WATER CONSERVATION PROGRAMME

advit foundation
www.advit.org

JAIPUR DISTRICT, RAJASTHAN
PROJECT REPORT, FEBRUARY 2025

SUPPORTED BY
ARHANT SOCIAL FOUNDATION

PROJECT LOCATION

Phagi Block, Jaipur District, Rajasthan, India.

Water scenario, Phagi

Phagi, Rajasthan, a water-scarce semiarid region, faces critical challenges of deteriorating water availability, loss of tree cover, and fluoride contaminated groundwater, affecting livelihoods and the environment. Limited rainfall makes groundwater crucial with wells often running dry burdening women with water collection. The values of TDS, EC, nitrate and fluoride exceed the permissible limit prescribed by WHO for drinking purpose. Some sites were also contaminated with high values of chloride.

Water management in Phagi, Rajasthan, is crucial due to the region's arid climate, characterized by low rainfall and frequent droughts. With limited access to surface water and increasing groundwater depletion from agricultural use, effective management is essential to ensure water availability throughout the year. Rural communities in Phagi largely dependent on agriculture, need water management to support irrigation, livestock, and daily needs, which directly impact their livelihoods and food security. Moreover, climate change has intensified water scarcity, making it necessary for these communities to adopt practices like rainwater harvesting and groundwater recharge to build resilience.

The water scenario in Phagi, Rajasthan is facing challenges due to overexploitation of groundwater, high temperatures, and a dry climate:

Groundwater depletion	The indiscriminate use of groundwater has disrupted aquifers that have been in place for thousands of years.
High temperatures	Phagi experiences high temperatures and evaporation loss during the peak summers.
Dry climate	The dry climate in Phagi leads to high evapotranspiration losses.
Low water levels	Excessive pumping of groundwater is one of the major reasons for low water levels in the area.

The water conservation initiatives by Advit serves as the foundation by improving water availability, enhancing soil moisture, and recharging groundwater, creating favourable conditions for enhanced livelihood. Skill training programmes built on this by equipping community members with
the knowledge needed to maintain these water resources, adopt sustainable practices, and develop livelihood opportunities.

OUR ACHIEVEMENTS

Water conservation has led to social and economic transformation in the rural community

- **Increase in income from cropping**
  The crops that were grown 20 years back have made a return in the last 5 years
- Village-level intervention for **water conservation has transformed to a farmer-level** in form of farm ponds
- **Ensured water availability** for agriculture, drinking, sanitation, and livestock
- **Increase in school attendance**
- **Improved sanitary facilities** – toilets in every house and school with water availability

Our strategic objectives

- Ground Water Recharge
- Sanitation Facilities
- Livelihood Enhancement
- Multiplying Effect

Our most successful approaches will be replicated and scaled up by relevant stakeholders. We will have established a community of active supporters.

Environment:

- **20,000 cu m** of rainwater storage capacity structures created
- Each structure has groundwater recharging capacity of **5 million litres per annum**
- **13,000 people** benefitted directly
- **54,000 livestock** benefitted leading to enhanced income
- **1000 indigenous trees** planted

Social:

- **100% girl child inclusion in schools** in all the 4 project villages, with improved economic standards and improved infrastructure in schools.
- **200 rural women** have initiated participation in **skill enhancement** in village Pachala – with availability of the basic need of water taken care of, they now have the time to come out of their homes.

Wellbeing:

- 1000 indigenous trees planted which will positively affect the water cycle in the near future and also **influence the ambient air temperature.**
- Enhanced livelihood with readily available water through the year. **Increased economic benefit** from both agriculture with better crops and livestock with better milk production.
- Set up 8 community toilets which will enhance overall well-being through **better hygiene while also providing dignity** through privacy.
- **Enhanced social well-being for women** through both economic empowerment and a safe space to forge friendships.

PROJECT BACKGROUND

Arhant Social Foundation in its continued efforts towards mitigating drought conditions in India through water conservation, contributed for setting up four rainwater conservation structures this year in Phagi District in Rajasthan, India.

Advit Foundation having worked towards holistic village development and water conservation for over 15 years across India was the implementation expert for the project.

The structures were built with a combined 20,000 cubic metres (20 million litres) rainwater storage capacity annually. Each structure has a capacity of 5,000 cubic metres (5 million litres) to store and recharge groundwater.

Through the building of the said rainwater conservation structures, this project improved water availability for drinking, sanitation, livestock and agriculture, and further, positively impacted rural development.

Phagi, a semi-arid region in Rajasthan, has long faced water scarcity due to erratic rainfall and depleting groundwater levels. Agriculture, the primary livelihood for most rural families, is heavily reliant on seasonal rains. Over the years, these challenges have intensified due to over-extraction of water for irrigation and inadequate water management practices, leading to acute water shortages that affect both daily living and agricultural productivity.

Advit Foundation has been instrumental in addressing these issues by empowering the rural communities of Phagi through sustainable water conservation efforts. Since early 2004, the organization has focused on the construction of rainwater harvesting structures such as check dams, earthen embankments, and ponds. These initiatives have helped in capturing and storing rainwater, replenishing groundwater tables, and providing a reliable source of water for irrigation and domestic use.

Advit's work also includes community mobilization, skill development, and training programs that encourage active participation from local women and men. Through these efforts, the foundation has strengthened local capacity to manage water resources effectively, ensuring that these interventions are sustainable. As a result, agricultural productivity has improved, and water availability has been enhanced, contributing to better livelihoods for the rural population.

The foundation's long-standing commitment to water conservation has transformed the landscape of Phagi, turning it into a model for sustainable water management in rural Rajasthan.

This year, with Arhant's continued support, **four more rain water harvesting structures have been constructed, each with water storage capacity of 5,000 cubic metres (5 million litres) in the villages of Chakwada, Awandiya, Kiratpura and Sultania to provide water all through the year.** The project directly benefitted a population of over 13,000 along with a livestock of over 54,500.

PROJECT APPROACH AND METHODOLOGY

The methodology used to develop the detailed village wise micro-watershed plans is described below:

1. **Detailed base line survey focusing water resources in the project villages:**

    a. Field visit and collection of information focusing existing water resource scenario in the respective project village with various tools (survey formats, focus group discussions, and site visits).

2. **Identification of viable project activities for the augmentation of water resources:**

    a. Discussion with village communities to gather their views about the possible interventions in the micro-watersheds.

    b. Site visit and identification of suitable locations and type of activities/ structures for augmentation of natural resources (village ponds, wells etc.).

    c. Site visit and identification of suitable locations for recharges or dilution of saline groundwater sources to be utilize for irrigation purposes.

3. **Carry-out level surveys and measurements for identified project activities:**

    a. Carry-out field engineering level survey with the help of Dumpy/ Auto Level for measurement and demarcation of micro-water shed areas in each project village.

4. **Preparation of Micro-watershed Plan & maps for each village:**

    a. Preparation of Micro-watershed plans based on field survey and discussions with communities.

    b. Preparation of GIS based thematic maps after collection, geo-referencing and digitization, superimposition and analysis of available village maps and Satellite imagery along with field surveys.

    c. Demarcation of participatory project activities identified during the study on prepared micro-watershed plans.

    d. Preparation of technical design and estimate report supported with drawings for identified project activities

FIELD SURVEY

Field Survey was planned to collect primary data necessary for assessing the characteristics of groundwater and land-use pattern and planning & designing of field activities. The data and the tools used in field survey included the following:

Field Level Survey - To demarcate the micro-watersheds within the project village's ridge information is very important. To identify the ridge line, field level survey with the help of Auto Level was conducted in each village.

GPS Survey - To update the information on villages / site location, water bodies and other topographical features a field survey of the project area was carried out with the help of GPS (Global positioning system). The GIS coordinates of the potential sites was obtained with the help of GPS. GPS is an instrument, which takes the GIS co-ordinate readings of any location using satellite where it is positioned. The data/ information collected were downloaded in the computer through GIS software to demarcate the location of each individual potential site on the micro watershed plan.

Soil and Groundwater Quality Testing - There is an erratic, unusual and unpredictable variation in quality content in groundwater and soil in both vertical and horizontal directions. That situation has been further worsened recently due to frequent occurrences of drought in the region. No ready information is available on this context. Hence soil and groundwater quality data available from secondary sources has been collected to demarcate quality contours for future planning interventions in drinking water, irrigation and crop selection inside the project villages.

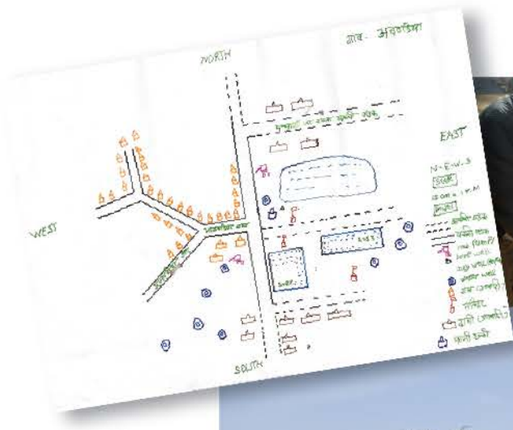
DATA ANALYSIS

All information collected from various sources was analyzed for accuracy using a computer based model. The analyzed data was arranged village-wise to form the digital database of the project area. The collected maps were scanned, geo-referenced and digitized & updated using GPS data.

Data Analysis - The processed and analyzed data arranged village wise was used to represent existing scenario of the project villages. This can be used as a bench mark for the activities proposed for future interventions in the project villages.

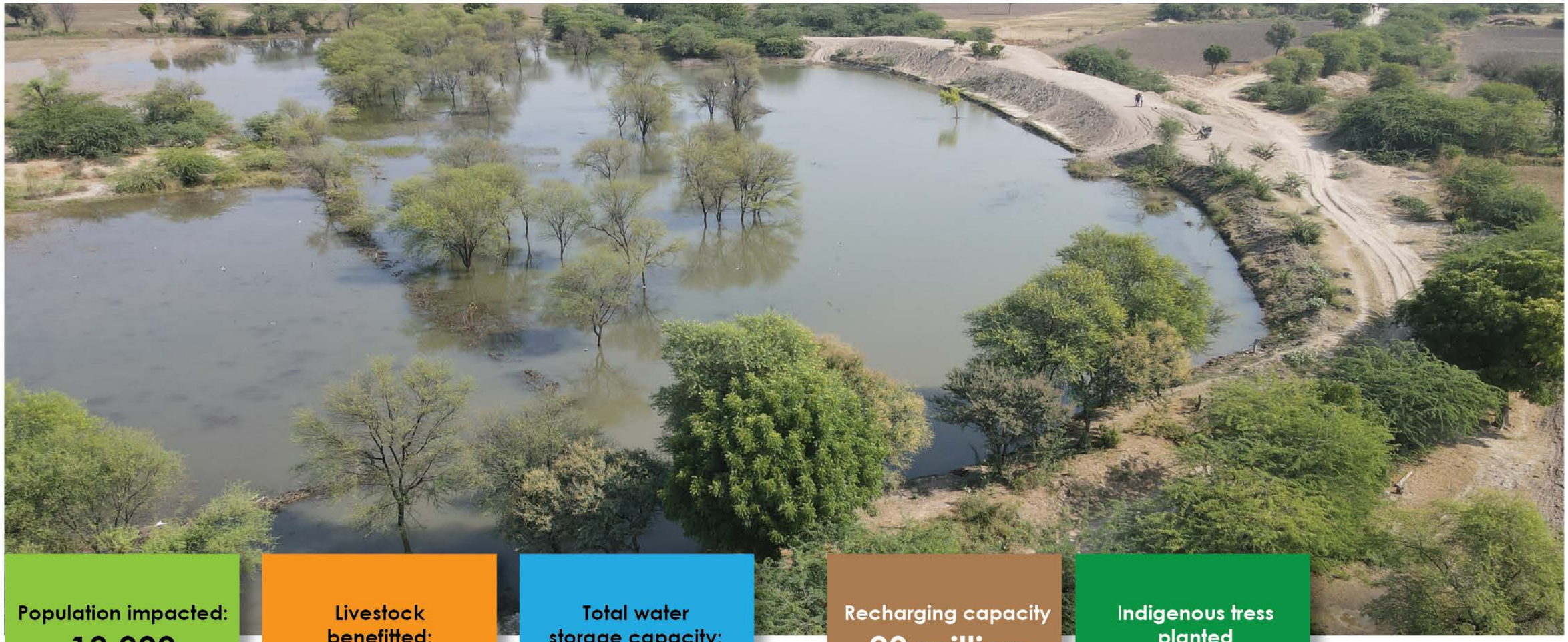
Structural Design and Drawings - The information/ data utilised as input parameters was extracted from the digital database developed for each village. Mathematical Calculation with design formulas were carried out to generate accurate specifications of the proposed activities/ structures. Computer aided drawings were generated based on the designed dimensions. Cost was calculated with the designed dimensions and the relevant and local available material rates for each activity/ structure individually.

Thematic Mapping - All the maps were digitized in GIS environment through appropriate geo-referencing with the help of available tools and technology. This information in different layers were superimposed and analyzed to generate thematic (Micro-watershed) maps of the project village



PROJECT ACHIEVEMENT

4 water structures have been constructed with a total water capacity of
5 million litres of rainwater recharged per structure per annum



Population impacted:
13,000

Livestock benefitted:
54,500

Total water storage capacity:
20,000 cum
(20 million litres)

Recharging capacity
20 million litres
of water every year

Indigenous tress planted
2000

VILLAGE KIRATPURA

Site

Before Rains


Village Kiratpura
Latitude: 26.708035"N
Longitude: 75.560888"E
Structure capacity: 5000 cu m
Population impacted: 2900
Livestock impacted: 500
After Rains

VILLAGE SULTANIYA

Site

Before Rains


Village Sultania
Latitude: 26.648965"N
Longitude: 75.555648"E
Structure capacity: 5000 cu m
Population impacted: 3000
Livestock impacted: 300
After Rains

VILLAGE AWANDIYA

Site

Before Rains

Village Awandiya
Latitude: 26.654801"N
Longitude: 75.521301"E
Structure capacity: 5000 cu m
Population impacted: 2000
Livestock impacted: 300

After Rains

VILLAGE KIRATPURA 2

Site

Before Rains

Village Kiratpura
Latitude: 26.708035"N
Longitude: 75.560888"E
Structure capacity: 5000 cu m
Population impacted: 3900
Livestock impacted: 700

After Rains

PROJECT IMPACT

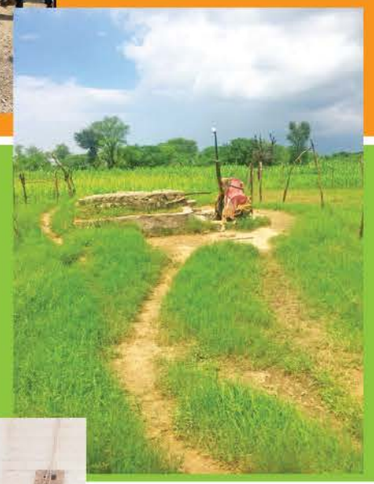
The interventions not only addressed immediate water needs but also created long-lasting benefits, enhancing the overall well-being and sustainability of the rural community in Phagi. With a direct impact on a population of over 13,000 people, the project benefited the community in the following ways:

ENSURING WATER AVAILABILITY:

- More than 10 groundwater wells are recharged around each water harvesting structure built in each of the 4 project sites
- There is rainwater stored in each of the structures for more than 7 months every year
- Each structure irrigates agriculture land spread over more than 20-50 acres
- Of the 4 structures built from one structure drinking water tankers are filled and supplied in neighbouring 4 villages benefitting a population of almost 4,000

SOCIAL IMPACT:

- The water table of the region has improved. There is water almost all through the year
- Thereby the women have to walk lesser to get water. This leaves young girls free to attend school and gives women some free time to explore other sources of livelihood as well as better their overall well-being.
- 100% girl child inclusion in school in all the 4 project villages
- There is water for the cattle all through the year now which is likely to improve milk production and raise incomes, leading to better quality of life.
- The soil moisture has increased. So the cropping pattern has become twice a year and thereby the income has enhanced
- The structures made ensure water availability for agriculture, drinking, sanitation and livestock



ENVIRONMENTAL IMPACT:

- Each structure recharges about 1 km radius land area i.e. about 10 wells
- Total of more than 5,000 cubic metre of water storage capacity has been created through these structures which helps in mitigating drought conditions and increasing green cover
- Each structure supports at least 4 nearby villages for water benefitting over 13,000 people
- There is increase in soil moisture. Thereby there is increase in cropping cycles in a year that was earlier restricted to just 1 in a year
- At least 54,000 livestock is benefitted with water availability each year from the above 4 project sites
- More than 2,000 indigenous trees have been planted which in coming years will positively impact the water cycle as well as influence the ambient temperature

WELL BEING IMPACT:

- With the basic need of water taken care of women have more free time
- 200 rural women have initiated participation in skill enhancement in village Pachala, a major step towards gender equality and women empowerment
- In addition to economic empowerment through Aarohan Skill Centre, women have also been able to socialise and forge lasting friendships.
- Regular water availability to livestock has led to better milk production, giving rise to economic benefit with each household registering better milk sale to the village dairy

ADVIT FOUNDATION – Brief Profile

Advit Foundation (www.advit.org) is a not-for-profit development organization, working on conservation of environmental resources and livelihood enhancement since 2003. Advit Foundation has sought to conserve the environment and empower communities through its Water Centric Design for Life approach where people can manage their life and ecosystems sustainably.

The environmental resources are not limitless. As a result, our mission at Advit Foundation is to identify and address drivers to accomplish conservation goals. Our projects focus on rainwater harvesting, renewable energy access, and skill development, allowing for community empowerment and overall village development. This is achieved by acknowledging traditional knowledge, adopting new technologies and identifying skill opportunities, along with setting up improved communication tools for raising socio-economic awareness to promote conservation practices for sustainable living.

At the National level, Advit has been a training partner with the Skill Council for Green Jobs, the National Skill Development Council of India, and Tata Institute for Social Sciences – School of Vocational Education for Solar Electronics. Advit set up the Solar Information Centre at The National Institute of Solar Energy Gwal Pahari, Haryana under the Ministry of New and Renewable Energy, GoI. At the State level, with the Haryana State Electronics Development Corporation Limited, Govt. of Haryana Advit started a solar training centre at their Gurgaon office. Besides, Advit was also the State nodal partner managing the Rajiv Gandhi Renewable Energy Park in Gurgaon for Haryana Government from 2009 - 2015. At the grassroot level, Advit has set up a rural skill training centre, Aarohan, in village Pachala in Phagi block in Jaipur District of the state of Rajasthan where rural community members are trained on new skills for income enhancement.

AWARDS

- Advit Foundation is empaneled with TISS CSR Hub
- Advit Foundation is empaneled with NGO darpan and the National CSR Hub of the Indian Institute of Corporate Affairs, MCA.
- Empaneled with Skill Council for Green Jobs
- Empaneled with National Water Mission, Department of Water Resources, Ministry of Jal Shakti, GoI.
- Awarded the first CII beyond the Fence Project award for an industry in Rajasthan in 2009.
- Managing Partner - Haryana Renewable Energy Development Agency (HAREDA) from 2009-2015.
- Managing Partner – Centre of Excellence on Solar Electronics at National Institute of Solar Energy, MNRE, Govt. of India.
- Training Partner – Green Skill Sector Council and NSDC, GoI for Solar Electronics.
- Training Partner - HARTRON (Haryana State Electronics Development Corporation Ltd.) for Solar.
- Training Partner – TISS Mumbai B.Voc on Solar Electrical
- Awarded the Impact Award for Skill Development at the Impact Conclave by Sambodhi in partnership with Bill and Melinda Gates Foundation, SIDBI, YES Bank in 2016.

Advit operates through the following programme areas.

CONSERVATION

The water conservation initiative ensures water availability for drinking, sanitation, agriculture, and livestock. As the water scenario improves in the region, the scope and the need for other development activities emerge. The success indicators measured are developed degraded lands, overall socio-economic development of the marginalised, mitigating drought conditions, employment generation, and poverty alleviation.

EMPOWERMENT

The programme is a strategic intervention to address some of the key issues in India's renewable energy development plans which stress upon promotion of the use of renewable energy/ clean energy systems, identification of clean technology for easy adoption as well as capacity building on the same to ensure economic transformation among the rural communities in India. The program enables mobilisation of a diverse social, cultural and economic community group creating a strong well-trained workforce and enabling the adoption of conservation models.

LIVELIHOOD ENHANCEMENT

New skills are introduced and existing ones are upgraded in the community. Advit team closely works on skill up-gradation for empowering communities, especially farm-based workers. In India, the majority population is largely economically marginalized and among these rural community is the most vulnerable. Being a rural agrarian-based community, there is high dependence on environmental resources for livelihood. The environment conservation goals are addressed through Advit's rural skill upgradation centre, Aarohan, located in village Pachala in Phagi block of Jaipur district in Rajasthan.

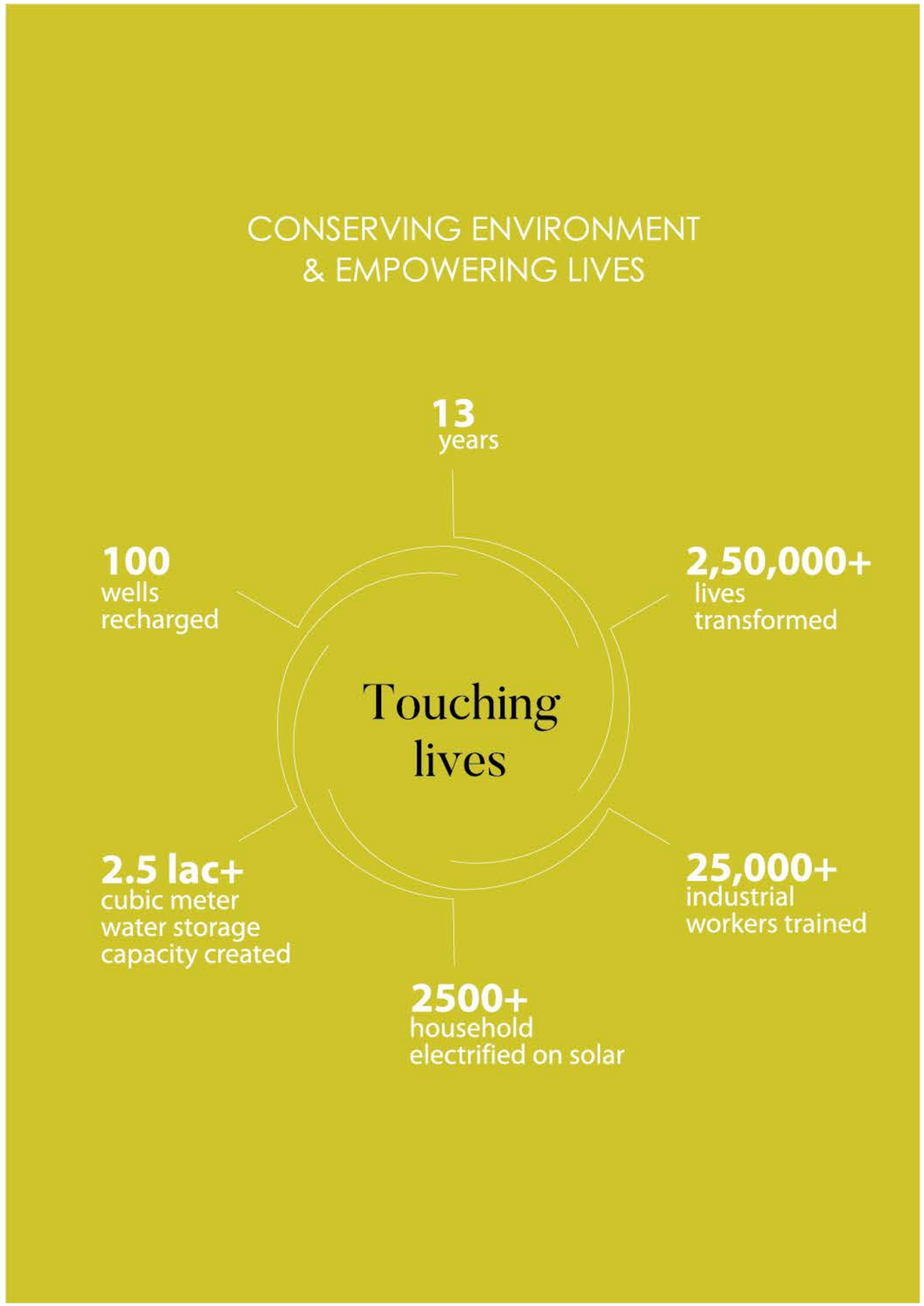
ENVIRONMENT AWARENESS

The initiative designs and undertakes awareness and action programmes both among the rural and urban children and youth including shop floor workers. These include programmes on resource conservation, green space development, waste management, energy efficiency, the revival of forgotten foods, healthy culinary skills, natural chemical-free colours, organic foods, safe chemical handling for shop floor workers, gender and inclusion, and the like. The efforts are to guide how the ecological systems function, and particularly, how human beings can manage behavior and ecosystems to live sustainably. The programme also designs and undertakes impact assessments of development projects, designing and implementing CSR projects, and environment reporting for corporates.

A FEW GLIMPSES OF THE ORGANIZATION'S WORK

- Design and construction of micro watersheds/ water conservation models. Have undertaken more than 20 water conservation structures in more than 30 villages in Phagi, Mandore, Rothwara, Dudu blocks in Rajasthan and Amravati (Maharashtra), Medak (Telengana), Kolar (Karnataka). Supporting partners have been IKEA, Coca Cola, Pernod Ricard, Canara HSBC OBC Life Insurance (CHOICE), Arhant Social Foundation
- Solar Electrical Training with certification from NSDC and Green Council for Skill Jobs. Trained more than 5000 candidates since 2013. Supporting partners have been Ministry of new and renewable energy (MNRE, GoI), Applied Materials, Ford foundation
- Set-up Aarohan – A rural self-employment training centre, at village Pachala in Phagi, Rajasthan in 2016.
- Electrified more than 2500 households in the rural parts of Rajasthan and Haryana using solar home lighting systems supported by Coca Cola Atlanta, Crisil.
- Content creation and implementing Safe Chemical Handling training for apparel, metal, leather, and accessories workers pan India.

  Occupational health and safety training for 25 Carpet weaving industries in Panipat, Haryana supported by Goodweave.
- Environmental education programme for schools - Prakriti Eco-School programme in Gurgaon supported by IKEA.
- Undertaken solar electrification of forest guard cabins at Pench and Bandhavgarh forest reserves in Madhya Pradesh supported by Pernod Ricard India
- Revival of handloom clusters in Kerala post Floods in 2018 supported by Pernod Ricard India
- Distribution of 100 energy-efficient cooking stoves in Phagi, Rajasthan supported by Pernod Ricard India
- Set up of community toilets in 5 villages in Phagi, Rajasthan supported by Pernod Ricard India
- Set up of largescale drinking water system in Behror. Haryana supported by Pernod Ricard India
- Facilitate industries to comply with environmental standards - Undertake energy efficiency training, audits, and other resource conservation methods for various industrial processes.
- Rooftop rainwater harvesting for buildings. Designed and constructed 3 large recharge models for institutions in Gurgaon.
- Prepared guide book on Energy efficiency and Carbon responsibility for apparel industries – Knowledge book. Supported by GIZ.
- Village Development Programme for NABARD at village Meoka, Haryana.



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