Safe WATER NETWORK

Vasundhara
ENVIRONMENT SUSTAINABILITY AND BIODIVERSITY ENHANCEMENT

VASUNDHARA
2024 - 2027

ENVIRONMENTAL SUSTAINABILITY AND BIODIVERSITY ENHANCEMENT

2024-Dec 2025

Rejuvenation of Lake Aivarakhandapura, Bengaluru, Karnataka

Restoration of Aravalli Region, Gurugram, Haryana

KNOWLEDGE PARTNERS

PricewaterhouseCoopers

Demetrix Infotech

ICAR - Indian Institute of Horticultural Research

SUPPORTING PARTNERS

Government of Haryana

Government of Karnataka

PROGRAM VASUNDHARA

ENVIRONMENTAL SUSTAINABILITY AND BIODIVERSITY ENHANCEMENT

Aravalli, Gurugram, Haryana | Lake Aivarakhandapura, Bengaluru, Karnataka

Background

India's growing population, rapid urbanization, and industrialization have intensified pressure on natural resources, land, water, and ecological systems. Regions such as the Aravalli Hills are severely degraded by deforestation, soil erosion, illegal mining, and declining groundwater levels. Urban water bodies and wetlands, such as Aivarakhandapura Lake, are shrinking, while climate stresses—extreme heat, erratic rainfall, and flooding—are increasing.

Program Vasundhara addresses these urgent environmental challenges through integrated land restoration, water conservation, and climate action to enhance the ecological health of these two critical regions – the **Aravalli region in Gurugram, Haryana**, and **Lake Aivarakhandapura in Bengaluru, Karnataka** - through community-led interventions that promote sustainable, resilient urban ecosystems. The program not only strengthens ecological resilience but also improves the well-being and livelihoods of local communities.

Component 1: Restoration of Urban and Peri-urban Ecosystems (Land & Water)
Enhanced ecosystem services – food systems, water resources, medicinal plants, and recreation – through targeted restoration and conservation of the Aravalli OECM.

Component 2: Climate Action
Reduced climate vulnerability through adaptive interventions and promotion of energy-efficient solutions.

Component 3: Community Engagement
Livelihood-linked eco-restoration opportunities created for community members.

Component 4: Capacity Enhancement
Strengthened technical skills and knowledge among local communities and institutions to support long-term biodiversity conservation.

Component 5: Knowledge Management & Dissemination
A corporate-supported OECM strengthening model showcased nationally and globally to advance biodiversity conservation across India.

PROGRAM APPROACH

PROGRAM DESIGN — Foundation Phase

- **Baseline Assessment by PwC**
  Established an ecological, social, and hydrological baseline for the Aravalli & Aivarakhandapura regions
- **Development of DPR - Detail Project Reports**
  Site-specific technical designs, intervention plans, timelines, and costing for restoration of the Aravalli region in Gurugram in Haryana, and for Lake Aivarakhandapura in Bengaluru in Karnataka
- **Program Development**
  Community-led participatory design of the program, coupled with capacity building of local institutions, youth, and women

RESTORATION APPROACH — Implementation Phase

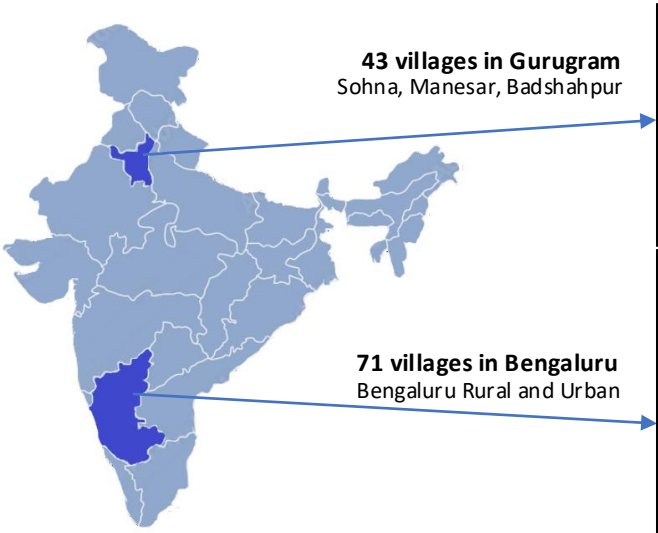
- **Land and Water Restoration**
  Pond rejuvenation, soil and water conservation, watershed strengthening, lake Aivarakhandapura rejuvenation, and Aravalli landscape recovery
- **Climate Action**
  Solarization for green energy, tree plantation, and the development of medicinal gardens
- **Biodiversity Enhancement**
  Native species plantation, micro-habitat creation, restoration of habitat, and OECM protection
- **Technology and Monitoring**
  GIS-based planning, automatic weather stations, remote-sensing monitoring, digital dashboards, and communication

PROGRAM SUSTENANCE — Continuity Phase

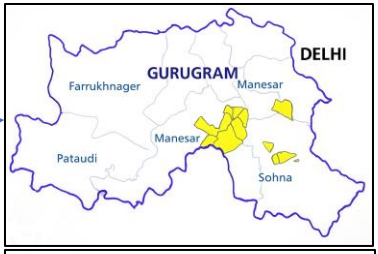
- **Community Ownership**
  Local stewardship groups, watershed committees, biodiversity committees, forest and wetland committees, and self-help groups
- **Institutional Strengthening**
  Integration with Panchayats, governance mechanisms, and clear Standard Operating Procedures (SOPs)
- **Convergence and Partnerships**
  Government scheme linkages, CSR partnerships, and replication pathways

GEOGRAPHICAL COVERAGE

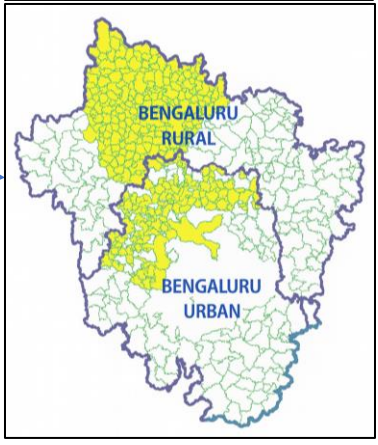
Intervention in 114 villages



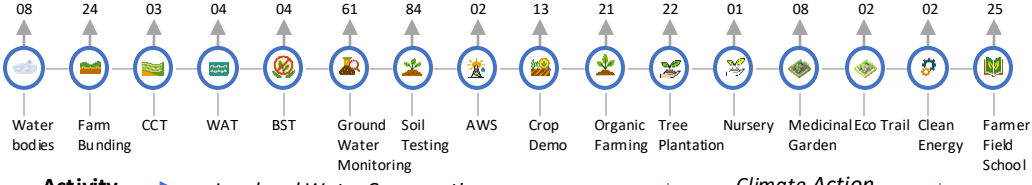
43 villages in Gurugram
Sohna, Manesar, Badshahpur



71 villages in Bengaluru
Bengaluru Rural and Urban



Number of villages covered



Name of Intervention Village									
Karnataka	Arakere	Chikkavadagere	Gulya	Aivar Kandapura	Kamakshipura	Kondashetti	Mathugadahalli	Sasiveghatta	Thammarasanahalli
	Badrapura	Chokanahalli	Halenahalli	Jodithimasandra	Kammasandra	Kukkanahalli	Mavallipura	Seethakempanhalli	Tharabanahalli
	Billajaji	Chokkanahalli	Haniyuru	K.G.Sastry palya	Kanasavadi	Linganahalli	Nagenahalli	Serenadra	Thorenagasandra
	Budumahalli	Dasenahalli	Hesaragatta	Kadnur	Kannamangala	Lingarajapura	Nallenahalli	Shanubhoganahalli	Uddichikkanahalli
	Byatha	Dibbr	Honnadevipura	Kakkehalli	Karlapura	Madhugirihalli	Purusanahalli	Shivkote	Yedlahalli
	Byrapura	Doddavadarere	Honnavara	Kakolu	Kenjiganahalli	Marasandra	Puttaiana Agrahara	Simpadipura	Modagonhalli
	Challahali	Gandragolipura	Hurali chikkanahalli	Kalenahalli	Kodagi Thirumalapura	Marasandra	Puttenahalli	Sonnenahali	Kadnur Pallya
	Chansandra	Guddadahalli	Isthur	Kallodu	Koluvarayanahalli	Mathkur	Ramadevanahalli	Syakaldevanapura	
Haryana	Abhaypur	Berka	Dhaula	Harchandpur	Karnki	Lakhuwas	Nainagla	Nunera	Siriska
	Aklimpur	Bhangrola	Eshaki	Harihera	Khaika	Lala Kherla	Narnval	Raiseena	Tolni
	Alipur	Bilhaka	Garatpur Bas	Hasanpur	Kharoda	Lohtki	Navada	Sahjawas	Teekli
	Baluda	Chuhadpur	Garhi Bazidpur	Johlaka	Kherla	Mahendrawara	Navrangpur	Sakatpur	
	Bhelpa	Damdama	Ghamroj	Kakrola	Khober	Mandwara	Nimoth	Shikohpur	

WATERBODY RESTORATION

16.3% of India's 2.4 million water bodies have dried up due to siltation, encroachment, and construction activities. Many are misused as dumping grounds for garbage or construction materials.

Rejuvenation of water bodies is urgent to address declining groundwater levels, enhance water security for various uses (irrigation, drinking water), mitigate the effects of climate change (like floods and droughts), and ensure the overall ecological health and sustainability of natural resources.

IMPLEMENTATION APPROACH

Physical & Technical Assessment
- Community-led participatory assessment
- Baseline study

Community Mobilization
- Stakeholder engagement with local government
- IEC, program sensitization

Technical

Pond Cleaning – De-weeding, garbage removal, de-watering, de-siltation, bunding

Landscape Management

Walkways, tree plantation, benches, swings, and fencing

Sustainability
- Monitoring & Evaluation
- Local Ownership and Stewardship
- Handing Over

RESTORATION EFFORTS AND CONSERVATION OUTCOMES

Aivarakhandapura Lake Restoration
- Restoration of **22 acres** of the 120-acre Lake
- Jungle clearance inside the lake bed
- Garbage removal & site clearance in **25 acres**
- De-siltation over **17 acres**
- Embankment strengthening along **1,000 m**
- Plantation of **1,000 trees**

Waterbody Rejuvenation
- **8 ponds** rejuvenated in Gurugram
- **2 farm ponds** created in Bengaluru

Soil and Water Conservation
- **625** hectares of land area covered
- **340** million liters of rainwater-harvesting capacity created

POND RESTORATION, GURUGRAM

1 BEHLPA POND

Size: 1.24 acres (work-in-progress)

2 DHAULA POND

Size: 0.45 acres | Water Storage Capacity: 3.2ML

3 SHIKOHPUR POND

Size: 0.67 acres | Water Storage Capacity: 0.5 ML

POND RESTORATION, GURUGRAM

4 POND AT MG COLONY

Size: 0.48 acres | Water Storage Capacity: 6.4 ML

5 GHAMROJ POND

Size: 0.96 acres | Water Storage Capacity: 3.06 ML

6 ALIPUR POND

Size: 1.24 acres | Water Storage Capacity: 1.10 ML

7 & 8 TEEKLI PONDS 1 & 2

Size: 1.2 acres, 2.71 acres | Water Storage Capacity: 18 ML & 11 ML

AIVARAKHANDAPURA LAKE RESTORATION, BENGALURU

Lake Aivarakhandapura is a **141-acre man-made lake** located in Aivarakhandapura village, Hurlichikkanahalli Gram Panchayat, Yelahanka taluk, Bengaluru Urban district. The Arkavathi and Dakshina Pinakini rivers flow through this region. It receives water from three major inlets, and has a catchment area of **32.89 sq km** and storage capacity of **399 million liters**.

The lake provides water for domestic use, irrigation, fisheries, and recreation, while serving as a biodiversity hotspot that supports a variety of plants, fish, birds, and mammals. It also contributes to flood mitigation and drought-proofing for the surrounding communities.

Work Description

- Rejuvenation of 22 acres of the 120-acre Lake
- Site clearance, bushes, and garbage removal, 25 acres
- Jungle clearance inside the lake bed
- Desiltation of 17 acres
- Land contouring and slope preparation
- Embankment strengthening 1000 m
- Grass turfing alongside the canal slope
- Inlet and Outlet Construction- hume pipe 1x2.13m
- 1000 Tree plantation

BEFORE

Garbage around the lake

Weeds in the lake

Garbage at the lake inlet 2

Garbage at the lake inlet 3

DURING

POND RESTORATION, BENGALURU

SONNENAHALLI POND

Size: 1.19 acres | Water Storage Capacity: 4.68 ML

BYATHA - FARM POND

Size: 0.45 acres | Water Storage Capacity: 4.78 ML

Launch of Vasundhara Program at Byatha Pond, Bengaluru

SOIL AND WATER CONSERVATION MEASURES

Prevention of land degradation and restoration of soil health have been implemented across **21 villages (621 hectares) in Gurugram and 6 villages (1,477 hectares) in Bengaluru**. Through interventions such as farm bunding, continuous contour trenches (CCT), water-absorption trenches, and biosecurity trenches, a combined **737 million liters of rainwater harvesting capacity has been created**. These measures have significantly improved soil moisture retention, enhanced agricultural productivity, and increased rural livelihoods.

700 million liters of rainwater potential created, covering an area of 2,100 hectares

Farm Bunds

Trenches

Farm Ponds

FARM BUNDING AND FARM PONDS

Farm bunding is a key conservation agriculture technique in which bunds (ridges or embankments) are constructed along farm boundaries or across slopes. It is a low-cost, easy-to-implement intervention that helps prevent soil erosion, enhance soil moisture retention, and stabilize topsoil. By improving water availability and reducing nutrient loss, farm bunding increases crop yields while reducing the need for fertilizers and pesticides.

Area Covered: 705 hectares
Water Harvesting Capacity: 340.2 million litres

Repair Farm Bunds, Haryana

Farm Bund, Karlapur, Haryana

FARM POND: A farm pond is a small, artificial pond constructed on farmland to collect and store rainwater for irrigation, livestock, and other agricultural needs. Farm ponds support crop cultivation, improve livestock health, reduce soil erosion, and enhance groundwater recharge. They help stabilize farm productivity, increase household income, and reduce dependence on erratic rainfall.

Area Covered: 0.664 Hectares
Water Harvesting Capacity: 52 million litres

Farm Pond, Sonnenahalli, Karnataka

Farm Pond, Byatha, Karnataka

TRENCHES - BENGALURU

Trenches are soil structures built to reduce soil erosion, recharge groundwater, and enhance farm productivity. Depending on the land topography, we developed Continuous Contour Trenches (CCTs) to capture runoff along contour lines to improve infiltration; Water Absorption Trenches (WATs), shallow ditches designed to absorb rainwater and increase soil moisture; and **Bio-security Trenches** to protect farms or villages by blocking stray animals and managing runoff.

Area Covered:	1599 hectares
Water Harvesting Capacity:	28.8 million litres

Continuous Contour Trenches

Bio-Security Trenches

Water Absorption Trenches

SUSTAINABLE AGRICULTURAL PRACTICES

Under the Vasundhara program, **14,000 farmers** across **114 villages** in Gurugram and Bengaluru are engaged in sustainable agricultural practices covering **15,500 hectares**. The programs undertaken are reducing water use in agriculture, promoting crop diversification and crop rotation, using high-yielding hybrid seeds, adopting practices like grafting, applying fertilizer after soil testing, and introducing organic farming, reducing pesticide use to improve farm productivity, protect natural resources, biodiversity, and the environment. We have created farmer field schools and aggregated them. We have installed hyperlocal weather stations to provide farmers with real-time advisories via mobile alerts, enabling them to make timely, informed decisions.

SMART AGRICULTURAL PRACTICES

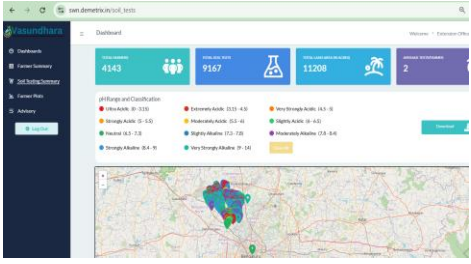
The Vasundhara program has introduced smart agricultural technologies to monitor, track, automate, and enable data-driven decision-making for farmers. Farmer capacity is strengthened through in-field demonstrations, classroom sessions, and the formation of 'Farmer Clubs'. Crop and weather advisory services are shared with farmers via WhatsApp groups, enabling real-time communication, timely advisories, and peer learning on smart farming practices.

Soil Testing

Over 12,000 soil tests have been conducted for 6,300 farmers across project sites. Analysis reports are regularly shared with farmers through the Farmer Registration App, enabling informed decisions on nutrient management and crop planning.

Soil testing , Gurugram

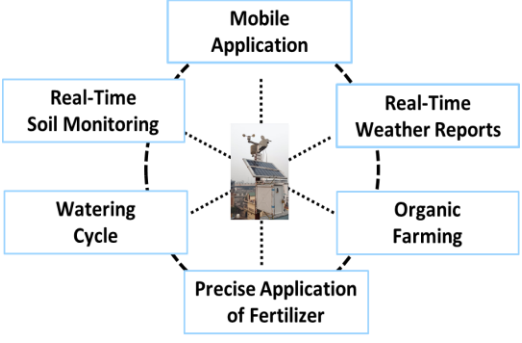
Soil testing probe and Farmers Grower App



Soil Testing Dashboard, Demetrix

Automated Weather Station (AWS)

AWS units were installed at both locations, Gurugram and Bengaluru, to provide real-time weather insights. The timely advisories help farmers make informed decisions on irrigation, fertilization, and pest management by monitoring temperature, humidity, rainfall, wind speed, and soil moisture. This improves productivity, reduces costs and weather-related risks, and supports smarter, climate-resilient farming for better profitability.



AWS at Sonnenahalli, Bengaluru

SUSTAINABLE AGRICULTURAL PRACTICES

Crop Demonstration

A total of **66 crop demonstrations** with marginalized farmers were conducted for **10 species**. The demonstrations focused on introducing **improved and hybrid seed varieties, grafted saplings, the raised bed method, enriching soil nutrients based on the soil health card, water-saving irrigation, reducing the use of chemical fertilizers, and adopting organic Jeevamrut** key vegetables demonstrated are **okra, coriander, potato, brinjal, gourds, radish, tomato, ragi, capsicum,** and **areca-nut techniques**.

Plastic Mulching

- Involves covering the soil surface around plants with either organic materials (straw, sawdust) or inorganic materials (LDPE/plastic).
- Helps retain 30-50% more soil moisture, suppresses weed growth, and reduces pest and disease incidence, leading to healthier crops and improved yields.

Plastic mulching of brinjal crops, Bengaluru

Bitter Gourd Crop demonstration, Gurugram

Drip Irrigation and Raised Bed Method:

Drip irrigation delivers water directly to roots, saving 40–60% water while improving soil aeration and root health.

Grafting: Joining a scion and rootstock to form one plant, improving survival rates to 90–95%.

Crop Diversification: Changing or rotating crops increases harvest frequency, saves water, boosts farmers' income, and reduces dependence on a single crop.

Drip Irrigation

Harvesting of Okra, Gurugram, and Tomato Bengaluru from the demonstration plots

ORGANIC FERTILIZER - JEEVAMRUT

- Jeevamrut is a low-cost, liquid organic fertilizer made from fermented cow dung, urine, jaggery, pulse flour, and soil. It acts as a microbial booster, enhancing soil fertility, nutrient availability, and crop yield by supplying beneficial microbes, carbon, and nutrients, thereby reducing the need for chemical fertilizers.
- Jeevamrut typically has 1.97% Nitrogen, 0.172% Phosphorous, and 0.29% Potassium, along with beneficial micronutrients and complex microbes. It has a pH of ~4.93. Typical micronutrients are manganese (47 ppm), copper (50 ppm), iron, and zinc. Jeevamrut is also a great source of natural carbon for soil.
- A total of **44,100 liters** of Jeevamrut was produced with the participation of 328 farmers, and applied across 112 hectares of land.
- Farmers report savings of approximately INR **2,400 per crop** and per acre per season.

Preparation and use of Jeevamrut organic fertilizer at project sites

Community-Based Jeevamrut Organic Fertilizer Preparation, Gurugram

JEEVAMRUT – Organic Fertilizer

A natural microbial culture that enhances soil fertility and plant health

INGREDIENTS (For 200L Mix)

- Cow Dung: 2–10 kg (local Indian breed preferred)
- Cow Urine: 2–10 liters
- Jaggery: 200 g – 2 kg
- Pulse/Gram Flour: 200 g – 2 kg
- Soil: 1 handful (garden soil or near a banyan tree)
- Water: 40–200 liters

HOW TO PREPARE

- **Mix:** Add all ingredients to a drum with water.
- **Activate:** Stir clockwise 2–3 minutes to stimulate microbes.
- **Ferment:** Cover with a wet jute sack and keep in shade.
- **Daily Stirring:** Stir 2–3 minutes, morning and evening, for 3–7 days.
- **Filter & Use:** Filter before using, especially for drip irrigation.

READY IN

✓ 3–7 days, rich in beneficial microbes

BENEFITS

- Boosts soil microorganisms
- Enhances nutrient availability
- Reduces chemical fertilizer use
- Improves crop quality

CLIMATE ACTION

Program Vasundhara contributes to climate action by

- reducing GHG emissions by promoting solar energy, expanding green spaces through large-scale tree planting, establishing nurseries and medicinal gardens, and improving habitat quality, soil health, and green cover.
- developing eco-trails, restoration of land and water bodies.
- conducting IEC campaigns in communities and schools, strengthening public understanding and building institutional capacity.

The program aligns with national and global frameworks, including India's five-pronged climate action plan and the Panchamrit commitments announced at COP26.

Clean Energy

- Installed solar, clean, and renewable energy systems at six community institutions, reducing carbon footprint and promoting sustainable energy use.
- Trained ten youth in solar installation, operation & maintenance (O&M), and repair, enabling local capacity building and livihood opportunities.

Eco Trail

- Ecological restoration of Hasanpur Hillock alongside the development of a one-kilometer community-friendly Eco Trail.
- Approximately 3.7 acres of degraded land restored, with 747 trees planted.

Tree Plantation

- 16,000 native trees, shrubs, and climbers of 27 species were planted across 21 villages in Haryana and Karnataka, enhancing ecological balance and habitat diversity.
- At maturity, they are projected to increase green cover by 21.6 hectares.

Nursery development

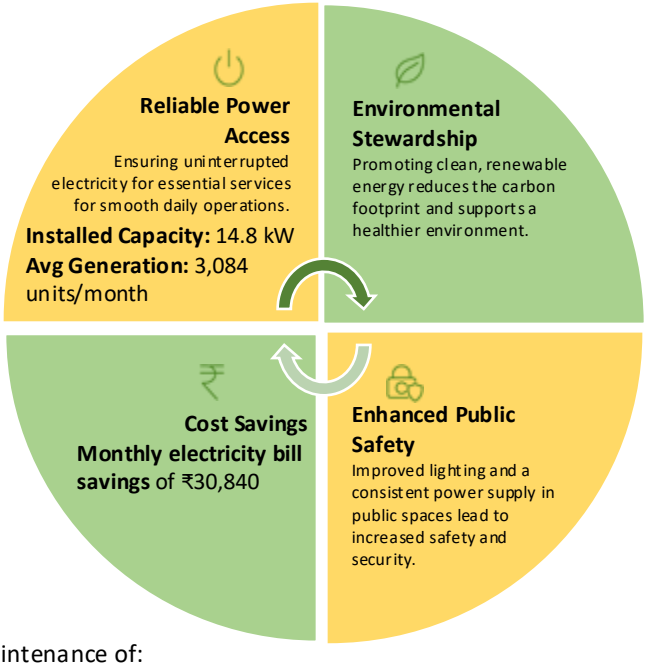
- Over 8,000 plants of 14 native species been demonstrated and propagated in the community nursery, while 200+ plants distributed to local households.
- The nursery is managed by local youth and women, fostering sustainable livelihoods & strong community ownership.

Medicinal Garden

- Demonstration Medicinal Gardens with 750 plants of 27 species developed in six locations, showcasing their therapeutic value.
- Communities educated on the uses and health benefits of these plants, promoting traditional knowledge and encouraging home-based herbal remedies.

CLEAN ENERGY

Program Vasundhara installed three new solar power systems and restored non-functional solar installations at five sites in Gurugram and one site in Bengaluru. These interventions have re-enabled access to clean and reliable electricity for six community institutions, strengthening service delivery and advancing sustainable community development.



Repair and maintenance of:

- Anganwadi (Child Care Centre), Dhaula, Gurugram
- Community Marriage Hall, Dhaula, Gurugram
- Government Hospital, Dhaula, Gurugram
- Shiv Temple, Dhaula, Gurugram
- Community Gym (Fitness Centre), Dhaula, Gurugram
- Primary Health Centre, Sonennahalli, Bengaluru

Shiv Temple, Dhaula, Gurugram

Community Marriage Hall, Dhaula, Gurugram

Primary Health Centre, Sonnenahalli, Bengaluru

NURSERY DEVELOPMENT

A comprehensive nursery development initiative has been launched to support local livelihoods, species conservation, ecological restoration, and biodiversity conservation.

The Teekli village nursery in Gurugram, Haryana, houses 8,000 diverse saplings that support plantation drives and help restore degraded landscapes.

The nurseries have been planned and developed in phases, to ensure optimal growing conditions for all saplings.

01

Site Selection & Preparation

Land leveled, organic manure applied, and irrigation arranged for optimal growth.

02

Species Selection

Indigenous and ecologically significant species chosen for local conditions.

03

Sowing & Propagation

Seeds and cuttings prepared under controlled conditions, ensuring high germination.

04

Maintaining Healthy Growth

Shed net, regular watering, weeding, and organic pest control ensure plant health.

Ecological & Biodiversity Benefits

The nursery has evolved into a small ecological hotspot, attracting beneficial insects and supporting the formation of micro-habitats that enhance local biodiversity.

Pollinator Attraction
Diverse plants attract bees, butterflies, and other vital pollinators.

Micro-Habitat Creation
Supports small reptiles, birds, and soil organisms.

Strengthening Food Webs
Predatory species find supportive ecosystems, enhancing the food chain.

Future Prospects

Scale Up Production
Expand to produce 100-250 saplings annually

Introduce More Species
Focus on medicinal and native species for ecological balance

Training Center
Serve as a training hub for farmers, students, and community members

Combat Desertification
Link with large-scale plantation drives across Gurugram

TREE PLANTATION

Our Approach

Planning and Preparation

- Select native, climate-resilient trees suited to the local ecosystem.
- Identify optimal planting locations for maximum growth and environmental benefit.
- Arrange essential tools and materials required for plantation activities.

Planting the Tree

- Dig a hole as wide as the root ball, but not too deep.
- Place saplings gently and cover roots with nutrient-rich soil.
- Water thoroughly to help roots settle.
- Engage volunteers to support planting and care activities.

Care and Maintenance

- Water regularly, especially during dry periods.
- Apply mulch to retain soil moisture and suppress weeds.
- Protect young trees from pests and harsh weather conditions.

Sustainable Plantation Practices

- Use organic compost instead of chemical fertilizers.
- Promote biodiversity by planting companion species.
- Engage the community and local authorities for ongoing operation and maintenance.

Selection of Saplings

Identification of Location

Site Preparation for Plantation

Engagement of Community/ Volunteers for Plantation

TREE PLANTATION

Tree Plantation, Haryana			
S. No	**Village**	**No. of Trees**	**Area Cover (Ha)**
	Total	**10,704**	**49.36**
1	Hasanpur	747	1.50
2	Shikohpur	1,110	6.00
3	Sakatpur	1,195	8.00
4	Teekli	1,200	1.35
5	Aklimpur	350	3.00
6	Gairatpur Bas	2,642	14.00
7	Dhaula	2,250	6.00
8	Harihera	200	6.00
9	Alipur	400	1.50
10	Nimot	410	1.01
11	Damdama	200	1.00

Tree Plantation by volunteers
Hasanpur Hillock, Gurugram

Tree Plantation, Karnataka			
S. No	**Village**	**No. of Trees**	**Area Cover (Ha)**
	Total	**9,462**	**29.39**
1	Karlapur	60	0.60
2	Byatha	52	0.60
3	Sonnenahalli	2,755	10.29
4	Hallenahalli	385	2.40
5	Kadnuru	940	4.80
6	Haniyur	320	1.20
7	Honnavara	1,500	4.00
8	Tamarasanahalli	2,250	4.50
9	Kamsandra	1,200	1.00

Tree plantation by Volunteers
Sonnenahalli, Bengaluru

MEDICINAL GARDEN

Medicinal Gardens are developed in Gurugram and Bengaluru to conserve traditional medicinal plant species, enhance local biodiversity, promote the benefits of these plants, and raise community awareness. This is done in partnership with the local Primary Health Centers and the community.

Why Medicinal Gardens Matter?

Medicinal plants are essential to India's traditional healthcare. These gardens help preserve plant diversity, revive local knowledge, and maintain ecological balance, offering a sustainable solution for conservation and community engagement.

Conservation
Protecting and preserving valuable medicinal plant species for ecological balance and traditional healthcare.

Knowledge Revival
Reviving traditional plant-based medicine practices for community health and cultural heritage.

Community Engagement
Fostering environmental stewardship and active participation of local communities.

Our Approach: From Site to Sapling

01

Site Selection & Survey

Chosen based on land, community interest, and soil suitability.

02

Site Preparation

Cleaning, leveling, and demarcation for plantation.

03

Plant Selection

Local species selected for medicinal value and local adaptability.

04

Community Participation

Primary Health Centers, Ayush personnel, local farmers, women, and students

MEDICINAL GARDEN

A total of 855 medicinal plants were planted across three sites in Gurugram and three in Bengaluru to conserve traditional medicinal species and promote biodiversity.

256 Plants
Shikohpur, Haryana

Major Medicinal Plants:
Patharchatta, Sukh Shanti, Aloe vera, Amla,Jamun, Kadhipatta, Aak, Sudarshan, Gudhal Kela, Belpatra, Insulin, Moringa, Tulsi, Podina, Ajwain,China orange,Laveta, Captus, Safed akda, Giloy ki bel

170 Plants
Teekli, Haryana

Major Medicinal Plants:
Patharchatta, Sukh Shanti, Aloe vera, Amla,Jamun, Kadhipatta, Aak, Sudarshan, Gudhal Kela, Belpatra, Tulsi, Podina, Ajwain

125 Plants
Dhaula, Haryana

Major Medicinal Plants:
Patharchatta, Sukh Shanti, Aloe vera, Amla,Jamun, Kadhipatta, Gudhal, Belpatra, Tulsi, Podina, Ajwain

129 Plants
Sonnenahalli, Karnataka

Major Medicinal Plants:
Tulsi, Lemon grass, Citronella, Tincture, Costus Insulin, Chakramumi, Aloe vera, Ashwagandha, Sugandhamoola, Mangaraballi, Pepper Mint, Bhringaraj, Lark Daisy, Madhunashini.

175 Plants
Hannenahalli, Karnataka

Major Medicinal Plants:
Ashwagandha, Lemon grass, Sugandhamala, Chakramani, Tincture, Mongarabali, Insulin, Citronella, Tulsi, Butterfly pea, Bhringaraj, Pepper mint, Pippali

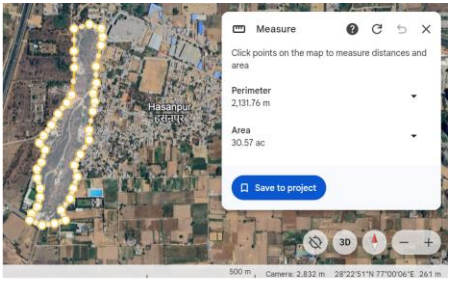
HASANPUR HILLOCK RESTORATION, GURUGRAM

Hasanpur Hillock in Sohna, Gurugram rises to 952 ft and stands as a prominent Aravalli landmark. It holds strong cultural significance, with sites like the Shiva Temple, Khatushyam Temple, and the popular Sunset Point offering panoramic views and a serene ambience.

Ecologically, the hillock hosts diverse birds such as Jungle Babblers, Sparrows, Ravens, and Peacocks, along with vibrant butterfly species and other fauna.

Decades of deforestation, overgrazing, soil erosion, and human pressures have degraded the landscape, reducing its ecological resilience.

Our restoration initiative aims to revive this hillscape by enhancing biodiversity, improving soil and water health, supporting community wellbeing, and restoring the cultural and natural heritage of Hasanpur Hillock.



Total Length of Eco-rail 1 Km | **Total Area Covered** – 30 Acres.

500+ trees of four species planted - Aakash Neem, Pilkhan, Chitwan, and Jacaranda

1400+ shrubs and 300+ creepers planted- Kaner, Jatropha, Agave Bougainvillea

1.5 quintal garbage removed during cleaning drives

200+ volunteers' participation in tree plantation and cleanliness drives

Our Approach for Restoration

Soil Stabilization
To prevent further erosion and ensure the structural integrity of the hillock.

Biodiversity Enhancement
To enrich local flora and fauna through a structured plantation program.

Community Eco-Trail
To develop a safe, aesthetically pleasing, and accessible trail for community use and education.

This multi-pronged approach aimed to rejuvenate the ecosystem and establish a sustainable model for peri-urban ecological restoration.

HASANPUR ECO-TRAIL, GURUGRAM

Sandbag Barriers – Prevent Soil Erosion

Restored Eco-trail

- Increased Vegetation Cover
- Improved Soil Health
- Habitat Restoration
- Increased Biodiversity
- Clean trail for walking and leisure
- Community Cohesion

LOCAL INSTITUTION CAPACITY BUILDING

Program Vasundhara builds resilient rural communities through participatory governance, knowledge-sharing, and strong local institutions, ensuring conservation efforts are led by those who know the landscape best. We have formed or revived institutions to sustain various initiatives. The members are selected from the village, and usually the committee consists of the sarpanch, youth, women, and village elders from all social strata and income groups. The program design, planning, and implementation are done with them, and they are trained in maintenance.

Biodiversity Management Committee
To safeguard local flora and fauna, recognizing that biodiversity is not just an ecological asset but also a vital resource for community livelihoods and well-being.

Forest Management Committee
To protect and regenerate forest ecosystems while promoting sustainable forest-based livelihoods.

Wetland Committee
Conserving and restoring wetland ecosystems is essential to protecting biodiversity, improving water retention, and enhancing livelihoods linked to these resources.

Medicinal Garden Committee
To establish, maintain, and sustainably manage community herbal and medicinal plant gardens while preserving traditional knowledge.

Village Watershed Committee
To conserve and manage water bodies and drainage systems to strengthen water security, reduce runoff and soil erosion, and support community water needs.

Self Help Groups (SHGs)
To empower women through collective action, financial inclusion, livelihood generation, and participation in natural resource management.

Farmer Field School


Financial Literacy Training of SHGs


Meeting with Biodiversity Committee Members


Village Watershed Committee Members Awareness

DATED DAY ACTIVITIES

Calendar of Community Action

Throughout the year, Program Vasundhara brings communities together through date-based participatory events that educate, inspire, and mobilize collective action, using each celebration to raise awareness, build skills, and strengthen environmental consciousness. The campaigns/functions are held over a one-week period, and often, corporate volunteers join.

June 5
Environment Day Celebrations
Large-scale community gatherings featuring workshops, cultural programs, and pledges for environmental protection.

1

Volunteer Engagement on World Environment Day

2

May 22
Biodiversity Week Activities
Educational programs highlighting local ecosystems, species identification walks, and conservation workshops.

3

Village Cleaning Campaign

July-August
Tree Plantation Drives
Mass mobilization events where communities plant native species to restore green cover and combat climate change.

4

Village Cleaning Campaigns
Coordinated efforts to clean public spaces, manage waste, and create healthier village environments.

5

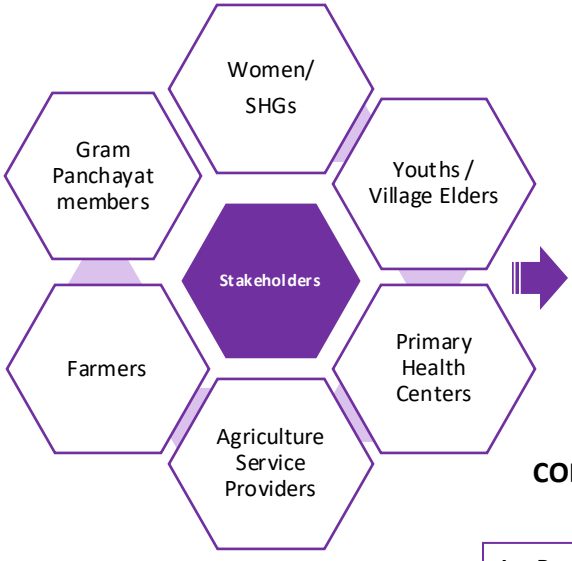
Awareness Program on International Biodiversity Day

Dec 5
Soil Day Observances
Programs focused on soil health, sustainable agriculture practices, and the vital role of healthy soil in water conservation.

CAPACITY ENHANCEMENT

At the start of the program, a comprehensive baseline assessment identified community needs and gaps in local institutions. Findings showed that many intervention villages had non-functional committees, and in Haryana, Self-Help Group (SHG) women were hesitant to take on work-based roles. In response, the program activated local institutions, implemented structured capacity-building in the local language, and partnered with academic institutions to share knowledge. Thus, we advocated for and trained local communities through classroom instruction, demonstrations, and peer-to-peer exchanges.

KEY STAKEHOLDERS



Program Vasundhara actively engages stakeholders through targeted trainings, community-led initiatives, and inclusive decision-making. This collaborative, multi-stakeholder approach strengthens local ownership and enhances participation in project implementation and outcomes.

> 13,500

COMMUNITY MEMBERS TRAINED

KNOWLEDGE PARTNERS

BENGALURU

- ICAR-Indian Institute of Horticultural Research
- State Livestock Breeding Training Centre
- Karnataka Tank Conservation and Development Authority (KTCDA)
- Livestock Breeding Farm
- Regional Fodder Station
- Primary Health Centres
- Department of Animal Husbandry and Veterinary Services
- Zila Parishad/District Development Council

GURUGRAM

- Forest Department
- Demetrix Infotech

I. **Bengaluru Collaboration** Safe Water Network India is a member of the **Arogya Raksha Committee,** authorized to provide approvals for drinking water, sanitation, and health-related activities.

II. **Partnership with the Conservator of Forests, South Gurugram**, to collaborate in tree plantation under the program 'Haryana Compensatory Andaman Forest'.

III. **Recognition from ICAR-IIHR and the Department of Animal Husbandry and Veterinary Services.** Safe Water Network India **received letters of appreciation from the ICAR–Indian Institute of Horticultural Research and the State Livestock Breeding and Training Center** for implementing soil and water conservation measures on their campuses that support biodiversity conservation.

TRAINING MODULES

LAND RESTORATION

This module introduces watershed concepts and key management principles, along with practical methods for restoring land within a watershed.

1. Introduction to watershed concepts and key management principles
2. Construction of CCTs, DCTs, BSTs, and water-absorption trenches
3. Formation of farm bunds, contour bunds, compact bunds, and graded contour bunds
4. Building loose boulder structures, gabion structures, and techniques to recharge defunct wells

WATERBODY REJUVENATION

This training module outlines methods for rejuvenating waterbodies and maintaining them long-term.

1. Desilting techniques for waterbody rejuvenation
2. Nature-based solutions, including bio-enzymes, bacterial cultures, fish fingerlings, and lotus seeds
3. Developing clean and green spaces through tree plantation and walkways
4. Periodic maintenance practices for sustained waterbody health
5. Roles and functions of the Pond Management Committee
6. Understanding rights related to water use

SOLAR ENERGY

This training module comprises:

1. Fundamentals of solar PV technology and energy-need assessment
2. System design, including sizing, mounting structures, wiring, and basic troubleshooting
3. Installation and commissioning procedures
4. Operation, maintenance, and advanced troubleshooting

TREE PLANTATION

This training module provides methods for afforestation, tree plantation, nursery development, and herbal garden development.

1. Fundamentals of tree plantation, including native species selection, site preparation, planting, and maintenance
2. Afforestation techniques, including the Miyawaki method
3. Steps for effective tree plantation planning and execution
4. Nursery development methods
5. Establishment and care of herbal gardens

SMART AGRICULTURE

This module presents comprehensive smart-agriculture practices to increase farm productivity and build climate-resilient farming systems.

1. Agroecology and Soil Health
2. Organic Farming
3. Crop Rotation and Crop Diversification
4. Climate-resilient Farming
5. Demand Side Water Management
6. Water Conservation
7. Technology-Enabled Farming – Automatic Weather Stations For hyperlocal advisories
8. Farmer Diary for Each Crop

LIVELIHOOD GENERATION

This module focuses on enhancing income opportunities for local communities, with a strong emphasis on empowering women Self Help Groups (SHGs) through skill development, enterprise creation, and financial literacy.

1. Setting Up Small Business Enterprises & Financial Literacy
2. Market linkages
3. Mushroom Cultivation
4. Pomegranate-flavored Ice Cream Making
5. Candle Making
6. Cloth Bag Making
7. Food Preservation – Pickle Making

SHG AWARENESS AND TRAINING - BENGALURU

Workshop on candle making

Exposure visit to oil mill

Biodiversity conservation workshop

Workshop on awareness of Government schemes

SHG training on Mushroom cultivation

Exposure visit to Mushroom field

SHG meeting, Dhaula Village - Gurugram

Farmers' training program with the Agriculture Department

FARMER TRAINING

SUSTAINABLE AGRICULTURE

Water Conservation | Crop Rotation | Organic Farming | Real-time Soil Testing

Training on preparation and benefits of organic fertilizer, Lothki Village, Gurugram

Training on preparation and benefits of organic fertilizer, Sonnenahalli, Bengaluru

Eco-Friendly Festival Awareness Campaign:

Program Vasundhara team in Gurugram conducted awareness sessions to train women from the community on environmentally responsible ways of celebrating festivals.

Eco-friendly festival awareness campaign, Gurugram, Haryana

Ragi crop demonstration, Bengaluru

INFORMATION, EDUCATION AND COMMUNICATION

IEC campaigns are developed and implemented to educate the local community about the program's objectives, emphasize the importance of environmental sustainability through the conservation and restoration of natural resources—water, soil, and trees—and offer practical solutions to local challenges. The campaigns also raise awareness on biodiversity enhancement and promote active communication and participation. IEC activities include the following three components:

1 Community Mobilization and Institutions Development

Participatory Rural Appraisal (PRA)
Conducting extensive, community-based assessments to understand local needs, resources, and challenges, ensuring that the action plan reflects community priorities during the baseline study.

Formation/Strengthening of Local Institutions/User Groups
Creating community groups to manage key assets – pond, solar installation, trees, and irrigation structures – and equipping them with management tools & livelihood support.

Monitoring, Reporting, and Feedback Mechanism
Establishing clear processes, roles, and responsibilities, Key Performance Indicators, grievance-redressal, and feedback systems to ensure sustainability, transparency, and accountability.

2 IEC Campaigns

Public Meetings	School Program	Demonstrations	Dated Day Events
Meeting the Gram Sabha (village assembly), and community to discuss plans, concerns and progress	Students awareness and competitions to instill values and create messengers on water conservation, tree plantation, and garbage disposal.	On-site demonstrations of new technologies like drip irrigation, crop diversification to show benefits and promote early adoption.	Earth Day; World Biodiversity Day; World Environment Day; JSA: Catch the rain; Tree plantation World Soil Day; Volunteer activity

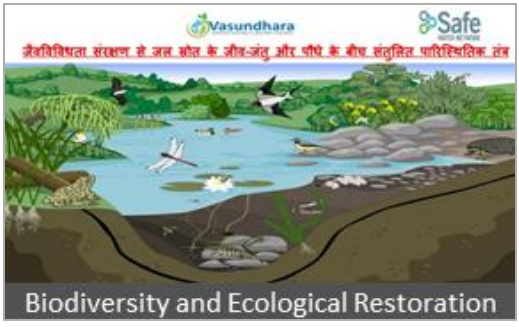
3 Education and Capacity Building

Training for Local Institutions
Capacity-building sessions for Watershed, Pond Management, Biodiversity Committees, SHGs, and User Groups on their roles, responsibilities, and technical management.

Farmer Field Schools
Hands-on training for farmers on improved agriculture, efficient water use, low water-intensive crops, alternate land use, organic, and regenerative farming practices.

Technical Training
Skill-building for field staff and community members on data collection, PRA, M&E, and the use of modern IT tools such as GIS for planning.

IEC MATERIAL AND DIY GUIDES



KNOWLEDGMENT MANAGEMENT & DISSEMINATION

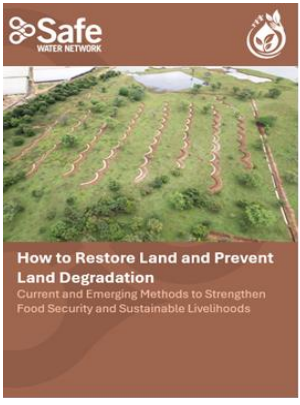
Training resources form a vital pillar of Program Vasundhara, supporting both effective implementation and long-term sustainability.

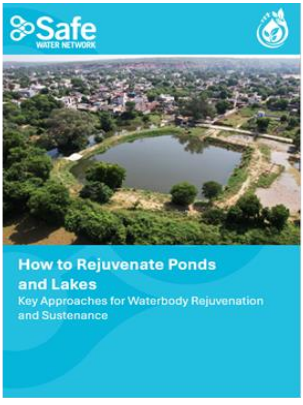
These foundational modules and Do-It-Yourself (DIY) guides equip local stakeholders—Gram Panchayats, watershed and biodiversity committees, pond management groups, and farmers' clubs—to conserve biodiversity and manage natural resources in alignment with their local ecosystems.

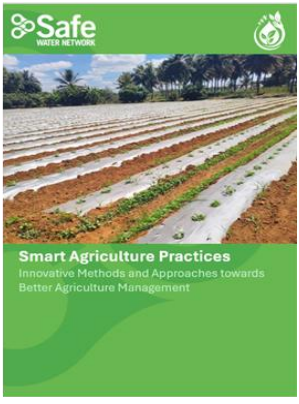
Training Resources – Thematic Areas

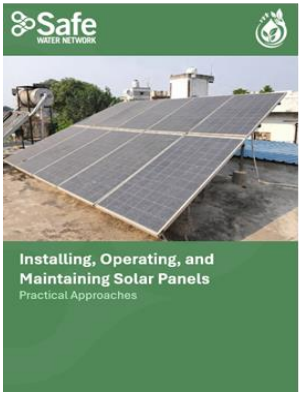
1. Land Restoration – Watershed Management
2. Waterbody Restoration
3. Climate-Resilient Practices
4. Smart and Sustainable Agricultural Practices

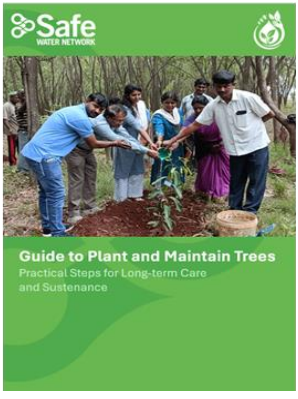
The training resources are people-centric and rooted in nature-based solutions, developed through field learning, local wisdom, practitioners' insights, and partnerships with leading academic institutions.

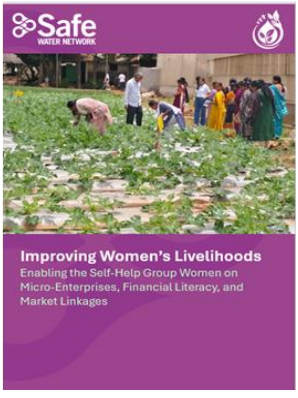












***Shri Subhash Yadav**, Conservator of Forests, South Gurugram, Haryana, inaugurated the Workshop.*

Workshop on "***Ecosystem Restoration of the Aravalli Region in Haryana***" in New Delhi, convening ecologists, biodiversity park experts, senior scientists, and academicians to showcase Vasundhara's progress in Gurugram and discuss strategies for restoring the Aravalli region.

Video on Program Vasundhara: Advancing Environmental Sustainability and Biodiversity Enhancement

BIODIVERSITY - GURUGRAM


Cuckoo


Sparrow


Raven


Eurema hecabe


Zizula hylax


Danaus chrysippus


Cepora nerissa


Mylabris syriaca


Aulacophora femoralis


Eretmocera impactella


Oncopeltus lygaeidae seed bugs


Peacock


Common Myna

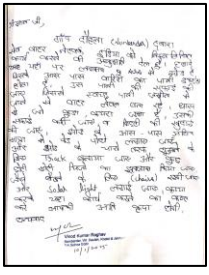

Owl

GOVERNMENT APPROVALS

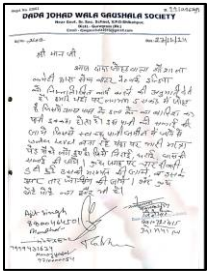
Meeting with government officials to brief on the program

PERMISSION LETTERS

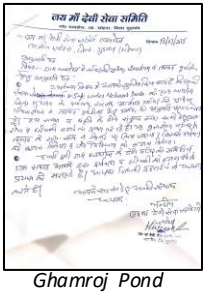
HARYANA



Dhaula Pond

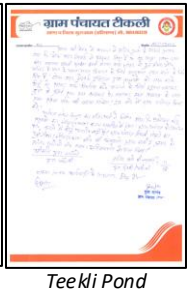


Shikohpur Pond



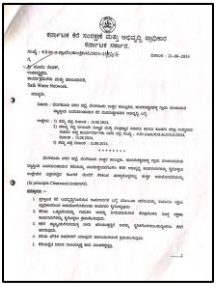
Ghamroj Pond

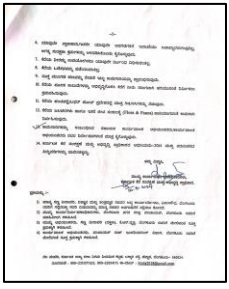
Alipur Pond



Teekli Pond

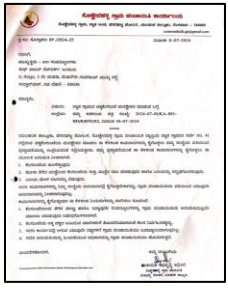
KARNATAKA





Lake Aivarakandapura

Sonnenahalli Pond



Byatha Pond

IMPACT

LAND RESTORATION

10,000 hectares of land restoration in the Aravalli region of Gurugram and rejuvenation of Lake Aivarakhandapura in Bengaluru

WATER RESTORED

900 million liters of water storage capacity enhanced through the restoration and/or creation of two water bodies

CLIMATE ACTION

Reducing greenhouse gas emissions through **solarizing public utilities** and **tree plantation**

5,000 livelihoods generated through farming and micro-enterprises

900 Self-Help Group women empowered in environmental sustainability and livelihoods

15,000 youth and women sensitized on water conservation, smart and sustainable agricultural practices, and biodiversity conservation

15 urban institutions strengthened to promote environment sustainability and livelihoods

PROGRAM GOAL ALIGNMENT

UN Sustainable Development Goal 2030

LiFE
Lifestyle for Environment

India's Mission LiFE

UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

Convention on Biological Diversity

2030 Action Targets under the Kunming-Montreal Global Biodiversity Framework (COP15)

COP26

India's NDCs (Climate Action Targets) at COP26 UNFCCC-Panchamrit

Vasundhara
ENVIRONMENT SUSTAINABILITY AND BIODIVERSITY ENHANCEMENT

Restoration of Lake Aivarakhandapura, Bengaluru, Karnataka

Restoration of the Hasanpur Hillock Aravalli, Haryana

Workshop on "Ecosystem Restoration of the Aravalli Region in Haryana", New Delhi

Tree Plantations by AMEX Employee Volunteers at project sites – Haryana and Karnataka

PROGRAM VASUNDHARA CORE PRINCIPLES

1. ECOSYSTEM-CENTERED STEWARDSHIP
   Protection, restoration, and rejuvenation of natural resources in urban and peri-urban ecosystems
2. CLIMATE RESILIENCE AND ADAPTATION
   Nature-based and energy-efficient solutions to reduce climate risks
3. COMMUNITY-LED RESTORATION
   Empowering communities through livelihood-focused eco-restoration
4. CAPACITY BUILDING
   Strengthening local institutions and building bio-entrepreneurship skills of youth and women
5. KNOWLEDGE DISSEMINATION
   Scalable OECM-based conservation models and policy influence

Safe WATER NETWORK

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