एनटीपीसी
NTPC

22 MARCH
WORLD WATER DAY
2024 Water for Peace

शं नो देवीरभिष्टय आपो भवन्तु पीतये।
शं योरभि स्रवन्तु नः ॥

अथर्ववेद, प्रथम कांड, सूक्त ६

प्रभु दिव्य जल सुख, शांति और संतुष्टि के साधन बनें।
ये शांति की वर्षा करें, और व्याधि से रक्षा करें॥

Powering India through

MORE POWER PER DROP

NTPC COMPENDIUM ON WATER CONSERVATION

22nd March 2024

Compiled by: Corporate Environment Management Group

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May the divine waters be for our peace and bliss of our cherished desire and bring us showers of peace, protection and blessedness with freedom from ill health and disease.

NTPC COMPENDIUM ON WATER CONSERVATION

22nd March 2024

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MESSAGE FROM CMD

Water is a precious resource, essential for sustaining life, communities, industries, and ecosystems. It is recognized as one of the most important components of the United Nations Sustainability Development Goals (UN-SDGs).

Today, as we celebrate World Water Day, we are reminded of our collective responsibility to safeguard and efficiently manage this invaluable asset. This year's theme is 'Water for Peace', which focuses on the critical role water plays in the stability and prosperity of the world.

NTPC is fully committed towards the sustainable use of water including efficient O&M practices of our power stations and recycle & reuse of wastewater. NTPC has adopted several conservation techniques including installation of Air Cooled Condensers, dry bottom ash, implementation of Zero Liquid Discharge and introduced Rainwater harvesting policy.

It gives me immense pleasure and a deep sense of satisfaction that we are publishing Water Compendium on World Water Day-2024, third in the series, recognizing best practices & initiatives taken up by our Business Units in line with our commitment towards Water Sustainability. This will further motivate all our establishments to take up newer initiatives & showcase them through this yearly publication.

We will continue to strive for judicious use of water in all our business activities and daily lifestyles to achieve water efficient, clean, and green future.

With Best Wishes

(Gurdeep Singh)

MESSAGE FROM DIRECTOR (OPERATIONS)

Today, as we commemorate World Water Day 2024, we acknowledge the indispensable role that water plays in sustaining lives. As the Director (Operations) NTPC Ltd, the largest Energy major of the country, I am delighted to join hands with all, in celebrating this important occasion. This year's theme is 'Water for Peace', which focuses on the critical role water plays in the stability and prosperity of the world.

On this World Water Day, let us take a moment to reflect on the importance of water conservation and sustainable management practices. NTPC is putting up conscious efforts to minimize fresh water uses, making all stations Water efficient through technology upgradation, regular monitoring & better O&M. NTPC has taken the systemic steps to implement 3R (reduce, reuse & re-cycle) which will help in conserving this valuable resource.

With implementation of Zero Liquid Discharge (ZLD) schemes, High Cycles of Concentration (COC) operation, Adoption of Air-Cooled Condensers at newer stations, High concentration ash slurry disposal systems (HCSD), dry bottom ash handling systems and usage of treated sewage water along with Rainwater harvesting has resulted in significant reduction of Specific water consumption.

I am pleased to see the dedication and efforts of Team NTPC towards implementing innovative solutions, Corporate EMG in collaboration with all our stations has come out with a consortium of initiatives towards Water sustainability on World Water Day'2024 - "NTPC Water Compendium" third in the series, to showcase our commitment towards water conservation and sustainability.

Together, we have made significant strides and hope that we will further help in our endeavor for rational use of water in all our plant operations activities & daily lifestyles in all our establishments.

With Best Wishes

(Ravindra Kumar)

MESSAGE FROM EXECUTIVE DIRECTOR (SSEA & ENVIRONMENT. ENGG.)

Today, we join millions of people around the globe in celebrating World Water Day, a day dedicated to raising awareness about the importance of freshwater and advocating for the sustainable management of water resources.

Water is a precious resource that sustains life, nourishes our communities, and drives economic growth. As we commemorate this day, let us reflect on our responsibility to protect and preserve water for current and future generations.

NTPC understands the importance of Water and committed itself to conservation and usage optimization of water, by signing CEO Water Mandate.

NTPC has a dedicated Water Policy, which commits NTPC to proactively conserve the most precious natural resource and address water sustainability issues through its implementation and serves as a directive for establishing water management strategies, systems, processes, practices, and research initiatives. All NTPC stations have taken up initiatives & steps on the principle of 3 Rs (Reduce, Recycle & Reuse) to optimize the water footprint along with many initiatives to enhance conservation.

Considering the strategic importance of ESG for NTPC and water being an important component of the Environment portfolio, it becomes imperative to not only meet the statutory norms but to exceed the stakeholder's expectations by achieving better results.

Accordingly, Corporate Environment Management Group has taken an initiative in collaboration with stations, to consolidate the various initiatives and bringing out a useful and informative document- **"Water Compendium" on World Water Day'24,** third in the series. This document will help in sharing knowledge and will also benefit in building awareness in public domain.

With Best Wishes.

Vijay Prakash

(Dr. Vijay Prakash)

UN WATER

22 MARCH
WORLD WATER DAY

2024 Water for Peace

Water for Peace

This year's theme is 'WATER FOR PEACE', which focuses on the critical role water plays in the stability and prosperity of the world.

World Water Day 2024

More than 3 billion people worldwide depend on water that crosses national borders. Yet, out of 153 countries that share rivers, lakes and aquifers with their neighbours, only 24 countries report having cooperation agreements for all their shared water.

As climate change impacts increase, and the global population grows, we must unite around protecting and conserving our most precious resource.

World Water Day is a United Nations (UN) observance coordinated by UN-Water. Every year, it raises awareness of a major water-related issue and inspires action to tackle the water and sanitation crisis.

Water is considered Divine by the Vedas, and it was thought to bring peace, happiness, wealth, long-life and good health. The Vedas attribute several Gods to water, including Apas, who is addressed in four Suktas, and is the God of waters. The subject of water has been treated spiritually, philosophically, cosmologically, medically, and poetically in the ancient Indian literature. Water occupies the highest place amongst the five basic elements of nature, called pañchamahābhūta.

6 Commitment Areas of CEO Water Mandate

NTPC became a signatory of the CEO Water Mandate on 23.03.2021, which is a highly collaborative partnership between the United Nations Global Compact, the Government of Sweden and a group of committed companies and specialized organizations dealing with the problems of water scarcity and sanitation. The CEO Water Mandate is designed as a private-public initiative with a focus on developing strategies and solutions to contribute positively to the emerging global water crisis.

The CEO Water Mandate is a UN Global Compact initiative that mobilizes business leaders on water, sanitation, and the Sustainable Development Goals. Endorsers of the CEO Water Mandate commit to continuous progress against six commitment areas of stewardship and in so doing understand and manage their own water risks.

Direct Operations

Supply Chain & Watershed Management

Collective Action

Public Policy

Community Engagement

Transparency

2

CEO WATER MANDATE

Direct Operations

Water is a prime resource, and we use water in judicious and sustainable manner. Water consumption of the NTPC stations is continuously being optimized by adoption of:

- 3R Principles (Reduce, Recycle & Reuse) which is core of NTPC's Water Policy
- Advanced technologies like Air Cooled Condenser (ACC), High Concentration Slurry Disposal (HCSD) System, Dry Bottom Ash Handling System etc and Advanced chemical treatment for higher Cycle of Concentration (CoC)
- Zero Liquid Discharge (ZLD)
- Rainwater harvesting for replenishing groundwater levels and using stored rainwater in plant operations.

Air Cooled Condenser at NTPC North Karanpura

Water consumption is continuously monitored through a water dashboard developed at NTPC stations. Additionally, periodic water audits and water balance studies are conducted by both internal and external agencies to ensure accountability and efficiency in water usage.

Air Cooled Condenser (ACC) under implementation at NTPC Patratu

Air Cooled Condenser (ACC)

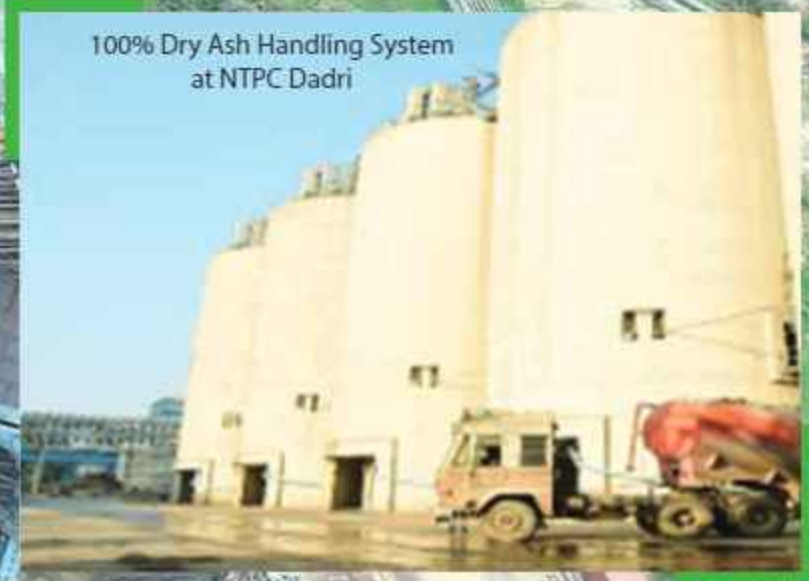
- New projects (North Karanpura & Patratu) are installing air-cooled condenser system in place of water-cooled condenser system, which save about 20 million m^3 of water per year for a 1600 MW plant.
- The saved water is sufficient for :
  - Drinking water requirement of about 2.74 Lakh population@200 liters/capita/day.
  - Irrigation of about 19 Sq. Km of wheat crop.
  - Irrigation of about 6 Sq. Km of Rice crop.

Air Cooled- Condenser at NTPC North- Karanpura

Air Cooled- Condenser at NTPC Patratu

Dry Bottom Ash Handling System

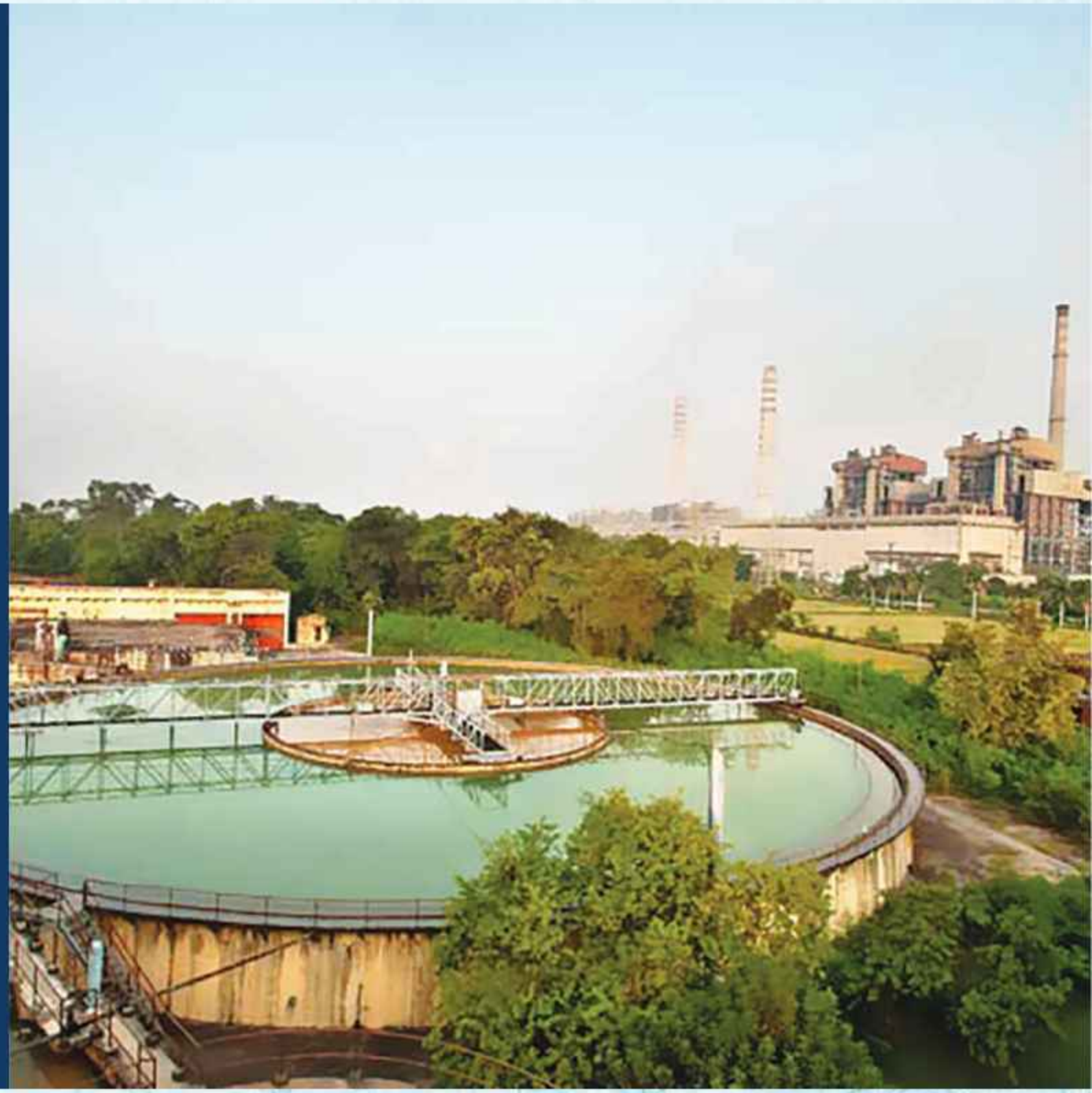
- Dry Bottom Ash Handling System has been implemented at Patratu and North Karanpura Stations to reduce water consumption and this concept is being adopted in other new projects also.
- Adoption of Dry Bottom Ash Handling System cut down the requirement of water from 700 m^3/hr to 350 m^3/hr on an average for a typical 1600 MW Plant



Dry Ash Handling System at NTPC North-Karanpura

Effluent Treatment Plant

The process water generated from various sources in the plant are connected to Liquid Waste Treatment Plant (LWTP) and the treated water is being reused for various purposes in the operation of the plant such as service water and ash handling area etc.



Coal Slurry Settling Pond (CSSP)

- The coal-laden water generated from coal handling area is treated in Coal Slurry Settling Pond (CSSP).
- The treated water is reused for the dust suppression system, contributing to both water conservation and effective dust control measures.

Coal Slurry Settling Pond at NTPC Korba

Coal Slurry Settling Pond at NTPC Gadarwara

Ash Water Recirculation System (AWRS)

» AWRS has been installed to reuse the decanted ash water and toe drain water from ash pond area and it is recirculated back to the plant area for ash slurry make-up in closed cycle.

NTPC Rihand

NTPC Vindhyachal

Neutralization Pit at DM Plant

» The wastewater from the Demineralization (DM) Plant area is treated in a neutralization pit, and the treated water is reused.

Neutralization Pit at NTPC Vindhyachal

Sewage Treatment Plant

» NTPC stations have installed advanced sewage treatment plants, incorporating technologies such as Moving Bed Bio-Mass Reactor (MBBR), Soil Biotechnology (SBT), Activated Sludge Process (ASP), Extended Aeration Systems, etc. The treated water is reused for horticultural purposes both within the township and in the plant area

NTPC Kudgi

Drip Irrigation

- The treated water from the Sewage Treatment Plant (STP) is reused for horticultural purposes using the drip irrigation method minimizing water loss through evaporation or runoff, thereby optimizing water consumption and promoting sustainable water management practices.

Drip irrigation in township horticulture for reuse of treated STP water at NTPC Tanda.
The scheme was inaugurated by CGM Tanda on 29.08.2023

NTPC Meja

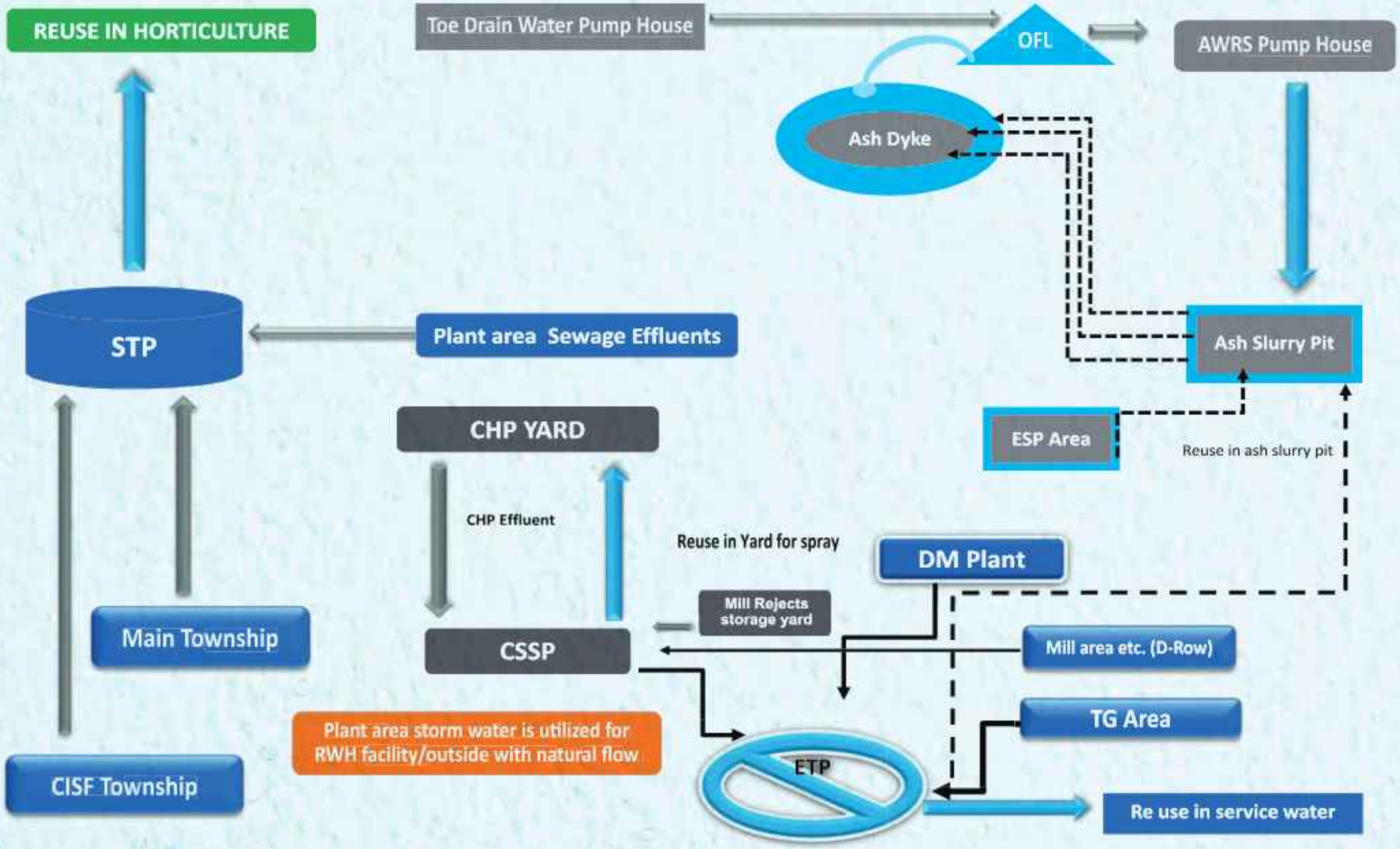
NTPC Tanda

Zero Liquid Discharge

- NTPC has different types of wastewater treatment systems according to the type of wastewater generated :
  - Clean water is channelized to CW inlet bay.
  - Oil mixed effluent is sent to ETP for treatment & reuse.
  - Ash containing water is sent to bottom ash slurry sump for ash slurry makeup.
  - Coal laden effluent is channelized to Coal Slurry Settling Pit and reused in coal yard for dust suppression.
  - Sewage effluent generated from township & plant, after treatment, is reused in horticulture.
- NTPC Stations have been implementing ZLD System for 100% wastewater treatment & reuse.

NTPC Kudgi

Zero Liquid Discharge Flow Chart



NTPC Rihand Initiatives

A) Reduction in water consumption

- Replacement of water-cooled fluid couplings of CHP with air cooled couplings in St– II, & St – III. Water saving potential with this modification is 15.3 m^3/hr approximately.
- Optimization number of jetting nozzles in bottom ash handling along with their periodic replacement & adjustment of angle irrespective of unit shut down.
- Pipelines & supply of STP treated water in the township and plant for utilization in horticulture.

Surya Kund (Surface rainwater collection structure)

B) ZLD compliance

- Installation of additional infrastructure of 2975 m^3/hr capacity including pits and pumps to achieve ZLD.
- Use of AWRS in place of fresh water in economizer hopper spraying in St–III.
- Use of CSSP treated water for dust suppression in Coal Handling Plant area.
- Installation of MBBR based STPs in Township (03 MLD) & Plant (0.5 MLD) for domestic effluent.
- Three no's of ETPs (one for each stage) have been installed for treatment of industrial effluent and treated water is sent to raw water tank for utilization as service water.

Rihand ETP


Rihand CSSP

NTPC Mouda Initiatives

- ZLD system implemented.
- 100 % Reuse of STP treated water for Horticulture.

Sewage Treatment Plant

STP Water for Horticulture

NTPC Vindhyachal Initiatives

NTPC Vindhyachal has been implementing the 'zero discharge' for recycling and reuse of wastewater as follows.

- Stage-1: 3x100 = 300 m^3/hr
- Stage-2: 2x300 = 600 m^3/hr
- Stage-3: 2x100 = 200 m^3/hr
- Stage-4: 2x150 = 300 m^3/hr
- Stage-5: 1x100 = 100 m^3/hr
- The total capacity all stages is 1500 m^3/hr.
- CSSP, 1500x2 =3000 m^3.
- Coal Slurry Settling Pit (CSSP) has a capacity of 3000 m^3 (2x1500) for treatment and reuse in dust suppression
- STP - 6.0 MLD capacity for treating sewage generated from the township and plant, with treated sewage reused in horticulture after treatment.


NTPC Vindhyachal ETP


NTPC Vindhyachal CSSP


NTPC Vindhyachal STP

Supply Chain & Watershed Management

NTPC has developed and implemented a dedicated policy on Sustainable Supply Chain which includes engaging positively with our suppliers to promote cost effective, resource efficient and environmentally and socially responsible business operations. This aims to enhance awareness and understanding among stakeholders, fostering a culture of responsible water management throughout the organization's supply chain.

Supply Chain Conference on Water with Major Partners

NTPC Sustainable Supply Chain Policy

In pursuit of providing reliable power and related solutions in economical, efficient, environmentally friendly and innovative manner, we at NTPC are committed towards augmenting the supply chain sustainability and reducing negative externalities of business operations. We seek to institute triple bottom line approach in our upstream supply chain and encourage our supply chain partners to follow best environment, social and governance (ESG) practices in their business operations. As a responsible corporate citizen, we incessantly endeavour towards creating synergistic and symbiotic value across our value chain to enhance our social, environmental and economic performance.

We at NTPC are committed towards:

1) Ensuring highest level of compliance to all applicable statutory and legal requirements across the supply chain and procurement practices;
2) Strengthening and maintaining robust health and safety management system in own and supplier managed operations;
3) Embedding transparent, ethical and fair procurement practices and providing equitable opportunity to our vendors;
4) Engaging positively with our suppliers to promote cost effective, resource efficient and environmentally and socially responsible business operations;
5) Fostering partnerships and collaborations with value chain partners to enhance quality and efficiency;
6) Nurturing and reinforcing a conducive work environment; adopting highest standards of human rights and labour practices;
7) Promoting diversity, inclusiveness and equality in workplace across supply chain;

NTPC Mouda Initiatives (1.0) for Rejuvenating Water Bodies

Rivers have played an integral role in the rise and sustenance of human civilization since the beginning of time. From nurturing life to providing water for agriculture and facilitating trade, rivers have been the cradle of prosperity and culture.

Now it is our turn to give back to the nature. NTPC Mouda proudly embraced the mission to rejuvenate these lifelines through Govt. of Maharashtra's Jalyukt Shivar Abhiyan.

The Impact: Increase in vegetation cover on 16.64 acres of land.

The Impact: Water now available for 10-11 months a year for irrigation.

The project for 8 villages started in 2017, using 'Trap the Rain Where It Falls' technique.

The Impact: Increase in water holding capacity by 245%.

NTPC Mouda joined in the efforts of the Government of Maharashtra to make the state 'Water-Scarcity-Free', through Jalyukt Shivar Abhiyan.

Mouda - Launch of Jalyukt Shivar Abhiyan 2.0

Objectives: The scheme envisaged to arrest maximum run-off water, especially during the monsoon months by deepening and widening the existing water bodies in all the villages of Mouda Tehsil

Bhumi Poojan for Naala Kholi Karan project at Khandala Village by Hon. Deputy Chief Minister Sh. Devendra Fadnavis and Sh. Ashish Jaiswal (MLA Ramtek), Sh. Teckchand Savarkar (MLA Kamptee)

Bhumi Poojan for construction work at Saand Naala at Sawergaon Village

नवभारत

नाला गहराईकरण और पगडंडी का कार्य जोरों पर

मौदा तहसीलदार ने किया निरीक्षण, सिंचाई की समस्या होगी हल

■ मौदा (सं.). मौदा तहसील के अंतर्गत आने वाले गांवों में नाला गहराईकरण व मातोश्री पांधन सड़क योजना के काम जोर शोर से जारी है. तहसील के किसानों की खेत की फसल के लिए पर्याप्त मात्रा में पानी उपलब्ध हो तथा खेतों में स्थित कुओं का जल स्तर बढ़ाने के लिए महाराष्ट्र शासन ने नाला गहराईकरण योजना की शुरुआत की है. उसी प्रकार किसानों को गांव से खेतों में और खेत से खेत माल लाने के लिए व खेत कार्य को अंजाम देने के लिए सभी खेतों में पांधन सड़क का निर्माण करने के लिए मातोश्री पांधन सड़क योजना शुरू की गई है. इन कार्यों पर मौदा के नवनियुक्त तहसीलदार धनंजय देशमुख द्वारा नजर रखते हुए रहे है. मौदा तहसील के चाचेर, नवेगांव (आहेरी), खंडाला, म्हाडागांव आदि गांव के परिसर में चल रहे नाला गहराईकरण व मातोश्री पांधन सड़क योजना के कार्यों को तहसीलदार देशमुख द्वारा भेंट देकर निरीक्षण किया.

आर्ट ऑफ लिविंग, मौदा एग्रीकॉमर्स सोसायटी फंड व जनसहयोग निर्मितीतून नाला गहराईकरण के काम का जायजा लेकर कार्य की सराहना की व आगे भी इस तरह के काम आर्ट ऑफ लिविंग व एग्रीकॉमर्स ने करने पर सहमती दर्शायी. मौदा तहसील के भारीकलाड से सांड नदी तक 700 मीटर लंबाई और 2 मीटर गहरा व 20 से 22 मीटर चौड़ाई वाले नाले का निर्माण किया जा रहा है. इस नाले के निर्माण से करीब 250 किसानों के खेत की फसल उत्पादित करने के लिए पानी मिलेगा.

अब खेतों में नहीं जाएगा बाढ़ का पानी

इस नाले के निर्माण के बारे में आर्ट ऑफ लिविंग के रजीत किलनाके ने बताया कि इस जगह पहले छोटा नाला था. यहां बाढ़ आने पर बाढ़ का पानी किसानों के खेत में जाने से फसलों को काफी नुकसान होता था. अब इस नाले के बनने से फसल के नुकसान को रोका जाएगा तथा खेत के परिसर में स्थित कुओं का जलस्तर बढ़ाने में भी मदद मिलेगी. किसानों को कातेर महीने खेतों के लिए पानी उपलब्ध होगा. निरीक्षण के समय आर्ट ऑफ लिविंग के किलनाके, नवेगांव आहेरी के सरपंच मोरेश्वर तांडेकर, चाचेर के पूर्व सरपंच मोहन कानवे, ग्राम सदस्य तेलेश कोपरकर, उपसरपंच रवि लाकरे, खंडाला के सतीश नासवाने रेड्डी, मजीद इमाले समेत स्थानीय किसान मौजूद थे. इस समय तहसीलदार द्वारा आर्ट ऑफ लिविंग द्वारा बनाई गई पार्टी को भी भेंट देकर वहां के औषधी व फल पौधों का निरीक्षण किया.

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Bhumi Poojan for construction work at Saand Naala at Hiwara Village

- NTPC Mouda has carried out work in pond rejuvenation, construction and development of water bodies in Project Affected People (PAP) villages under Maharashtra State Government's flagship program 'Jalyukt Shivar Abhiyan 2.0'
- Maharashtra State Government has relaunched 'Jalyukt Shivar Abhiyan 2.0' with an objective to make Maharashtra a drought free state particularly targeting Vidarbha area. It is in continuation with previous work done through 'Jalyukt Shivar Abhiyan 1.0' in PAP villages.

Rainfed nullahs (natural drains)
Location- Sawergaon

Deepening of nullah by machine operator
Location- Sawergaon

NTPC : Funding of ₹ 75 lakhs

Art of Living Foundation Implementing Partner

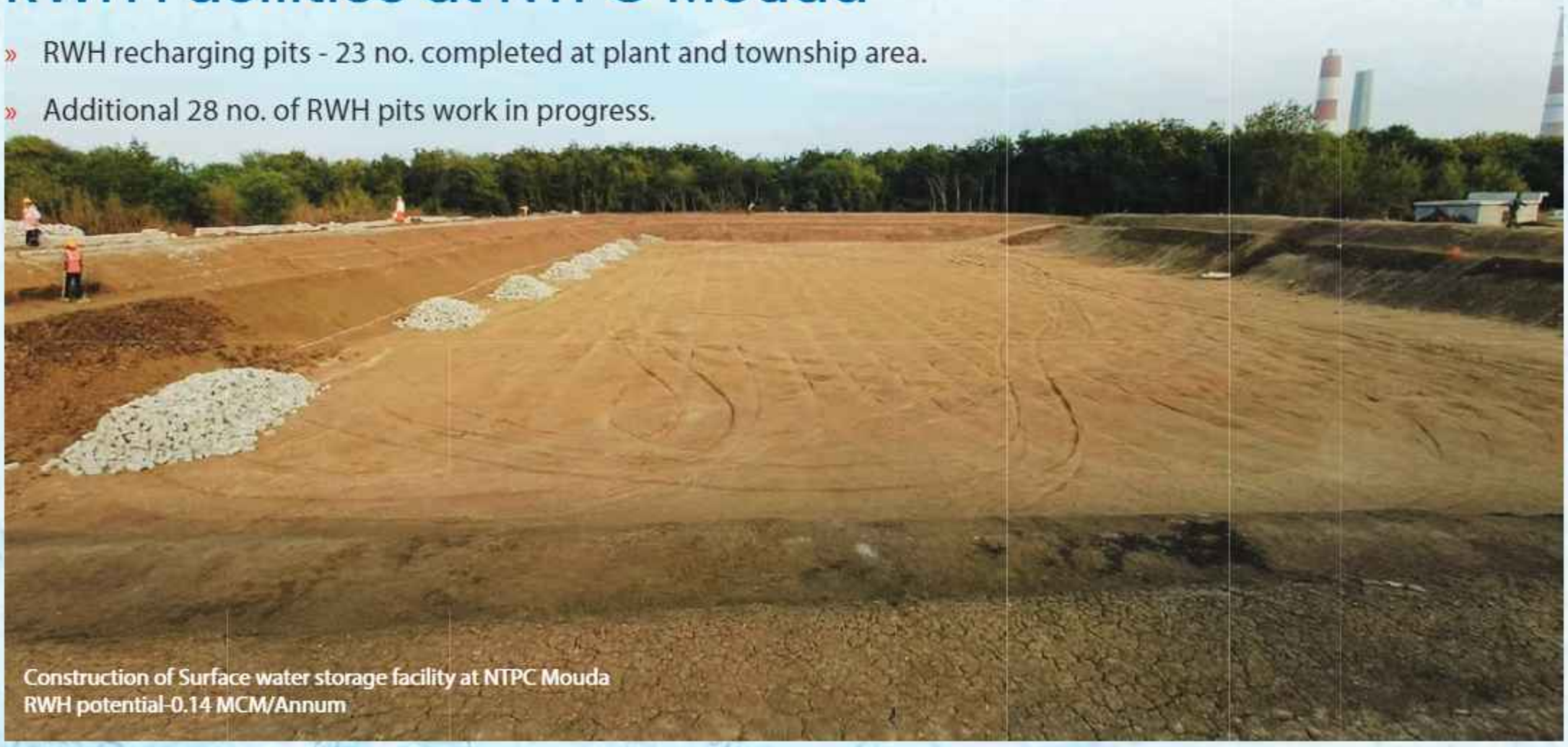
Maharashtra State Govt. Programme

Rainwater Harvesting

- To maximize the potential utilization of rainwater, NTPC has conducted Rainwater Harvesting (RWH) Studies through reputed institutes.
- In areas where groundwater recharge is not feasible due to a high-water table, NTPC is implementing surface water storage facilities. These facilities are designed to capture and store rainwater for various purposes, ensuring efficient utilization of available water resources.

RWH Facilities at NTPC Mouda

- RWH recharging pits - 23 no. completed at plant and township area.
- Additional 28 no. of RWH pits work in progress.



Construction of Surface water storage facility at NTPC Mouda
RWH potential-0.14 MCM/Annum

RWH Facilities at NTPC Vindhyachal

» Vindhyachal has completed three surface storage ponds of cumulative capacity 2.4 lakh m^3 for rainwater harvesting.

NTPC Vindhyachal

RWH pond(1) at VSTPS township – Storage capacity =40000 m^3

RWH pond(2)at VSTPS-Plant area – Storage capacity =150000 m^3

RWH Facilities at NTECL Vallur

» Two Rainwater Harvesting Storage Facilities of 75000 m^3/year

RWH Pond 2 at NTECL Vallur

RWH Pond 1 at NTECL Vallur

RWH Facilities at RGPPL

RGPPL has made it a mission to achieve 100% self-sufficiency for its sweet water requirement without drawing any sweet water from River Vashishthi.

- RGPPL has the capacity for surface rainwater to meet sweet water consumption in non-rainy months.
  - Four Storage tanks (4 x 40000 m^3)
  - One reservoir (EWR) (120000 m^3)
  - Two storage tanks (2 x 7500 m^3)

RWH Facilities at NTPC Rihand

- NTPC Rihand having rainwater harvesting capacity of 01 Lakh m^3/annum.
- Ground water recharge structures: (117 nos); Capacity: 70,000 m^3/annum.
- Surface rainwater collection structures: 30,000 m^3/annum

RWH Facilities at NTPC Dadri

NTPC Dadri has implemented the rainwater harvesting facilities having capacity of 12.09 lakh m^3 at Pakshi Vihar Lake for collection of rainwater from plant & township.

RWH Facilities at NTPC Simhadri

- Surface water storage facility in township - 25909 m^3/yr

Collective Action

Narmada Landscape Restoration Project

NTPC, in collaboration with US-AID, is supporting the "Narmada Landscape Restoration Project" along the River Narmada. This unique project focuses on water conservation and promoting sustainable agriculture through natural processes, aiming to benefit the local population by enhancing green cover, improving water retention, promoting crop diversity, and encouraging organic farming and marketing.

The project is jointly implemented by the Indian Institute of Forest Management (IIFM) and the Global Green Growth Institute (GGGI). NTPC has signed an MoU with the Indian Institute of Forest Management (IIFM) Bhopal for an investment of ₹ 12.31 Crores in this project.

Focused on rejuvenating selected micro watersheds along the Northern and Southern banks of the Narmada River, spanning from Omkareshwar to Maheshwar Dam in Khargone, Madhya Pradesh, this project strategically aims to improve the quality and quantity of water in the region.

Public Policy

- NTPC provides inputs in the formulation of government policies and initiatives that drive the water sustainability agenda. NTPC actively participates in various Committees and Sub-Committees of the government, and also shares its insights on draft gazette notifications and schemes.
- NTPC has also established dedicated policies for water management, including a comprehensive Water Policy and a Rainwater Harvesting Policy. These policies outline the company's commitment to efficient and sustainable water usage across its operations. The Water Policy sets guidelines for water conservation, reduction of water consumption, and implementation of best practices for water management.
- Rainwater Harvesting Policy emphasizes the importance of capturing and utilizing rainwater effectively to supplement water resources and reduce reliance on external water sources. Together, these policies reflect NTPC's proactive approach towards addressing water-related challenges and promoting environmental sustainability.

Rain Water Harvesting Policy

Fresh water is turning out to be an increasingly valuable and scarce resource as its demand-supply gap keeps rising at an incredible pace. The availability of both ground and surface water is becoming increasingly difficult owing to the heavy usage for agricultural, industrial and domestic purposes. The recent years have seen a fast changing regulatory landscape with increasingly stricter regulations on the industrial water consumption. This is an increasing risk to the organisations requiring water as their major input. As a front-runner in the power industry, NTPC owes the responsibility to tackle this issue of water availability by reducing its consumption, thus setting new industry benchmarks on one hand and exploring alternate methods to ensure long term water security. Water Policy had been formulated to give direction to such efforts.

Rain water harvesting (RWH) is a way of collecting and storing rain water either for reuse or for ground water recharge. It possesses tremendous potential to reduce fresh water consumption and act as a reliable secondary source of water. NTPC shall prioritise surface water storage and reuse over ground water recharge*, because

a) Surface storage and reuse is more useful. Ground water recharge is a slow process and majority of water recharged done is not available for intended use subsequently;

b) It will lead to reduction of burden on other water bodies such as rivers, lakes and ground water sources; indirectly contributing to water table improvement;

To strengthen its water conservation initiatives, NTPC has developed Rain Water Harvesting Policy which would act as the major guiding document for rain water harvesting.

Water Policy

I. Policy Statement

"Committed to become one of the most water efficient power company globally by generating more power per drop"

II. Purpose

Water is the basic amenity for domestic, agricultural and industrial use As a response corporate citizen, NTPC commits to becoming a flag-bearer by optimizing its processes & practices to increase freshwater availability for other uses.

The quality of water/steam is a no-compromise zone for NTPC's processes to ensure uninterrupted power supply and to increase equipment's efficiency & reliability.

This document contains:

NTPC hereby commits to proactively conserve the most precious natural resource and address water sustainability issues through implementation of this Water Policy, which will serve as a directive for establishing water management strategies, systems, processes, practices and research initiatives keeping in view sustainability aspects to:

(1) Comply with the legal requirements,

(2) Minimize its water footprint, and

(3) Maintain desired water quality during processes and discharges, if any.

Community Engagement

Community Engagement

NTPC Ltd has made significant contribution to water and sanitation, particularly through its involvement in the Swachchh Bharat Abhiyaan. The Company has a dedicated Policy for Providing Potable Drinking Water and adheres to the "NTPC Jal Jyoti Mission Guidelines" with the Vision: "To provide access to safe water for drinking and other domestic needs in adequate quantity of prescribed quality on regular and sustainable basis leading to improvement in living standards of communities in the vicinity of our stations/projects."

NTPC also undertakes various initiatives to enhance water access and sanitation in local communities. This includes cleaning and revitalizing ponds in nearby villages. The CSR portfolio is developed through a participative and consultative process, involving stakeholders such as Panchayat officials, District Administration, civil society, and community members. Need Assessment Surveys (NAS) are conducted by reputable external agencies in consultation with local communities and institutions. These surveys inform the design of customized community development solutions, including activities related to water management and conservation.

Pond Rejuvenation, NTPC Unchahar

Policy for Providing Potable Drinking Water

1. **Title:**

   This Policy for providing potable drinking water on sustainable basis to the community near our Stations/ Projects, will be named "NTPC Jal Jyoti Mission".

2. **Background:**

   Water is the most essential requirement for survival of living being. Access to safe water for drinking and other domestic needs still continues to be a problem in many parts of India. About 160 million people do not have access to clean water in India.

   The water-borne diseases are the most common health threat in the developing world, especially in India.

   The SDG-6 of UNDP's Sustainable Development Goals, re-iterates to "ensure availability and sustainable management of water and sanitation for all".

   Water is one of the focus area for taking up NTPC's CSR activities for bringing maximum value to the society. The Policy is intended to be in conformity with the provisions of CSR and Sustainability Policy of NTPC.

3. **Objectives:**

   - Capacity building of the stakeholders and create awareness in community on significance of drinking water for improvement in quality of life.
   - Ensuring accessibility of potable drinking water in adequate quantity on regular and sustainable basis leading to improvement in living standards of communities in the vicinity of NTPC's Stations/Projects.

4. **Applicability:**

   This policy will be applicable to all Hydel and Thermal Stations and Projects of NTPC in India and shall come into force with immediate effect.

Jal Shakti Abhiyan

RGPPL Ratnagiri has launched a pilot project of well recharging and demonstrated a filtration system at Ranvi Village for the ground water recharge.

Distribution of sand-charcoal filters to nearby villages

Jal Shakti Abhiyan of RGPPL is not limited to its boundaries. We have taken it to nearby villages also.

As the storage sites are very limited in the area, the ground water recharge will help in raising the ground water table and improve yield from aquifers.

Awareness on RWH

- NTPC Mouda organized mass awareness campaign for school children & villagers about Rainwater Harvesting at three locations in vicinity of Mouda namely Ajangaon, Dhamangaon Village and Zila Parishad School
- Live Demo Vehicle of Rainwater Harvesting process was displayed for spreading awareness among common public and students.
- Objective was to reinforce the need to conserve water and to educate public to save water with Rainwater Harvesting at household level.

Pond Rejuvenation at NTPC Unchahar

NTPC Unchahar

Pond Rejuvenation at BRBCL

Environmental, Social and Governance (ESG) Policy

A. Statement of Intent

NTPC ESG Policy fortifies our commitment to sustainable power generation while protecting the environment enabling societal good and adhering to good corporate governance standards. We shall ensure that our stakeholders are guided by an effective ESG framework across all business operations. We shall promote transparency and accountability on ESG-related matters through periodic reporting and disclosures.

B. Our Commitment to ESG

NTPC is committed to provide clean and affordable energy in a responsible and sustainable manner. NTPC believes that management of environmental, social, and governance (ESG) considerations across its business operations can create long-term sustainable value for all stakeholders.

We at NTPC aim to adopt an integrated ESG approach, where economic goals will be attained through conscious efforts to conserve our planet and its natural resources while improving the quality of life for current and future generations. We shall integrate ESG principles into core decision-making processes and governance structures. The principles will also be regularly monitored with key performance indicators to ensure effective implementation across operations.

We shall comply with applicable laws of the land and be responsive to existing and emerging global ESG concerns on a proactive basis.

NTPC Integrated Annual Report in Public Domain

Transparency

NTPC ensures transparency by:

- Submitting information on water consumption to statutory authorities. This ensures compliance with regulatory requirements and promotes accountability in water usage.
- Disclosure of all initiatives and data related to water, according to the Global Reporting Initiative (GRI) Guidelines, in the Annual Integrated Report of the Company. This information is made available in the public domain, allowing stakeholders to access comprehensive insights into NTPC's efforts towards water sustainability.
- Dedicated ESG Policy incorporating the principles for environmental sustainability, among others.

Water Withdrawal

- For operation of our plants, water is drawn from various sources / water bodies such as rivers, reservoirs, canals and sea water is used by our coastal plants.
- Increasing recycling and reuse of effluents has led to a decrease in freshwater withdrawal requirement per unit of electricity generated, over the years.

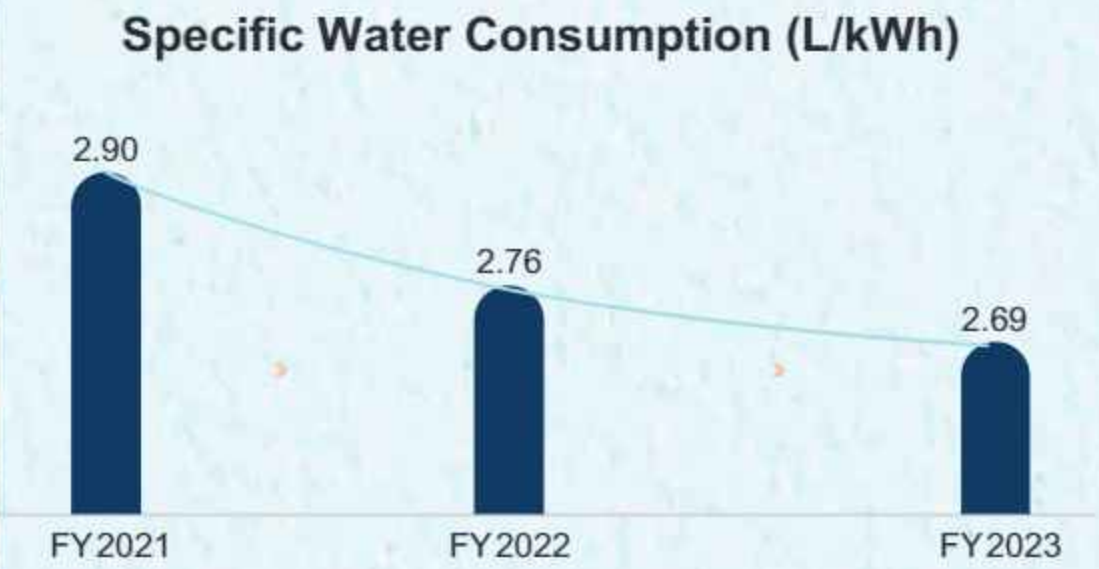
Description	FY 2022-23
(i) Surface water	5,482.35 MCM
(ii) Groundwater	0 MCM
(iii) Third party water	0.55 MCM
(iv) Seawater / desalinated water	179.10 MCM
Total volume of water withdrawal	5,662 MCM
Total volume of water consumption	1,135.55 MCM
Specific water consumption	2.69 L/kWh

NTPC Sipat

Use of Rainwater as Cooling Tower Makeup at NTPC Sipat

Specific Water Consumption

» Specific water consumption has been reduced over the years and targeted to achieve 2.5 L/kWh by 2032.



NTPC Auraiya

3

World Water Day 2023 Celebrations

World Water Day 2023 Celebrations

On the occasion of the World Water Day 2023, various competitions such as essay writing, drawing, slogan writing, etc., were organized for employees, CISF personnel, school children, township residents, and surrounding villages. These events aimed to raise awareness about water conservation and the importance of sustainable water management practices.

A pledge was taken by employees, along with the Head of Projects and other dignitaries, committing to actively contribute towards preserving water resources and promoting water sustainability in their respective communities.

World Water Day 2023 Celebrations

NTPC Tanda

These initiatives highlight the collective effort and commitment towards safeguarding our precious water sources for future generations.

NTPC Unchahar

NTPC Vindhyachal

World Water Day 2023 Celebrations

NTPC Vindhyachal

NTPC Rihand

NTPC Nabinagar

NTPC Meja

NTPC Mouda

NTPC Tanda Station

World Water Day 2023 Celebrations

RGPPL

NTPC Talchar-Kanhia

NTPC Kahalgaon

World Water Day 2023 Celebrations

World Water Day 2023 Celebrations

NTPC Anta

RGPPL

World Water Day 2023 Celebrations

NTPC Bongaigaon

NTPC Sipat

NTPC Ramagundam

NTPC Farakka

World Water Day 2023 Celebrations

LiFE
Lifestyle for Environment

The Ministry of Environment, Forest, and Climate Change (MoEF&CC) has identified seven themes in the Mission "LiFE", with "Saving Water" being one of them. Recognizing the importance of water conservation, all NTPC stations have organized various awareness programs including those on water conservation and management.

These initiatives include conducting competitions among school children and students, such as essay writing, drawing/painting, and creating slogans to raise awareness about water conservation. Additionally, activities like Nukkad-Natak (street plays) are organized among residents, NTPC Townships, nearby villages, and schools to disseminate important messages regarding water conservation practices.

To ensure transparency and engagement, daily updates on these activities and events are uploaded on the **merilife.org** portal, demonstrating NTPC's commitment to environmental sustainability and community engagement.

Seven Themes of Mission LiFE

- Save Energy.
- Save Water
- Say No to Single Use Plastic
- Adopt Sustainable Food Systems
- Reduce Waste
- Adopt Healthy Lifestyles
- Reduce E-Waste

Mission LiFE

May-June 2023

मिशन LiFE - भारत के माननीय प्रधानमंत्री द्वारा (COP 26) में एक वैश्विक पहल शुरू की गई थी। मांग–आपूर्ति संशोधन की प्रमुख कड़ियों के माध्यम से सतत विकास पर जोर। मिशन का उद्देश्य पर्यावरण में बड़े पैमाने पर सकारात्मक बदलाव लाने और जलवायु परिवर्तन के प्रभाव को कम करने के लिए व्यक्तियों के व्यवहार संबंधी कार्यों को बढ़ावा देना और उन्हें अनुकूलित करना है। पहल मई के महीने में शुरू की गई थी और पहल के रूप में, देशी किस्मों के पेड़ लगाना, स्थायी जल उपयोगी के बारे में जागरूकता अभियान आदि गतिविधियों के साथ अभियान शुरू किया।

4

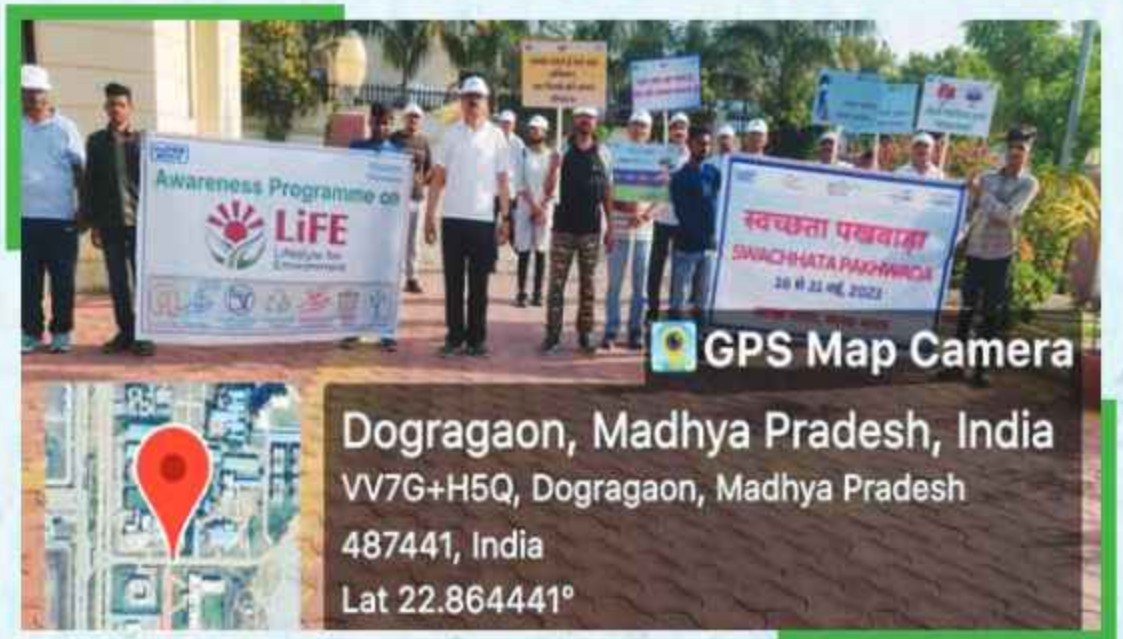
Mission LiFE Activities

Mission LiFE Activities

LiFE
Lifestyle for Environment

NTPC Farakka

NTPC Barh



NTPC Gadarwara

Mission LiFE Activities

NTPC TSTPS

NTPC Tanda

NTPC Sipat

NTPC Barauni

NTPC Barh

NTPC Bongaigaon

Mission LiFE Activities

Meja

NTPC Mouda

NTPC Rihand

NTPC Lara

NTPC Faridabad

NTPC Barh

Mission LiFE Activities

LiFE
Lifestyle for Environment

NTPC Rihand

NTPC Meja

NTPC Simhadri

NTPC Unchahar

NTPC Singrauli

NTPC Jhajjar

Mission LiFE Activities

NTPC Khargone

NTPC Faridabad

NTPC VSTPS

NTPC Tanda

NTPC Korba

NTPC Lara

Mission LiFE Activities

LiFE
Lifestyle for Environment

NTPC Farakka

NTPC Darlipali

NTPC Dadri

NTPC Barauni

NTPC Vindhyachal

NTPC Sipat

Mission LiFE Activities

NTPC Bongaigaon

NSPCL-Durgapur

NTPC Lara

NTPC Vindhyachal

Mission LiFE Activities

LiFE
Lifestyle for Environment

RGPPL

RGPPL

गुहागर समुद्रतट सफाई अभियान सोसायटी कनेक्ट

सोसाइटी कनेक्ट का अंकित मूल्य से परे महत्व है, एक संगठन के रूप में नैतिक और नैतिक दिशा–निर्देश का होना आवश्यक है। आरजीपीपीएल की स्थापना इस विश्वास पर की गई है कि व्यवसाय को समाज से जितनी मांग की जाती है, उतनी मात्रा में उसे वापस देना चाहिए। संपूर्ण व्यावसायिक रणनीति तभी टिकाऊ बन सकती है जब समुदाय एक अभिन्न भागीदार बन जाए। इस मूल्य को बढ़ाने और बनाए रखने के लिए आरजीपीपीएल समय–समय पर विभिन्न सोसायटी कनेक्ट पहलों का आयोजन करता है। 26 मई को, गुहागर समुद्र तट पर एक समुद्र तट सफाई अभियान का आयोजन किया गया ताकि यह संदेश दिया जा सके कि स्वस्थ जीवन स्वच्छ परिवेश पर आधारित है।

5

Water Awards

Water Awards

एनटीपीसी बरौनी थर्मल पावर स्टेशन को जल संरक्षण एवं प्रबंधन में उत्कृष्ट कार्य के लिए मिला राष्ट्रीय जल पुरस्कार

एनटीपीसी बरौनी थर्मल पावर स्टेशन को उत्कृष्ट जल संरक्षण एवं प्रबंधन के लिए, जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग, जल शक्ति मंत्रालय, भारत सरकार द्वारा सर्वोत्तम उद्योग श्रेणी में प्रथम स्थान प्राप्त करने के लिए राष्ट्रीय जल पुरस्कार, से सम्मानित किया गया है।

यह पुरस्कार माननीय उपराष्ट्रपति श्री जगदीप धनखड़ द्वारा, जलशक्ति मंत्री श्री गजेंद्र शेखावत की गरिमामई उपस्थिति में, अध्यक्ष एवं प्रबंध निदेशक, एनटीपीसी, श्री गुरदीप सिंह एवं परियोजना प्रमुख, बरौनी थर्मल पावर स्टेशन, श्री राजीव रक्षा को विज्ञान भवन में आयोजित समारोह में प्रदान किया गया है। यह पुरस्कार प्रति वर्ष जल संरक्षण एवं प्रबंधन के लिए उत्कृष्ट कार्य हेतु प्रदान किया जाता है। इस पुरस्कार में एनटीपीसी बरौनी के प्रयासों को सराहना के साथ विजेता ट्रॉफी, एवं प्रशस्ति पत्र दिया गया है।

» NTECL Vallur has been awarded the 'Winner' of the Water Sustainability Awards 2022-23 by TERI-WA-UNDP in the category of 'Excellence in Water Use Efficiency.' The award was presented by Dr. Kiran Bedi, LG, on World Water Day, March 21, 2023, at India Habitat Centre, New Delhi

RGPPL-Ratnagiri received CII Industrial water & waste management competition Award 2023 in the category "Best Rainwater Harvesting practices"

NTPC Barauni is awarded 1st Rank as Most water efficient plant. The award was presented by Shri Jagdeep Dhankhar, Hon'ble Vice President of India, to Shri Gurdeep Singh, CMD NTPC in the august presence of Shri Gajendra Singh Shekhawat, Union Jalshakti Minister

NTPC–Kanti has won the 2nd prize in the 'Industrial Water Use Efficiency category' at the 11th edition of the FICCI Water Awards 2023

NTPC – Simhadri has won the 2nd prize in the 'Innovation in Water Technology category' at the 11th edition of the FICCI Water Awards 2023

NTPC Barh - "Best ESG initiative - water efficiency" Awards 2023

NTPC Mouda - "Best National Water Efficient Plant at CEE Water Award 2024".

- NTPC Barh - 'Runners up' for 'Wastewater Treatment & Safe Reuse' TERI-IWA-UNDP Water Sustainability Awards 2023.
- NTPC Bongaigaon - "Water Management Award" at the 3rd Edition of CII-SR Industrial Water/Waste Management 2023
- NTPC Rihand- Runners Up for Water Use Efficiency in the Industrial Sector from the TERI-IWA-UNDP Water Sustainability Awards 2023

- NTPC Mouda - "Champion Award" at the Water Efficient Stations Awards (IPS - 2024).
- NTPC Dadri - "Runner-Up Award" at the Water Efficient Stations Awards 2022-23 (IPS-2024)

NTPC Limited

(A Govt. of India Enterprise)

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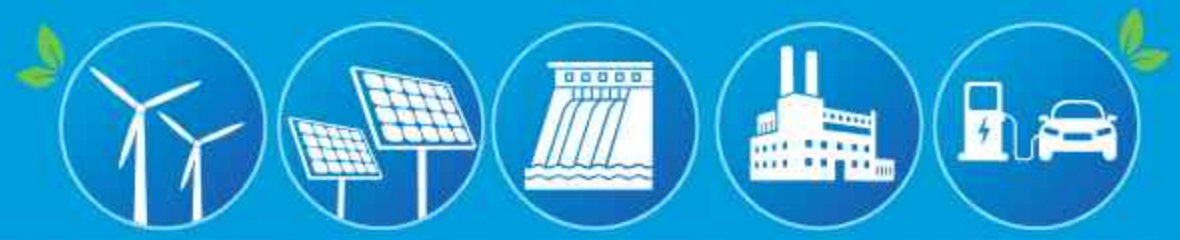
If you have any suggestions, please send an email to edssea@ntpc.co.in.



Leading the Power Sector