Chapter 15

Green Initiatives

Cases of Water Management by Corporate Sector

1. Water conservation initiatives of DS Group:

a) **Ensure Long term availability of water**

The Dharampal Satyapal Group (DS Group) has been working in the water stressed areas of the country to ensure long term availability of water through geographic-specific conservation measures and judicial utilization of resources.

b) **Multiple water conservation**

The Group supports multiple water conservation and replenishing projects across Rajasthan, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh, Uttarakhand and Gujarat, benefitting millions of people from the marginalized communities.

c) **Various Techniques**

These projects involve construction of recharging and storage structures, renovation of existing defunct and underutilized water bodies, soil conservation measures, introduction of efficient irrigation practices and institutions building for long-term sustainability.

d) Increased availability of water

The work has significantly impacted the availability of water at surface and sub-surface level, which has led to increased irrigated area and improved crop productivity resulting in better economic conditions of the communities in the intervention areas.

2) **Water conservation by JK Tyre and Industries Limited (Kankroli):**

a) **Recycling and Reusing of water**

The various strategies adopted by the company for recycling and reusing water included working for zero discharge, developing hydrophobia for water in unwanted places, eliminating all open drains, optimising/loading cooling towers to their 100%, reducing evaporation losses, radiator/air cooling, eliminating flash losses in steam usage, eliminating wastage, treating sewage and rain water harvesting.

b) **Water consumption reduced**

As a result of these efforts, the specific and per capita water consumption reduced and overall availability of water improved significantly.

c) **Award**

This work won the CII-GBC National Award (Within the Fence Category) for Excellence in Water Management in 2008.

3) **PepsiCo and Water Management:**

a) **Direct seeding technology**

PepsiCo a Food and Beverage Company, has substituted transplanting of paddy with direct seeding technology that reduces water consumption by 30 per cent.

b) **Saved water**
In 2014, PepsiCo India brought over 16,000 acres of land under direct seeding and saved more than 11.2 billion litres of water in Punjab, Haryana, Uttar Pradesh, Tamil Nadu and Karnataka.

c) **Assistance to farmer in various area**
The company also provide assistance to the farmers in water scarce areas of Maharashtra, Gujarat, Karnataka and Haryana with drip irrigation methodology.

4) Water Conservation by Hindustan Unilever:

a) **Metering, Monitoring ad Controlling**
The country's largest consumer goods company Hindustan Unilever has been able to reduce its water use by regular metering, monitoring and controlling of utilities consumption at all its manufacturing sites.

b) **Rainwater Harvesting**
Rainwater harvesting has been implemented in more than 50 per cent of HUL's own units.

c) **Zero-discharge**
More than 75 per cent of HUL's manufacturing sites are zero-discharge.

d) **Other Initiatives**
Some of the other initiatives have been better run-time strategies for lower use of cleaning water, identifying dry areas in the shop-floor, recovery and re-use of process condensate water and using recycled water instead of fresh water for operations.

5) Water Management at ITC:

a) **Watershed development programme**
The company developed watershed development programme to cover 1 million acres of land by 2018.

b) **Soil and Moisture conservation**
The company, which has been water positive for over 13 years, has brought soil and moisture conservation to half a million acres of land apart from monitoring water use at its plants.

6) Water Management at SAIL:

a) **Zero Liquid Discharge**
With a view to minimise water consumption as well as to conserve water resource across the plants, actions have been/are being taken up to achieve the long-term goal of "Zero Liquid discharge" through treatment and recycling of effluent being discharged through the outfalls at the plant boundary.

b) **Facility at BSP**
In this regard, waste water treatment and recycling facilities at the outlet B&C of BSP

have been installed during the financial year 2021-22, as a result of which, around 8250 m3 /hr. of effluent after treatment is re-circulated and reused at Bhilai Steel Plant (BSP).

Few cases of solid waste management are as under:

1) **Sustainable Waste Management in Bangalore- Case Study of Environmental Support Group**
   a) **Environmental Support Group**
   To address the peril of increasing waste in Bangalore and in light of the failure of civic authorities to resolve the mentioned issue, a civil society group named Environmental Support Group situated in Banashankari II Stage, Bangalore came forward and worked diligently with the Bruhat Bangalore Mahanagara Palike (BBMP), the city's body of government dealing with civic infrastructures, as well as other NGO's, since the early 1990's to bring about change in the state of waste management in Bangalore.The mentioned efforts delivered positive outcomes.

   b) **Waste Segregation, Working Wages**
   Through their campaign on waste segregation and better working wages for waste pickers, the group have brought a new conversation of waste management in the city.

   c) **Significant increase in awareness**
   Further, Bangalore has witnessed a significant increase in awareness among the masses regarding waste management issues and the Environmental Support Group is still working relentlessly to create more meaningful, intentional strides in the arena of waste management.

   d) **Educational refroms, public posters, commercials, trip to school**
   Various approaches espoused by the Environment Support Group that is, educational reforms, public posters, commercials, trips to schools, and even Public Interest Litigation cases, assisted immensely in bringing out meaningful change in the domain of sustainable waste management.

2) **Solid Waste Management- Case of Tata Steel Limited**
   a) **Valuation creation from waste and by-products**
   Tata Steel has been pioneering in value creation from waste and by-products in its quest to contribute to a sustainable ecosystem in the iron and steel industry.

   b) **Zero Waste- 3R**
   Tata Steel aims for a 'Zero Waste' goal using the 3R (Reduce, Reuse & Recycle) principles of circular economy.

   c) **15Mn TPA by product**
   The company handled 15 MnTPA of by-products spanning across 25+ product categories comprising more than 250+ Stock Keeping Units (SKUs).

   d) **Raw material for various industries**
   These value-added by-products serve as key raw materials for various industries like

cement, chemical, construction, etc.

e) **100% Solid Waste utilisation**
In FY 2021-22, Tata Steel Jamshedpur and Tata Steel Kalinganagar achieved 100% solid waste utilisation and horizontal deployment of best practices in Tata Steel Meramandali helped to achieve 97% solid waste utilisation.

3) Solid Waste Management- Case of Steel Authority of India Limited

a) **Commitment to reduce solid waste- 4R's**
Steel Authority of India Limited (SAIL) exhibits its commitment to reduce solid waste generation and maximise its utilisation to achieve 100% and has adopted the "4r's policy" (reduce, recover, recycle and reuse) across all its processes.

b) **Eco-friendly fertilizers for sustainable agriculture and growth**
With a view to enhance utilisation of Bof Slag, a R&D project proposal on "development of Steel Slag based cost eff ective eco-friendly fertilizers for sustainable agriculture and inclusive growth" has been taken up through ICAR-Indian Agricultural Research Institute, under the guidance of the Ministry of Steel.

c) **Steel and agriculture industry**
The project will ensure symbiotic growth of steel industry and agriculture.

d) **Set up of Solid Luiquid Resource Management Centre**
As a green initiative and in compliance with the "Solid Waste Management (SWM) rules, 2016", Bhilai Steel Plant (BSP) has set up a Solid Liquid resource Management (SLRM) centre.

e) **Scientific and hygienic way**
The waste is handled in a scientific and hygienic way at the centre.

f) **Green waste into manure and plastic waste into useful product**
The integrated facility has separate systems for segregation of wastes, converting green waste into manure and turning plastic waste into useful by-products and can handle 50 tonne of waste every day.

Few cases of liquid waste management are as under:

1) Environment Management at Indian Oil:

a) **Waste generated**
In the course of refinery operations, waste water, flue gases, fugitive emissions and solid wastes are generated.

b) **Consumer of water and energy**
Refineries are also significant consumers of scarce resources like water and energy.

c) **Pollution control and resource conservation is priority**
Thus, pollution control and resource conservation activities are a priority area for environment management at Indian Oil.

d) **Treatment of waste**
Effective treatment of wastewater and recycling, energy conservation and pollution abatement are examples of integrated activities that result in both pollution control and resource conservation.

e) **Refinery units**
The installations including refinery units strive to ensure the following:

- Minimize adverse environmental impact from refinery activities, products and services by using processes, practices, materials that avoid, reduce or control pollution;
- Conserve scarce natural resources by continually optimizing their consumption

f) Usage of water and careful monitoring
Other significant initiative towards liquid waste management at Indian Oil includes, waste water management wherein the usage of water and quality of effluent discharged are carefully monitored.

g) Underground Sewers for segregation
The refineries are equipped with a network of underground sewers for segregated collection of various wastewater streams, which are subjected to precise treatment in well designed effluent treatment (ETP) facilities involving physical, chemical and biological processes.

h) Treatment equipment
State of art equipment have been provided in the ETPs like Tilted Plate Interceptor (TPI), Dissolved Air Floatation (DAF), Bio-tower, activated sludge basins, dual media filters for treating oily wastewater and hydrogen peroxide / wet air oxidation treatment for spent caustic streams etc.

i) Real time monitoring system
These treatment facilities are backed by sophisticated instrumentation and real time monitoring systems for close and precise monitoring. In Marketing and Pipeline locations, effluent water is routed through oil water separator.

2) **Liquid Waste Management at Bharat Petroleum:** The water control pollution measures of the company are as under:

- A state- of -art Effluent Treatment Plant for maximized recycle of wastewater
- Installation of oil containment boom for control of oil spills in surface water runoff are installed.
- Oil skimmers for control of oil spills in surface water runoff are installed.
- Real Time Emission Monitoring Systems installed for monitoring quality of treated water
- State-of-art well equipped laboratory capable of comprehensive environmental analysis

Case Study on Plastic Waste Management in India

India generates 15 million tonnes of plastic waste every year but only one fourth of this is recycled due to lack of a functioning solid waste management system. This leads to burden on the landfills and poor socio- economic conditions of the waste pickers, mostly women.

United Nations Development Programme (UNDP) India, in partnership with Hindustan Coca-Cola Beverages Private Limited (HCCBPL), Hindustan Unilever Limited (HUL), HDFC Bank & Coca Cola India Foundation (CCIF) is building on existing systems to reduce the impact of plastic waste on environment in India. The partnership promotes collection, segregation and recycling of all kinds of plastics to move towards a circular economy.

This project aims to:

- Create a socio-technical model for taking plastic waste management from informal to formal economy.
- Establish Material Recovery Centres for sustained practices in waste management.
- Institutionalize Swachhta Kendras within governance framework structures and improved socio economic conditions of waste pickers.
- Develop technology-supported knowledge management: Promote Cloud-based traceability, accountability and digital governance along waste value chain through our technical partner Mindtree through field implementing partners.

Achievements:

- **36 Cities, 22 Centres**
  The project is currently operational in 36 cities, with 22 Material Recovery Centres (Swachhta Kendras) established for sustainable waste management practices.
- **Collected and processes 66,000 metric tonnes**
  The plastic collected and processed so far has already crossed 66,000 metric tonnes
- **5500 Safai Sathi;s**
  Through these centres, the project has reached out to 5500 Safai Sathis, in an effort to institutionalize workers from the informal sector.
- **Ministry if Housing and Urban Affairs partner with UNDP**
  UNDP was felicitated as a key partner by the Ministry of Housing & Urban Affairs at the Swachh Survekshan Awards 2020 under the Swachh Bharat Mission.
- **Opening Bank Acocunts, Enrolling Aadhar cards, health check-ups and other**
  With a strong approach towards providing social security to the Safai Sathis, Utthaan, a social protection programme was launched to help 9000 safai sathis on with regular workshops organised for them at Swachhta Kendras, where they are given assistance with opening bank accounts, enrolling for Aadhar cards, availing health check-up, and several other personal training sessions.

EXEMPLARS OF GREEN INITIATIVES IN INDIA

❖ **Bharti Airtel Limited**

(1) The Company is committed to helping meet the goals of the Paris Accord and has identified 'Climate Change, Energy Efficiency and Emission Reduction' as a critical material issue. The Company has accordingly taken various public targets and initiatives to reduce its carbon foot prints.

Some of the green initiatives taken by the Company during FY 2020-21 includes:

- -284 MWh energy saved during the year
- 49% Reduction in network emission intensity for mobile
- 28% Reduction in CO2 emission per square feet in its facilities
- 24% Reduction in CO2 emission per rack in its data centers l 82,917 MWh Renewable energy consumed.

❖ **HDFC Limited**

- To strengthen the Green & Sustainability culture with the firm, the Corporation has initiated a campaign on ESG for employees and their families called, 'Hope Begins at Home'. The objective is to encourage climate conscious decisions in daily lives and create more ESG Champions in the organization with the belief that small changes through collective efforts make a material difference.
- The Corporation has undertaken extensive learning and development initiatives to up skill employees on current and developing best practices on ESG & Sustainability. These include:

Creating bespoke training modules on ESG & Sustainability;

- ➢ Training new recruits on ESG & Sustainability;
- ➢ Systematic and consistent re-enforcement of ESG Best practices by inviting External ESG to Speak with ESG Champions;
- ➢ ESG Champions work on Train the Trainer approach to further train their colleagues at the Corporation's PAN India Branches;
- ➢ The Corporation's Library Team disseminates weekly media updates related to ESG € Sustainability;
- ➢ ESG Appraiser training and development to assess Environment and Social impact while evaluating projects;

❖ **Tata Chemicals Limited**

The Company's plant at Mambattu started with a renewable source of energy and is using 100% of biomass and has achieved zero liquid discharge.

- The Company's plant at Mithapur has achieved ZERO dependence on Groundwater
- The Company has set up a waste management plant at Mithapur and plastic waste collected is used as a fuel in their cement plant.
- The Company has fully (100%) utilized its Fly ash waste.
- The Company continues its biodiversity plantation covering almost 150 acres of land.
- The Company has its own Bio-diversity Policy.
- The Company monitors its progress through the Responsible Manufacturing Index and is committed to the Science Based Target Initiative and has recently got its targets Validated

❖ Tech Mahindra Limited

Reduction of 25,000+ MTCO2e through RE and energy-efficient equipment.

- The Company has reduced its scope 1+2 emissions by 31% against FY 2019-20 l The Company has reduced energy intensity by 47.23% from FY 2019-20.
- The Company has reduced its Food wastage by 93%.
- The Company recycled 25% (804 tons) of food waste by converting it to manure through organic Waste Converters (OWCs) and Vermicomposting units. Also, Leaf Waste has been converted to manure.
- The Company has reduced paper consumption by more than 85% Since FY 2019-20.

❖ Hindustan Unilever Limited

- The Company has created a cumulative water conservation potential of about 1.3 trillion litres of water across India through improved supply and demand water management to ensure that people continue to have access to water even as the climate crisis looms.
- The Company in its manufacturing operations has reduced water consumption (in metric tons of production) by 54% against the 2008 baseline.
- Since 4 2018, the Company has facilitated safe disposal of more than 150,0000 tons of post consumer use plastic waste with the help of collection and disposal partners across India.

- The Company has further announced that from 2021 onward it will be collecting and process more plastic packaging waste than the plastic in packaging used by it.
- The Company's laundry brand Surf Excel introduced Surf excel Matic Liquid using 100% biodegradable actives in formulation and with 50% recycled Plastic in Packaging.
- The Company has reduced Co2 emission per ton of its production by 91% Compared to 2008 baseline.
- All factories, Offices, R€D facilities, data centers, warehouses and distribution centers of the company are powered by 100% renewable grid electricity.

❖ **AU Small Finance Bank Limited**

- The Bank has introduced digital visiting cards to reduce the wastage of paper while discontinuing and discouraging the printing of physical visiting cards since FY 2020-21
- The Bank launched Video Banking in Q3 FY21 With a vision of offering all its services virtually through video- enabled chat with branch executives, eliminating the need for branch visits.

❖ **Mindtree Limited**

- The Company has recycled 94.6% of the waste.
- The Company's 74.8% of energy requirement is met through renewable resources (PAN India).
- The Company's Pune location, a Zero- discharge location, upgraded STP to newer technology and utilized treated water for flushing and landscaping.
- The Company's Bengaluru East location is now a Zero-waste site, with recycling more of the rejected waste, and no burden on the landfill.
- The Company's Pune location reduced incineration by recycling used oil.
- The Company's Bengaluru locations have stopped external sourcing of water.
- The Company's all India locations are ISO 14001:2015 certified.

❖ **Rallis India Limited**

The Company has a Zero liquid discharge program to minimize the impact of factories on the environment and tracking the use of natural resources.

❖ **Syngene International Limited**

- The Company has sourced 82% of the energy consumed (63 million KWh) from green energy sources resulting in a reduction of -53280 MT of CO2 .
- The Company's site is maintained as 'Zero Liquid Discharge facility' and treated water is used for utilities and secondary purposes.
- The Company has achieved 21% (21290KL) reductions in its freshwater usage as compared to FY 20.
- The Company has eliminated use of all types of single use plastic, carrier bags, waste bottles inside the facility and introduced starch-based biodegradable bags.
- The Company has established a dedicated Central waste yard for effective segregation, storage and disposal of different types of waste begin generated from its operations.
- The Company Practices Green Chemistry concepts to replace Hazardous Chemicals to environmentally sound materials in its R€D operations.
- 100% closed loop collection of effluents generated from its operations ensures no effluent/ waste are discharged on soil.
- The Company has introduced Waterless urinals to reduce the generation of sewage.
- The Company has introduced 4 Electric vehicles for movement of materials inside the premises.

❖ **Tata Elxsi Limited**

- Rooftop Solor PV based electricity generation;
- Procurement of Electric Two-wheeler Vehicle;
- Use of Variable Frequency Drives (VFDs) in Air Handing units;
- Specialized agencies are hired to carry out the e-waste disposal, etc.

❖ **EPL Limited**

The Company has targeted to become 100% recyclable- ready by 2025. The Company has partnered for supplying 100% recyclable plating tubes for packing of FMCG Products.

❖ **Happiest Minds Technologies Limited**

CARBON (Clean, Assured and Responsible Building of Outcomes towards Neutrality) team has been formulated to ensure that the Company is in the path to be carbon neutral by 2023.

❖ DLF Cyber City Developers Limited

- The Company's buildings are Leadership in Energy and Environmental Design (LEED) Platinum Certified which is an ecology – Oriented building certification program run under the auspices of the U.S. Green Building Council (USGBC).

- Global Real Estate Sustainability Benchmark (GRESB), an international organization considered a Global standard for ESG benchmarking and reporting, has recognized DCCDL as Regional Sector Leader for its developments across the office space. DCCDL achieved the highest ranking of 5 star rating and has been Ranked # 2 in Asia in the Regional sector for its development across the unlisted office space by GRESB>.

❖ Mahindra Intertrade Limited

- Under the brand name 'CERO' which means 'Zero' in Spanish, the Company has set up state-of the-art Vehicle scrapping centers at Greater Noida, Chennai and Pune.

- The Company has been set up with twin objectives of 'making the scrap steel imports'.

- CERO is India's first government authorized vehicle recycling facility.

❖ Power System Operation Corporation Limited

- 197 **conventional lights replaced with LED Lights**. This resulted in energy saving of approx. 25,272 Units. Reduction in CO2 emissions was approx.23,77KG CO2 .

- **Solar rooftop photo Voltaic systems** installed which is helping minimize fossil fuel burning by distribution utilities.

❖ Tata Consulting Engineers Limited

- The Company is working towards **net Zero** in Close collaboration with TERI/CII and Indian Green Building Congress.

- The Company has established Eco first services Limited, a 100% Subsidiary with core focus on sustainable practices.