



By RPAD and Email
A/WG/272/2023
October 19, 2023

To,

Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, A-Wing- 407 & 409,
Aranya Bhawan, Near CH-3 Circle, Sector 10A,
Gandhinagar, Gujarat – 382010;
Email: iro.gandhingr-mefcc@gov.in

Sub.: Tata Chemicals Limited, Mithapur (Gujarat)- Half Yearly Compliance Status Report for
the Environmental Clearance (F. No. J-11011/140/2016.IA-II(I) dated July 05, 2019)

Madam/Sir,

We are here with enclosing half Yearly (April 2023 to September 2023) status report for the
above referred Environmental Clearance.

Thanking you
Yours sincerely,

For Tata Chemicals Limited

Sanjeev Jain
AGM-EMS

Copy to:

1. The Regional Officer, Gujarat Pollution Control Board,
Sardar Patel Bhavan, Rameshwar Nagar, Jamnagar – 361 008
(By RPAD and Email) Email: ro-gpcb-jamn@gujarat.gov.in
2. The Regional Director, Central Pollution Control Board,
Parivesh Bhawan, Opp. VMC Ward Office No. 10, Subhanpura
Vadodara -390 023 (By Email Only) Email: ec-rdw.cpcb@gov.in
3. Copy of compliance Report upload on MoEFCC and TCL portal

Enclosed: As above

TATA CHEMICALS LIMITED

Mithapur 361 345 District Devbhoomi Dwarka Gujarat
Tel + 91 (02892) 665991 / 2 / 3 / 4 Fax + 91 (02892) 223361 www.tatachemicals.com
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001
CIN : L24239MH1939PLC002893

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

S.No.	Compliance of terms and Conditions	Compliance Status (September'2023)
9.	Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), Ministry of Environment, Forest and Climate change hereby accords environmental clearance to the project for Expansion of Soda Ash Plant from 1091000 TPA to 1316000 TPA and Captive Power Plant from 85 MW to 125 MW by M/s Tata Chemicals Ltd at villages Mithapur and Surajkaradi, Taluka Dwarka, District Devbhumi Dwarka (Gujarat), under the provisions of the EIA Notification, 2006, subject to the compliance of terms and conditions as below:-	
(a)	The environmental clearance shall be subject to obtaining prior clearance from the wildlife angle, including clearance from the Standing Committee of the National Board for Wildlife, as applicable.	No notified area falls in existing plant premises wherein expansion is being done; hence clearance from the standing committee of the National Board for Wildlife is not applicable. However, the treated waste water discharge system is passing through notified Marine Sanctuary for which NBWL clearance has been obtained vide letter no. WLP/32/B/1813-18/2017-18 dated 01.06.2017.
(b)	Necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, shall be obtained from the State Pollution Control Board.	Company has obtained Consent to Establish from Gujarat Pollution Control Board for expansion capacity vide consent no. 85533 dated 19.06.2017. Consent to Operate for existing operations has also been obtained from Gujarat Pollution Control Board vide consent no. AWH - 123320 dated 19.12.2022 (valid up to 11.08.2027). The same has been amended for expansion quantities vide consent no. AWH - 129468 dated 04.10.2023.
(C)	Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016, Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.	Company has obtained Authorization as per Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 from Gujarat Pollution Control Board vide consent order no. AWH - 123320 dated 19.12.2022 (valid up to 11.08.2027) for existing plant. The same has been amended for expansion quantities vide consent no. AWH - 129468 dated 04.10.2023
(d)	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended from time to time shall be followed.	National Emission Standards for Organic Chemicals Manufacturing Industry are not applicable; as the proposed expansion is in Soda Ash (Inorganic Industry) production capacity & Captive Co-generation thermal power plant. Company has submitted clarification letter to MoEFCC, New Delhi vide TCL letter No. A/WG/294-A/2019 dated 12.07.2019.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

(e)	To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NAAQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.	To control source emissions, adequate air pollution control equipment's have been installed and for control of fugitive emissions, Bag filters have been provided at coal transfer points.
(f)	Total existing water requirement from Sea is 276000 cum/day. No additional fresh water/Sea water shall be required for proposed expansion.	Total water requirement from sea is well within 276000 M3/day. No additional fresh/sea water is required for expansion project beyond this granted capacity.
(g)	Process effluent/any wastewater shall not be allowed to mix with storm water. The storm water from the premises shall be collected and discharged through a separate conveyance system.	Process Effluent/ waste water is conveyed through closed pipelines (from filtration plant to settling ponds). Final treated waste water is mixed with spent sea water and discharged into Sea as per prescribed norms. The storm water from the premises is collected and discharged through separate spent sea water conveyance system.
(h)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer through pumps.	Hazardous Chemicals are stored in tanks in designated area. Safety and Fire management system is in place.
(i)	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF	Not applicable as the manufacturing process (Inorganic) of Soda Ash does not generate organic residue and spent carbon. Effluent solids from Soda ash manufacturing process are filtered and utilised in Cement plant and construction of bunds in settling ponds and greenbelt development. Company has submitted clarification vide TCL letter No A/WG/294-A/2019 dated 12.07.2019.
(j)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	The company is complying with the rules & guidelines under Manufacture, Storage and Import of hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals is being done as per the Motor Vehicle Act (MVA), 1989.

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

(k)	Fly ash should be stored separately as per CPCB guidelines so that it may not adversely affect the air quality. Direct exposure of workers to fly ash & dust should be avoided.	Fly Ash is stored in Silos and handled pneumatically; so, there is no direct exposure of workers to fly ash & dust. However, workers working in fly ash loading/handling area are provided with PPE's. Fly ash is transported in Closed Bulker/ covered vehicles for utilisation in cement plant, brick manufacturers and storage site. Water spray system is provided in storage area.
(l)	The company shall undertake waste minimization measures as below:-	Company has implemented integrated waste management practices for utilisation of waste in cement manufacturing. Following practices are in place for waste minimisation: 1. Metering & Control of quantities 2. Reuse of undersize limestone, Effluent Solids and Fly ash 3. Automated filling system- Fly ash handling 4. Closed Feed system- Coal Charging system & Soda Ash manufacturing 5. Ammonia still process- Recovery of ammonia and recycle into same process
(i)	Metering and control of quantities of active ingredients to minimize waste.	
(ii)	Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	
(iii)	Use of automated filling to minimize spillage.	
(iv)	Use of Close Feed system into batch reactors.	
(v)	Venting equipment through vapour recovery system.	
(vi)	Use of high pressure hoses for equipment clearing to reduce wastewater generation	
(m)	The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	Greenbelt has been developed as per Environment Management Plan (EMP) given in EIA report.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- I/II (I)

Dated 5th July, 2019

(n)	All the commitments made to the public during public hearing/consultation shall be satisfactorily implemented.	Tata Chemicals Society for Rural Development has been working for CSR activities. TCSRDS Programmes: A. Building Economic Capital Farm Based Livelihood (Unnati): 1) Agriculture Development 2) Livestock Management 3) Centre For Sustainable Agriculture & Farm Excellence (C-SAFE) Non-Farm Based Livelihood a) Skill Training Programme (Badte Kadam) b) Cluster & Rural Enterprise Development Programme c) Okhai Centre For Empowerment B. Ensuring Environmental Integrity Natural Resource Management 1) Watershed Development and Water Management (Jal Dhan) 2) Soil and Land Improvement 3) Waste Management 4) Biodiversity Conservation Centre for Sustainable Conservation Action for the Protection of the Ecosystems of the Seas (C-SCAPES) C. Enablers for Sustainable Development 1) Education (Shiksha Maitree) 2) Health & Nutrition 3) Drinking Water & Sanitation D. Building Social Capital 1) Women Empowerment 2) Community-Based Organisations (CBOs) 3) Institution Building 4) Reducing Inequality Of Marginalised Communities Through Armative Action E. Employee Volunteering Annual Report of TCSRDS is published with details on project implementation.
(o)	At least 0.25% of the total project cost shall be allocated for Corporate Environment Responsibility (CER) and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	0.25 % of the total project cost has been allocated towards Corporate Environment Responsibility (CER) and plan with item-wise details along with time bound action plan and submitted to MoEFCC, New Delhi along with EIA/EMP report. Details of the expenditures are published in TCSRDS annual reports.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

(p)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	Emission limits and the stack height are in conformity with the prescribed norms. Acoustic enclosures are provided for controlling the noise pollution. However, D.G. Sets are only for emergency start up.
(q)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire-fighting system shall be as per the norms.	Fire prevention and control System is in place as a part of Emergency Plan.
(r)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	TCL has established procedures and formats as per ISO 45001:2018 for occupational health management system (QSW-730-GEN-11). Pre-employment, periodic and exit medical examination is being conducted for employees & contractors. Employees involved in hazardous area are medically tested once in six months in compliance to Rule 68 (R) legal requirement under Gujarat Factories Rule, 1963. TCL has Full-fledged Occupational Health center having qualified medical officer and staff. Ambulance van available for round the clock basis with the dedicated driver.
(s)	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.	Online monitoring system has been installed as per CPCB guidelines. The system is connected to CPCB and GPCB server.
9.1	The grant of Environmental Clearance is further subject to compliance of other generic conditions as under:-	
(i)	The project authorities must strictly adhere to the stipulations made by the state Pollution Control Board (SPCB), State Government and/ or any other statutory authority.	The Company adheres to the stipulations made by GPCB.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	No further Expansion or modifications in the plant will be carried out without prior approval of the Ministry of Environment, Forest and Climate Change.
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	AAQ monitoring is conducted in locations selected as per CPCB guidelines (by NABL Lab) and in consultation with the GPCB. 1. Manual Ambient Air Quality Monitoring Stations. 2. Continuous Ambient Air Quality Monitoring Stations It has been ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be complied with.	Ambient air quality is monitored for prescribed parameters and National Ambient Air Quality Emission Standards.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Ambient Noise Levels around the plant area conform to the prescribed standards. Adequate noise control measures are provided.
(vi)	The Company shall harvest rainwater from the roof tops of the buildings to recharge ground water, and to utilize the same for different industrial operations within the plant.	Company has existing rainwater harvesting facilities in township area.
(vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.	Company has established process for training on Safety & health aspects of chemicals handling and periodical medical examinations are conducted as per schedule.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAI (I)

Dated 5th July, 2019

(viii)	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing shall be implemented.	Company is complying with the environmental management program (EIA/EMP).
(ix)	The company shall undertake all measures for improving socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villagers, administration and other stake holders. Also eco-developmental measures shall be undertaken for overall improvement of the environment.	Tata Chemicals Society for Rural Development is working for CSR activities.
(x)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Environmental Management Cell is equipped with full-fledged laboratory facilities and conducts the Environmental Monitoring for the prescribed parameters.
(xi)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose.	Company has earmarked sufficient funds to implement the environment management program.
(xii)	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal.	Copies of environment clearance has been submitted to Okha Nagarpalika, Taluka Development Officer and District Development Officer vide letter no A/WG/278/2019 dated 04.07.2019.
(xiii)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company	Six- monthly compliance report is submitted along with results of monitored data.

Tata Chemicals Limited, Mithapur (Gujarat)

Half Yearly Compliance status report of Environmental Clearance F. No. J-11011/140/2016- IAll (I)

Dated 5th July, 2019

(xiv)	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional offices of MoEF&CC by e-mail.	Environment Statement (Form-V) is submitted to the GPCB and copy of the same is uploaded on Company's Web portal. Copy of the Form-V and status of compliance of environmental clearance conditions are being submitted to Regional offices of MoEF&CC by e-mail.
(xv)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional office of the Ministry.	Advertisement has been published in News Papers. Copies of the advertisements have been submitted to the Ministry.

TATA CHEMICALS LIMITED, MITHAPUR						Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT						
MONTH: April 2023						
Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
RCC-1	Boiler-1 (CEHP1)	PM	100	14.04.2023	42	42
	Boiler-2 (CEHP2)	SO2	600		71	102
	Boiler-3 (B&W)	NOx	600		218	447
RCC 2	Boiler-4 (IBIL)	PM	100	14.04.2023	73	46
		SO2	600		182	58
		NOx	600		201	115
RCC 3	Boiler -5 (HPB3)	PM	100	14.04.2023	30	36
		SO2	600		141	206
		NOx	600		195	20
RCC 3	Boiler -6 (HPB4)	PM	100	14.04.2023	40	15
		SO2	600		210	139
		NOx	600		106	39
1	HCL Furnace	HCl	20	14.04.2023	4.3	0.6
2	Chlorine Plant	Chlorine	9	14.04.2023	0.1	0.3
3	Bromine Plant	Bromine NCP 1	2	14.04.2023	0.7	-
4	Cement Plant Raw Mill and Kiln	PM	30	17.04.2023	10	10
		SO2	100		12	0.4
		NOx	1000		101	502
5	Cement Plant Coal Mill Old	PM	30	17.04.2023	15	5
		SO2	100		15	0.1
		NOx	1000		190	31
6	Cement Plant Coal Mill New	PM	30	17.04.2023	13	2
		SO2	100		14	1
		NOx	1000		80	166
7	Alkali Bypass	PM	30	17.04.2023	8	8
8	Dryer Crusher	PM	30	17.04.2023	15	2
9	Cooler	PM	30	17.04.2023	17	11
10	Cement Mill	PM	30	15.04.2023	18	1
11	Cement Packer-1	PM	30	15.04.2023	11	3
	Cement Packer-2	PM	30	15.04.2023	14	3
12	Drying unit of Monohydrate	PM	150	15.04.2023	22	-

BDL - Below Detectable Limit

Foundry Induction Furnace- Not in operation, DG Sets- for emergency startup

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: April 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	14.04.2023	61	21	9	19	0	BDL	8	729
2	Director Bunglow (Township)	14.04.2023	67	23	10	20	1	BDL	6	581
3	Devpara (North-East of cement Plant)	15.04.2023	55	19	10	17	0.1	BDL	6	570
4	Village Hamosar	15.04.2023	51	17	10	21	0.14	BDL	7	601

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bunglow	Apr-23	32	12	0.6	6.5
2	CAAQMS - Malara Green Cap	Apr-23	40	12	0.7	7.4

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: April 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
15.04.2023	66	0.73	8.3	26	BDL	10	-	Pass
Online Analyser (Monthly Avg)	52	-	8.2	27	-	-	1,91,615	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Disharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
10.04.2023	7.0	4.6	11	160	1,108	0
17.04.2023	7.4	4.0	10	210		

TATA CHEMICALS LIMITED, MITHAPUR						Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT						
MONTH: May 2023						
Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
RCC-1	Boiler-1 (CEHP1)	PM	100	10.05.2023	45	44
	Boiler-2 (CEHP2)	SO2	600		25	91
	Boiler-3 (B&W)	NOx	600		113	438
RCC 2	Boiler-4 (IBIL)	PM	100	11.05.2023	31	55
		SO2	600		61	38
		NOx	600		97	121
RCC 3	Boiler -5 (HPB3)	PM	100	11.05.2023	33	38
		SO2	600		41	205
		NOx	600		80	17
RCC 3	Boiler -6 (HPB4)	PM	100	10.05.2023	65	24
		SO2	600		100	165
		NOx	600		46	29
1	HCL Furnace	HCl	20	10.05.2023	1.1	0.5
2	Chlorine Plant	Chlorine	9	10.05.2023	2.8	0.3
3	Bromine Plant	Bromine NCP 1	2	10.05.2023	0.4	-
4	Cement Plant Raw Mill and Kiln	PM	30	12.05.2023	6	6
		SO2	100		3	1.1
		NOx	1000		102	233
5	Cement Plant Coal Mill Old	PM	30	12.05.2023	7	5
		SO2	100		4	0.0
		NOx	1000		44	12
6	Cement Plant Coal Mill New	PM	30	12.05.2023	13	1
		SO2	100		4	0
		NOx	1000		57	42
7	Alkali Bypass	PM	30	11.05.2023	7	5
8	Dryer Crusher	PM	30	12.05.2023	9	1
9	Cooler	PM	30	11.05.2023	12	4
10	Cement Mill	PM	30	11.05.2023	8	1
11	Cement Packer-1	PM	30	11.05.2023	10	3
	Cement Packer-2	PM	30	11.05.2023	7	1
12	Drying unit of Monohydrate	PM	150	11.05.2023	20	-

BDL - Below Detectable Limit

Foundry Induction Furnace- Not in operation, DG Sets- for emergency startup

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: May 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	10.05.2023	53	25	7.41	8.67	0.82	BDL	0.31	549
2	Director Bunglow (Township)	10.05.2023	60	26	7.28	8.96	0.55	BDL	0.2	606
3	Devpara (North-East of cement Plant)	11.05.2023	63	30	7.78	8.74	0.44	BDL	0.38	664
4	Village Hamosar	11.05.2023	57	23	7.47	9.02	0.71	BDL	0.31	492

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bunglow	May-23	51	13	1.2	5.6
2	CAAQMS - Malara Green Cap	May-23	63	12	0.7	3.0

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: May 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
04.05.2023	18	0.73	8.5	33.1	BDL	10	-	Pass
Online Analyser (Monthly Avg)	48	-	8.3	29	-	-	1,98,402	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Disharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
08.05.2023	7.0	4.2	10	140	1,099	0
22.05.2023	7.2	4.6	11.8	240		

TATA CHEMICALS LIMITED, MITHAPUR						Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT						
MONTH: June 2023						
Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
RCC-1	Boiler-1 (CEHP1)	PM	100	21.06.2023	50	32
	Boiler-2 (CEHP2)	SO ₂	600		80	64
	Boiler-3 (B&W)	NO _x	600		116	381
RCC 2	Boiler-4 (IBIL)	PM	100	-	-	39
		SO ₂	600		-	32
		NO _x	600		-	104
RCC 3	Boiler -5 (HPB3)	PM	100	21.06.2023	53	48
		SO ₂	600		84	172
		NO _x	600		107	24
RCC 3	Boiler -6 (HPB4)	PM	100	21.06.2023	48	30
		SO ₂	600		92	131
		NO _x	600		114	23
1	HCL Furnace	HCl	20	-	-	0.5
2	Chlorine Plant	Chlorine	9	03.06.2023	1.0	0.3
3	Bromine Plant	Bromine NCP 1	2	03.06.2023	0.8	-
4	Cement Plant Raw Mill and Kiln	PM	30	Plant Shutdown	-	2
		SO ₂	100		-	0.0
		NO _x	1000		-	0
5	Cement Plant Coal Mill Old	PM	30	Plant Shutdown	-	6
		SO ₂	100		-	0.0
		NO _x	1000		-	0
6	Cement Plant Coal Mill New	PM	30	Plant Shutdown	-	2
		SO ₂	100		-	0
		NO _x	1000		-	0
7	Alkali Bypass	PM	30	Plant Shutdown	-	4
8	Dryer Crusher	PM	30	Plant Shutdown	-	23
9	Cooler	PM	30	Plant Shutdown	-	0
10	Cement Mill	PM	30	Plant Shutdown	-	4
11	Cement Packer-1	PM	30	Plant Shutdown	-	2
	Cement Packer-2	PM	30	Plant Shutdown	-	0
12	Drying unit of Monohydrate	PM	150	-	-	-

BDL - Below Detectable Limit

NIO- Not in Operation

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: June 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	20.06.2023	44	15	8.15	17.15	BDL	BDL	BDL	561
2	Rock Garden (Township)	20.06.2023	47	16	10.29	19.56	BDL	BDL	BDL	606
3	Effluent Analyser at Final discharge point	20.06.2023	52	14	7.13	20.73	BDL	BDL	BDL	721
4	Padli Booster (Settling Ponds)	20.06.2023	43	18	9.4	18.88	BDL	BDL	BDL	629

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bunglow	Jun-23	58	14	1.0	5.3
2	CAAQMS - Malara Green Cap	Jun-23	67	13	0.8	0.0

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: June 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
03.06.2023	16	0.73	7.8	27.9	BDL	10	-	Pass
Online Analyser (Monthly Avg)	35	-	8.2	29	-	-	2,09,601	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Disharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
19.06.2023	7.0	3.0	13	120	1,231	0
26.06.2023	7.2	2.0	10	210		

TATA CHEMICALS LIMITED, MITHAPUR						Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT						
MONTH: July 2023						
Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
RCC-1	Boiler-1 (CEHP1)	PM	100	05.07.2023	32	26
	Boiler-2 (CEHP2)	SO ₂	600		31	72
	Boiler-3 (B&W)	NO _x	600		316	415
RCC 2	Boiler-4 (IBIL)	PM	100	29.07.2023	56	26
		SO ₂	600		73	10
		NO _x	600		83	178
RCC 3	Boiler –5 (HPB3)	PM	100	29.07.2023	68	50
		SO ₂	600		57	169
		NO _x	600		61	32
RCC 3	Boiler –6 (HPB4)	PM	100	29.07.2023	17	16
		SO ₂	600		55	100
		NO _x	600		56	38
1	HCL Furnace	HCl	20	-	-	0.6
2	Chlorine Plant	Chlorine	9	05.07.2023	1.4	0.3
3	Bromine Plant	Bromine NCP 1	2	05.07.2023	1.0	-
4	Cement Plant Raw Mill and Kiln	PM	30	29.07.2023	12	4
		SO ₂	100		15	0.0
		NO _x	1000		62	0
5	Cement Plant Coal Mill Old	PM	30	28.07.2023	6	6
		SO ₂	100		10	1.0
		NO _x	1000		84	7
6	Cement Plant Coal Mill New	PM	30	-	-	2
		SO ₂	100		-	0
		NO _x	1000		-	0
7	Alkali Bypass	PM	30	29.07.2023	12	4
8	Dryer Crusher	PM	30	-	-	1
9	Cooler	PM	30	29.07.2023	8	1
10	Cement Mill	PM	30	28.07.2023	5	3
11	Cement Packer-1	PM	30	28.07.2023	7	3
	Cement Packer-2	PM	30	28.07.2023	5	1
12	Drying unit of Monohydrate	PM	150	-	-	-

BDL - Below Detectable Limit

NIO- Not in Operation

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: July 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	27.07.2023	56	18	8.03	17.79	BDL	BDL	BDL	778
2	Director's Bungalow (Township)	27.07.2023	45	15	10.19	21.88	BDL	BDL	BDL	587
3	Effluent Analyser at Final discharge point	27.07.2023	58	20	9.26	18.15	BDL	BDL	BDL	641
4	Padli Substation (Settling Ponds)	27.07.2023	52	16	7.7	16.88	BDL	BDL	BDL	561

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bungalow	Jul-23	58	19	0.5	7.2
2	CAAQMS - Malara Green Cap	Jul-23	63	15	0.6	0.0

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: July 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
29.07.2023	58	0.73	7.62	27.9	BDL	<1	-	Pass
Online Analyser (Monthly Avg)	29	-	8.1	28	-	-	2,04,736	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Discharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
10.07.2023	7.2	3.0	13	150	1,015	1,444
24.07.2023	7.2	3.0	11	220		

TATA CHEMICALS LIMITED, MITHAPUR						Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT						
MONTH: August 2023						
Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
RCC-1	Boiler-1 (CEHP1)	PM	100	21.08.2023	37	27
	Boiler-2 (CEHP2)	SO ₂	600		87	95
	Boiler-3 (B&W)	NO _x	600		149	394
RCC 2	Boiler-4 (IBIL)	PM	100	23.08.2023	41	27
		SO ₂	600		171	14
		NO _x	600		125	113
RCC 3	Boiler -5 (HPB3)	PM	100	21.08.2023	34	43
		SO ₂	600		183	172
		NO _x	600		160	23
RCC 3	Boiler -6 (HPB4)	PM	100	21.08.2023	58	8
		SO ₂	600		121	143
		NO _x	600		130	32
1	HCL Furnace	HCl	20	21.08.2023	4.7	0.6
2	Chlorine Plant	Chlorine	9	21.08.2023	0.1	0.3
3	Bromine Plant	Bromine NCP 1	2	21.08.2023	0.2	-
4	Cement Plant Raw Mill and Kiln	PM	30	22.08.2023	13	13
		SO ₂	100		17	0.0
		NO _x	1000		287	238
5	Cement Plant Coal Mill Old	PM	30	23.08.2023	4	1
		SO ₂	100		12	0.3
		NO _x	1000		151	18
6	Cement Plant Coal Mill New	PM	30	NIO	NIO	1
		SO ₂	100		NIO	0.3
		NO _x	1000		NIO	1
7	Alkali Bypass	PM	30	22.08.2023	10	10
8	Dryer Crusher	PM	30	NIO	NIO	1
9	Cooler	PM	30	22.08.2023	7	5
10	Cement Mill	PM	30	-	-	4
11	Cement Packer-1	PM	30	22.08.2023	11	4
	Cement Packer-2	PM	30	22.08.2023	9	2
12	Drying unit of Monohydrate	PM	150	10.08.2023	51	-

BDL - Below Detectable Limit

NIO- Not in Operation

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: August 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	21.08.2023	69	41	10	18	2.2	BDL	0.64	607
2	Director's Bungalow (Township)	21.08.2023	66	34	9	16	1.1	BDL	0.45	664
3	Devpara	22.08.2023	58	25	8	14	B	BDL	0.24	676
4	Effluent Analyser at Final Discharge Point	22.08.2023	61	38	8	13	B	BDL	0.23	532

BDL= Below detectable limit

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bungalow	Aug-23	35	17	0.5	4.6
2	CAAQMS - Malara Green Cap	Aug-23	40	20	0.4	1.1

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: August 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
23.08.2023	74	0.73	7.15	27.5	BDL	10	-	Pass
Online Analyser (Monthly Avg)	45	-	8.0	27	-	-	1,82,112	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Discharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
07.08.2023	7.1	3.3	8	160	1,169	114
28.08.2023	7.6	4.1	13	210		

TATA CHEMICALS LIMITED, MITHAPUR							Online Monitoring System (Monthly Avg)
STACK EMISSIONS MONITORING REPORT							
MONTH: September 2023							
Sr. No	Stack No.	Stack Attached To	Parameters	Permissible limits (mg/Nm ³)	Date of Sampling	Results (mg/Nm ³)	CEMS Result (mg/Nm ³)
1	RCC-1	Boiler-1 (CEHP1)	PM	100	Sep-23	36	28
		Boiler-2 (CEHP2)	SO2	600		74	74
		Boiler-3 (B&W)	NOx	600		298	298
2	RCC 2	Boiler-4 (IBIL)	PM	100	18.09.2023	43	43
			SO2	600		119	39
			NOx	600		101	205
3	RCC 3	Boiler -5 (HPB3)	PM	100	11.09.2023	39	43
			SO2	600		134	134
			NOx	600		16	16
3	RCC 3	Boiler -6 (HPB4)	PM	100	26.09.2023	47	12
			SO2	600		140	140
			NOx	600		43	43
5	1	HCL Furnace	HCl	20	18.09.2023	0.6	0.7
6	2	Chlorine Plant	Chlorine	9	18.09.2023	0.7	0.5
7	3	Bromine Plant	Bromine NCP 1	2	18.09.2023	BDL	-
8	4	Cement Plant Raw Mill and Kiln	PM	30	28.09.2023	7	12
			SO2	100		12	1.2
			NOx	1000		275	275
9	5	Cement Plant Coal Mill Old	PM	30	28.09.2023	14	2
			SO2	100		12	0.0
			NOx	1000		16	16
10	6	Cement Plant Coal Mill New	PM	30	28.09.2023	13	2
			SO2	100		18	1.1
			NOx	1000		28	28
15	7	Alkali Bypass	PM	30	Sep-23	9	9
13	8	Dryer Crusher	PM	30	Sep-23	2	2
14	9	Cooler	PM	30	Sep-23	4	4
11	10	Cement Mill	PM	30	Sep-23	4	4
12	11	Cement Packer-1	PM	30	Sep-23	13	4
		Cement Packer-2	PM	30	Sep-23	7	2
16	12	Drying unit of Monohydrate	PM	150	-	-	-

BDL - Below Detectable Limit

NIO- Not in Operation

TATA CHEMICALS LIMITED, MITHAPUR

AMBIENT AIR QUALITY MONITORING REPORT (NABL Lab)

MONTH: September 2023

Sr. No.	LOCATION	DATE	PM 10 (µg/m3)	PM 2.5 (µg/m3)	Sulphur dioxide (µg/m3)	Oxides of Nitrogen (µg/m3)	Cl ₂ (µg/m3)	Ammonia (µg/m3)	HCl (µg/m3)	CO (µg/m3)
1	Sewage Treatment Plant	18.09.2023	31	12	9	12	BDL	BDL	BDL	767
2	Padli Substation	19.09.2023	32	13	8	13	BDL	BDL	BDL	732
3	Devpara	19.09.2023	34	13	7	12	BDL	BDL	BDL	652
4	Effluent Analyser at Final Discharge Point	18.09.2023	36	12	9	11	BDL	BDL	BDL	618

BDL= Below detectable limit

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

Sr. No.	Location	Date	PM10	PM2.5	SO2	NOx
1	CAAQMS - Director Bunglow	Sep-23	41	20	0.6	6.8
2	CAAQMS - Malara Green Cap	Sep-23	39	21	0.4	7.4

TATA CHEMICALS LIMITED, MITHAPUR

**EFFLUENT ANALYSIS REPORT
MONTH: September 2023**

Final Treated Waste Water

Date	Suspended Solids	Ammonical Nitrogen	pH	Temp	Oil & Grease	Color	Treated waste water Quantity	Bioassay Test
Unit	mg/l	mg/l	NIL	°C	mg/l	Pt-Co scale	M3/Day	90 % Survival of the fish after 96 hrs. in 100 % effluent
GPCB Prescribed Limit	500	5	6.5 to 9.5	Max. 40	2	100	2,40,000	
05.09.2023	86	0.73	7.88	28	BDL	10	-	Pass
Online Analyser (Monthly Avg)	47	-	8.3	27	-	-	1,81,842	-

BDL= Below detectable limit

STP FINAL OUTLET

Date	pH	BOD 3 days 27 °C	Suspended Solids	Fecal Coliform	Qty.of Treated STP outlet Recycled	Qty.of Treated STP outlet Discharged into Sea
Unit	-	mg/l	mg/l	MPN/ml	KLPD	KLPD
GPCB Prescribed Limit	6.5 to 9.0	30	100	1000/100	2,400	
14.09.2023	7.4	3.4	12	150	1,130	0
21.09.2023	7.3	4.2	14	130		



List of CSR Projects and Programs FY 2023-24 as per Schedule VII of the Companies Act 2013

CSR Annual Action Plan

Key Themes	Key Programs	Amount allocated (Rs. Crore)
Building Economic Capital	Agriculture and Livestock Development	1.20
	Handicrafts and Cluster Development	0.50
	Skill Development	1.50
Ensuring Environmental Integrity	Natural Resources Management and Environment Conservation	3.50
Enablers for Social, Economic & Environmental Development	Health Care, Nutrition, Safe drinking water & Sanitation	1.00
	Education	2.00
Building Social Capital	Inclusive growth	1.50
Support for Infrastructure & Disaster Relief		2.50
Support for Innovation R&D and Sustainability		3.00
Others		0.80
Total		17.50



Building economic capital



Our CSR efforts in this area are centred around enhancing livelihood for farmers, youth and artisans in rural communities.



Enhancing farm productivity and income

We work closely with farmers to augment the productivity of their land and enhance their income.

In FY 2022-23, we worked with 5,245 farmers on capacity-building trainings, field demonstrations, support on livestock management, supply of seeds, organic farming and agriculture equipment. Our initiatives contributed significantly to improvement in farm productivity and led to increase in the sustainable income of the farmers.

- Along with Okhamandal Farmer Producer Company Limited (OPFCL), we supported four new FPOs (Farmer Producer Organisations) for agriculture and livestock management in partnership with NABARD (National Bank for Agriculture and Rural Development). These work closely with farmers to enhance productivity and profitability through market and government linkages and grants

Farmers benefited by farmer outreach initiatives

12,963

Cattle covered under livestock management programmes

55,403

- C-SAFE is working on experimenting, piloting, establishing scientific agricultural practices through its ABC value chain model - Agronomy, By-Products and Consumers, especially with small and marginal farmers and farmer-producer organisations

In FY 2022-23:



Ensuring environmental integrity



Given the criticality of environment conservation to sustainable business growth, we have identified protection of biodiversity, along with water conservation and management as vital elements of our CSR approach.



Nurturing biodiversity

- We have been running biodiversity conservation programmes for

about two decades. Our initiatives include coral reef restoration, whale shark conservation, mangroves and indigenous flora and fauna conservation, along with environmental education initiatives at Mithapur

Through C-SAPES, we have also been working on new conservation projects on coastal ecosystem management; coastal community resilience-building; climate change mitigation and adaptation; and coastal governance

**In FY 2022-23:
People covered through Environmental projects**

7,811

Mangroves planted

2,17,500

Whale sharks rescued

44 (till date 910)



Progressing on water conservation

Our land development and Jal Dhan (water management and conservation) programmes in Gujarat and Maharashtra continued to benefit people in these regions during the year.

- Our programmes cover groundwater recharging, harvesting, by building

In FY 2022-23:

Total water harvested through Jal Dhan.

136 mcf (till date 717 mcf)

check dams, revival of community ponds, and promotion of drip irrigation

We also worked on water related government schemes - Sujalam Sulajam and Amit Sarovar Yojana - with community engagement during the year

In Magadi, we completed desilting of a dam for the local community in Murantaua



Building economic capital



Our CSR efforts in this area are centred around enhancing livelihood for farmers, youth and artisans in rural communities.



Enhancing farm productivity and income

We work closely with farmers to augment the productivity of their land and enhance their income.

In FY 2022-23, we worked with 5,245 farmers on capacity-building trainings, field demonstrations, support on livestock management, supply of seeds, organic farming and agriculture equipment. Our initiatives contributed significantly to improvement in farm productivity and led to increase in the sustainable income of the farmers.

- Along with Okhamandal Farmer Producer Company Limited (OPFCL), we supported four new FPOs (Farmer Producer Organisations) for agriculture and livestock management in partnership with NABARD (National Bank for Agriculture and Rural Development). These work closely with farmers to enhance productivity and profitability through market and government linkages and grants

Farmers benefited by farmer outreach initiatives

12,963

Cattle covered under livestock management programmes

55,403

- C-SAFE is working on experimenting, piloting, establishing scientific agricultural practices through its ABC value chain model - Agronomy, By-Products and Consumers, especially with small and marginal farmers and farmer-producer organisations

In FY 2022-23:



Ensuring environmental integrity



Given the criticality of environment conservation to sustainable business growth, we have identified protection of biodiversity, along with water conservation and management as vital elements of our CSR approach.



Nurturing biodiversity

- We have been running biodiversity conservation programmes for

about two decades. Our initiatives include coral reef restoration, whale shark conservation, mangroves and indigenous flora and fauna conservation, along with environmental education initiatives at Mithapur

Through C-SAPES, we have also been working on new conservation projects on coastal ecosystem management; coastal community resilience-building; climate change mitigation and adaptation; and coastal governance

**In FY 2022-23:
People covered through Environmental projects**

7,811

Mangroves planted

2,17,500

Whale sharks rescued

44 (till date 910)



Progressing on water conservation

Our land development and Jal Dhan (water management and conservation) programmes in Gujarat and Maharashtra continued to benefit people in these regions during the year.

- Our programmes cover groundwater recharging, harvesting, by building

In FY 2022-23:

Total water harvested through Jal Dhan.

136 mcf (till date 717 mcf)

check dams, revival of community ponds, and promotion of drip irrigation

We also worked on water related government schemes - Sujalam Sulajam and Amit Sarovar Yojana - with community engagement during the year

In Magadi, we completed desilting of a dam for the local community in Murantaua



Creating livelihood opportunities

We engage with the youth in rural communities and support them in becoming self-reliant through various skill development interventions. These initiatives are aimed at equipping them with employable skills to get jobs or start their own enterprises.

- Our skill development centre in Mithapur, which has programmes across fashion technology, welder, fitter, domestic electrician, beauty and wellness, is creating employment and entrepreneurship opportunities for the youth
- Other skilling programmes were undertaken at Mithapur, Dhasai, Akola, Cuddalore and Mambattu

with partners like NABARD, TCS, Light of Life Trust (LOLT), etc. during the year. We support skill development institutions like Tata Strive Centre at Aligarh, IIT at Dwaraka and Vagha, Leslie Sawhney Centre and Akola Girls IIT. TCE participated in local career fairs and discussed career paths with youth in the country

In FY 2022-23:

Youth provided skill training

2,517

Artisans impacted

29,575

Sales of traditional handicrafts

₹ 1,292 Lakh

Location: Tata Chemicals, Mithapur Coral Reef Restoration

Ensuring Environmental Integrity

It is about time that we pay close attention to the needs of our planet. We need to responsibly conserve our natural resources and protect our ecosystem. TCSR's main focus is on Natural Resource Management & Environmental Conservation. The key programmes include land and water management activities, waste management, preservation of biodiversity and mitigation of climate change impacts. The programmes are designed with a participatory approach with other partners providing skills, knowledge, expertise and funds to enhance the effort and reach a larger number of people.



Natural Resource Management

- 01) Watershed Development and Water Management (Jal Dhan)
- 02) Soil and Land Improvement
- 03) Waste Management

Biodiversity Conservation

- Centre for Sustainable Conservation Action for the Protection of the Ecosystems of the Seas (C-SCAPES)

Natural Resource Management

01) Watershed Development and Water Management (Jal Dhan)

TCSR implemented water conservation and water management work across villages in rural India.

The below mentioned water harvesting intervention were established during the year :

Jal Dhan - Gujarat

1.1) Community Water Harvesting Structures

Community water harvesting structures such as community ponds are integral to the life and prosperity of the rural eco-system of India. Villages have historically been formed around large ponds and other water bodies. Rain water gets harvested naturally by the community pond and is stored there. It recharges the ground water and also acts as an indicator of the water table in the village. Collection of silt deposits, neglect and lack of maintenance leads to many of these natural water harvesting structures becoming defunct, with time. These are then renovated with community participation, formation of user groups, implementation of participatory approach, selection of panchayat members, collection of community contribution, etc. Such renovation increases the water storage capacity and improves the water table, thereby helping solve issues faced during water scarcity and droughts. The silt is also fertile, which when added to farm soil, helps in improving the yields.

1.2) Individual Water Harvesting Structures

Farmers also harvest water individually on their farmlands by digging farm ponds and farm bunds and recharge ground water artificially through injection of water through wells. The

water stored in farm ponds can be directly used for agricultural activities and irrigation. This reduces the dependence of farmers on the vagaries of the monsoon and groundwater. Other benefits include, improved soil fertility leading to better farm yield and income; replenishing groundwater supplies of the surrounding area, reduction in the cost of pumping water of groundwater and a reduction in the salinity of soil in the region. Farm bunds are like embankments built around the boundaries of farmlands. These structures ensure that rainwater is contained in the farm itself preventing run-off, which helps in retaining soil moisture, reducing soil erosion during heavy rains and protecting fertile soil. Various water conservation methods were adopted in villages such as Shamlasar, Poshitra, Mulvel, Khatumba, Charakla, Pindara, Gurgadh, Juni Dhrevad, Aniyari, Dhinki, Okha Madhi, Bardiya, Dwarka, Korada, Goriyari, Gadhechi, Nageshwar, Kalyanpur and Gaga, to store rain water.

1.3 Promotion Of Micro Irrigation System (MIS)

Micro irrigation systems (MIS) such as drip and sprinkler irrigation systems are promoted to solve the challenge of limited water availability and boost water usage efficiency. Strategies such as fertigation (mixing fertilisers with irrigation) promote water efficiency, lower labour costs, raise crop output and ensure judicious fertiliser usage. For scaling up of adoption of MIS, an additional 20% subsidy was provided to farmers in the project villages.

During the year



210 farmers adopted MIS and increased water efficiency by 70% through drip and 40% through sprinkler irrigation.

1.4 Promotion Of Rain Gun Irrigation System

In comparison to sprinkler and drip irrigation systems, the rain gun irrigation system is a quick and inexpensive way of irrigation. This high performance micro irrigation approach is affordable for small landowners and farms as well. When compared to drip irrigation, it requires very little maintenance and has much lesser choking issues.

During the year



74 farmers from 11 villages adopted rain gun Irrigation.

Overall Impact

- Overall in FY21-22, around **412 farmers** with farm land area of around **1,031 acres** benefited from the **152 farm ponds** and **18 village ponds**, dams, and check dams and other individual water harvesting structures resulting in a **23 mcft increase** in water storage.
- These structures were built by digging the soil at the rate

of **Rs. 23 per** cubic metres of soil, and the farmers increased the fertility of the land by adding good fertile soil from the ponds in **417 acres**, saving cost of **Rs. 36 lakhs** at the rate of **Rs. 8,750 per acre**, which could only be done with the help of public participation.

- Better water storage and irrigation resulted in better crop yield and a benefit of **Rs. 142 lakhs** to farmers and other villagers.

During the year



the average increase in water saving was of 35% while the yield increased by 25% to 38%.

Jal Dhan - Maharashtra

The Jal Dhan programme in Maharashtra is carried out in collaboration with Rallis India with a special focus on water stressed regions. The programme aims to promote water efficient technologies and climate proofing interventions. The programme aims at increasing water availability for domestic and agricultural use by methods such as afforestation, replenishing ground water and building temporary and permanent structures like loose boulders, diversion dams, check dams etc. which reduce the force of run-off rainwater, conserve moisture in the field, prevent soil erosion and increase water storage.



Jal Dhan - Jharkhand

The Integrated Micro Watershed Project was implemented in partnership with Tata Steel foundation in 2 villages from West Bokaro region of Jharkhand state. Additionally, Rallis India Ltd. constructed 3 loose boulder structures totalling to 24.5 cubic metres in the landmass of Berwa Tola. The Lift Irrigation project was revived at Basantpur for 63 marginal farmers with 14.36 acres of land for cultivation of crops throughout the year. It also focussed on creating sustainable livelihood opportunities.

During the year



- The programme positively impacted more than 2.55 lakh villagers from 133 families across 79 villages covering 19 tehsil and 8 districts of Maharashtra and 2 villages in the Ramgarh district of Jharkhand.
- Impact assessments 10 villages from Beed district were also conducted. In totality, 115.8 mcft water was harvested. The ground water level increased from 1 metre to 6 metres since the wells, tube-wells and bore-wells were all recharged. These measures ensured water availability for the entire year, eliminating the need for water tankers. Farmers could also opt to cultivate one or two additional crops. The family incomes also doubled due to an increase in crop production.
- Manual farm bunding was executed across 3 ha of unused farmland bringing them under cultivation. Pani Panchayat at Basantpur is almost ready to be formed to ensure sustainability of the Lift Irrigation System. Additionally, at the societal level, women were saved from the drudgery of fetching water from far off locations and could save their time and energy. Migration to urban areas also stopped, since paid opportunities were available in the village throughout the year. The intervention has also played an important role in rapport building with the community. After witnessing the significant impact of Jal Dhan, the neighbouring villages are now encouraged to initiate the same project in a similar manner.

02» Soil and Land Improvement

It is essential for life on this planet to preserve our land and soil. Without healthy soil, we cannot produce anything. Under TCSR's land development programme, a number of activities are taken up, which include the following:

2.1» Laser Levelling

Agricultural land laser levelling involves smoothing of the land surface using a laser beam which improves the quality of soil and crop productivity while conserving irrigation water, nutrients, and agrochemicals.

During the year



laser levelling was used to level 209 acres of land benefiting 16 farmers from 3 villages in Mithapur. In Farrukhabad, 380 acres of land was levelled positively impacting 171 farmers from 54 villages.



2.2» Deep Ploughing

Deep ploughing is a technique that digs into the soil to a depth greater than 50 cm as compared to ordinary ploughing which rarely exceeds 20 cm. There are several benefits to using this procedure: improved soil water retention, reduced water runoff, improved soil aeration encouraging healthy growth of micro-organisms, improved nutrient availability to the plants ultimately bringing about higher productivity for the farmers.

During the year



165.3 acres was deep ploughed in Farrukhabad, benefiting 93 farmers from 24 villages.

2.3» Gypsum Application

The Okhamandal region's soil is saline and has a poor drainage system. As a result, the water retention capacity of agricultural land is reduced, resulting in lower agricultural yield. TCSR advocated agriculture-grade phosphor-gypsum to address this issue. This increases seed emergence by 50 to 100 percent while also providing calcium for a healthy harvest.

2.4» Soil Nutrient Management

Soil testing is the best way to determine the available nutrient content in the soil and take appropriate measures to improve land productivity. TCSR encourages farmers to conduct soil tests and fortify their farm land with nutrients as per the soil requirement. The measure has resulted in an improvement in the quality of soil and a reduction in the cost of cultivation.

2.5» Composting

Appropriate use of composting helps to maintain soil productivity and fertility. TCSR promoted the production of good quality compost at the village level and encouraged farmers to use it. 10 farmers were demonstrated the benefits of waste decomposer bacteria composting and they experienced a reduction in the input cost of cultivation on implementing it.

2.6» Anti-Stubble Burning

Stubble burning is the easiest and cheapest method of preparing the soil for the next round of cultivation by burning the residue on the fields after harvest. But it is also an

important contributor to air pollution. TCSR conducts the anti-stubble burning programme to help farmers keep the soil fertile for an optimum yield through less harmful methods such as the use of Turbo Happy Seeder (THS) and Zero Seed Drill across all small and medium-sized villages of Farrukhabad and Hardoi districts of Uttar Pradesh. The THS uproots the stubble and sows seeds simultaneously. The stubble thus collected is used as mulch i.e. using it as a layer on the ground. The Zero Seed Drill technology directly sows seeds in the previous crop stubble without shredding the straw.

During the year



soil productivity was increased through wheat sowing by happy seeders across 225 acres impacting 95 beneficiaries in 13 villages, by zero tillage on 172.30 acres benefitting 83 farmers from 7 villages and through mulching of paddy maize stubbles as well as sugarcane leaves across 68 acres benefitting 26 beneficiaries in 8 villages.

2.7 Promotion Of Organic Fertilisers

TCSR in Farrukhabad helps farmers improve the soil health by providing the appropriate organic fertilisers (based on soil testing) at subsidised rates to the farmers. These increase the organic materials as well as the beneficial micro bacteria in the soil.

During the year



under this initiative organic fertilisers were used across 56.4 acres of land impacting 27 farmers from 11 villages of Amritpur and Shahabad tehsils of Farrukhabad and Hardoi districts.

03 Waste Management

Dwarka, one of the four religious sites in the "Chardham Yatra", attracts more than 30 lakh pilgrims on a yearly basis, as per TOI, 2019. TCSR as part of its CSR initiative has identified improvement in Dwarka Waste Management as a project that would serve the growing pilgrim / tourist population, while improving the hygiene of the town, reducing the environmental damage and carbon footprint while also providing employment to the waste picker community. To tackle the solid waste issue, a study was conducted under TCSR in association with the Sampurna Earth team. The Waste Management Plant came into shape in the year and its inception followed in 2019. The findings from the audit of Dwarka, showed the waste management plant could receive at least 4 ton and 5 ton of waste on a daily basis from the surrounding areas, in the initial stages. A Self Help Group (SHG) group was formed by 20 rag pickers based on the area of waste collection with each rag picker receiving an identity card, medical insurance (Pradhan

Mantri Jeevan Jyoti Bima Yojana) and banking facilities. This intervention is an example of bringing the marginalised sections of the society into the mainstream and uplifting them through the medium of the SHG. At full functional capacity, the waste management plant can provide employment to around 200 people in different roles to fulfill its daily need of waste management. At present, there are 18 employed /salaried SHG members.

During the year



there has been increase in shredded plastic supply per day - 3 tonne per day which acts as an alternate fuel to the cement plant.

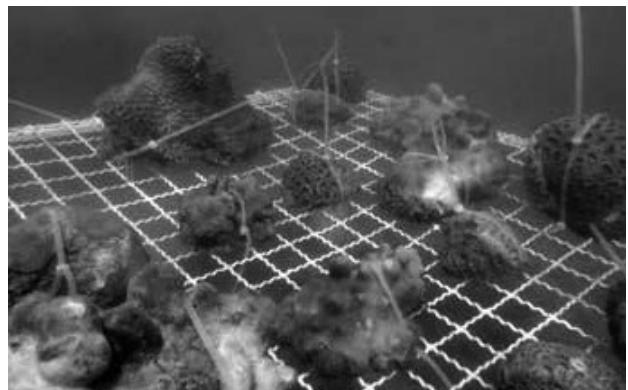
Biodiversity Conservation

The Mithapur region is known for its natural heritage including coral reefs, lush mangrove stands, turtle nesting beaches, wetlands, bird nesting sites and the scrub forests. TCSR has been involved in biodiversity conservation initiatives for more than two decades

Centre For Sustainable Conservation Action For Protection Of Ecosystems Of The Seas (C-SCAPES)

C-SCAPES was established in the 150th year of the Tata Group in the coastal landscape of Mithapur. It is dedicated to the conservation and wise use of marine and coastal biodiversity for inclusive and sustainable development in India. It empowers marine and coastal conservation actions by convening and leveraging local, regional, and national stakeholders and partnerships, implementing, and demonstrating on-ground solutions, and providing credible knowledge and objective recommendations for policy and practice. C-SCAPES's work is organised into six areas :

marine biodiversity protection; coastal ecosystem management; coastal community resilience-building; ocean education and communication; climate change mitigation and adaptation; and coastal governance. In all that we do, we harness the experiences and expertise of our parent organisation, TCSR, council members, and project and community partners, to strengthen our ability to address the challenges faced by marine and coastal ecosystems in India.



Our projects include:

01 Species & Ecosystem Conservation

1.2 Coral Reef Recovery Project - Mithapur

Less than a kilometre away from the Tata Chemicals Mithapur township is a small but significant coral reef ecosystem. With our partners (Wildlife Trust of India) WTI, we have established a biorock reef system, creating 175 artificial reefs and increased the overall artificial reef area by 350 m². This has increased the fish populations with observable benefits to local livelihoods. Three coral gardens were also developed adjacent to the Mithapur reef, as repositories for locally available coral species that can be accessed for future coral reef restoration. 40,000 m² of the coral garden and artificial reef complex was demarcated with marker buoys and declared a no-take fishing zone in collaboration with fishermen.

Community support is critical to successful coral reef restoration projects. We have conducted two awareness camps and two field-based participatory trainings for reef dependent communities of Bhimrana, Arambhada, Surajkaradi village and Mithapur, to strengthen coral reef monitoring and community-conservation actions. Various scientific, conservation and societal interventions were made to increase coral reef conservation action-based awareness amongst the fishing community.

C-SCAPES and WTI teams conducted several MEL (Monitoring, Evaluation and Learning) online meetings, and an in-person strategy meet in Delhi. A visit to the Mithapur project site to review progress, build transformative and sustainable change-building actions, and understand the project outcomes occurred in March. The MEL team met reef dependent fishers to better understand their perspectives on coral conservation, and its impact on fish stock and livelihood.

1.2 The Whale Shark Conservation Project

Whale Shark Conservation is a successful and well-established intervention by Wildlife Trust of India, Gujarat Forest Department, Tata Chemicals Ltd., and fishing communities of the Saurashtra coast, working towards safeguarding the globally threatened Whale Shark (*Rhincodon typus*), the largest fish on the planet. International Whale Shark Day celebration, Wildlife Week celebration, 15th Gujarat whale shark day celebration at Veraval, fishing boat painting, flag installation were some activities organised by WTI, CSCAPES and TCSR in 2021. Friends of Whale Shark were engaged in activities like Whale Shark sand artmaking, beach clean-up drives, and "Whale Shark on Wheels", a rally with whale shark inflatable on a camel cart. In the run-up to International Whale Shark Day, various online and offline activities such as Whale Shark webinars in Gujarati and Marathi, online panel discussions in Gujarati, online pan-India painting competitions, Whale Shark awareness campaigns among the fishermen of Okhamandal, online crash courses on Know Your Whale Shark, and online quizzes were organised to engage a wide range of participants.



More than 2,500 participants from 14 states participated in these eight events.

The 15th Gujarat Whale Shark Day was celebrated with local communities on the 4th of December 2021. More than 300 students and fishermen attended this event in the presence of the District Collector; Principal Chief Conservator of Forests and Chief Wildlife Warden; Dy. Commanding Officer of the Indian Coast Guard; Chief Conservator of Forests; Dy. Conservator of Forests; TCL officers; and President and Boat Owners Association of Veraval. The event received phenomenal media coverage. A total of 857 Whale Sharks have been rescued in Gujarat since 2005 under the Whale Shark conservation project, the achievements of which were acknowledged by the Ministry of Environment, Forests and Climate Change, Govt. of India on Twitter.

During the year



37 Whale Sharks have been rescued by fishermen off Gujarat waters.

1.3 Mangrove Forest Restoration

Mangroves are significant in addressing climate change because of their potential to store large amounts of carbon, yet they are under attack all around the world. Mangrove forests are especially attractive to fish and other species like finfish, shellfish, and other biodiversity, looking for food and critical protection from predators. Mangroves stabilise coastlines against storm surges, currents, waves, and tides. As a part of its drive to strengthen coastal ecosystems, TCSR has continued its mangrove forest restoration projects at Mithapur (Gujarat) and Sundarbans (West Bengal). The approach is to link conservation projects with livelihood opportunities for local communities.

During the year



a total of 1,70,000 mangroves were planted under the TCSR mangrove restoration project: 65,000 mangroves in Mithapur and 1,05,000 in the Sundarbans.

1.4 Community Conservation Coral Reefs In The Lakshadweep Archipelago

In partnership with Srushti Conservation Foundation (SCF), we are identifying and delineating the geographic boundaries of a new conservation reserve in Lakshadweep, for the protection of 200 km² of the coral reef ecosystem. An evidence-based governance and management plan for the conservation reserve will be co-designed with communities and relevant stakeholders in and around the islands. The Lakshadweep associated lagoon area is 4200 km² and has enormous potential for carbon sequestration through reef protection and regeneration. This is also crucial for strengthening livelihoods and the ecosystem services provision, especially in the context of the climate crisis.

The reef areas of three islands - Bitra (17 transects), Perumal Par (8 Transects) and Agatti (30 Transects) - were sampled using Line Intercept/ Belt Transect methods. Giant clams were used as a surrogate of reef habitat quality. As many as 1155 photo quadrats and 115 video transects for fish diversity were captured separately and are being analysed. 120 individual discussions were conducted with local communities to document traditional knowledge. Project progress was also conveyed to the forest department of Lakshadweep. Lakshadweep administration invited SCF to provide scientific advice in a meeting on seaweed farming as an alternate livelihood; Bitra and Agatti Islands are considered key islands for this enterprise.

During the year



the biodiversity of over 5% of Agatti, Bitra, and Perumal Par islands were surveyed. 42 youths were engaged in project surveys and associated activities. 12 workshops were conducted for People's Biodiversity Register and conservation management techniques.

1.5 Restoration Of Salt pans For Conservation Of Migratory Water Birds In Kanyakumari District, Tamil Nadu

C-SCAPES has partnered with the Bombay Natural History Society (BNHS), to enrich and restore abandoned salt pans in Kanyakumari district, Tamil Nadu, to provide roosting, nesting, and feeding sites for migratory and resident water birds. The



project is simultaneously developing supplementary sources of income for surrounding communities through varied uses of the salt pans. Restoration of salt pans was carried out for conservation of migratory water birds in Kanyakumari district, Tamil Nadu with Bombay Natural History Society (BNHS). 35 ha of abandoned salt pan have been restored to wetland bird habitat.

BNHS has created channels and deepened the salt pan ponds to increase freshwater flows (from Manakudy estuary) and the carrying capacity of 110 acres of salt pan in Kanyakumari. Approximately 3,000 juvenile shrimps, collected from the adjoining backwaters (Rajakkamangalam), have been released into the pans. Artemia is cultured once a month and is being released into the adjoining salt pans with high salinity. Their impact on the bird population is being monitored regularly.

Bird counts are being taken regularly to monitor the impact of changing the freshwater levels. Over 10,000 water birds were recorded using the restored salt pans. During the northward passage time, an increase in the number of migratory birds has been observed, including 2,000 sea terns and 450 Greater Flamingos. Numbers of some wader species like Little Stints, Lesser Sand Plover, Common Redshank, and Grey Plover have also increased. Other observed species include Ruddy Turnstone, Eurasian Curlew, and a Broad-billed Sandpiper. The release of water from the estuary into the salt pan brought in thousands of fingerlings which in turn attracted fish-eating birds such as the Great Egret, Black-headed Ibis and Eurasian Spoonbill. To reduce the impact of increasingly unsuitable nesting/roosting conditions for the water birds, artificial platforms using bamboo rafts supported by wood poles were built in and around the salt pans. The functioning of the artificial roosts was monitored consistently.

During the year



7 new species of birds were observed including Greater Sand-Plover, Arctic Skua, Heuglin's Gull, Common Ringed Plover, Cotton Pygmy-Goose, Yellow-throated Sparrow, and Jungle Myna. A Bird Identification training programme was conducted in August 2021 for students and teachers. Three youths from the local communities are engaged in imparting bird watching training on a weekly basis and given a fellowship as an incentive. The training imparted helped them to understand the importance of bird conservation. They are now involved in creating awareness among their locality and soon will become professional bird-watching guides. Awareness of wetlands and birds improved amongst 50 students. 3 youth have been trained as bird watching guides and marine biologists respectively.

1.6 Conservation & Sustainable Management Of Coastal Ecosystems For Increased Resilience To Climate Change Impacts On The East Coast Of India

C-SCAPES has partnered with M.S. Swaminathan Research Foundation (MSSRF) to restore and protect the mangrove ecosystem in Kedilam estuary, Cuddalore District, Tamil Nadu for enhanced protection of people and biodiversity against the impacts of climate change; and to restore the coastal watershed and catchment functionality in Pulicat lake, Nellore district, Andhra Pradesh for enhanced protective and provisioning ecosystem services. There is high dependence on the natural resources of Pulicat Lake for fishing and, on freshwater systems near Vattambudukuppam (Nellore district) for agricultural purposes. Similarly, in Cuddalore, fishermen use both the Kedilam estuary and near shore areas for fishing. These areas are highly vulnerable to disasters. Conservation of coastal resources such as mangroves, freshwater bodies, and restoration of sea grass beds in Pulicat will enhance fisheries and biodiversity. The restoration of freshwater bodies around Vattambudukuppam will increase water availability and groundwater recharge.

During the year



a total of 15 floral species of sea grass, mangroves, and salt marshes recorded in and around Pulicat lake. Biophysical surveys have been conducted to study and understand seagrass beds and their status, mangroves, associated species and their status and physicochemical parameters of soil and water. The community has been informed of the project interventions and their support is being taken. 25,000 mangrove saplings were raised by women's self-help groups which will be used to plant in the Kedilam estuary in Cuddalore during the monsoon season. Two workshops were organised to engage the community in natural resource management through the formation of Village-Level

Mithapur is an ex-situ approach to create a botanical reserve for the protection of local strains of native flora species and the reserve spreads over 170 acres, and more than 160 flora species have been traced here. The number of bird species recorded here stands at over 100, which includes the migratory species. 25 acres of dry deciduous forest patch has been developed to encourage local migrant species to stay back and breed here. Employee volunteers and family members have been helping with this project in multiple ways – site clearance and land development work, nursery activities for raising indigenous flora saplings, plantation at site and irrigation and maintenance work and also for monitoring of birdlife at the site. The positive impact of the project has been the steady rise in the number of bird species.

During the year



10 new species of birds were recorded in Okhamandal, while 5 new indigenous flora species were introduced.



Common Whitethroat at Biodiversity Park, Mithapur on 12 Sept, 2021



Red-backed Shrike at Biodiversity Park, Mithapur on 11 Sept, 2021



Spotted Flycatcher at Biodiversity Park, Mithapur on 11 Sept, 2021



Common Hawk Cuckoo at Biodiversity Park, Mithapur on 16 Oct, 2021



Anglic Plover at Malvi village beach area on 18 Sept, 2021



Scolopend Bunting at Malvi village beach area on 16 Sept, 2021



Common Quail at Malvi village beach area on 18 Sept, 2021



Caspian Plover at TEE Mangrove plantation site, Dewarka on 3 Nov, 2021

02 Greening Projects

2.1 Indigenous Flora Biodiversity Conservation

The indigenous flora of Okhamandal region is on a steady decline due to the rampant spread of an alien invasive species - *Prosopis juliflora*. The situation is expected to be further aggravated due to new development projects likely to come up in the region as well as the spread of yet another invasive alien weed - the Congress Grass (*Parthenium hysterophorus*), one of the world's seven most notorious weeds. Much of the grasslands in the region have been run over by these alien weeds.

The Indigenous Flora Biodiversity Conservation Project at

03 Awareness And Training

3.1 Communication, Education And Public Awareness (CEPA)

The 'Prakruti' eco clubs programme is part of TCSR's environmental education initiative and is designed to create biodiversity conservation and climate change awareness amongst rural students, teachers and the community. The aim is also to encourage a participatory approach for conservation action. The programme involves volunteering by Tata employees and their family members, thus, helping enhance corporate rapport with the community and sensitising employees about biodiversity around chemical plants.

During the year



56 eco clubs have been promoted in Mithapur, reaching over 6,000 students and teachers from schools in and around the area.

3.2» Prakruti Parivar

Apart from the eco clubs, there is a group of more than 500 volunteers including Tata Chemicals' employees, their family members and retired employees called the 'Prakruti Parivar' who have been involved in conservation awareness and action programmes for over a decade now.

During the year



these volunteers have contributed 6,185 hours to the various programmes. Both online & field programme for volunteering were conducted.

3.3» Pan-India Awareness Activities For Butterflies And Other Wildlife

The month of September 2021 was celebrated as Big Butterfly Month. TCSR organised a 'Know Your Butterflies' five days certificate course; online and offline butterfly painting competitions and online butterfly photography competitions. More than 775 individuals (age 5 to 67 years) were covered in Gujarat, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Karnataka, Odisha, Tamil Nadu, Andhra Pradesh, Haryana, Jharkhand, Telangana, West Bengal, along with Gurgaon, Daman & Diu and Dubai. Participants of the art competitions were encouraged to observe and paint/photograph the butterflies seen locally so as to build empathy for local diversity.

Wildlife Week (2nd to 8th October 2021) was celebrated with a talk on marine mega fauna, webinars on marine life; the importance of wetlands for migratory birds and common snakes; bird monitoring trips to the Biodiversity Park with school students and volunteers and an online Biodiversity Quiz in which participants from Gujarat, Karnataka, Maharashtra, Rajasthan, West Bengal, Tamil Nadu, and Uttar Pradesh joined. Overall, more than 250 people were reached through the celebration.

TCSR celebrated World Wetlands Day (2nd February 2022) by conducting two webinars and a training session. Webinars were conducted in association with Community Science Centres of Junagadh and Dwarka as well as the Gujarat Ecology Commission. A training session was conducted for Rajasthan Forest Department with the Bombay Natural History Society. The events benefitted 269 participants who understood the importance of wetlands for the environment.

Case Study

Name of the Intervention:

Watershed Management - Farm Pond

Name of the beneficiary : Vinod Kesur

Location : Ranjeetpur, Dwarka, Gujarat



Vinod Kesur is a farmer living in Ranjeetpur village. There was only one pond in his village, which also would dry up every year after the monsoons. The villagers had been facing an acute water shortage for years now, making their life very difficult. In 2017-18, Vinod learned about TCSR's watershed management programme, which included the construction of agricultural ponds, village ponds, check dams and other structures with the support of community contributions. This intervention had benefited farmers in the Okhamandal region. After learning of this, he approached the TCSR team concerning rebuilding the pond in his village. Thanks to a grant from TCSR and a community contribution of Rs 18,000, Vinod's village pond was deepened and cleaned. The revived and restored pond now has potable fresh water that is sufficient to meet the village's needs. The residents of Ranjeetpur are filled with gratitude since they could not have solved their water shortage problem without the support of TCSR.

1) Watershed Development and Water Management (Jal Dhan) - Mithapur

Parameters	Unit	17-18	18-19	19-20	20-21	21-22	Cumulative
Watershed development structures constructed							
Medium	Nos	19	10	30	11	18	404
Small (farm pond, farm bund & well recharge)	Nos	178	191	127	81	152	3,195
Irrigated area							
Medium and small structures	Acres	1,297	1,132	896	780	1,031	15,102
Two cropping - Micro - irrigation (MS)	Acres	85	924	855	188	1,031	4,976.5
Farmers covered							
Promotion of rain gun irrigation system	Nos	-	-	-	108	74	-
Watershed management programme	Nos	500	450	360	312	412	6,012
Adopted MIS	Nos	-	-	-	155	210	365
Rain water harvesting capacity added	MCFT	29	25	25	20	23	464.75
Drip and sprinkler installed	Nos	15	214	171	77	210	1,104
Impact							
Average annual water savings increased by 35%, water efficiency through drip irrigation increased by 70%, and sprinkler irrigation increased by 40%.							

2) Watershed Development and Water Management (Jal Dhan) - Maharashtra and Jharkhand

Parameters	Unit	20-21	21-22	Cumulative
Water harvesting structures constructed (trenches, loose boulders, well recharge, diversion dams)				
Small	Nos	11	0	11
De-silted area				
Nala/river	Kilometre	6.25	9.74	15.99
Pond/storage structures	Hector	1.01	1.25	2.26
Check dam				
Repaired	Nos	0	1	1
De-silted	Nos	0	2	2
Ponds outlet				
Repaired	Nos	-	1	1
Villages	Nos	70	10	-
Villagers	Nos	2,21,759	3,22,59	-
Affirmative Action (AA)	%	28	21.94	-
Litres of water harvested	MCFT	108.7	115.8	-
Impact				
Rise in ground water level from 1 metre to 6 metre.				

3 Land Development - Mithapur

Parameters	Unit	17-18	18-19	19-20	20-21	21-22	Cumulative
Land Reclamation							
Land reclaimed	Acres	80	31	60	200	0	1,223*
Farmers benefitted	Nos	80	31	60	57	0	280
Villages covered	Nos	7	3	4	12	0	33
Laser Leveling							
Land leveled	Acres	-	30	91	131	209	461
Farmers benefitted	Nos	-	-	14	18	16	48
Villages covered	Nos	-	-	4	6	3	13
Soil and water testing	Sample	435	435	265	0	0	1,738
Impact							
Average annual increase in land fertility is 10% and 6.6% increase in water holding capacity.							

*including Babrala

4 Land Development - Farrukhabad and Hardoi Districts

Parameters	Unit	17-18	18-19	19-20	20-21	21-22	Cumulative
Land Laser Levelled	Acres	904	1000	532	633.6	380	3,734.6
Land Deep Ploughed	Acres	700	877	532	633.6	165.3	3,024.9
Promotion of Organic Fertiliser	Acres	508	530	532	633.6	56.4	2,614
Impact							
Average annual increase in land fertility is 20 %.							

5 Biodiversity - Mithapur

Parameters	Unit	17-18	18-19	19-20	20-21	21-22	Cumulative
Mangroves planted - Mithapur	Nos	20,200	60,000	28,700	60,000	65,000	660,400
Mangroves planted - Sundarbans*	Nos	62,000	55,000	75,000	55,000	1,05,000	7,78,000
Development of dry deciduous forest plot	Acres	-	-	5	10	10	25
Environment awareness programmes	Nos	-	155	155	181	146	-
People reached (Outreach of environment & conservation awareness programmes)	Nos	8,544	7,670	11,675	6,084	8,379	2,01,155
Whale shark rescued	Nos	30	20	44	34	37	850
Avi-fauna (bird) species recorded	Nos	84	90	83	2	10	118
Indigenous flora species introduced	Nos	5	5	5	5	5	159
Eco clubs promoted	Nos	30	40	54	56	56	56

* Sundarbans numbers only