

Natural Capital

Promoting a net zero strategy is central to our business. We place great emphasis on efficient utilisation of natural resources such as fossil fuels, water, solar energy, wind energy and hydro energy which is essential for the economy's functioning. We are making significant investments in the renewables space to protect natural resources, realise our climate ambitions and create a positive impact on the environment we operate in.

Description of the Capital	This Capital aims to focus on climate change and create a positive impact on the environment.
Management Approach	To ensure sustainable use of natural resources and combatting climate change
Significant Aspects	<ul style="list-style-type: none"> • Climate • Preservation of biodiversity • Management of environmental footprint • Energy efficiency • Preservation of natural resources

Key Performance Indicators	Material Topics	Strategy Linkage
<ul style="list-style-type: none"> • GHG emissions • Energy consumed • Energy saved • Water consumed • Water recycled • Waste generated and disposed 	<ul style="list-style-type: none"> • Managing carbon emissions • Waste management • Water management • Biodiversity • Energy efficiency 	<p>S01 Embracing a greener future</p> <p>S04 Measuring environmental impact of our operations</p> <p>S05 Ensuring efficient operations of our existing assets</p>



Celebrating World Environment Week

JSW Hydro Energy Limited at Sholtu, which is India's largest private sector hydro electrical power project, celebrated the World Environment Week with social accountability and mass awareness during the year. Dignitaries like Vice Chairman of Himachal Pradesh Forest Development Corporation, Deputy Commissioner, Superintendent of Police, SDMs, Assistant Commissioner to Dy. Commissioner and Dy. Superintendent of Police, Kinnaur participated in the programme.

On this occasion, Hemraj Bairwa, Deputy Commissioner, Kinnaur acknowledged the Company's efforts towards environment conservation and socio-cultural environment. Surat Negi, Vice Chairman, Himachal Pradesh Forest Development Corporation, appreciated the Company for its CSR activities in the field of skill, sports, education, gender, health and environment. It also applauded its community participation during COVID-19 times. Conservation of conventional Kinnauri tribal craft was another pioneering work by the CSR team that was appreciated.

SP Kinnaur Saju Ram Rana aptly put the message across that JSW's efforts are the need of the hour. He explained how our environment is the best investment we can do for future generations. Our behaviour towards Earth will decide our future. Perveen Puri, Head of Sholtu Plant, stated how the Company is marching towards green and renewable energy every single day, and the plant is committed towards environment conservation.

37,196

Number of Saplings planted in FY22

14.78 Lakh Cubic Metres

Soil retained till date with plantation initiatives at the hydro plant, Sholtu, Himachal Pradesh



Afforestation Activities

Plantation of local species is carried out every year to restore and rehabilitate the dumping sites. There is continuous effort taken by the Company towards this initiative, which has a survival rate of more than 70%.



a. Plantation in dumping slopes

The employees of JSW Hydro Energy at Sholtu organised a plantation drive at a dumping site in March 2022, in collaboration with the Department of Forest. Over 200 saplings of Chilgoza Pine, which has medicinal, economic and ecological values, were planted. The initiative will serve the twin objectives of river bank stabilization and sustainability of the ecological system. Chilgoza Pine is locally known as Neoza in Kinnaur District of Himachal Pradesh. Chilgoza Pine is a huge reservoir of antioxidants and is enriched with a number of nutrients and dietary fibres. The Chilgoza Pine nut is a source of income to the local people.

b. Slope stabilization

As the Kinnaur district is prone to landslips and landslides, JSW Energy is taking the right initiatives towards stabilizing the land slide near Punang village using Geo Coir Net and plantation. The slide is a threat to the locals in the village. The slope has been stabilized by using gabions, retaining structures and Geo Coir Net and doing plantation.

c. Developing a green cover

The green cover has been increased near the colonies. And the area inside the plant premises has also been converted into a green cover. There is a community playground developed near the colony.

d. Sewage waste management

The Company has installed sewage treatment plants inside the plant premises. The effluents discharged are checked by the Himachal Pradesh State Pollution Control Board regularly to see if they are in permissible limits.

Plant	Sewage Treatment Plant Capacity
Hydro Plant office – Sholtu, Himachal Pradesh	600 KLD
Wangtoo Power House - Hydro	15 KLD
Baspa Power House - Hydro	15 KLD
Kuppa Barrage – Camp - Hydro	36 KLD

e. Solid waste management

The solid waste from the colonies and the mess area are segregated into bio-degradable and non-biodegradable at the source. Fuel and manure are prepared with the help of biodegradable waste. Each location is provided with a composter of different capacity. The non-biodegradable waste is stored and sent to vendors for further disposal and recycling.





Environment and Bio-Diversity initiatives

Key initiatives at Vijayanagar

- World Environment Day celebrated with plantation drive
- 5,000 saplings planted as a part of environmental protection

Key initiatives at Ratnagiri

- Plantation drive conducted on World Environment Day
- New plantation around main store area
- Work started for new mango plantation

Key initiatives at Barmer

- Water shed area taken under treatment
- Developed Silvi pasture plantation for community welfare
- Two local NGOs engaged for restoration and protection of habitats



Waste Management Activities

Key initiatives at Vijayanagar

- Recycled used cooling tower fills
- Utilised 100% fly ash generated
- Recycled waste to authorised recyclers
- Waste gas burnt in boilers to produce steam; oil waste disposed to authorised parties
- Disposed MS scrap, electrical scrap, wooden scrap, CT fills scrap, plastic scrap, HDPE bags scrap through authorised agencies

Key initiatives at Ratnagiri

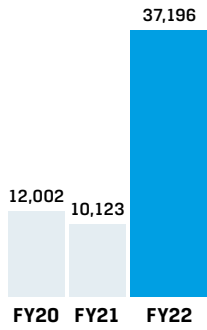
- Used low ash Indonesian coal
- 100% ash is utilised for cement and RMC units

Key initiatives at Barmer

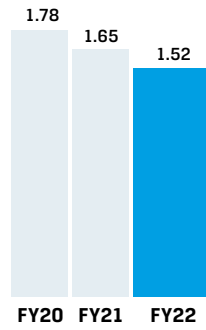
- Coordinated with cement and brick industries to achieve 94% fly ash utilisation

Key Performance Indicators

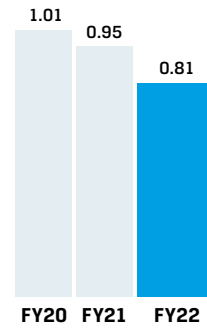
Number of Saplings



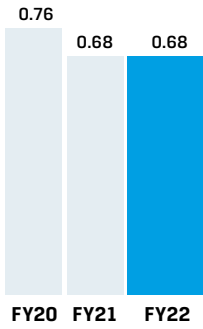
SO_x (kg/Kwh)



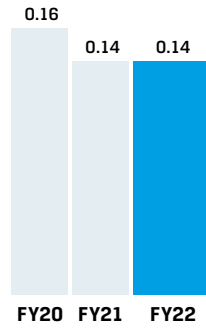
NO_x (kg/Kwh)



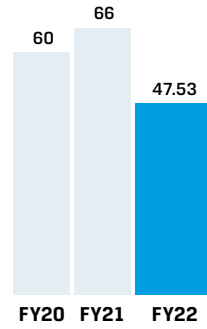
GHG Emissions Intensity (tCO₂e/MU)



PM (kg/Kwh)



Energy Savings (MU)





A Case Study: Bulk Export of Fly Ash

The Ratnagiri plant of JSW Energy operates a 1,200 MW thermal power plant which is based on 100% imported coal sourced from countries like South Africa, Mozambique, Indonesia, and Columbia, among others. The plant generates an average of 1,500 to 2,000 MT of fly ash per day, which is primarily utilised in cement and RMC industries. However, in view of the lesser and unpredictable demand from the domestic market, the Ratnagiri plant has set up a state-of-art facility to export fly ash through the marine route. The project envisages two phases, as mentioned below.

Phase-1: Conveying of Fly Ash from power plant to a 45,000 MT RCC Silo

- A 1 x 100 TPH pipeline conveys fly ash from the power plant to a 45,000 MT RCC Terminal silo (~45 mtr ID and 56 mtr in height) – by a pneumatic system over a length of 2.5 kms.
- The air for conveying is supplied from a Compressor Air system of suitable size.
- The RCC silo is located near the jetty at the port premises.
- The RCC silo is provided with aeration system to ensure fluidity of ash inside the silo.
- The Silo is equipped with properly-sized DE system to ensure that fugitive emissions do not take place.
- In addition to the conveying system, provision of direct bulker loading is also made at the bucket elevator system of RCC Silo.

Phase-2: Conveying of Fly Ash from 45,000 MT RCC Silo to Marine Vessel

- The ash from RCC silo is taken out by means of bucket elevator system and fed to surge hoppers.
- The ash from surge hoppers is taken to PD pump vessels below them and conveyed pneumatically to the marine vessel over a distance of about 1 km.
- The marine vessels envisaged for the export of ash are of Supramax category having a capacity of 50,000 DWT to 55,000 DWT. The tentative time required for the loading of 45,000 MT fly ash to marine vessel is about 6 days on an average.
- 7 ~ 10 numbers of marine vessels are expected per year, based on the demand for fly ash.
- These marine vessels are also provided with removable dust extraction (DE) system to avoid fugitive emissions during ash loading.

Presently, Phase-1 of the silo system is ready and fly ash is being filled in it, while the Phase-2 is being set up and being made ready to fill the marine vessel.