

**GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IA DIVISION-INDUSTRY-3 SECTOR)**

Dated:17.6.2024

**MINUTES OF THE 80th EXPERT APPRAISAL COMMITTEE (INDUSTRY-3 SECTOR) MEETING
HELD ON 7th JUNE, 2024**

Venue: Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003 through Video Conferencing (VC)

Time: 10:30 AM onwards

(i) Opening Remarks by the Chairman

Prof. (Dr.) A.B. Pandit, Chairman welcomed the Committee members and opened the EAC meeting for further deliberations.

(ii) Details of Agenda items by the Member Secretary

The Member Secretary then apprised the Committee about the details of Agenda items to be discussed during this Expert Appraisal Committee (EAC) meeting.

(iii) Confirmation of Minutes of the 79th EAC Meeting held on 8th-9th May, 2024.

The EAC noted that the final minutes of the above meeting were issued after incorporating the comments offered by the members and approved by the Chairman.

Parivesh 1.0

Agenda No.1

Proposed project to produce Light Soda Ash (LSA) of 11,00,000 TPA capacity, 5,00,000 TPA of Dense Soda Ash (DSA) and 2,00,000 TPA Sodium Bicarbonate (SBC) located at near village Bada, Taluka - Mandvi, District - Kutch in the Gujarat by “Greenfield Chemical Complex” of GHCL Ltd- Reconsideration of Environmental Clearance

[Proposal no: IA/GJ/IND3/408164/2022, File No. IA-J-11011/293/2021-IA-II(I)]

1. The proposal is for Environmental Clearance to the Proposed project to produce Light Soda Ash (LSA) of 11,00,000 TPA capacity, 5,00,000 TPA of Dense Soda Ash (DSA) and 2,00,000 TPA Sodium Bicarbonate (SBC) located at near village Bada, Taluka - Mandvi, District - Kutch in the Gujarat state by “Greenfield Chemical Complex” of GHCL Ltd
2. The project/activity is covered under Category ‘A’ of Item 4 (e) soda ash industry and 1(d) of Schedule of Environment Impact Assessment (EIA) Notification, 2006 (as amended) and requires appraisal at Central Level by the Expert Appraisal Committee (EAC) as the project is located outside the notified industrial area.
3. The ToR was issued by the Ministry, vide letter no. IA-J-11011/293/2021-IA-II(I) dated 10th August, 2021. The PP applied for the Environment Clearance in the Common Application Form and submitted the EIA/EMP Report and other documents. The PP in the CAF reported that it is a **Fresh EC case. The proposal was placed in 72nd EAC Meeting held on 2nd January, 2024, 74th EAC meeting held on 6th February, 2024, 78th EAC meeting held on 30th April, 2024 wherein the proposal was deferred for want of requisite information now the proposal is placed in this 80th EAC meeting held on 7th June, 2024** where project was wherein the PP and an accredited Consultant, M/s. T. R Associates [NABET accreditation till **NABET Accreditation Number: NABET/EIA/2326/RA 0293 valid till 8th April, 2026**], made a detailed presentation on the salient features of the project and informed the following:
4. The PP reported that the Total land area is **5463200 m²**; no additional land will be used **for proposed project** and no R& R is involved in the Project. The details of various products are as follows:

Sr. No.	Name of the Product	Production Capacity (MT/Month)	CAS Number	End use
1	Light Soda Ash	11,00,000 TPA	497-19-8	Manufacturing of glass, usage in chemical industry, paper and detergent manufacturing, and food industry
2	Dense Soda Ash	5,00,000 TPA	497-19-8	
3	Sodium bicarbonate	2,00,000 TPA	144-55-8	
Captive Co-generation Power plant Steam (CFBC boilers)			120 MW	
Emergency DG Set			5 MVA	
Note- The production capacities are planned in phased manner and for Phase 1 production capacity for LSA: 5,50,000 TPA, Dense Soda Ash: 2,50,000 TPA, SBC: 1,00,000 TPA and 60 MW for Captive Co-generation Power plant.				

5. The PP reported that there is no violation case as per the Notification No. S.O.804(E) dated 14.03.2017 and no direction is issued under E(P) Act/Air Act/Water Act.
6. The PP reported that there is no National Parks, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. **Marine National Park and Sanctuary, Jamnagar are located at 75 km aerial distance in South direction and Narayan Sarovar Sanctuary is located at more than 100 km aerial distance in North-West directions.** Flap shell turtle, Green Sea turtle, Indian monitor lizard, Olive Ridley Sea turtle, Black shoulder kite, Eurasian Spoonbill, Indian Peafowl, Marsh Harrier, Oriental Honey Buzzard, Gugal Schedule-I species were found in the study area for which conservation plan has been prepared and submitted to PCCF and Chief wildlife warden dated 9.11.2023.
7. The PP reported that the diversion of 0.9689 ha un-class forest for laying part of sea water intake and effluent disposal pipeline and passage for related construction equipment movement in Kachchh has been obtained vide letter dated 18. 7.2023.
8. The PP reported the Unit has received the Final recommendation letter from GZMA vide file no ENV/10/ 2021/184/ T- cell dated 26.12.2023. CRZ details are as:

Activities	Zone
Construction of process plant and utilities etc.	Outside CRZ area
Effluent collection	Outside CRZ area
Seawater Intake system i.e. sump and pump house	CRZ III
Intake Pipeline	CRZ IA, CRZ IB and CRZ IV
Outfall Pipeline	CRZ IA, CRZ IB and CRZ IV

Laying of Seawater Intake and effluent disposal underground pipeline through tunnel from unclassified Forest area, Sand dune area, intertidal area outside project boundary.

9. The PP reported that **Ambient air** quality monitoring was also carried out at **10 locations** during **December 2022 – February 2023**. The baseline data indicates the ranges of concentrations as: PM₁₀ (50.31 µg/m³ to 83.48 µg/m³), PM_{2.5} (21.65 µg/ m³ to 51.31 µg/ m³), SO₂ (BDL (DL=5) to 17.38 µg/m³), NO_x (16.38 µg/m³ to 41.49 µg/m³), Ozone (BDL (DL=10) to 19.62 µg/m³), Ammonia, Carbon Monoxide, Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(α)pyrene(B[a]P) and Benzene results were observed Below Detectable Limit. AAQ modelling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 1.23 µg/m³ in case of Lignite, 1.21 µg/m³ in case of Coal and 1.19 µg/m³ in case of Petcoke with respect to PM10, 1.71 µg/m³ in case of Lignite, 0.229 µg/m³ in case of Coal and 1.44 µg/m³ in case of Petcoke with respect to SO₂ and 5.08

$\mu\text{g}/\text{m}^3$ in case of lignite, **8.82** $\mu\text{g}/\text{m}^3$ in case of coal and **9.50** $\mu\text{g}/\text{m}^3$ in case of Petcoke with respect to NO_x , 2.39 $\mu\text{g}/\text{m}^3$ in case of NH_3 . The resultant concentrations are within the National Ambient Air Quality Standards (NAAQS).

10. The PP reported that the total water requirement for project will be **14,61,038 m³/day** which will be met from **Sea water**. Total Effluent of **14,48,508 m³/day** [Domestic - **160 m³/day** + Industrial – **14,48,348 m³/day** (fresh seawater for dilution – 5,14,678 m³/day + effluent generation from soda ash & CPP plant – 1,26,830 m³/day + once through cooling – 8,07,000 m³/day)] will be generated. The industrial effluent generated (14,48,508 m³/day) i.e. from RO/DM rejects, brine purification reject, distiller waste and boiler blowdown will be mixed with fresh seawater for dilution and wastewater from once-through cooling and treated and disposed into the Arabian Sea as per the recommendation of NIO. The characteristics of the discharge water are within the norms prescribed by CPCB. Domestic effluent (**160 m³/day**) will be treated in sewage treatment plant and treated sewage will be reused in landscaping & gardening purposes.
11. The PP reported that the Power requirement for proposed project will be 120 MW and will be met from Captive Co-generation Power plant. D. G. Set (5 MVA X 1) [Fuel: HSD (60 KL)] shall be provided and used only in case of power failure. Stack (30 meter) and Retrofit shall provide as per CPCB norms to the DG sets. Industry will provide six Steam Boiler (150 TPH) for captive power plant, six lime kilns and D G sets

12. Details of process emissions generation and its management:

SR.NO.	Stack attached to	Capacity	Height of the stack (m)	Fuel & its Consumption	Expected Pollutant	APC System	GPCB Limit
1	CPP with flue gas desulphurization CFBC Boiler (6 Nos.)	150 TPH	130 m	Imported Coal/Lignite/ Pet coke (Imported Coal: 13,14,000 TPA, Lignite :19,71,000 TPA, Pet coke: 9,12,500 TPA)	SPM SO ₂ NO ₂ Hg	Individual ESP with each Boiler	PM ≤ 30 mg/Nm ³ SO ₂ ≤ 100 mg/Nm ³ NO ₂ ≤ 100 mg/Nm ³ Hg ≤ 0.03 mg/Nm ³

2	D G Set (2/3 Nos.)	5 MVA	30 m	HSD (60 KL)	HC CO PM NO _x	Retrofitting	NO _x 710 ppmv NMHC 100 mg/Nm ³ PM 75 mg/Nm ³ CO 150 mg/Nm ³
3	Lime Kiln 1		68 m	Coke or Briquette or Anthracite (Coke - 1,30,000 TPA, Briquette- 1,55,000 TPA, Anthracite - 1,10,000 TPA)	SPM SO ₂ NO ₂	Scrubber and Dust Collector system	SPM ≤ 150 mg/Nm ³ SO ₂ ≤ 100 ppm NO ₂ ≤ 50 ppm
4	Lime Kiln 2		68 m			Scrubber and Dust Collector system	
5	Lime Kiln 3		68 m			Scrubber and Dust Collector system	
6	Lime Kiln 4		68 m			Scrubber and Dust Collector system	
7	Lime Kiln 5		68 m			Scrubber and Dust Collector system	
8	Lime Kiln 6		68 m			Scrubber and Dust Collector system	

SR.NO.	Stack attached to	Height of the stack (m)	Expected Pollutant	APC System
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1	Ammonia Recovery system	42 m	Ammonia	Water scrubber
2	Lime grinding system / Slaker	65 / 20 m	PM / Water vapor	Bag filter / Adequate stack height
3	Calcliner unit	37 m	PM	Scrubber, Bag filter
4	Densification	43 m	PM	Scrubber
5	Sodium Bi-Carbonate Unit	30 m	PM	Bag filter
6	Lime Kiln	Closed system	PM	Scrubber and Wet ESP

13. Details of Solid Waste/ Hazardous Waste Generation and Its Management:

Sr. No.	Type of Waste	Category	Quantity	Mode of Disposal
1	Settled Sludge from treatment of effluent generated from captive power plant & RO/DM Plant	35.3	1.0 MT/Annum	Collection, storage and disposal at approved TSDF site
2	Used Oil	5.1	12 KL	Collection, storage and used within premises as a lubricant / sold to registered recycler
3	Discarded Drums and Bags	33.1	6.45 MT/Annum	Collection, storage & sold to authorized vendor
4	Spent Ion exchange resin	35.2	3000 Lit/Annum	Collection, storage and disposal at approved TSDF site
5	Used Cotton	33.2	5 MT/Annum	Collection, storage and disposal at approved CHWIF site
6	Lead acid Batteries	Schedule-IV (17)	5 MT	Collection, storage & sold to authorized agency through auction

7	E-Waste	Schedule-I of E-Waste (Management) Rules, 2022	5 MT/Annum	Collection, storage & sold to authorized agency through auction
8	Plastic Waste	-	2295 MT/Annum	Collection, Storage and Disposal to CPCB/SPCB authorized recyclers under EPR of Plastic Waste Management
9	Bio-medical Waste	-	0.035 MT/Annum	Collection, storage and disposal at as per Bio-medical Waste Management Rules, 2016
10	Construction and Demolition Waste	-	20 TPD	Collection, storage and utilize internally for area filling, road making etc.

Non-Hazardous Solid Waste Details

Sr. No.	Type of Waste	Source of Generation	Quantity	Mode of Disposal
1	STP sludge	STP	1152 MT/Annum	Reused as Manure in Greenbelt Development
2	Kitchen Waste	Canteen	0.01 MT/Day	Collected and composted in Composter and further used as manure for gardening in the premises
3	Ash (Fly ash & Bottom Ash)	Boiler	2726.847 TPD	Collection, storage & sold to cement Manufacturing/ Brick Manufacturing
4	Limestone rejects	Desulphurization Process	1,00,000 MT/Annum	Collection and reused in Boiler for desulphurization and as a sweetener in cement industry, road making, pavement etc.

14. The Budget earmarked towards the Environmental Management Plan (EMP) is ₹ **318.08 crore** (capital) and the Recurring Cost (operation and maintenance) will be about ₹ **6.98 Crore** per Annum. Industry proposes to allocate ₹ **18.04 Crore** per annum towards CER.
15. The PP proposed to set up an Environment Management Cell (EMC) by engaging Environment officials for the functioning of EMC.
16. The PP submitted the Disaster and Onsite and Offsite Emergency Plans in the EIA report.
17. The estimated total project cost is **Rs. 3563.08 Crores**. Total Employment will be **1200** persons as direct.
18. Intake pipeline and outfall pipeline fall in CRZ 1A, 1B and IV area as per demarcation. It was reported that construction of process plant and utilities fall outside the CRZ area. SCZMA recommendation has been obtained for Laying of Seawater Intake and effluent disposal underground pipeline through tunnel from unclassified Forest area, Sand dune area, intertidal area outside project boundary.
19. The Public Hearing earlier was scheduled to be held on 17.10.2022 at 11:00 Hrs, Venue: Project Site, Survey no. 432, Village: Bada, Taluka: Mandvi, District: Kutch, Public hearing was then time being postponed due to unavoidable circumstances. After that public hearing was completed on **17-10-2022 at 11.00 Hrs**. Venue: Project Site, Survey no. 432, Village: Bada, Taluka: Mandvi, District: Kutch, Gujarat. Which was presided over by Shri Chetan Mishan(GAS), Sub Divisonal Magistrate & Deputy Collector, Mundra- Kutch. Public hearing Details as given below:

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
1	CSR – Fodder	4	Steps to be taken for cattle Care about Maldhari Security regarding fodder supply for livestock.	Fodder will be provided as well as provision for veterinary doctor will be carried out by GHCL foundation under CSR activity.	Activities for fodder supply will be carried out under CSR and CER activities for strengthening the bond between the project authorities and the local population. (refer Ch-8 and Table 10.4 in Ch-10). Fodder field will be developed on the Government/allocate land to nearby villages. Unit will do promotion through providing support for breed improvement, animal health care, fodder improvement and providing veterinary doctor in nearby villages under CER and CSR activities for communities. During year 2020-2021, GHCL foundation has spent INR 9.03 Crores towards CSR activities. CSR projects/activities worth INR 19.09 Cr. were implemented. GHCL wide range of CSR projects have touched and benefitted more than 90,200 lives over the years. Promoting	As per MoEF&CC Office Memorandum F.NO. 22-67/2017-IAIII, MoEF&CC, New Delhi, dated on 1st May 2018 GHCL Ltd has earmarked 0.5 % of capital investment (approx. Rs. 18.04 crore), towards the Corporate Environment Responsibility in 5 years GHCL Ltd will spend approx. 4.35 crore* towards Animal husbandry promotion through providing support for breed improvement, animal health care, Veterinary doctor and others as well as provides Fodder for cattle feeding nearby villages as per requirement under CER activities (* value may defer as per actual requirement)	5 years	GHCL Limited
2	Employment	5	For employment of local villagers Number of employment opportunities to be Priority must be given to nearby 10 villages Regarding priority to nearby villages	Information on employment opportunities has given by Project Proponent that there are different types of employment opportunities in the two phase of the projects i.e. construction	The proposed project has a potential for employment of skilled, semiskilled and unskilled employees during construction phase as well as	GHCL Ltd will spend approx. 2.25 crore towards Promoting activities for skill building to improve	During construction and Operation phase	GHCL Limited

S.No	Issue related to	Nos Issues	Concern in PH	GHCL/Dreply	Action Plan	Fund Required	Timeline	Responsibility
			for labor work Regarding employment for local communities.	phase and operational phase of the project. GHCL will strive to provide these employment opportunities to the local people, for which work will be done for their skill development and employment opportunities will be provided to the local people. As per requirement, training will be given to local people in coordination with HR department. Priority will be given for employment of local people. In nearby villages a group of women can be formed so that they can work in Grehdyogs (Home-based business). M/s. GHCL shall provide employment to women as per their skills and qualification.	operational phase. The plant will create direct employment in phased manner for about 1200 (operational phase) skilled as well as semi-skilled staff and indirectly large number of unskilled manpower will be engaged for the project. For Employment, local people will get first priority as per suitability and requirement. People will also get employed by the contractors for various project related activities. (Refer Ch-8 of EIA report) GHCL foundation will carry out skill development Programme for local youth to improve their employment opportunities, women empowerment under CSR and CER activities.	employment opportunities and women empowerment in nearby villages under CER activities.		
3	CSR-Health	1	Regarding health facilities under CSR activities	Will provide mobile health van facility and upgradation of existing health care infrastructure	Industry will provide Mobile Health Care, Health Camps, and Specialized Check Up Camps in nearby villages. Necessary support and help will be extended for advanced diagnosis and treatment wherever identified, Free medical health checkup under CSR and CER activities. (Refer Ch-8 of EIA report). We have already initiated mobile health van facility for nearby affected villages of project site.	<ul style="list-style-type: none"> GHCL Ltd will spend approx. 1.12 crore towards Infrastructure development Such as primary healthcare units and the fulfilment of the basic amenities in PHCs including mobile medical van and Provide Baka-Rasayana to Malnutrition Children in Anganwadi and PHC of nearby Villages under CER activities. 	5 years	GHCL Limited
4	CSR-Education	3	Regarding scholarship under CSR activity Regarding skill development of youth and improvement of	Will build school in future as per requirement and will also upgrade the existing school infrastructure and will carry out	<ul style="list-style-type: none"> Unit will be directed at two levels viz. school building to improve employment opportunities. At 	<ul style="list-style-type: none"> GHCL Foundation will spend approx. 	5 years	GHCL Limited

S.No.	Issue related to	Nos Issues	Concern in PH	GHCLLDreply	Action Plan	Fund Required	Timeline	Responsibility
			Conditions To provide educational facilities	skill development activities	<p>school level we intend to promote quality of education and learnability, develop infrastructure of Government schools, provide vocational training as per the requirement under CSR and CER activities.</p> <ul style="list-style-type: none"> GHCL foundation will support local government and NGO to make that program more effective. GHCL foundation will carry out skill development Programme for local youth to improve their employment opportunities, women empowerment under CSR and CER activities. During year 2020-2021, GHCL Foundation has spent INR 9.03 Crores towards CSR activities. CSR projects/activities worth INR 19.09 Cr. were implemented. GHCL wide range of CSR projects have touched and benefitted more than 90,200 lives over the years. Promoting such activities like water conservation, Animal husbandry, health care, SHG, Infrastructure development etc. 	<p>towards Infrastructure development for quality of education, which will ultimately upgrade schools in nearby villages under CER activities.</p>		
5	Air Pollutants (SOx, NOx, Dust)	6	Height of chimney to be installed Levels of Sox and NOx Regarding acid rain cause by Sox Emission of PM during transportation and Emission of heavy metal such as	<p>For minimizing Air Pollution, requisite height of the stacks will be provided as per the NAAQS norms. Besides this, Modern technology equipment's like Dust collector, Electrostatic Precipitator, Scrubber will</p>	<ul style="list-style-type: none"> The best available technology-based pollution prevention and control shall used to meet the regulatory standards and these pollution control systems will be commissioned before 	<ul style="list-style-type: none"> Air pollution Capital cost would include air pollution control devices like ESPs, Scubbers, Dust extraction 	During operation phase	GHCL Limited

S.No.	Issue related to	Nos. Issues	Concern in PH	GHCL ID reply	Action Plan	Fund Required	Timeline	Responsibility
			mercury. Regarding once through cooling for 120MW. Regarding linkage of fuel and how they are going to use it	installed. As a result, the pollution level will be within standard limits. GHCL will continue to support development of green belt in the surrounding villages through various agencies including GHCL Foundation (AF). GHCL shall endorse AF tree plantation movement of planting trees in entire Mandvi Taluka and 50,000 trees that mentioned, GHCL shall surely nurture those plants for five years.	<p>commencement of operation of the project. Wherever possible, the control systems shall be interlinked with the operational units, so that failure of the control system shall shut down the respective operational unit.</p> <ul style="list-style-type: none"> High efficiency ESPs shall be provided in the flue gas path of the CFB boilers for control of particulate matter. Finely ground limestone will be added to the boiler combustion zone together with coal/lignite to arrest the SO₂ formed during combustion. Lime stone dosing system to the furnace to be designed to achieve higher than 90% capture of SO₂. Monitoring system (CEMS) of air pollutants SO₂, NO_x, NH₃, PM₁₀ and PM_{2.5} will be implemented. So, the expected pollutants will be well within standard norms. The air quality monitoring will be carried out on regular basis by approved agencies by CFCB/GSFCB. (refer Ch-6 and Ch-10 of EIA report) GHCL will implement green belt /plantation program to ameliorate the pollutants and improve the aesthetics and ambient air quality. (refer Ch-10 of EIA report) There is negligible cooling water requirement for power generation. There is no any alternative effective system is available for soda ash plant. 	<p>Stacks, Dry Fog system, Wind screen etc- 89.28 crore</p> <ul style="list-style-type: none"> recuring cost would include operation and maintenance of pollution control devices- 1.50 crore Environmental monitoring Programme capital cost include CCEMS, online weather station etc- 3.4 crore Recuring cost – 0.95 crore Greenbelt Capital Cost- 20 Crore Recuring Cost- 0.5 crore 		

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					<ul style="list-style-type: none"> There is no readily available infrastructure for transportation of fuel i.e. rail or water way. So, we have to transport through road. Traffic study are shown in section 3.2.3 of chapter-3 and impact due to transportation is show in 4.1.4.3 and 4.2.3 of Chapter-4 in EIA report. In future, any alternative option available will explore. GHCL Foundation will also promoting plantation activities in nearby villages under CSR and CER activities 			
6	Water pollutants (BOD,COD,Ammonia, Mercury, Sea Weed, Mangroves)	7	<p>Regarding water related question by Koli society</p> <p>Regarding decrease in number of phytoplanktons and disruption of food chain</p> <p>Regarding temperature and presence of ammonia in waste water</p> <p>Regarding presence of mangroves</p> <p>Regarding setup of tunnel for intake of sea water, seismic zone in which company falls, liquification of land due to heat</p> <p>Regarding discharge of effluents into sea containing ammonia and high temperature and death of fishes at Sutrapada plant</p> <p>Regarding quality of effluent in terms of BOD and COD</p>	<p>Effluent will be highly alkaline so it will be mixed with HCL and then it will be disposed off in sea.</p> <p>Design of structure will have done according to seismic zone V.</p> <p>In soda ash industry impact of ammonia is very low.</p>	<ul style="list-style-type: none"> Industry will provide adequate effluent management and monitoring system for disposal of treated water Proper seawater intake and treated effluent disposal (ensure maximum dilution) shall be done as per recommendation Marine EIA report. The water monitoring results of (surface and groundwater and marine) should be carefully evaluated to identify significant changes, if any, adverse change from the baseline accordingly, corrective measures will be taken to ensure the sustenance of water quality. However, there is no ground water pollution is envisage in such soda ash plant, The ammonia concentration in treated waste water well 	<ul style="list-style-type: none"> Capital cost would include cost of ETP, STP etc- 14 crore recurring cost would include operation and maintenance of pollution control 	During operation phase	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					<p>within the limit specified by CPCB for soda ash industry.</p> <ul style="list-style-type: none"> There is no such fish kill cases due to treated effluent in existing plant. There are independent studies available which indicates there is no significant adverse impact on marine environment but there will be positive impact on environment. During studies, there is no such mangroves identified in sea water intake and outfall line area. Design of pipeline/tunnel will be done according to seismic zone V. In case of catastrophic failure/ liquification on land, there are no chances of flooding as water transport through gravity. 			
7	Marine Life	1	Effect on marine life due to proposed project	No adverse impact on fish or marine animals and sea weed observed.	<ul style="list-style-type: none"> Industry should be ensured that the effluent released to the sea meets the prescribed GPCB/ CPCB norms at all times. This should be verified through tracer studies after the outfall becomes operational. The effluent release scheme can then be adequately modified to ascertain necessary dilution, if required. The efficiency of the diffuser must be checked periodically and if necessary, it should be cleaned to revert back to the dilution ascertained through initial tracer studies. There are independent studies available which indicates there is no significant adverse 	<ul style="list-style-type: none"> A provision of Rs. 1 crore to be earmarked for the biodiversity management plan to be implemented in the project area during construction phase and operation phase. For periodic monitoring of the marine area environment during project construction phase, a provision of Rs. 0.5 crore to earmarked. For operation phase, Rs. 0.3 crore per year to be kept provision 	During construction and Operation phase	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					<p>impact on environment but there will be positive impact on environment.</p> <ul style="list-style-type: none"> Design of pipeline/tunnel will be done according to seismic zone V. In case of catastrophic failure/ liquification on land, there are no chances of flooding as water transport through gravity. 			
8	Health & Hygiene(Ammonia Leakage)	2	<p>Skin diseases due to Soda Ash</p> <p>Regarding the leakage of ammonia.</p>	<p>GHCL will take care of any such issues related to Health of local peoples and workers.</p> <p>All the necessary measures for handling of chemicals will be implemented to reduce its impact on health of peoples. This information is also provided in the EIA report. All the pockets will have leak detection and repair system technology. Moreover, periodical maintenance will also be carried out. GHCL will ensure that there will be no leakage and therefore, there will not be occupational health issues for workers or villagers working in the plant. Moreover, GHCL will also provide PPE kits to workers for their safety.</p>	<ul style="list-style-type: none"> Ammonia tanks should have latest instrumentation provision for pressure indication, temperature indication and level indication. The provision of instrumentation should be within 100 percent redundancy. Continues recording of major parameters pertaining to the storages shall be maintained in the control room. Unit will provide all the safety measure for ammonia storage as well as also prepare onsite and offsite emergency plan and all the APCM with respective units to mitigate the air pollution. The best available technology-based pollution prevention and control shall used to meet the regulatory standards and these pollution control systems will be 	<ul style="list-style-type: none"> Capital cost would include cost of OHS center, PPEs, fire & safety instruments, automation system for ammonia storage – 3.4 crore Recurring cost would include maintenance charges and training, audit & health check-up etc.- 0.35 crore 	During operation phase	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					<p>commissioned before commencement of operation of the project. Wherever possible, the control systems shall be interlinked with the operational units, so that failure of the control system shall shut down the respective operational unit.</p> <p>There is no significant impact observed in the existing soda ash plants in Gujarat.</p> <ul style="list-style-type: none"> There are rare possibilities of ammonia leakage observed in soda ash plant however, recommendation of Disaster management plan and risk assessment will be followed. 			
9	CSR - Farmers	3	<p>Facilities to be provided to nearby</p> <p>How hygienic the plant will be?</p> <p>How hygienic will be bada plant and what facility will be provided to the farmer.</p>	<p>GHCL Foundation is already providing subsidy for drip irrigation and GHCL will also consider to support this scheme further out of the CSR funds proposed for this project.</p> <p>To help agriculture, GHCL will help farmers as part of our CSR activity in consultation with villagers. The details and type of developmental work will be decided in consultation with villagers. GHCL foundation has been working for farmers through its different schemes like ground water recharge, water harvesting, zero chemical farming, drip irrigation etc.</p>	<p>Industry will Promote environment friendly and nature-based solutions to enhance productivity of farming (Organic Farming) activities. It covers capacity building on farming techniques, provision of high-quality seeds/manure, efficient irrigation solutions, etc. under CSR and CER activities</p>	<p>GHCL Ltd will spend approx.. 3.00 crore towards Promoting environment friendly and nature-based solutions to enhance productivity of farming (Organic Farming) activities. It covers capacity building on farming techniques, provision of high-quality seeds/manure, efficient irrigation solutions, etc under CER activities.</p>	5 years	GHCL Limited
10	EIA Report & PH	14	EIA report is not correct	The terrestrial EIA report	<ul style="list-style-type: none"> It is requested to note that as 			GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
	advertisement		<p>Regarding the alternative of site modhwa village.</p> <p>Regarding the NIO accreditation to prepare marine EIA report</p> <p>Regarding ToR granted and Study carried out prior of ToR granted.</p> <p>Regarding the advertisement of the PH</p> <p>Regarding NABET accreditation of consultant organization</p> <p>Regarding Marine EIA</p> <p>Regarding NEERI who has prepared EIA report</p> <p>Regarding the correction in EIA report</p> <p>Regarding the monitoring data collection</p> <p>Regarding accreditation certificate of additional studies for ecology.</p>	prepared by CSIR-NEERI and Marine EIA report is prepared by NIO, Mumbai	per OM number J-17011/8/92-IA-III dated 8th August, 2019, there are 7 institutes/agencies authorized for preparation of CZMPS in consonance with the provision of CRZ notification, 2019 vide GSR 37(e) dated 18/01/2019. IRS anna university Chennai has prepared the CRZ map for GHCL LTD. CSIR - NIO is Expert hired to carryout the Marine EIA study. EIA report has been prepared by CSIR-NEERI, which is reputed governmental body and QCI NABET accredited consultant. An extensive study on the ecology and Biodiversity in the study area was conducted by the QCI NABET approved functional area expert.			
11	Vipassana	3	<p>Project site is near Vipassana meditation center</p> <p>The meditation center will be disturbed due to industry. Ammonia used in the industry.</p> <p>Related to presence of Vipassana center and other religious places in 15km radius of project site</p>		<p>Environmental Management Plan envisages the plans for the proper implementation of mitigation measures to reduce the adverse impacts.</p> <p>The EMP implementation will minimize the impact of atmospheric emissions, liquid effluents, solid wastes and noise generation on the surrounding environment. The monitoring of all valued environmental components will be monitored as per the norms prescribed by GPCB/CPCB and the time to- time guidelines issued for soda</p>	<p>Cost of Environment management plant including various installations for Air Pollution, Water Pollution, Noise Control, Greenbelt Development, Occupational Health and Safety and other related activities.- 205.07 crore</p>		GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					<p>ash manufacturing industry.</p> <p>It is reported in CSIR NEERI report that there are no significant impact expected on man-made sensitive installations and habitations. On basis of study of present environment condition near project area and impact prediction and control measures proposed by GHCL Ltd. The proposed project will not have any significant negative impact on environment.</p> <p>Company operations are limited to the plant boundary and no negative impacts on Vipassana Centre are anticipated. The company will have robust peripheral Green Belt in order to attenuate noise and air emission due to plant operations.</p>	<ul style="list-style-type: none"> Recurring Cost-0.5 crore 		
12	CSR - Animal Husbandry	3	<p>Regarding arrangements for Animal Husbandry</p> <p>Regarding distribution of kits to Fisherman</p> <p>Regarding number of cattle present in the area</p>	GHCL Foundation will support nearby community by providing education and livelihood support to make them self – reliant.	<ul style="list-style-type: none"> Unit will do promotion through providing support for breed improvement, animal health care, fodder improvement and providing veterinary doctor in nearby villages under CER and CSR activities. Unit will also promote development Initiatives for Fishing Communities such as Creation of infrastructure like ice plants, cold storages as well as provide operational inputs such as fishing boats, nets and engines We have already provided veterinary doctor for nearby affected villages. 	<ul style="list-style-type: none"> GHCL Ltd will spend approx.. 4.35 crore towards <p>Animal husbandry promotion through providing support for breed improvement, animal health care, Veterinary doctor and others as well as provides Fodder for cattle feeding nearby villages under CER activities</p>	5 years	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
13	Site Selection	2	Regarding the alternative of site modhwa village. Regarding showing presence of marshy land near coastline	--	<p>During the site selection, the alternative sites considered for setting-up of the proposed chemical complex project are given below:</p> <p>:</p> <p>Site 1 – Village Pingleswar, Taluka – Abdasa, Dist. Kutch Site 2 – Village Suthri, Taluka – Abdasa, Dist. Kutch Site 3 – Village Bambhdai, Taluka – Mandvi, Dist. Kutch Site 4 – Village Bada, Taluka – Mandvi, Dist. Kutch Site 5 – Village Modhva, Taluka – Mandvi, Dist. Kutch</p> <p>The site at village bada is considered favorable based on the environmental and logistic advantages over other four sites. Justification of Site selection are given in Chapter-5 of EIA report.</p>	--	--	GHCL Limited
14	Sand Dunes	2	Concern of presence of sand dunes at bada coast Regarding digging of sand dunes for preparation of tunnels for water intake	--	<ul style="list-style-type: none"> • There is no disturbance to existing sand dunes. • Tunnelling work (much below ground level) for laying pipeline through sand dunes will be done by adopting proven construction methodology like micro tunnelling. The detailed Studies on sand dune mapping and morphological changes near the project site was carried by National Institute of Oceanography (NIO), Goa. This report can be referred from CSIR NIO Marine EIA. • GHCL Ltd is committed for conservation plan for sea turtles and sand dunes as suggested by various studies. 	--	--	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
15	Turtle	3	Regarding presence of turtles on the coastline of bada Regarding information on endangered species not mentioned in EIA report Regarding hatching and presence of sea turtles	--	<ul style="list-style-type: none"> Study on Status Survey and Conservation Plan for Sea Turtles along Mandvi Taluka, Bhuj, Gujarat by Zoological Survey of India, Kolkata (April,2019) is attached with EIA report. ZSI study report mention that they did not any encounter any sea turtle and fresh/old nests or crawl marks of turtles on the beach. Since many of the factor for selection of a suitable nesting site are not conducive. As per additional Ecological and Biodiversity study, suggests that the coast near the proposed project site may not be suitable for sea turtle nesting due to narrow supra tidal region, steep slope, dense vegetation and presence of predators such as dogs and jackals. Though, observations suggest that there may be no or negligible probability of sea turtle nesting. GUIDE is also engaged for study of turtle survey and preparing conservation plan. 	<ul style="list-style-type: none"> Contribution to Forest department for Sea Turtle Conservation Activities- 0.20 crore 	10 years	GHCL Ltd
16	Schedule 1 species (Peacock)	4	Regarding presence of greater numbers of peacocks nearby and not	--	<ul style="list-style-type: none"> Details of schedule - 1 species and conservation 	<ul style="list-style-type: none"> the proposed 	10 years	GHCL Ltd

S. No.	Issue related to	Nos. Issues	Concern in PH	G HCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
	Sandha and indian Monitor Lizard)		<p>stated in report</p> <p>Presence of reptiles and amphibians not reported</p> <p>Related to study of presence of Indian Monitor Lizard in study area</p> <p>Regarding presence of gugal trees,</p>		<p>already incorporated in EIA report.</p> <ul style="list-style-type: none"> GHCL shall make financial allocations for taking up wildlife mitigation measures and for contribution to forest department for carrying out activities towards propagation, protection and conservation of wildlife. GHCL Ltd have submitted Conservation Plan (Flap shell turtle, Green Sea turtle, Indian monitor lizard, Olive Ridley Sea turtle, Black shoulder kite, Eurasian Spoonbill, Indian Peafowl, Marsh Harrier, Oriental Honey Buzzard, Shikra, Short-toed Snake Eagle, Chinkara and Gugal - Schedule -I species and Critically Endangered species) to CWLW department of Gujarat. 	Allocation for conservation of Schedule 1 species for 10 years is 1.25 crore		
17	Conservation Plan	2	<p>Regarding conservation plan for Schedule 1 species</p> <p>Concern regarding green sea turtles and conservation plan for them</p>	--	<ul style="list-style-type: none"> GHCL shall make financial allocations for taking up wildlife mitigation measures and for contribution to forest department for carrying out activities towards propagation, protection and conservation of wildlife. The unit have submitted Conservation Plan (Flap shell turtle, Green Sea turtle, Indian monitor lizard, Olive Ridley Sea turtle, Black shoulder kite, Eurasian Spoonbill, Indian Peafowl, Marsh Harrier, Oriental Honey Buzzard, Shikra, Short-toed Snake Eagle, Chinkara and Gugal - Schedule -I species and Critically Endangered species) to CWLW 	<ul style="list-style-type: none"> the proposed budget allocation for conservation of Schedule 1 species for 10 years is 1.25 crore 	10 Years	GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					department of Gujarat.			
18	Form 1(Water Bodies, Temples, Schedule 1 Species)	5	Regarding presence of waterbody not shown in form-1 Regarding religious places and lakes not mentioned in PFR report. Waterbody not mentioned in form-1 Data given in form-1 and EIA are different Waterbody not mentioned in form-1	--	<ul style="list-style-type: none"> Environmental settings are given in Chapter-1 and Chapter-5 of EIA report. Approximate distance of water bodies, temples etc are given in EIA report. Through drainage studies of the area, it was observed that there is one stream of 1st order entering the plant area from north. Although, it has small catchment area, it is proposed that this stream, will be diverted to nearby passing Vengadi River in the west. There are also pond inside the premises. It is proposed that pond i.e. inside the premises will be used to store entire annual surface runoff plant use. If permitted by concern authority. 	<ul style="list-style-type: none"> -Cost of drainage network of surface runoff, rainwater collection pond and rain water harvesting system – 53 crores (included in EMP) 	--	GHCL LTD
19	Govt. Land	3	Regarding type of land to be procured by the industry Regarding status of government land to be procured Providing data for proving gauchar land	--	<ul style="list-style-type: none"> There is no gauchar land within proposed project site. M/s GHCL has applied to Industries Commissioner and District Collector for allotment of aforesaid land. Industries Commissioner has granted In Principle approval for Bonafied Industrial Purpose. District Collector has initiated actions for allotment of Govt. waste land. 		--	GHCL LTD
20	Fishing	8	Regarding details of Pagadia fisherman not mentioned and Marine EIA is misinterpreted	--	<ul style="list-style-type: none"> Proper seawater intake and treated effluent disposal (ensure maximum dilution) shall be done as per 	<ul style="list-style-type: none"> A provision of Rs. 1 crore to be earmarked for the biodiversity management plan 	During construction and	GHCL LTD

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
			<p>Regarding disturbance to fishes due to presence of pipeline</p> <p>Regarding status of fishing near bada and Mandvi</p> <p>Related to number of fisherman not incorporated in study</p> <p>--</p> <p>Related to presence of dead fishes not reported in study, fishing carried out for commercial purpose</p> <p>Regarding presence of fisherman in study area</p>		<p>Marine EIA report prepared by NIO</p> <p>Industry should be ensured that the effluent released to the sea meets the prescribed GPCB/ CPCB norms at all times. This should be verified through tracer studies after the outfall becomes operational.</p> <p>Details of Fishery and fishermen including their family and population are given in Chapter-3 of marine EIA report.</p> <p>Other than construction phase, there will be no any impact on pagadiya fisher men. As shore line will remain undisturbed.</p> <p>It is mentioned in marine EIA report that no large-scale commercial fishing operation prevail in the study area except for minor shore based and Gill net operations.</p> <p>There are independent studies available which indicates there is no significant adverse impact on environment but there will be positive impact on environment.</p> <p>Unit will also promote development Initiatives for Fishing Communities including pagadiya under CER and CSR activities</p>	<p>implemented in the project area during construction phase and operation phase.</p> <ul style="list-style-type: none"> For periodic monitoring of the marine area environment during project construction phase, a provision of Rs. 0.5 crore to earmarked. For operation phase, Rs. 0.3 crore per year to be kept provision for the monitoring. GHCL Ltd will spend approx.. 0.75 crore towards Development Initiatives for Fishing Communities including pagadiya under CER activities 	Operation phase	
21	Water Body (check dams)	2	Related to presence of seasonal river which passes near bada village and presence of dam over it	--	Through drainage studies of the area, it was observed that there is one stream of 1 st order	<ul style="list-style-type: none"> Cost of drainage network of surface runoff, rainwater 	During construction and	GHCL LTD

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
			Related to distance of river from project site		<p>entering the plant area from north. Although, it has small catchment area, it is proposed that this stream, may be diverted to nearby passing Vengadi River in the west, which has two check dams, one for salinity ingress check and on upstream side for storing fresh water. This will not cause any adverse impact on the downstream. For channelizing the monsoon run off from the area adjacent to plant it is required to construct peripheral drain along plant boundary so that flooding is avoided and run off find its way to the natural slope towards Arabian Sea. So, the present hydrological setting of the area will remain unaffected. So, the present hydrological setting of the area will remain unaffected.</p> <p>The additional water enter into the vengadi river through drainage will not impact on check dam. As any additional water above the river and check dam shall overflow to the Arabian sea.</p>	pond and rain water harvesting system – 53 crores (included in EMP)	Operation phase	
22	Traffic (R MH, Heavy Trucks, Road Usage)	4	<p>Regarding number of trucks passing due to project for raw material</p> <p>Related to traffic study not mentioned in ToR, impact not carried out</p> <p>Concern regarding public roads</p> <p>Regarding number of trucks passing</p>	--	<p>Traffic study are shown in section 3.2.3 of chapter-3 and impact due to transportation is show in 4.1.4.3 and 4.2.3 of Chapter-4 in EIA report.</p> <p>We will use existing road network as no other transportation i.e. rail/water ways are available. We have carried out calculation on</p>	--		GHCL Limited

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					Traffic study (Level of Service) and added on Form Part-C.			
23	CSR General	1	Regarding past data of CSR	<p>GHCL has proposed CSR budget in the EIA report which will be utilized based on need identification and village development meetings. CSR will be implemented with CSR implementing agencies including GHCL Foundation is working in following area.</p> <ol style="list-style-type: none"> 1. Agro-livelihood and animal husbandry, 2. Education and skill development, 3. Health, water, and sanitation. 	<p>GHCL's commitment towards the development of weaker sections of society has been a continuous initiative for more than two decades. Through its "GHCL Foundation Trust", GHCL has upgraded its CSR activities to cover a larger section of the society to provide support to the downtrodden, needy and marginalized citizens and also to create a social infrastructure for their sustenance. GHCL Foundation serves as the Corporate Social Responsibility arm of GHCL Limited and represents our commitment to the holistic development of our surrounding community. During year 2020-2021 GHCL has spent INR 9.03 Crores towards CSR activities. During year 2021-2022 GHCL has spent INR 10.62 Crores towards CSR activities. CSR projects/activities worth INR 19.09 Cr. were implemented. GHCL wide range of CSR projects have touched and benefitted more than 90,200 lives over the years. Promoting such activities like water conservation, Animal husbandry, health care, SHG,</p>			GHCL LTD
S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					Infrastructure development etc.			

24	Pollution and Environment General	4	<p>Regarding pollution to be caused by industry</p> <p>Unit will follow all the rules and regulation with their subsequent amendments as directed by concerned authorities</p> <p>Regarding to dusting due to kiln and power plant, temperature of</p> <p>Related to disposal of effluent water</p>		<ul style="list-style-type: none"> Environmental Management Plan envisages the plans for the proper implementation of mitigation measures to reduce the adverse impacts. The EMP implementation will minimize the impact of atmospheric emissions, liquid effluents, solid wastes and noise generation on the surrounding environment. The monitoring of all valued environmental components will be monitored as per the norms prescribed by GPCB/CPCB and the time to time guidelines issued for soda ash manufacturing industry. 	<ul style="list-style-type: none"> Cost of Environment management plant including various installations for Air Pollution, Water Pollution, Noise Control, Greenbelt Development, Occupational Health and Safety and other related activities.-205.07 crore Recurring cost include maintaining and monitoring of all components-6.98 crore 	GHCL Limited
25	Forest area	2	<p>Related to distance of project site from forest area</p> <p>Details regarding families dependent on forest</p>	There is no classified forest area.	<ul style="list-style-type: none"> There is no forest land within the boundary of proposed project site. However, some part of the unclassified forest area located south of the project site outside boundary. Sea water intake and outfall pipeline will pass through underground micro tunnel in specific corridor to cross forest area. The permission from the Forest Department is under process. There will be no major impact on families dependent on forest. As the pipeline will be laid under ground 		GHCL LTD

S. No.	Issue related to	Nos. Issues	Concern in PH	GHCL LTD reply	Action Plan	Fund Required	Timeline	Responsibility
					of 0.9689 Ha. of un-class forest			
26	Supporting for Industrial Development to GHCL LTD	--	For Employment For Infrastructure development in nearby village Social upliftment towards nearby villages Health facilities Women empowerment ment Skill	GHCL LTD team thanked for welcoming the industries		--	--	--
	Total	94						

21. The proposal was considered by the EAC in its meetings held on 2nd January 2024, 6th, February, 2024, 30th April 2024, & 28.3.2024 and reply of the queries raised during the last meeting are as follows:

S . N o.	Queries Raised by EAC	Reply by CRZ division						
	<p>The Committee was of the view that since proposal involves CRZ clearance, views/comments of the CRZ division may also be obtained on the proposal from CRZ angle. The Comments /views of CRZ Division may be placed before the EAC (Industr</p>	<p>Comments of CRZ have been obtained. It was informed that the project activity is permissible as per para 3 (I) (a), 4(ii) (d), 8 I(i) (b), (ii) (b), 8 III A(iii)j,k, 8(IV) of CRZ Notification 2011. The Gujarat CZMA has recommended the proposal vide letter dated ENV/10/2021/187/T-Cell, dated 26/12/2023.</p> <p>CRZ Division suggested that the adequacy of the Marine Environment Plan, DMP, studies carried out by CSIR-NIO, GUIDE and ZSI, and proposed mitigation measures related to the project may be examined along with GCZMA recommended conditions by the concerned EAC / Sector (Industry-3) during the appraisal process of the project. Accordingly, the Committee deliberated upon the reports submitted.</p> <p>The proposed project site area of M/s. GHCL Limited has acquired 375.558 ha., including government and private land.</p> <p>The unit has acquired 76.9669 ha. of government land and 298.5911 ha. of private land in the core plant area</p> <p>The Status of land acquisition including Government as well as Private land along with permission for land use change for industrial purpose has been received from Industry Centre.</p> <p>The type of land involved along with the area bifurcation into Government and private land is provided in below table</p> <table border="1" data-bbox="402 1335 1421 1734"> <thead> <tr> <th data-bbox="402 1335 581 1619">SR. NO.</th> <th data-bbox="581 1335 954 1619">TYPE OF LAND</th> <th data-bbox="954 1335 1421 1619">TOTAL LAND SANCTIONED (Ha.)</th> </tr> </thead> <tbody> <tr> <td data-bbox="402 1619 581 1734">1</td> <td data-bbox="581 1619 954 1734">Private Land</td> <td data-bbox="954 1619 1421 1734">444.6849</td> </tr> </tbody> </table>	SR. NO.	TYPE OF LAND	TOTAL LAND SANCTIONED (Ha.)	1	Private Land	444.6849
SR. NO.	TYPE OF LAND	TOTAL LAND SANCTIONED (Ha.)						
1	Private Land	444.6849						

y -3) for consideration of the project. PP shall also submit clear-cut land holding title of the proposed project site.	2	Government Land	101.6351	76.9669										
	Total		546.3200	375.558										
<p>M/s. GHCL Limited has applied for Environmental Clearance (EC) for a plot area measuring 546.32 Ha.</p> <ul style="list-style-type: none"> ➤ M/s. GHCL Limited has acquired 76.9669 hectares. ➤ Correspondence regarding the land allocation includes: <ul style="list-style-type: none"> ❖ A letter from the Industry Centre regarding the allotment of 101.6351 hectares of government land to M/s. GHCL Limited. ❖ An allotment letter from the Government of Gujarat (GOG) to the Collector. ❖ A letter from the Collector to M/s. GHCL Limited for the plot area measuring 76.9669 hectares. ❖ The challan paid for the government land by M/s. GHCL Limited. <p>These documents are provided in the subsequent slides</p> <table border="1"> <thead> <tr> <th>SR. NO.</th> <th>TYPE OF LAND</th> <th>TOTAL LAND SANCTIONED (Ha.)</th> <th>LAND ACQUIRED (Ha.)</th> <th>LAND ACQUISITION UNDER PROCESS (Ha.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Government Land</td> <td>101.6351</td> <td>76.9669</td> <td>24.6682</td> </tr> </tbody> </table> <p>Land Acquisition letter regarding opinion regarding giving prior permission for certified Industrial Use M/s GHCL Limited vide letter dated 22.1.2024 is submitted.</p> <p>Allotment letter of Government land to M/s GHCL Limited vide letter 16.5.2024 has been submitted.</p> <p>Challan Paid for the Government land by the industry has been submitted.</p> <p style="text-align: center;">STATUS OF PRIVATE LAND ACQUISITION</p> <ul style="list-style-type: none"> ➤ M/s. GHCL Limited has acquired 298.5911 hectares. 					SR. NO.	TYPE OF LAND	TOTAL LAND SANCTIONED (Ha.)	LAND ACQUIRED (Ha.)	LAND ACQUISITION UNDER PROCESS (Ha.)	1	Government Land	101.6351	76.9669	24.6682
SR. NO.	TYPE OF LAND	TOTAL LAND SANCTIONED (Ha.)	LAND ACQUIRED (Ha.)	LAND ACQUISITION UNDER PROCESS (Ha.)										
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SR. NO.	TYPE OF LAND	TOTAL LAND SANCTIONED (Ha.)	LAND ACQUIRED (Ha.)	LAND ACQUISITION UNDER PROCESS (Ha.)
1	Private Land	444.6849	298.5911	146.0938

13. Deliberations by the EAC

The Committee deliberated upon the additional information provided by the PP.

The Committee noted that there is an OM dated 7th October, 2014 for status of land acquisition w.r.t. project site while considering the case for environment clearance under EIA Notification, 2006. PP has submitted the relevant information in compliance to the said OM.

The committee was satisfied with the response provided by PP on above information. Further, Committee desired to submit the above information in writing. Accordingly, PP has submitted the desired information and EAC found the information/commitments satisfactory.

The Committee noted that Terms of reference (TOR) were granted by MoEF&CC on 10 August 2021. Further, PP has carried out various studies required for EIA and CRZ clearance namely (i) EIA Report; (ii) Marine EIA Report prepared by CSIR- NIO (Mumbai, Goa); (iii) Marine EIA Addendum Report prepared by CSIR- NIO (Mumbai, Goa); (iv) CRZ Report prepared by IRS, Anna University, Chennai; (v) CRZ Approved Maps prepared by IRS, Anna University, Chennai; (vi) Conservation Plan of Sea Turtle prepared by ZSI, Kolkata; (vii) Conservation & management plan for the conservation of Significant species prepared by GUIDE, Kachchh (viii) Conservation Plan of Sand Dune by CSIR-NIO, Mumbai etc. Further, based on EAC recommendations, M/s T R Associates, NABET-accredited consultant has carried out additional 3 months data collection as well as additional 1 month data to valid the existing study and also submitted the undertaking that they have verified the EIA/EMP report and prepared an addendum report describing findings and observations. It was also presented that they have not observed any significant deviation in the

EIA report prepared by the national reputed organisation NEERI. The Committee also noted that PP has obtained CRZ Recommendation letter from GCZMA; Approval for Conservation Plan of Significant Species from PCCF, Gandhinagar as well as Stage-I and Stage-II Forest Clearances.

It was also noted that the public hearing was conducted on 17.10.2022 presided by SDM/Dy Collector as per Notification dated 9th May 2022. Approximately 1,000-1,500 individuals have attended the public hearing. The Committee also saw video of public proceedings and observed that several people are against the project while several others in favour of project. However, only 106 people signed the signature sheet circulated by the GPCB concerned person during the public hearing. Therefore, GPCB reported 106 attendees in the proceedings. Further, 1066 Issues were raised by the local people, and a point-wise reply from the project proponent was provided. The public hearing continued for about 10-11 hours. As per SPCB, sufficient time was given, the procedure was duly followed, and the concerns raised by the public were addressed. 1154, no. of written representations was received, including concerns raised and supporting letters from the affected local people and replies to the written representation, which were also incorporated into the public hearing proceedings. The action plan, including the public hearing issues, was incorporated into the Final EIA report and submitted seeking environmental clearance. The Matter was also examined by the CRZ Division,

The proposal was considered by the EAC in its meetings held on 2nd January 2024, 6th, February, 2024, 30th April 2024, & 28.3.2024 and deliberated on the above issues. Accordingly, the proposal of M/s GHCL **namely Greenfield Chemical Complex** may be recommended for grant of environmental clearance and CRZ clearance subject compliance of the following specific and General conditions:

The committee was satisfied with the response provided by PP on above information. Further, Committee desired to submit the above information in writing. Accordingly, PP has submitted the desired information and EAC found the information/commitments satisfactory.

The EAC constituted under the provisions of the EIA Notification, 2006 comprising expert members /domain experts in various fields, examined the proposal submitted by the PP in desired format along with the EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the PP.

The EAC noted that the PP has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the PP.

The EAC noted that the EIA reports are in compliance with the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components. The EAC deliberated on the proposed mitigation measures towards Air, Water, Noise

and Soil pollutions. The EAC advised that the storage of toxic/explosive raw materials/products shall be undertaken with utmost precautions and following the safety norms and best practices.

The EAC deliberated on the Onsite and Offsite Emergency plans and various mitigation measures to be proposed during the implementation also of the project and advised the PP to implement the provisions of the Rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.

The EAC deliberated on the proposal with due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The expert members of the EAC found the proposal in order and recommended for grant of environmental clearance.

The EAC is of the view that its recommendation and grant of environmental clearance by the regulatory authority to the project/activity is strictly under the provisions of the EIA Notification 2006 and its subsequent amendments. It does not tantamount/construe to approvals/consent/permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The PP shall obtain 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, from the State Pollution Control Board, prior to construction & operation of the project.

23. The EAC, after detailed deliberations, recommended the project for the grant of environmental clearance, subject to the compliance of the terms and conditions as under, and general terms and conditions in Annexure-I:

- (i) PP shall ensure that recommendations of SCZMA issued vide letter dated ENV/10/2021/187/T-Cell, dated 26/12/2023 for proposed greenfield chemical complex, sea water intake and effluent disposal facilities shall be implemented. Recommendations mentioned in Marine EIA Report; Conservation Plan of Sea Turtle report; Conservation & management plan for the conservation of Significant species prepared by GUIDE, Kachchh; Conservation Plan of Sand Dune by CSIR-NIO, Mumbai.
- (ii) PP shall ensure that condition stipulated in letter dated 18.07.2023 for diversion of 0.96ha unclass forest and letter dated 4.01.2024 for final stage II.
- (iii) ESP alongwith Stack height of 130 m shall be provided to Imported Coal/Lignite/ Pet coke fired with flue gas desulphurization 150TPH CFBC Boiler (6 Nos.) to control the particulate emission as per CPCB norms. Stack height of 30 m shall be provided to 5 MvA

DG set(2/3 nos). Scrubber and Dust Collector system alongwith stack height of 68 m shall be provided to Coke or Briquette or Anthracite fired lime kiln to control the particulate emission as per CPCB norms. Water scrubber system alongwith stack height of 42m shall be provided to ammonia recovery system. Bagfilter alongwith adequate stack height shall be provided to lime grinding system/slaker. Scrubber, Bag filter shall be provided to Calciner unit. Scrubber shall be provided to Densification. Bagfilter shall be provided to Sodium bicarbonate unit. ESP and wet Scrubber shall be provided to lime kiln.

- (iv) Total fresh water requirement from sea water shall not exceed 14,61,038 m³/day.
- (v) NOC from the Concerned Local authority shall be obtained before start of the construction of plant and drawing of the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.
- (vi) Total Effluent generation shall not exceed **14,48,508 m³/day** [Domestic - **160 m³/day** + Industrial – **14,48,348 m³/day** (fresh seawater for dilution – 5,14,678 m³/day + effluent generation from soda ash & CPP plant – 1,26,830 m³/day + once through cooling – 8,07,000 m³/day)]. The industrial effluent generated (14,48,508 m³/day) i.e. from RO/DM rejects, brine purification reject, distiller waste and boiler blowdown shall be mixed with fresh seawater for dilution and wastewater from once-through cooling and treated and disposed into the Arabian Sea as per the recommendation of NIO and after achieving the prescribed norms of CPCB/SPCB. Domestic effluent (**160 m³/day**) shall be treated in sewage treatment plant and treated sewage will be reused in landscaping & gardening purposes.
- (vii) The unit shall meet the effluent norms notified by MoEF&CC vide GSR(424 E) dated 01.06.2011 for soda ash industry.
- (viii) The PP shall develop greenbelt of at least 5-10 m width over an area of 18,02,856 m² (33%) within the project site mainly along the plant periphery, preferably within a year of the grant of EC. The tree saplings selected for the plantation should be of sufficient height, preferably 6-ft shall be planted in greenbelt area. The budget earmarked for the plantation shall be kept in a separate account and should be audited annually. The PP shall annually submit the audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.
- (ix) A separate Environmental Management Cell (having qualified persons with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions and shall also engage Environment Officials. IN addition to this one

safety & health officer as per the qualification given in Factories Act 1948 shall be engaged within a month of grant of EC. PP should annually submit the audited statement of amount spent towards the engagement of qualified persons in EMC along with details of person engaged to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.

- (x) 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, and risk mitigation measures relating to the project shall be implemented. The budget proposed under EMP is ₹ 318.08 crore (Capital cost) and ₹ 7.53 Crore per annum (Recurring cost) shall be kept in separate account and should be audited annually. The PP should submit the annual audited statement along with proof of implementation of activities proposed under EMP duly supported by photographs (before & after with geo-location date & time) and other document as applicable to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.
- (xi) No banned chemicals shall be manufactured by the project proponent. No banned raw materials shall be used in the unit. The project proponent shall adhere to the notifications/guidelines of the Government in this regard.
- (xii) The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.
- (xiii) All the hazardous waste shall be managed and disposed as per the HWM Rules 2016. Hazardous waste such as Distillation Residue and Off Specification Products shall be either sent to common incineration site or sent for coprocessing. Solid waste shall be segregated into dry and wet garbage at site in accordance to the Solid Waste Management Rules, 2016. Wet waste shall be converted into compost and used as manure for greenbelt development. Fly ash shall be stored in silos and handed over to the Cement manufacturers/ Cement Industry.
- (xiv) All necessary precautions shall be taken to avoid accidents and action plan shall be implemented for avoiding accidents. The project proponent shall implement the onsite/offsite emergency plan/mock drill etc. and mitigation measures as prescribed under the rules and guidelines issued in the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996. The occupier of new as well as expansion projects shall be required to comply with the provisions of the MSHIC Rules, 1989 including notifying their activities or seeking site approval from the concerned authorities, to address operational

safety aspects. In doing so, various schedule, particularly Schedule-5 of the said rules may be referred.

- (xv) The volatile organic compounds (VOCs)/Fugitive emissions shall be controlled at 99.97 % with effective chillers/modern technology. Regular monitoring of VOCs shall be carried out.
- (xvi) 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 servers. 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.
- (xvii) The storage of toxic/hazardous raw material shall be bare minimum with respect to quantity and inventory. Quantity and days of storage shall be submitted to the Regional Office of Ministry and SPCB along with the compliance report.
- (xviii) The occupational health centre for surveillance of the worker's health shall be set up. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.
- (xix) Training shall be imparted to all employees on safety and health aspects for handling chemicals. Safety and visual reality training shall be provided to employees. Action plan for mitigation measures shall be properly implemented based on the safety and risk assessment studies.
- (xx) 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.
- (xxi) The solvent management shall be carried out as follows: (a) Reactor shall be connected to chilled brine condenser system. (b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages. (c) Solvents shall be stored in a separate space specified with all safety measures. (d) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done. (e) Entire plant shall be fire proof. The solvent storage tanks shall be provided with breather valve to prevent losses. (f) All the solvent storage tanks shall be connected with vent condensers with chilled brine circulation.
- (xxii) The storm water from the roof top shall be channelized through pipes to the storage tank constructed for harvesting of rain water in the premises and harvested water shall be used for various industrial processes in the unit. No recharge shall be permitted within the premises. Process effluent/ any wastewater shall not be allowed to mix with storm water.

- (xxiii) The PP shall undertake waste minimization measures as below (a) Metering and control of quantities of active ingredients to minimize waste; (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of Close Feed system into batch reactors. (e) Venting equipment through vapor recovery system. (f) Use of high pressure-hoses for equipment cleaning to reduce wastewater generation.
- (xxiv) PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of Notification published by MOEFCC on 12th August, 2021. A report along with photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to concerned authority.
- (xxv) The activities and the action plan proposed by the project proponent to address the issues raised during the public hearing as well as the related socio-economic issues in the study area shall be completed as per the schedule presented before the Committee and as described in the EIA report in letter and spirit.

Agenda No. 2.0

Establishment of new natural and synthetic surfactant chemical manufacturing unit Mouza Kulepairi, P.S. Bagnan, Dist-Howrah, West Bengal by M/s Detergeo Chem (EAST) Private Limited (DCEPL) - Consideration of Environmental Clearance

[Proposal No.: IA/WB/IND3/256360/2020, File No.: IA-J-11011/1/2020-IA-II(I)]

1. The proposal is for Environmental Clearance to the Establishment of new natural and synthetic surfactant chemical manufacturing unit Mouza Kulepairi, P.S. Bagnan, District -Howrah, West Bengal by M/s Detergeo Chem (EAST) Private Limited (DCEPL).

2. The project/activity is covered under Category ‘A’ of 5(f) Synthetic organic chemicals industry (dyes & dye intermediates) of Schedule of Environment Impact Assessment (EIA) Notification, 2006 (as amended) as the project is located outside the notified the industrial area and appraised at Central.
3. The ToR was granted by the Ministry, vide letter no. No. IA-J-11011/1/2020-IA-II(I) dated 10.3.2020. The PP applied for Environment Clearance in the Common Application Form and submitted EIA/EMP Report and other documents. The PP in the Form reported that it is a Fresh EC case. **The proposal was placed in 78th EAC meeting held on 30th April,2024 wherein the proposal was deferred for want of requisite information now the proposal is placed in this 80th EAC meeting held on 7th June,2024**, wherein the PP along with accredited Consultant, M/s Mantec Consultant Pvt Ltd. (NABET Accreditation No. NABET/EIA/2326/RA 030 valid till 20.04.2026] made a detailed presentation on the salient features of the project. The information submitted by the PP is as follows:
4. The PP reported that the total land area is 1.3493 Ha and no R& R is involved in the Project The details of products to be manufactured are as follows:

S. No.	Product Name	CAS Number	Proposed Manufacturing Capacity (MTA)
1.	Linear Alkyl Benzene Sulphonic Acid 96%	27176-87-0	12,000
2.	Linear Alkyl Benzene Sulphonic Acid 90%	85536-14-7	12,000
3.	Alpha Olefin Sulphonate	68439-57-6	1,000
4.	Sodium Lauryl Ether Sulphate	3088-31-1	24,000
5.	Sodium Lauryl Sulphate	151-21-3	6,000
6.	Cocoamidopropyl Betaine	61789-40-0	3,000
7.	Cocamide Monoethanolamide	68140-00-1	3,000
8.	Cocamide Diethanolamide	68603-42-9	3,000
9.	Ethylene Glycol Distearate	627-83-8	3,000
10.	Ethylene Glycol Monostearate	111-60-4	3,000
11.	Dilute Sulphuric Acid	7664-93-9	12,000
12.	Sodium Sulphate	7757-82-6	400
Total Capacity			82,400

5. The PP reported that there is no violation case as per the Notification No. S.O. 804(E) dated 14.03.2017 and no direction is issued under E (P) Act/Air Act/Water Act.

6. The PP reported that There is no wildlife sanctuary within 10 km distance from the project site. River/ water body Rupnarayan river is flowing at a distance of 3.6 km in East direction No Schedule-1 Species within 10 km distance from the project site.
7. The PP reported that Ambient air quality monitoring was carried out at 8 locations during December 2023 to February 2024 and the baseline data indicates the ranges of concentrations as: PM₁₀ (52µg/m³ to 79µg/m³), PM_{2.5} (25µg/m³ - 46µg/m³), SO₂ (9 µg/m³- 16 µg/m³) and NO₂ (15 µg/m³ - 32 µg/m³). AAQ modeling study for point source emission indicates that the max. incremental GLCs after the proposed project would be 0.0028 µg/m³ 0.04142 µg/m³ and 0.0052 µg/m³ with respect to PM₁₀, SO_x and NO_x. The resultant concentrations are within the National Ambient Air Quality Standards (NAAQS).
8. The PP reported that the total water requirement is 213 KLD of which fresh water requirement of 203 KLD will be met from State Water Tankers. Effluent of 10.7 KLD quantity will be treated through Effluent treatment plant. The plant will be based on Zero Liquid discharge system.
9. Power requirement 1000 KW. DG sets of capacity 910 KVA and 500 KVA, DG sets are used as standby during power failure. Stack (height 30 m) will be provided as per CPCB norms to the DG sets.
10. 2 TPH fired boiler will be installed. Multi cyclone separator/ bag filter with a stack of height of 30 m will be installed for controlling the particulate emissions within the statutory limit of 115 mg/Nm³ for the proposed boilers.
11. **Details of fuel:** Proposed project required fuel.

S. No.	Name of Fuel	Use	Quantity
1.	HSD	DG Set 1	100 L/hr
2.	Sulfur	Sulphonation Plant	500 Kg/hr
3.	LDO	2tph Boiler	155 L/hr

12. **Details of Process Emissions Generation and its Management:** D.G. Set and Sulphonation process emissions are the main sources of air pollution.

Impact on air quality due to proposal project will be temporary rise in SPM and RSPM level likely to result from:

- Fugitive dust emissions at the construction site.
- Use of unpaved roads and trucks tracks by the construction activities.

13. **Details of Solid Waste/ Hazardous Waste Generation and its Management:**

Details of Hazardous Waste

S. No.	Name of Waste	Quantity (MTPA)	Waste Type	Disposal Method	Source of Waste	Physical Status
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1.	ETP Dried Sludge from Filter Press (Category 35.3)	1.0 MTPA	Land Fillable	Give to TSDF	ETP Filter	Solid
2.	Sulphur Ash	1.0 MTPA	Utilise for further beneficial use	Sell to fertilizer industry	Expired Raw Material	Solid
3.	Spent Oil (Category 5.1)	15 lt/yr	Recyclable	Sell to authorized oil reclamation plant	Pumps, DG, Equipment Seals	Oily
4.	STP Dried Sludge from Filter Press (Category 35.3)	1MTPA	Utilise for further beneficial use	Use as manure for green belt maintenance	STP Filter	Solid

Details of Non-Hazardous Waste

S. No.	Name of Waste	Quantity	Waste Type	Disposal Method	Source Of Waste	Physical Status
1.	Discarded Plastic Bags	100 Bags/Yr	Recyclable	Give to authorized recyclers	Stores/Offices	Solid
2.	Used HDPE Drums	500/Yr	Recyclable	Re-use / Give to authorized recyclers	Plant / Warehouse	Solid

14. The Budget earmarked towards the Environment Management Plan (EMP) is ₹ 150 lakhs (capital) and the Recurring Cost (operation and maintenance) will be about ₹ 17 lakhs per annum. Industry proposes to allocate Rs. 40 lakhs towards CER.
15. Industry has will developed greenbelt in an area of 33 % i.e 4453 Sq. m out of total area of the project.

16. The PP reported that the Public Hearing for the proposed project had been conducted by the State Pollution Control Board on 23.08.2021 under the chairman ship of Additional District Magistrate. The main issues raised during the public hearing are;

S. No.	Name of the Person	Points Raised	Replies and Action Plan	Budget
1.	Janab Monirul Islami Village- Shyampur,	He welcomed the project and asked about the wastage of the water.	The project proponent answered that no water will be discharged out of the plant area as the project has been conceived as ZLD.	1.0 Lakh/year
2.	S.K Ahed Ali Village- Subsit (Paschim)	He welcomed the proposed project and questioned about the greenery development to be done by the project proponent.	The project proponent replied that the adequate plantation will be done to maintain a greenbelt and to comply with the environmental norms.	
3.	S.K Manirul Ali Village- Bagur (Subsit)	He welcomed the proposed project and asked about the possible noise pollution that can be caused by the project	The project proponent said that the adequate measures will be taken to attenuate noise arising out of the project so that it meets ambient noise standards.	
4.	Janab Jahiruddin Ali Village- Patinan	He welcomed the proposed project and asked about the prospect of local employment in the project.	The project proponent replied that both skilled and unskilled workers will be employed from the local areas and also proper training will be imparted so that they can develop themselves as per the project requirement as well as for private entrepreneurship	2.0 Lakh/year

S. No.	Name of the Person	Points Raised	Replies and Action Plan	Budget
5.	Janab Jiyarul Hussain Village-Kismat Brahman	He welcomed the proposed project and asked about the prospect of local areas.	The project proponent replied that the total work strength, 60% will be from the local areas.	

17. The PP proposed to set up an Environment Management Cell (EMC) by engaging Environment officials for the functioning of EMC.
18. The PP submitted the Disaster Management Plan and On-site and Off-site Emergency Plans in the EIA report.
19. The estimated project cost is Rs. 20 crores. Total Employment will be 40 persons as direct & 160 persons indirect after expansion.
20. The proposal was placed in 78th EAC meeting held on 30th April,2024 wherein the proposal was deferred for want of requisite information.

S. No.	Queries Raised by EAC	Reply by PP
(i)	Details of air pollution source viz. sulphonation plant; waste heat recovery boiler; and its pollution control measures	Air Pollution Control System for Sulphonation: No air emissions are generated from the sulphonation process per say. However, the excess/vent gas from the sulphonation process in the liquid-gas separator is separated from the sulphonic acid stream and is directed to the Exhaust Gas Treatment System. The Exhaust Gas Treatment System consists mainly of the following: Wet Electrostatic Precipitator (ESP) and Wet Alkali Scrubber are provided as the key air pollution control systems. The SO ₂ , free of residual SO ₃ and Acid mist released during the sulphonation process passes through the electrostatic precipitator (ESP). It employs a proprietary electrode design in an air jacketed bank of collection tubes. The High Intensity Toroidal Electron Corona (HITEC) produced by the electrode charges the inlet particulars, which are collected at the passive tube wall. Coalesced

		<p>organic acids (bottoms) discharge at the bottom of the vessel.</p> <p>The gas will further pass through the alkali scrubber to neutralize the SO_x gas using caustic soda, forming Na₂SO₃. The clean gas will be discharged into the atmosphere through a stack of 30.0 m height.</p> <p>Air Pollution Control System for waste heat recovery boiler</p> <p>Waste heat boiler does not any fuel; it recycles heat of conversion of SO₂ to SO₃ and hence, there is no air pollution</p> <p>Air Pollution Control System for Oil Fired Boiler</p> <p>Bag Filter is provided as air pollution control system to collect the PM particles. The clean gas will be discharged into the atmosphere through a stack of 30.0 m height.</p> <p>Overall Air Pollution Control Measures (apart from specific mitigation factors)</p> <p>To monitor overall air quality, online air monitoring system for stack emission (for Particulate Matter and SO₂) will be installed and transmission of online data to WBPCB and CPCB will be done. 0.4470 hectares (33.12%) of greenbelt will be developed</p>
(ii)	Details of ETP and Sewage Treatment Plant.	Instead of septic tank, modular STP will be installed; details of ETP and STP are submitted
(iii)	Filter press shall be installed in place of sludge drying bed.	The proposed plant will have a filter press unit. The sludge from the clarifier tank bottom will be passed through the filter press unit to dry the sludge. There will not be a sludge drying bed. The dried sludge will further be sent to TSDF.

(iv)	Management of Municipal garbage generated from the proposed project site.	Municipal garbage will be collected and segregated on site. The recyclable components will be handed over to authorized recyclers in the area. Wet garbage shall be converted into compost at the site and the same shall be used a manure for the greenbelt.																	
(v)	Break up of capital cost and recurring earmarked for implementation of EMP	Capital cost of EMP is Rs.155.83 lakhs and recurring cost is Rs.37.85 lakhs.																	
(vi)	Revised CER budget along with break up.	<p>Capital cost of CER is Rs.40.73 lakhs and recurring cost is Rs.10.73 lakhs.</p> <table border="1" data-bbox="837 743 1414 1488"> <thead> <tr> <th data-bbox="837 743 1073 932">CER Cost</th> <th data-bbox="1073 743 1235 932">Capital Cost(In Lakhs)</th> <th data-bbox="1235 743 1414 932">Recurring cost (lakhs per annum)</th> </tr> </thead> <tbody> <tr> <td data-bbox="837 932 1073 1163">Skill development programs for local community</td> <td data-bbox="1073 932 1235 1163">10</td> <td data-bbox="1235 932 1414 1163">3.15</td> </tr> <tr> <td data-bbox="837 1163 1073 1272">Solar-powered Street lighting</td> <td data-bbox="1073 1163 1235 1272">15.73</td> <td data-bbox="1235 1163 1414 1272">3.98</td> </tr> <tr> <td data-bbox="837 1272 1073 1415">Fresh plantation & maintenance</td> <td data-bbox="1073 1272 1235 1415">15</td> <td data-bbox="1235 1272 1414 1415">3.60</td> </tr> <tr> <td data-bbox="837 1415 1073 1488">TOTAL COST</td> <td data-bbox="1073 1415 1235 1488">40.73</td> <td data-bbox="1235 1415 1414 1488">10.73</td> </tr> </tbody> </table>			CER Cost	Capital Cost(In Lakhs)	Recurring cost (lakhs per annum)	Skill development programs for local community	10	3.15	Solar-powered Street lighting	15.73	3.98	Fresh plantation & maintenance	15	3.60	TOTAL COST	40.73	10.73
CER Cost	Capital Cost(In Lakhs)	Recurring cost (lakhs per annum)																	
Skill development programs for local community	10	3.15																	
Solar-powered Street lighting	15.73	3.98																	
Fresh plantation & maintenance	15	3.60																	
TOTAL COST	40.73	10.73																	
(vii)	Action plan for development greenbelt along with number of tree to be planted and details of species as well as budget and time frame	About 0.4470 hectares (33.12%) of greenbelt will be developed within the plant premises. The development of the greenbelt will involve a capital cost of Rs. 22.36 lakhs and a recurring cost of Rs. 3.52 lakhs throughout the project's life.																	

(vi)	Consultant shall provide quantified measures to be taken for air pollution control (utilities & process); Wastewater management; Greenbelt Development; solid waste management; Noise Environment; capital and recurring cost earmarked for EMP including CER; Post monitoring plan in Environment Management Plan chapter of EIA report. Revised EIA report shall be uploaded on Parivesh portal.	The EIA Report is updated with due consideration of the suggested points. The revised EIA is submitted.
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21. Deliberations by the EAC:

PP has submitted the details of CER activity –wise

Tree Plantation Plan			
Cost per tree	₹2,000	Cost for replantation (5 % of investment)	₹75,000
No of trees	750	Gardener @ Rs 20,000/PM	₹240,000
Proposed investment	₹1,500,000	Total Recurring Cost (per year)	₹315,000
Solar Street Light			
Cost per street light (60 W)	₹18,500	Spares for Repair & Maintenance (10 % of investment)	₹1,85,000
No of solar street lights	100	Electrician @ Rs 20,000/PM	₹240,000
Proposed investment	₹1,850,000	Total Recurring Cost (per year)	₹425,000
Solid Waste Management			
Cost per waste bin (Green & Blue 120 L each)	₹10,000	Replacement/Maintenance cost (10 % of investment)	₹90,000
No of waste bins	30	Waste Collection Vehicle Running Cost	₹150,000
Waste Collection Vehicle	₹600,000	Waste Collection Vehicle Driver @ Rs 20,000/PM	₹240,000
		Waste Segregation Awareness Workshops At Panchayat	₹60,000

Proposed investment	₹900,000	Total Recurring Cost (per year)	₹540,000
Total proposed investment	₹4,250,000	Total Recurring Cost on CER investment (per year)	₹1,280,000

PP submitted the details of STP and ETP.

PP submitted the details breakup of EMP.

			Recurring cost (per annum)
Electrostatic Precipitator (ESP)	₹6,636,000	Electricity consumption to run the ESP (500 units/day)	₹1,350,000
Alkali Scrubber	₹1,411,200	Caustic lye consumption to run Alkali Scrubber (100 kg/day)	₹518,400
		Maintenance cost (5% of investment)	₹402,360
Air Pollution Control investment	₹8,047,200	Total Recurring Cost (per year)	₹2,270,760
Effluent Treatment Plant (15 KLPD)	₹2,500,000	Flocculant cost (Dosage: 500mg/L)	₹412,500
Rainwater Harvesting Pit/Collection Tank	₹2,000,000	Electricity consumption to run the ETP (250 units/day)	₹675,000
		Maintenance cost (5% of investment)	₹225,000
Effluent Treatment Plant & Rainwater Harvesting investment	₹4,500,000	Total Recurring Cost (per year)	₹1,312,500

Continuous Ambient Air Quality Monitoring System	₹650,000	Maintenance cost (5%)	₹50,000
Noise Monitoring Sensor	₹350,000		
Water Monitoring Sensor			
Environment Monitoring & Management investment	₹1,000,000	Total Recurring Cost (per year)	₹50,000
Membership of TSDF	₹200,000	TSDF Disposal cost (Rs 25,000/ton)	₹25,000
Modular STP	₹800,000	Replacement/Maintenance cost (10% of investment)	₹80,000
Solid and Hazardous Waste Management investment	₹1,000,000	Total Recurring Cost (per year)	₹105,000
Fire protection equipment	₹1,500,000	Replacement/Maintenance cost (10% of investment)	₹210,000
First Aid Room & Equipment	₹500,000	Visiting Doctor (Once a week + emergency)	₹500,000
		Health awareness Program and Training	₹100,000
Safety gear (helmet, gloves, safety shoes) for employees	₹100,000	Workplace Safety Training to Workers	₹50,000
		First Aid Training	₹50,000
		EHS Audit	₹150,000
Occupational Health and Safety investment	₹2,100,000	Total Recurring Cost (per year)	₹1,060,000

Number of trees	1118	Cost for replantation (5% of investment)	₹111,800
Cost per tree	₹2,000	Gardener @ Rs 20,000/PM	₹240,000
Green Belt Development investment	₹2,236,000	Total Recurring Cost (per year)	₹351,800
Total proposed EMP investment	₹18,883,200	Total Recurring Cost (per year)	₹5,150,060

PP submitted the revised Greenbelt development plan along with its layout.

A greenbelt of 0.4470 Ha. (33.12%) will be developed in the plant premises 4m-10m wide greenbelt will be developed in and around the plant premises. Plantation of 2*2m plant spacing and 2m row-to-row spacing will be done. The plant density of 2500 trees per hectare with local native species will be implemented. The expenditure on development and maintenance of green belt is of revenue nature and sufficient fund shall be provided to meet the requirement. The plantation schedule will be completed within five years from the construction period of the project. The following shall be designed and implemented as per the latest CPCB guidelines.

Total Trees required as per CPCB/MoEF&CC Norms@2500/Ha = 0.4470 x 2500 = 1118 No's.

PP informed that the EIA Report and Chapter 10 EMP is updated with due consideration of the suggested points.

The committee was satisfied with the response provided by PP on above information. Further, Committee desired to submit the above information in writing. Accordingly, PP has submitted the desired information and EAC found the information/commitments satisfactory.

The EAC constituted under the provisions of the EIA Notification, 2006 comprising expert members /domain experts in various fields, examined the proposal submitted by the PP in desired format along with the EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the PP.

The EAC noted that the PP has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has

been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the PP.

The EAC noted that the EIA reports are in compliance with the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components. The EAC deliberated on the proposed mitigation measures towards Air, Water, Noise and Soil pollutions. The EAC advised that the storage of toxic/explosive raw materials/products shall be undertaken with utmost precautions and following the safety norms and best practices.

The EAC deliberated on the Onsite and Offsite Emergency plans and various mitigation measures to be proposed during the implementation also of the project and advised the PP to implement the provisions of the Rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.

The EAC deliberated on the proposal with due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The expert members of the EAC found the proposal in order and recommended for grant of environmental clearance.

The EAC is of the view that its recommendation and grant of environmental clearance by the regulatory authority to the project/activity is strictly under the provisions of the EIA Notification 2006 and its subsequent amendments. It does not tantamount/construe to approvals/consent/permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The PP shall obtain 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, from the State Pollution Control Board, prior to construction & operation of the project.

24. The EAC, after detailed deliberations, recommended the project for the grant of environmental clearance, subject to the compliance of the terms and conditions as under, and general terms and conditions in Annexure-I:

- (i) 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, and risk mitigation measures relating to the project shall be implemented.
- (ii) Wet Electrostatic Precipitator (ESP) and Wet Alkali Scrubber shall be provided to sulphonation process for treatment of SO₂ and SO₃. Bagfilter alongwith stack height of 30 m shall be provided to oil fired boiler to control particulate emissions as per the prescribed limits of CPCB.

- (iii) Fresh water requirement shall not exceed 203 KLD from State approved water tanker suppliers.
- (iv) NOC from the Concerned Authority shall be obtained before start of the construction of plant and drawing water from ground water source. State Pollution Control Board shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.
- (v) Effluent generation shall not exceed 10.7 KLD. Effluent shall be treated in the ETP comprising primary, secondary and tertiary treatment namely RO and treated water shall be re-used in the scrubber. RO rejects shall be concentrated in MEE. Domestic wastewater of 1.6 KLD shall be treated in the STP and treated wastewater shall be recycled/reused for horticulture purpose.
- (vi) Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits imposed by SPCB.
- (vii) The green belt has been developed in 0.4470 Ha. (33.12%) with tree density @ 2500 trees per hectares), mainly along the plant periphery. Indigenous species shall only be developed as part of greenbelt and non-indigenous / alien species shall be replaced with native species. No invasive or alien or non-native tree species shall be selected for plantation. PP shall develop at least 20 variety of species as a part of greenbelt. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department and native species shall be developed. The budget earmarked for the plantation shall be kept in a separate account and should be audited annually. The PP shall annually submit the audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.
- (viii) A separate Environmental Management Cell (having qualified persons with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions by engaging Environment Officials. In addition to this, one safety & health officer as per the qualification given in Factories Act, 1948 shall be engaged within a month of grant of EC. The PP should annually submit the audited statement of amount spent towards the engagement of qualified persons in EMC along with details of person engaged to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during the previous year.

- (ix) 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, and risk mitigation measures relating to the project shall be implemented. The budget proposed under existing EMP Rs. 18,883,200 (Capital cost) and ₹ ₹5,150,060 Lakhs per Annum (Recurring cost)] shall be kept in a separate account and should be audited annually. The PP should submit the annual audited statement along with proof of implementation of activities proposed under EMP duly supported by photographs (before & after with geo-location date & time) and other document as applicable to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during the previous year.
- (x) All the hazardous waste shall be managed and disposed as per the HWM Rules 2016. Hazardous waste such as ETP sludge shall be either sent to TSDF. Spent catalyst shall be sent to Authorized recyclers. Municipal solid waste shall be segregated into dry and wet garbage at site in accordance to the Solid Waste Management Rules, 2016. Wet waste shall be converted into compost and used as manure for greenbelt development.
- (xi) The PP shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.
- (xii) The project proponent shall comply with the environment norms for ‘synthetic organic chemicals’ as notified by the Ministry of Environment, Forest and Climate Change, vide GSR 608 (E), dated 21st July, 2010 under the provisions of the Environment (Protection) Rules, 1986.
- (xiii) All necessary precautions shall be taken to avoid accidents and action plan shall be implemented for avoiding accidents. The PP shall implement the onsite/offsite emergency plan/mock drill etc. and mitigation measures as prescribed under the rules and guidelines issued in the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996. The occupier of new as well as expansion projects shall be required to comply with the provisions of the MSHIC Rules, 1989 including notifying their activities or seeking site approval from the concerned authorities, to address operational safety aspects. In doing so, various schedule, particularly Schedule-5 of the said rules may be referred.
- (xiv) The volatile organic compounds (VOCs)/Fugitive emissions shall be controlled at 99.97 % with effective chillers/modern technology. Regular monitoring of VOCs shall be carried out.

- (xv) The storage of toxic/hazardous raw material shall be bare minimum with respect to quantity and inventory. Quantity and days of storage shall be submitted to the Regional Office of Ministry and SPCB along with the compliance report.
- (xvi) The occupational health centre for surveillance of the worker's health shall be set up. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.
- (xvii) Training shall be imparted to all employees on safety and health aspects for handling chemicals. Safety and visual reality training shall be provided to employees. Action plan for mitigation measures shall be properly implemented based on the safety and risk assessment studies.
- (xviii) The storm water from the roof top shall be channelized through pipes to the storage tank constructed for harvesting of rain water in the premises and harvested water shall be used for various industrial processes in the unit. No recharge shall be permitted within the premises. Process effluent/ any wastewater shall not be allowed to mix with storm water.
- (xix) The PP shall undertake waste minimization measures as below (a) Metering and control of quantities of active ingredients to minimize waste; (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of Close Feed system into batch reactors. (e) Venting equipment through vapor recovery system. (f) Use of high pressure-hoses for equipment cleaning to reduce wastewater generation.
- (xx) There shall be adequate space inside the plant premises earmarked for parking of vehicles for raw materials and finished products and no parking to be allowed outside on public places.
- (xxi) Storage of raw materials shall be either in silos or in covered areas to prevent dust pollution and other fugitive emissions. All stockpiles should be constructed over impervious soil and garland drains with catch pits to trap runoff material shall be provided. Chemicals shall be stored in covered sheds and wind breaking walls/curtains shall be provided around biomass storage area to prevent its suspension during high wind speed. All Internal roads shall be paved. The Air Pollution Control System shall be interlocked with process plant/machinery for shutdown in case of operational failure of Air Pollution Control Equipment.
- (xxii) PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of Notification published by MOEFCC on 12th August, 2021. A report along with photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to concerned authority.

(xxiii) The activities and the action plan proposed by the project proponent to address the issues raised during the public hearing as well as the related socio-economic issues in the study area shall be completed as per the schedule presented before the Committee and as described in the EIA report in letter and spirit.

ANNEXURE-I

GENERAL EC CONDITIONS

- No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. 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/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- The PP shall strictly comply with the rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, and Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 and other rules notified under various Acts.
- The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.
- 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 the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. The activities shall be undertaken by involving local villages and administration. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- 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.
- A copy of the clearance letter shall be sent by the PP to concerned Panchayat, ZillaParishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
- The PP shall also upload/submit six monthly reports on Parivesh Portal on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data to the respective Integrated 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.

- 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 Integrated Regional Office of MoEF&CC by e-mail.
- The PP 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 and at <https://parivesh.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.
- The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
- This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.

List of members of the Expert Appraisal Committee (Industry-3) attended Video Conferencing (VC) meeting in Day -2

S. No.	Name of Member	Designation
1.	Prof. (Dr.) A.B. Pandit	Chairman
2.	Dr. Suresh Panwar	Member
3.	Prof. (Dr.) Vijayanand S. Moholkar	Member
4.	Dr. (ER.) Dibakar Swain	Member
5.	Shri Dinabandhu Gouda	Member
6.	Dr. Kishore Malviya	Member
7.	Shri Dinesh Runiwal,	Member
8.	Prof. (Dr.) Suneet Dwivedi	Member
9.	Dr. P. Jagannadha Rao	Member
10.	Dr. D. S. Pai	Member
11.	Shri A N Singh	Member Secretary
MOEFCC		
1.	Dr. Kanchan Puri	Scientist-B
2.	Dr. S. Pradeep Kumar	Scientist-B
3.	Dr. Bhawana Kapkoti Negi	Technical Officer

(Day-2)

MOM approved by



(Prof. Aniruddha B. Pandit)

Chairman