14.19.11 Proposed raw material and fuel requirement for project are 3,08,385 TPA. The requirement would be fulfilled by purchase as well as internal generation. Fuel consumption will be mainly Fuel oil and HSD.

14.19.12 Water Consumption for the proposed project will be 1174 KLD and waste water generation will be 38 KLD from process and 72 KLD from STP, both of which will be recycled and reused. Domestic waste water will be treated in STP and industrial waste water generated will be treated in ETP and reused in plant.

14.19.13 The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.

14.19.14 Environment Consultant GreenC India Consulting Private Limited [Sl. No. 75, List of Accredited Consultant Organizations (Alphabetically) Rev. 82, Dec. 05, 2019].

Observations of the Committee:

14.19.15 The Committee noted that the proposed plant site is located within the Critically Polluted Area and there is no space available for green belt development within the plant premises and the adjoining area. There is no surface water availability and only ground water is available.

Recommendations of the Committee:

14.19.16 The proponent was asked to look for better pollution control devices, reduction in source and fugitive emission by way of improved control technologies (or) modification in production process and equipment. The proponent was also asked to examine the possibilities of alternative water sources bv use of sewage (or) effluent from CETP as alternate water source in place of ground water.

14.20 Greenfield Copper Refinery Plant (1.0 MTPA) project of **M/s Adani Enterprises Limited** located at Adani Ports and Special Economic Zone land in village(s) Siracha and Navinal, Taluka Mundra, **District Kutch, Gujarat** – [Online Proposal No. IA/GJ/IND/86812/2016; MoEF&CC File No. J-11011/113/2016- IAII(I)]- **Reconsideration based on the Site Visit Report - Environmental Clearance - regarding.**

14.20.1 The aforesaid proposal was earlier considered in the meetings of the Expert Appraisal Committee held during 9-11th January 2019 and 22-23rd August 2019 and the relevant portion of the minutes of the meeting is given as below:

Minutes of meeting of REAC held during 9-11th January 2019:

1.0 M/s. Adani Limited has made online application vide proposal no. IA/GJ/IND/86812/2016dated 6th December 2018 along with copies of EIA/EMP report seeking environmental clearance under the provisions of the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at Sl. No. 3(a) Metallurgical Industries (Ferrous and Non-ferrous) under Category "A" EIA Notification, 2006 and the proposal is appraised at Central level.

Details submitted by the Project Proponent

2.0 The Greenfield Copper Refinery of 1 (One) Million Tons Per Annum (MTPA) project by M/s Adani Enterprises Limited, proposed at Adani Ports and Special Economic Zone land in village(s) Siracha and Navinal, Taluka Mundra, District

Kutch, State Gujarat was initially received in the Ministry on 21st April 2016 for obtaining Terms of Reference (ToR) as per EIA Notification, 2006. The project was appraised by the Expert Appraisal Committee (Industry) [EAC(I)] during its 6thmeeting held on 4thMay 2016 and prescribed ToRs to the project for undertaking detailed EIA study for obtaining environmental clearance. Accordingly, the Ministry of Environment, Forest & Climate Change had prescribed ToRs to the project on 21st June 2016 vide Lr. No. F. No. J-11011/113/2016 IA.II (I).

3.0 The project of M/s. Adani Enterprises Limited located in Villages of Siracha and Navinal, Taluka Mundra, District Kutch, State of Gujarat is for setting up of a new Copper Refinery for production of 1 million tonnes per annum (million TPA) of Copper Cathode. The detail of overall plant configuration as below:

Sr. No.	Plant	Units	Phase-I	Phase-II	Overall Plant Configuration
1	Copper Smelter Plant	TPA	4,50,000	4,50,000	9,00,000
2	Copper Refinery Plant	TPA	5,00,000	5,00,000	10,00,000
3	Continuous Cast Copper Rod Plant	TPA	2,50,000	2,50,000	5,00,000
4	Copper Scrap & E-Scrap Melting Facility	TPA	50,000	50,000	1,00,000
5	Sulphuric Acid Plant	TPA	15,00,000	15,00,000	30,00,000
6	Phosphoric Acid Plant (100% P_2O_5)	TPA	2,50,000	2,50,000	5,00,000
7	Aluminum Fluoride Plant	TPA	15,000	15,000	30,000
8	Oxygen (Industrial) Plant	TPM	48,000	48,000	96,000
9	Precious Metal Recovery Plant				
a	Gold	TPA	25	25	50
b	Silver	TPA	250	250	500
c	Selenium	TPA	144	144	288
10	Waste Heat recovery boiler based power plant	MW	20	20	40

4.0 The proposed capacity for different products for new site area as below:

Sr. No.	Products	Units	Phase-I	Phase-II	Overall Plant Capacity
I	Main Products				
1	Copper Cathode	TPA	5,00,000	5,00,000	10,00,000
2	Sulphuric Acid (> 98%)	TPA	15,00,000	15,00,000	30,00,000
3	Continuous Cast Copper Wire Rod	TPA	2,50,000	2,50,000	5,00,000
4	Gold	TPA	25	25	50
5	Silver	TPA	250	250	500
6	Phosphoric Acid (as 100% P_2O_5)	TPA	2,50,000	2,50,000	5,00,000
7	Aluminum Fluoride	TPA	15,000	15,000	30,000
II	By-Products				
8	Anode Slime	TPM	250	250	500

Sr. No.	Products	Units	Phase-I	Phase-II	Overall Plant Capacity
9	Selenium	TPM	12	12	24
10	PGM Concentrate	TPM	3	3	6
11	Ferro Sand/ Iron Silicate - Copper Slag (Granulated)	TPM	92,500	92,500	1,85,000
12	Phosphogypsum	TPM	1,04,167	1,04,167	2,08,334
13	Hydro Fluro Silicic Acid (~20% as H_2SiF_6)	TPM	1,250	1,250	2,500
14	Copper Telluride	TPM	21	21	42
15	Tellurium	TPM	4	4	8
16	Nickel	TPM	8	8	16
17	Bismuth Bisulphate	TPM	60	60	120
18	Calomel (Mercury Chloride)	TPM	9	9	18
19	Mercury	TPM	8	8	16
20	CCR Mill Scale	TPM	25	25	50

5.0 The total land required for the project is 256.58 ha, out of which zero (0) ha is an agricultural land, zero (0) ha is grazing land, 102.39 ha forest land applied for diversion by APSEZ and 154.19 ha is non-forest land already notified as SEZ. The non-forest land has been acquired by APSEZ and in-principle approval for diversion of forest land has been obtained by APSEZ and committed to provide this land for the project. The Dhaneswari (Dhenderi) River passes through the project area which will be suitably trained and maintained.

6.0 The topography of the area is flat and slightly undulating and ranges between 22°48’13.26"N to 22°50‘01.88"NLatitude and 69°33'34.74"Eto 69°35‘08.42"ELongitude in Survey of India topo sheet No. F42J9 & 10, at an elevation of 7-10 m AMSL. The ground water table ranges between 2-10 m below the land surface during the post-monsoon season and 2-20 m below the land surface during the pre-monsoon season. The stage of groundwater development in Mundra Taluka is reported to be 63.28% and designated as safe areas as per Technical Report Series, Ground Water Brochure of Kutch District by CGWB – 2013. No groundwater is proposed for either construction or operation phase of the project.

7.0 No National Park/Wildlife Sanctuary/Biosphere Reserve/Tiger Reserve/Elephant Reserve etc. are reported to be located in the core and buffer zone within the 10 km radius of the project. The area also does not report to form corridor for Schedule-I fauna. Floral species are mainly dominated by *Prosopis juliflora* and *Acacia Senegal*. The faunal species were categorized as per conservation status of Wildlife Protection Act, 1972 and reveals that peacock is the only Scheduled-I species in the study area and the conservation plan with Rs. 40 lakhs tentative budget is proposed in Section 3.9 of EIA Report.

8.0 The proposed Copper refinery plant with various facilities will be using following raw materials:

a. Copper Concentrate: Production of Copper, Sulphuric Acid, Gold, Silver and other by products such as Ferro sand (Iron Silicate/ Copper Slag), Selenium, Copper Telluride, Nickel / Nickel Sludge (Nickel Sulphate/ Nickel Carbonate), production of electricity from waste heat recovery system, etc.

b. Rock Phosphate: Production of Phosphoric Acid and by product Hydro Fluro Silicic Acid and Phospho Gypsum.

c. Aluminum Hydrate: Production of Aluminum Flouride

d. Quick Lime: For Effluent Treatment Plant

Following fuel will be used as per process Requirement:

a. LPG/ PNG

b. Furnace Oil

c. High Speed Diesel

d. Met Coke

e. Coal/ Pet Coke

During the manufacturing Process, following waste will be generated, which will be recycled in the process or will be sent to authorised recyclers:

a. Nickel Sulphate Sludge

b. Arsenic Bearing Sludge – As-Cu Precipitate

c. Used Oil

d. Oil Sludge

During the manufacturing Process, following Hazardous waste will be generated and will be stored in Secured Landfill (SLF) designed in accordance with CPCB Guidelines:

a. ETP Waste sludge and Scrubber Waste

b. Spent Catalyst

c. Spent resins from DM, RO & Refinery Plant

d. Salts from Multi Effect Evaporator

10.0 The proposed project to adopt pyros melting technology and electro refining process to produce copper cathode. The sulphur dioxide generated during the smelting of copper concentrate is converted into sulphuric acid by Double Conversion Double Absorption (DCDA) process. Part of the sulphuric acid is utilized for production of phosphoric acid within the plant.

11.0 Plant is designed on Zero Liquid Discharge concept design and hence no process or treated water will be discharged outside the plant. The treated water will be recycled within the process and to address treated water balance a Reverse Osmosis plant with Multi Effect Evaporator will be installed.

12.0 Copper Concentrate will be largely imported from various countries across the globe such as Chile, Peru, Brazil, Australia, Africa, Indonesia, etc. and Rock Phosphate is imported from countries like Jordan, Morocco, Australia, etc. Copper Concentrate & Rock Phosphate will be unloaded from the ship and transported to the closed warehouse either by pipe conveyor or through covered trucks. The principal raw material for the production of copper metal is copper concentrate blend containing about 25-35% copper, 25-34% sulphur, iron 25-35% and 7-10% moisture. Approximately, 3 LTPA copper scrap and electronic scrap is also used as input to proposed copper smelting plant and copper scrap melting facility.

13.0 The major steps in copper extraction, *inter alia*, including Blending of different grades of concentrates;Smelting of concentrate in smelting furnace to produce an intermediate copper rich product known as ”matte” containing 58 - 63% copper; Converting of liquid matte to blister copper (98 - 99% Cu) in Pierce-Smith converter;Fire refining of blister copper to produce anode copper (99.5% Cu) in anode furnace and casting of the anodes; and Electrolytic refining of anodes to produce copper cathodes (99.99% Cu).In the process of extraction of copper metal, sulphuric acid is recovered as a by product from the off-gases generated from the smelting and converting furnaces. A part of sulphuric acid produced is utilized for phosphoric acid production and rest will be sold in the market based on market requirement. Phosphoric Acid (PA) Plant uses sulphuric acid produced within the plant and imported rock phosphate to produce Phosphoric Acid. Phosphoric Acid is largely used in fertiliser industries to make phosphatic fertilisers. During the process fluorine gases are recovered as hydrofluro silicic acid (HFSA) through scrubbing system. HFSA is one of the major raw materials for production of Flouride based chemicals. Hydro fluro silicic acid generated from phosphoric acid plant will be partly sold to fluoride based industries and rest will be converted in value added aluminum fluoride. Aluminum Fluoride plant will be using HFSA produced in PA Plant and Aluminum Hydrate to produce Aluminum Fluoride. Aluminum Fluoride is an important material in production of Aluminum Metal. Aluminum fluoride produced will be sold to aluminum manufacturing companies. The precious metal in the form of anode slime is collected during electrolytic refining of copper will be processed to produce gold, silver and Platinum Group of Metals (PGM) concentrate as well as recovery of minor metals such as Tellurium, Bismuth, Nickel, etc). The copper cathode produced from copper refinery will be melted and drawn in the form of copper wire rod on continuous basis from a continuous casting and rolling machine. Copper rod will be of various sizes as per market requirement such as 8 to 32 mm.

14.0 The wastewater generated from copper smelter, sulphuric acid plant, copper refinery, Phosphoric Acid Plant and Aluminum Fluoride plant will be treated in state of art effluent treatment facility. Treated effluent will be consumed within the plant operations to maximum extent. A Reverse Osmosis plant with Multi effect evaporator will be installed at the outlet of treated effluent to reuse water internally and reduce water consumption. This will ensure the plant as a Zero Liquid Discharge facility.

15.0 The major technological units envisaged for the copper refinery project are:

Raw material handling system; Smelting furnace; Pierce smith converter; Ferro Sand Cleaning Furnace (FSCF); Copper scrap & E-scrap melting system; Anode furnace & anode casting wheel; Off gas handling; Sulphuric acid plant;Oxygen plant; Copper Refinery Plant; Precious metal recovery plant; Continuous cast copper wire rod plant; Phosphoric acid plant; Aluminum fluoride plant; and Effluent Treatment Plant (ETP),Utilities like Power, Water, Air and Fuel

16.0 The targeted production capacity of the proposed project is 1.0 million TPA. The raw material for the plant would be procured from open market. The raw material transportation will be by pipe conveyor or covered trucks from port to plant.

17.0 The water requirement of the project is estimated as approx. 32800 m3/day of fresh water requirement will be obtained from the desalination plant of Adani Port Special Economic Zone (APSEZ). 5,418 m3 /day treated water from ETP & STP will be utilized for plant operation.

18.0 The power requirement of the project is estimated as 300 MW, out of which 260 MW will be obtained from the APSEZ through MUPL and 40 MW would be generated from waste heat recovery system.

19.0 Baseline Environmental Studies were conducted during post-monsoon and partly winter season i.e. from 1st October to 31st December, 2016 Ambient air quality monitoring has been carried out at 8 locations during 1st October to 31st December, 2016 and the data submitted indicated: PM10 (35.2 to 84.2 µg/m^3), $PM_{2.5}$ (19.2 to 43.9 µg/m^3), SO_2 (14.8 to 42.6 µg/m^3) and NOx (13.1 to 32.8 µg/m^3). The results of the modeling study indicates that the maximum increase of GLC for the proposed project is 0.52 µg/m^3 with respect to the $PM_{2.5}$, 1.27 µg/m^3 with respect to the PM_{10}, 10.37 µg/m^3 with respect to the SO_2 and 0.23 µg/m^3 with respect to the NOx.

20.0 Ground water quality has been monitored in 8 locations in the study area and analysed. pH: 7.3 to 7.8, Total Hardness: 125 to 392 mg/l, Chlorides: 282.6 to 978.4 mg/l, Fluoride: 0.9 to 1.5 mg/l. Heavy metals are within the limits. Surface water samples were analysed from 4 locations. pH: 7.2 to 8.0; DO: 5.6 to 5.9 mg/l and BOD: <3 mg/l. COD from 60 to 80 mg/l.

21.0 Noise levels are in the range of 48.5 to 56.6 dB(A) for daytime and 42.3 to 48.8 dB(A) for night time.

22.0 It has been reported that there are no people in the core zone of the project. No R&R is involved. It has been envisaged that no families to be rehabilitated,

23.0 It has been reported that a total of 225694 tons per annum of waste will be generated due to the project, out of which 9274 tonnes per annum will be recycled through authorised recyclers and within the process. Rest will be stored in the secured landfill (SLF). It has been envisaged that an area of 85.79ha will be developed as green belt around the project site to attenuate the noise levels and trap the dust generated due to the project development activities.

24.0 It has been reported that the Consent to Establish/Consent to Operate from the Gujarat State Pollution Control Board / Pollution Control Committee will be obtained as per applicable requirements after obtaining the Environmental Clearance.

25.0 The Public hearing of the project was held on 29th April 2017at Community Premises Centre Samajvadi Opposite Tunda Primary School under the chairmanship of Shri D R Patel (GAS)(Additional District Magistrate and Resident Additional Collector) for production of 1.0 million TPA of setting up of Copper Refinery plant, under the chairmanship of Additional District Magistrate and Resident Additional Collector. The issues raised during public hearing were mainly about Employment, Environmental Protection and Rural infrastructure. An amount of Rs. 4000Lakhs has been earmarked for Corporate Environment Responsibility (CER) based on public hearing issues.

Sr. No.	**Public Hearing Issues**	**Capital Budget for Corporate Environment Responsibility (CER) in Rs Cr/ Year**					**Total Proposed Expenditure in Rs Cr**
		1	**2**	**3**	**4**	**5**	
1	Sustainable livelihood generation for locals including fishermen and Women Empowerment	1.0	1.0	1.0	1.0	1.0	5.0
2	Education and skills development of locals	1.0	1.0	1.0	1.0	1.0	5.0
3	Community Health Initiatives	2.0	2.0	2.0	2.0	2.0	10.0
4	Community Rural Infrastructure Development	4.0	4.0	4.0	4.0	4.0	20.0
	Total CER Budget	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**40.0**
5	Environmental control measures for proposed project and environmental protection	Separate Rs 1,040 Cr budget has been kept for pollution control measures and environment management plan					

Recurring CSR expenditure in operation phase shall be governed as per CSR Rules under the Companies Act. **Time Bound Action Plan with Budget for issues raised in PH is proposed as following:**

S.No	Issue	**Time Bound Action Plan within Construction Phase of the Project**	Budget
	Employment for Locals including Fisherman and Sustainable Livelihood Generation	The requirements of skilled/unskilled manpower during operation will be met from nearby villages as far as possible. Locals will be given preference to employment based on skill set & eligibility requirement as per the job and the vacancies available. During construction phase of the project, there will be around 400 employees and 2600 contract workforce. During operation phase of the project, there will be around 1000 employees and another 1000 contract workmen directly working for the plant. This is estimated that another 5000	Capital budget of Rs 5 Cr during the project construction period has been kept. Recurring CSR expenditure in operation phase shall be governed as per CSR Rules under the Companies Act.

S.No	Issue	**Time Bound Action Plan within Construction Phase of the Project**	Budget
		persons in the area will get benefited from the project by indirect engagement and business increased due to this project. Following activities are proposed in this area: ➢ Extend assistance to start SHGs to empower women and material and financial support to take up self-employment. ➢ Amenities like equipment support, sanitation facilities, approach roads, fish lending sheds, fisher-folk vasahats (Settlements); training for livelihood, Insurance etc. ➢ Skill Development Centre (SDC) to make the youth for achieving their Goals in life by becoming Skilled Professionals. ➢ Provision of fodder support, promote bio-gas installation in agri and animal husbandry based families' households. Construction of cattle sheds, Awareness meetings and exposure visits for animal husbandry. ➢ Support for Drip irrigation and Tissue Culture Training.	
	Education and skills development of locals	As part of improving employability within local youth including the youth from the fishing community also, there is a plan to set up a Skill Development Centre through Adani Foundation. Various activities are proposed in this area; ➢ Supporting in creation of assembly halls, prayer hall, classrooms, computer labs, space for mid-day meal, playground, school walls etc. for government school. ➢ Igniting mind of students through science on wheels, UDAN schemes. ➢ Educational Vocational Guidance Fair (EVGF) for career talk. ➢ Balwadis for the kids of fisher-folk community to provide awareness about education, health, hygiene, and discipline. ➢ Programme for skills improvements of teaching staffs in govt. schools. ➢ Linkages will be established with the employment exchange and the registered persons having appropriate qualification shall be given priority.	Capital budget of Rs 5 Cr during the project construction period has been kept. Recurring CSR expenditure in operation phase shall be governed as per CSR Rules under the Companies Act.

S.No	Issue	**Time Bound Action Plan within Construction Phase of the Project**	Budget
	Community health care and insurance support for community members including fishermen	AEL commits to extensively work for corporate environment and social responsibility in the area and improve quality of people's life. Company have started key initiatives in support of sustainable development. AEL has a CSR policy and commit to work in following area for this project. ➢ Senior Citizen Health Card Scheme to address the needs of the senior citizens including the fishermen community. ➢ Various health camps organization at regular intervals i.e. Gynaecological care, Blood donation, Health awareness programs, HIV/AIDS, Cataract detection. ➢ Provision of Free Mobile Health Care Units (MHCU). ➢ Promotion of awareness of malnutrition and anaemia. ➢ Setting up rural clinics to ensures outreach services.	Capital budget of Rs 10 Cr during the project construction period has been kept. Recurring CSR expenditure in operation phase shall be governed as per CSR Rules under the Companies Act.
	Rural Infrastructure Development and access to Fishermen community for fishing and harbours	The roads used by fishermen will not be disturbed due to the proposed copper refinery project. Disaster management group and insurance scheme shall be initiated to support fishermen. Following activities are identified and proposed in this area: ➢ To provide facility for potable drinking water by providing RO Plants, drinking water supply system, overhead tank and underground pump. ➢ Creation of clean and hygienic environment by proper drainage systems, sewage treatment plants, community led sanitation campaign ➢ Construction of various community centers to facilitate social activities, upgradation of facility at crematoriums, Gaushala etc. ➢ Conservation of water by construction of check dams and pond. ➢ Upgradation of primary health centers, renovation of roads and expansion of roads, construction of toilet facilities etc. ➢ Provision of solar street lighting, green nurturing programs, implementation of swachchh bharat initiatives.	Capital budget of Rs 20 Cr during the project construction period has been kept. Recurring CSR expenditure in operation phase shall be governed as per CSR Rules under the Companies Act.

S.No	Issue	**Time Bound Action Plan within Construction Phase of the Project**	Budget
	Environmental control measures for proposed project and environmental protection	➢ Environment friendly technology will be selected and pollution control measures will be implemented to comply emissions as per the prescribed standards by CPCB. Further, it will comply with all the conditions stipulated by GPCB and MoEF&CC. ➢ The proposed project will be designed as per the latest technology with all in built pollution control measures. ➢ The plant will be operated on zero liquid discharge principle. ➢ Secured Land Fill (SLF) is proposed within the project premises for disposal of ETP waste sludge. SLF shall be constructed as per the CPCB guidelines. Other hazardous waste will be disposed through the approved recyclers. ➢ About 85.79 ha of project area (33% of the project area) will be developed with greenbelt / green cover as per prevailing guidelines from GPCB/CPCB/MoEF&CC.	Rs 1,040 Cr of capital budget is kept for installation of environmental protection measures within the plant.

26.0 The capital cost of the project is Rs. 10,000 Crores and the capital cost for environmental protection measures is proposed as Rs. 104400 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs. 500 Lakhs. The detailed CSR plan has been provided in the EMP in its page No. C6-8. The employment generation from the proposed project / expansion is direct employment and about 5000 indirect employment during operation phase.

27.0 Greenbelt will be developed in 85.79Ha which is about 33.43% of the total acquired area. Peripheral greenbelt, consisting of at least 3 tiers around plant boundary will be developed as greenbelt and green cover as per CPCB/MoEF&CC, New Delhi guidelines. Local and native species will be planted with a density of 2500 trees per hectare. Total no. of 225000 saplings will be planted and nurtured in 85.79 hectares.

28.0 The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.

29.0 EIA Consultant Organization: M/s. Vimta Labs, Hyderabad.

Observations of the Committee (In the meeting held during 9-11th January 2019) :

30.0 After detailed deliberations, the Committee observed following issues:

i. According to the EIA report, the land requirement for the project is 256.58 Ha. Out of 256.58 Ha, 154.19 Ha is APSEZ area and 102.39 Ha is a Forest land. The land use conversion plan of 154.19 Ha for industrial purpose has not been

obtained from the Competent Authority concerned. Further, PP has obtained stage I forest land diversion approval for 1576.81 ha in the name of M/s. Adani Ports and SEZ Limited. The factual agreement between M/s. Adani Enterprises Limited and M/s. Adani Ports and SEZ Limited for the utilization of 102.39 Ha is a Forest land is not clear.

ii. CRZ map inter-alia including demarcation of HTL/LTL/CRZ land classification along with super imposition of plant site through competent agencies has not been submitted.

iii. Source of copper ore concentrate, characteristics, mode of transportation from source to plant site, confirmed ore linkage document has not been submitted.

iv. Water consumption of 10 LTPA Copper smelter is 32790 KLD whereas the water requirement for existing 4.5 LTPA copper smelter unit is only 10,000 KLD. Hence, water requirement for the proposed plant has to be reworked out.

v. According to the EIA records, Dhaneshwari river is passing through the project site and the mangrove reserve forest is existing within the project site. Quantification of these mangroves and conservation measures for mangroves and the river stream has not been submitted.

vi. Storage arrangements made for the raw materials are found to be not adequate. Open storage of raw materials such as coal, limestone etc., shall be avoided.

vii. Sulfur balance of the copper smelter unit has not been submitted.

viii. Copper slag disposal site co-ordinates, concrete mode of utilization, maximum time frame envisaged for the storage at the disposal yard i.e., one month (or) 15 days has not been submitted.

ix. Phospo-gypsum disposal site co-ordinates, concrete mode of utilization, maximum time frame envisaged for the storage at the disposal yard i.e., one month (or) 15 days has not been submitted.

x. Lining details for Phospo-gypsum disposal yard, leachate collection system envisaged and details of piezo-well installation has not been made available.

xi. Secured land fill site co-ordinates, lining details, leachate collection system envisaged and details of piezo-well installation has not been made available.

xii. Baseline health status of the people living in the study area of the project site has not been collected.

xiii. Details regarding disposal of arsenic bearing sludge has not been submitted.

xiv. Mercury in ambient air has not been monitored.

xv. Conservation plan prepared for the Schedule-I species is not meeting the requirement of the conservation of the species that are identified. Therefore, the plan shall be revised considering the requirements of the conservation of the species identified and shall be approved by the competent authority concerned.

xvi. Collection of run off water from the raw material storage area, slag and gypsum storage yard and its treatment has not been submitted.

xvii. Study on installation of rain water harvesting structure based on annual rain fall pattern and details regarding amount of water to be conserved has not made available.

xviii. Impact on hydro geology regime of the project site has not submitted.

xix. Occupational health assessment envisaged for the employees and workers has not been submitted.

xx. As per the Public hearing proceedings, it is noted that there are strong oppositions from the stake holders against the installation of copper smelter unit. Consolidated list of point-wise issues raised and response provided along with action plan for implementation has not been submitted.

xxi. The Chapter-5 consists of only listing of alternative technologies. The committee opined that the PP shall select out of alternative technologies available, based on the selection of the technology, the impact prediction shall be made and mitigation measures shall be proposed.

xxii. Quantitative representation of mitigation measures was not presented.

xxiii. Revised water balance shall be submitted.

xxiv. HIRA shall be prepared for worst case scenario

xxv. Management of white shall be spelled out

xxvi. Material balance shall be revised.

xxvii. The involvement of geological expert shall be provided.

xxviii. The compliance of specific conditions of the environmental clearance of the SEZ shall be provided.

xxix. The reply to TOR point No. (4) is not proper.

xxx. The data retrieved from the LULC studies shall be utilized for the prediction of impacts and mitigation measures.

xxxi. The Air Quality modeling studies shall be re-worked out including the mercury and keeping the mixing height in view.

xxxii. The Environmental Policy of the Organization is not meeting the requirements given in ToR Point No. 9(i), 9(ii), 9(iii), 9(iv).

xxxiii. The CER shall be calculated on the slab rates as per the Office memorandum issued on 1st May, 2018.

The committee also felt that in view of the complexity involved in the project, the committee proposed for site visit by the sub-committee of the EAC.

Recommendations of the Committee (In the meeting held during 9-11th January 2019):

After detailed deliberations, the committee advised to submit the information on the observations of the committee. The committee also suggested having a site visit by the sub-committee of EAC in parallel. Therefore, the proposal will be re-considered after submission of the information by the project proponent and also the submission of the report by the sub-committee based on the site visit.

Observations of the Committee (In the meeting held during 22-23rd August 2019) :

The committee observed that in spite of detailed deliberations during EAC (Industry1) meeting held during 9 -11th January 2019 and subsequent information sought, same has

not been adequately addressed by the project proponent

Recommendations of the Committee (In the meeting held during 22-23rd August 2019):

The committee desired that all the information asked for should be carefully prepared and submitted by the Project Proponent. In the meantime, a sub-committee of the committee should carry out the site visit as already recommended earlier.

14.20.2 The subcommittee visited the site and surroundings on 09.12.2019 and held discussions with the representatives of M/s Adani Enterprises Ltd on 10.12.2019 at Ahmedabad. Site visit report was placed in the EAC meeting for further deliberations.

14.20.3 The observations of subcommittee on the ADS after discussions with the representatives of M/s Adani Enterprises Ltd is as below:

S.No.	ADS Point	Out Come of the Discussions
1	According to the EIA report, the land requirement for the project is 256.58 ha. Out of 256.58 ha, 154.19 ha is APSEZ area and 102.39 ha is a Forest land. The land use conversion plan of 154.19 ha for industrial purpose has not been obtained from the Competent Authority concerned. Further, PP has obtained stage I forest land diversion approval for 1576.81 ha in the name of M/s. Adani Ports and SEZ Limited. The factual agreement between M/s. Adani Enterprises Limited and M/s. Adani Ports and SEZ Limited for the utilization of 102.39 ha is a Forest land is not clear.	The committee found that ADS reply given is satisfactory in view of the fact that entire land proposed for the project 256.58 ha is within the APSEZ out of which 154.19 ha is already notified as SEZ and the balance land of 102.39 ha is under process of forest diversion. There is an agreement through MoU between APSEZ and Adani Enterprises Ltd (AEL).
2	CRZ map inter-alia including demarcation of HTL/LTL/CRZ land classification along with super imposition of plant site through competent agencies has not been submitted.	CRZ map was prepared by Centre of Earth Science Studies (CESS), Thiruvanthapuram. Site is outside the CRZ, geographically separated by road and railway track. This CRZ map is awaiting finalization as part of ICZMP which is in the process by Govt. of Gujarat.
3	Source of copper ore concentrate, characteristics, mode of transportation from source to plant site, confirmed ore linkage document has not been submitted.	The indicative figures of weight fractions of copper concentrate from the various sources were discussed. However, there is no such analysis report is available on the records. The mode of transport from port to the plant and transit covered storage at port, conveyor, storage at plant ensured without

S.No.	ADS Point	Out Come of the Discussions
		leakage and safe handling. AEL has already got commercial enquiries from copper concentrate suppliers: 1. Mitsubishi Corporation Rtm International Pte, Singapore 2. Transmine Trading SA 3. Trifigura India Pvt Ltd 4. MITSUI & Co, Japan It seems, the origin copper concentrate may be Australia and South America Continent.
4	Water consumption of 10 LTPA Copper smelter is 32790 KLD whereas the water requirement for existing 4.5 LTPA copper smelter unit is only 10,000 KLD. Hence, water requirement for the proposed plant has to be reworked out.	In comparison to existing plant of M/s Vedanta Ltd, the water consumption will be more as the cooling system proposed is wet cooling tower which has specific consumption 8.7 m^3/T of copper that of radiator type air cooler (dry cooling). It is found the energy requirement for fans in case of dry cooling system will be more in turn more carbon footprint.
5	According to the EIA records, Dhaneshwari river is passing through the project site and the mangrove reserve forest is existing within the project site. Quantification of these mangroves and conservation measures for mangroves and the river stream has not been submitted.	No mangroves are present in the plant site. Presence of the mangroves are sighted on the southern side, along the Kodti Creek. It is informed that the company appointed ecological expert who is working on the monitoring of the mangroves and conservation of the same in the identified patches of coastal areas in consultation with the State Forest Department. Further, report on Wildlife Conservation plan /Mangrove Conservation Plan was discussed at a length in terms of biodiversity, socio-economic values for the locals, monitoring mechanism etc. Mud flats were not mapped in the CRZ map.
6	Storage arrangements made for the raw materials are found to be not adequate. Open storage of raw materials such as coal, limestone etc., shall be avoided.	AEL explained the Engineering drawings of covered storage yards for raw material storage.
7	Sulphur balance of the copper smelter unit has not been submitted.	The sources of SO_2 (97%), Copper Concentrate, Furnace Oil and Met Coke were taken into account. Fixation of Sulphur in copper slag, Chemical gypsum, ETP Sludge and residual off gas from SAP and FGD system. SAP: Catalytic converter bed with DCDA with conversion of 99.92% and cesium

S.No.	ADS Point	Out Come of the Discussions
		sulphuric acid catalyst in final bed catalytic converter for greater conversion efficiency at temperature lower than 400ºC. Tail gas scrubbing to scrub the residual gases coming out of the final absorption tower. FGD: Scrubber with amine technology for treating off gas for smelting furnace, electric furnace and PS converter and slag cleaning furnace. Lime scrubber is proposed for treating fugitive off gas from anode furnace and scrap melting furnace.
8	Copper slag disposal site co-ordinates, concrete mode of utilization, maximum time frame envisaged for the storage at the disposal yard i.e., one month (or) 15 days has not been submitted.	Slag disposal storage was proposed for three months. Complete reuse of the copper slag is yet to be explored to draw action plan.
9	Phospo-gypsum disposal site co-ordinates, concrete mode of utilization, maximum time frame envisaged for the storage at the disposal yard i.e., one month (or) 15 days has not been submitted.	To be revised in accordance with location / lay out plan
10	Lining details for Phospo-gypsum disposal yard, leachate collection system envisaged, and details of piezo-well installation has not been made available.	To be revised in accordance with location / lay out plan
11	Secured land fill site co-ordinates, lining details, leachate collection system envisaged, and details of piezo-well installation has not been made available.	After reviewing the layout plan, the committee felt SLF shall be designed at one location only with adequate facilities for sampling and testing instead of two locations in the layout. The layout area of SLF shall not be made congested. Adequate space shall be earmarked for safe handling and movement of vehicles.
12	Baseline health status of the people living in the study area of the project site has not been collected.	Baseline health survey was conducted by M/s TALEEM Foundation Ahmedabad. The general issues identified are live birthe and infants' survival, anaemia, disrrheoa etc,
13	Details regarding disposal of arsenic bearing sludge has not	Arsenic sludge generated from the ETP after tertiary treatment, will be sent to SLF. The general chemical characteristics of the

S.No.	ADS Point	Out Come of the Discussions
	been submitted.	arsenic bearing sludge is given in ADS reply. However, the same may be required in the EMP in the post project monitoring.
14	Mercury in ambient air has not been monitored.	Mercury monitoring was carried out which was found to be <0.5 ng/Nm^3.
15	Conservation plan prepared for the Schedule-I species is not meeting the requirement of the conservation of the species that are identified. Therefore, the plan shall be revised considering the requirements of the conservation of the species identified and shall be approved by the competent authority concerned.	To be discussed in the EAC
16	Collection of runoff water from the raw material storage area, slag and gypsum storage yard and its treatment has not been submitted.	Storm water management plan is to be revised based on the peak rainfall.
17	Study on installation of rainwater harvesting structure based on annual rain fall pattern and details regarding amount of water to be conserved has not made available.	Rainwater harvesting structures shall be designed as per the quantification of the rainwater runoff based on the average rainfall in the region.
18	Impact on hydro geology regime of the project site has not submitted.	Stage of development shall be defined based on the hydro logical survey as the APSEZ and ADANI Power Ltd is operating since long.
19	Occupational health assessment envisaged for the employees and workers has not been submitted.	Occupational health survey was conducted by ICMR-NIOSH. Monitoring mechanism as per the is not clear in the report.
20	As per the Public hearing proceedings, it is noted that there are strong oppositions from the stake holders against the installation of copper smelter unit. Consolidated list of pointwise issues raised and response provided along with action plan for implementation has not been submitted.	To be revised
21	The Chapter-5 consists of only listing of alternative	Outotec Flash melting furnace is selected

S.No.	ADS Point	Out Come of the Discussions
	technologies. The committee opened that the PP shall select out of alternative technologies available, based on the selection of the technology, the impact prediction shall be made and mitigation measures shall be proposed.	for the proposed project due to Operational ease and Environmental friendly. Copper concentrate, flux additives need to have moisture content below 0.3 %. Rotary steam dryer is used for drying.
22	Quantitative representation of mitigation measures was not presented.	All the process flow, outlet and inlet flows shall be mentioned in the same unit system. Stack height (20m) of anode casting may be revisited.
23	Revised water balance shall be submitted.	Water balance diagram is illegible.
24	HIRA shall be prepared for worst case scenario	HIRA is inadequate
25	Management of white ash shall be spelled out	To be discussed in EAC
26	Material balance shall be revised.	Satisfactory
27	The involvement of geological expert shall be provided.	Hydrogeological expert was involved.
28	The compliance of specific conditions of the environmental clearance of the SEZ shall be provided.	Satisfactory
29	The reply to TOR point No. (4) is not proper.	Satisfactory
30	The data retrieved from the LULC studies shall be utilized for the prediction of impacts and mitigation measures.	To be revised
31	The Air Quality modeling studies shall be re-worked out including the mercury and keeping the mixing height in view.	Suitability of model used as per the site characteristics in view of complex atmospheric conditions of coastal line.
32	The Environmental Policy of the Organization is not meeting the requirements given in ToR Point No. 9(i), 9(ii), 9(iii), 9(iv).	Environmental Policy was not furnished. Reporting system of non-compliances/ violation is also not in place.
33	The CER shall be calculated on the slab rates as per the Office	CER shall be revised explicitly on SIA/Need based Assessment and issues

S.No.	ADS Point	Out Come of the Discussions
	memorandum issued on 1st May, 2018.	raised iin the Public Hearing

Observations and Recommendations of the Committee:

14.20.4 After detailed deliberations on site visit report of the sub-committee and reply of the Project Proponent to the ADS, the committee sought the following details in the form of revised ADS reply for further consideration of the proposal.

i. Provide chemical characteristics of the sourcing Copper concentrate.

ii. Justification for installation of Water-Cooling Condenser (WCC)

iii. Provide details for proposed flue gas desulfurization.

iv. Reduce carbon foot print by heat recovery system generating from the plant.

v. Access roads to be provided for all the solid waste storages such as copper slag, gypsum storage & secured land fill and adequate green belt to be developed around all the solid waste storages.

vi. Provide utilization plan for copper slag and phospho-gypsum, with details of storage yard.

vii. Provide various stream characteristics being treated in ETP and treatment process.

viii. Environment Management Plan to be revised and updated with intervention for wildlife management, mangrove conservation, active mud flats and post project monitoring around solid waste storages.

ix. Storm water management plan to be revised based on peak rainfall. Rainwater Harvesting calculations to be provided.

x. OHS monitoring plan based on ICMR-NIOH study and ILO guidelines to be included.

xi. Provide linkage between Public Hearing, Social Impact Assessment and CER proposed.

xii. Confirm suitability of air model used as per site characteristics in view of the complex atmospheric conditions of the coastal line and fumigation scenario. Superimpose air modeling isopleth on land use map of study area considering worst case scenario of the pollutants Mitigation measures based on the receptor points and path to be submitted.

xiii. Unit wise water balance to be submitted in tabular form.

xiv. Stack and process vents to be noted separately and all stack heights to be as per standards.

xv. HIRA shall be prepared for worst case scenario of Hydro Fluro Silicic acid storage tank failure. Quantitative Risk Analysis (QRA) leading to FN Curve for storage related risk to be submitted.

xvi. Reporting system of non-compliances/ violations to be submitted as per TOR 9(iii) and (iv).

xvii. Provide details about reduction in acid mist formation in sulphuric acid plant.

xviii. Provide details of interlocking system envisaged for copper smelter and sulphuric acid.

xix. Give detailed plan of the precautions to be taken during construction stage.

14.21 Cold Rolling Mill (7,00,000 TPA) of M/s Chromeni Steels Pvt Ltd located at villages Ratadia & Kundroi, Taluk Mundra in District Kutch of Gujarat - **Applicability of Environmental Clearance based on the report of Group of Experts (GoE) – regarding.**

14.21.1 M/s. Chromeni Steels Private Limited (CSPL) [herein after referred as CSPL] has installed a cold rolling mill facility for production of Cold Rolled Coils (CRC) of stainless steel of capacity 7,00,000 Tons per Annum (TPA) at villages Ratadia & Kundroi, Taluk Mundra in District Kutch of Gujarat. M/s.CSPL is a joint venture between Tsingshan Industries from China and four Indian business groups namely Sunrise, Sun City, JP ISCON and VRAM Steel. The raw material, Hot Rolled Coils (HRC) for manufacture of CRC is imported from Indonesia.

14.21.2 CSPL has obtained Consent To Establish (CTE) from Gujarat Pollution Control Board (GPCB) vide letter No. 90475 dated 20/01/2018 and also applied to GPCB for Consent To Operate (CTO) vide letter dated 27/09/2019. The facility is ready and trial runs have also been conducted. CTO has not been issued so far for this facility.

14.21.3 The Ministry received complaint against CSPL on 09.07.2018. Subsequently, Ministry forwarded the said complaint to the Regional Office of the MoEF&CC at Bhopal with a copy to Government of Gujarat and GPCB on 12/02/2019 to examine the issues raised in the complaint and to take appropriate action.

14.21.4 Ministry was in receipt of another complaint on 17/05/2019 which was also forwarded to Regional Office with a copy to Government of Gujarat and GPCB on 29/05/2019.

14.21.5 The Regional Office of MoEF&CC at Bhopal vide its letter dated 12/06/2019 and 19/06/2019 asked CSPL to furnish the information related to the project. In this regard, the Regional Office was in receipt of information from CSPL on 18/07/2019.

14.21.6 In response to the Ministry's letter dated 12/02/2019 and 29/05/2019, GPCB replied on 14/08/2019 stating that CTE was granted to CSPL on 20.01.2018 only for manufacturing non-EC products, i.e., Stainless Steel Coils (Cold Rolled) with specific condition that industry shall not carry out any activities, which may attract the provision of EIA Notification 2006 and its amendment. Further, the letter also states that notice under Section 33 A of Water (P&CP) Act, 1974 has been issued to CSPL vide orders dated 25/09/2018 and 30/05/2018 directing the CSPL not to start any activity which attracts the applicability of EIA Notification, 2006 and its amendments.

14.21.7 Meanwhile, a case was filed before the Hon'ble National Green Tribunal (Western Zone) bearing Original Application No. 55 of 2019 on 20/07/2019 alleging that the CSPL has failed to obtain the Environmental Clearance (EC) before commencing with Cold Rolled Stainless Steel Coil (CRSSC) manufacturing and also abstracting