODIVERSITY POLICY

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HINDUSTAN ZINC

Biodiversity Policy

Protecting and enhancing biodiversity is an integral part of Hindustan Zinc's commitment to sustainable development. We are conscious of the potential impacts and dependencies of our business on biodiversity. Integrating the need for biodiversity conservation into operational decision making processes and taking all necessary measures to minimize impacts, is a Commitment across the company. We are conscious that biodiversity is a complex phenomenon that needs to be identified, understood and valued from a biological and societal (i.e. in terms of ecosystem services) perspective. We believe that our performance on biodiversity conservation will create long term sustainability for our business and the society.

Hindustan Zinc strives to:

- Create awareness to prevent, where possible, minimise and mitigate biodiversity risks throughout our businesses. We will manage and use land in our operations in a manner that allows biodiversity conservation, which is integrated with business needs throughout the project lifecycle, including decommissioning, closure and rehabilitation.
- Comply with, and exceed where possible, the local, regional and national legislative requirements on land management and biodiversity conservation and applicable international conventions in all jurisdictions in which it operates.
- Identify and assess biodiversity status, value and its impacts, due to resettlement, loss of cultural heritage, loss of protected land and endangered species before the start and over the project lifecycle.
- Consider the impacts on ecosystem services in business decisions.
- Work towards the conservation of threatened/rare and endemic species and high priority conservation areas, and support local, national and global conservation initiatives. We will provide information and raise awareness among our employees and other stakeholders to enhance knowledge and understanding of biodiversity and conservation issues, where applicable.

We will measure and report progress against this policy and review performance on a periodic basis to ensure ongoing management of biodiversity. The content and implementation of this policy will be reviewed periodically and actions taken accordingly including the sharing of good practices throughout the Hindustan Zinc.

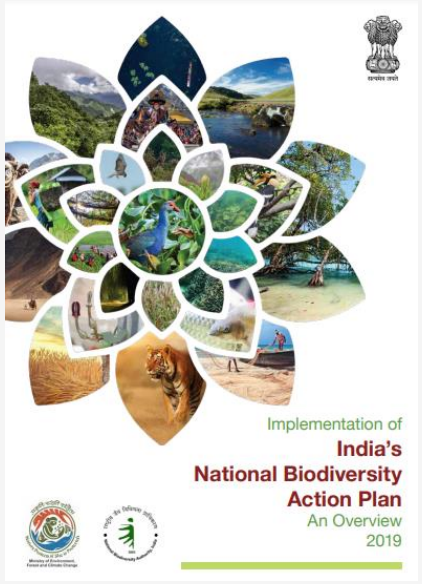
Date: 1st July, 2019

Sunil Duggal
Chief Executive Officer & Whole-Time Director

www.hzlindia.com

Hindustan Zinc limited strives to :
Work towards conservation of threatened, rare and endemic species and high priority conservation areas, and support local, national and global conservation initiatives

NATIONAL BENCHMARK / STANDARD – NATIONAL BIODIVERSITY ACTION PLAN (2008) AND IMPLEMENTATION (2019)



Specific biodiversity relevant components of NG

- While all the components are biodiversity relevant, the components river front development, biodiversity, and **afforestation directly relate to the conservation and enhancement of biodiversity and ecosystems.**

INTERNATIONAL BENCHMARK / STANDARD – SUSTAINABLE DEVELOPMENT G 15 : LIFE ON LAND

END DESERTIFICATION AND RESTORE DEGRADED LAND

PROTECT BIODIVERSITY AND NATURAL HABITATS

HE WHO PLANTS A TREE, PLANTS A HOPE – LUCY LARCOM

THANK YOU

For the attention