1 BRIEF SUMMARY

Nirma Ltd. is one of the leading soda ash producing company in India. The group has integrated backwards for the production of detergents and toilet soaps by establishing industrial chemical manufacturing facilities of Linear Alkyl Benzene, Alfa Olefin Sulfate, Soda Ash (light and dense), Caustic Soda, industrial salt and consumer salt to facilitate quality production of their consumer products.

It is located at Survey No. 478/p, 447 – 453, 455 - 457, Village – Kalatalav, Taluka & District Bhavnagar, Gujarat.

Nirma Limited, Bhavnagar now proposes for modernization with expansion of their existing production plant capacity.

As per the EIA notification dated 14th September, 2006, as amended till date, the proposed project falls in category including Project / Activity: 4(d) - Caustic Soda Plant, 4(e) - Soda Ash Plant, 1(d) - Captive Power Plant and categorized under "A".

1.1 Plant Features and Production Capacity

Existing cost of project is INR 3,110 crores. The expected cost of the proposed expansion project will be around INR 1,320 crores. Details of existing and proposed products are listed in ***Table 1-1***.

Table 1-1: Products Capacity (Existing & Proposed)

Sr. No.	Products/By-Products	Units	Existing Capacity	Proposed	Total Capacity after Expansion
1	**Soda Ash Plant**				
A	Light Soda Ash	TPD	2,800	1,500	4,300
B	Dense Soda Ash	TPD	1,800	600	2,400
C	Refined Sodium Bicarbonate (RBC) (NOC)	TPD	400	0	400
D	Pure Water Plant	M^3/D	6,720	0	6,720
E	Vacuum Salt	TPD	2,400	0	2,400
2	**Caustic Soda Plant**				
A	**Product**				
	Caustic Soda (100%)	TPD	750	250	1,000
	Hydrochloric Acid (100%)	TPD	280	220	500
B	**By-Products**				
	Chlorine Gas (100%)	TPD	665.2	220.8	886
	Hydrogen (100%)	TPD	18.75	6.25	25
	Sodium Hypo Chlorite (100%)	TPD	12	3	15
3	**Captive Power Plant**				
	Power	MW	197.18	152.82	350
4	**Chlorine & Hydrogen Derivatives**				
A	Hydrogen Peroxide (100%)	TPD	84	0	84
B	Epichlorohydrin (ECH)	TPD	150	0	150
C	Glycerin	TPD	160	0	160
D	Mono Chloro Acetic Acid (MCAA)	TPD	120	0	120
	By-Products				
	Hydrochloric Acid (100%)	TPD	48	0	48

Sr. No.	Products/By-Products	Units	Existing Capacity	Proposed	Total Capacity after Expansion
	Mother Liquor of MCAA	TPD	30	0	30
	Sodium Hypo Chlorite (100%)	TPD	10	0	10
	Product				
E	Tricolor Acetyl Chloride (TCAC)	TPD	10	0	10
	By-Product				
	Hydrochloric Acid (100%)	TPD	9	0	9
	Sodium Hypo Chlorite (100%)	TPD	1	0	1
	Sodium Bisulfite Solution (100%)	TPD	3	0	3
F	Calcium Chloride (100%) (NOC)	TPD	152	0	152
	Calcium Chloride Granules	TPD	160	0	160
	By-Product				
	CO_2 Gas	TPD	60	0	60
	Solid CO_2 (Dry Ice) & / or Liquid CO_2	TPD	60	0	60
G	Phosphoric Acid (61.5% P_2O_5) (NOC)	TPD	100	0	100
5	**Toilet Soap Plant**				
	Toilet Soap	TPD	200	0	200
	Detergent Powder	TPD	414.66	0	414.66
	Detergent Cake	TPD	414.66	0	414.66
	Fatty Acid	TPD	150	0	150
	Glycerin	TPD	167	0	167
6	**Bromine Plant**				
	Bromine	TPD	20	0	20

1.2 Infrastructure

The proposed expansion would be implemented in Nirma Ltd.'s existing manufacturing facility at Kalatalav, near Bhavnagar, Gujarat.

Main components of the existing project which includes Captive Power Plant, Soda Ash Plant, Caustic Soda Plant, Chlorine and Hydrogen derivatives plant, , Toilet soap plant and Bromine Plant and their associated utilities / components like Boiler House of CFBC Boilers, Steam Turbine, Generator, Utility Area consisting of cooling tower, ESP section Fly ash storage area. Water & wastewater infrastructure like Effluent Treatment Plant (ETP), Air compressors & Hazardous storage facility area are being used.

1.3 Utility

Power: The total additional power demand for the expansion has been estimated about 152.82 MW. The power requirement will be met by installing additional coal / lignite / pet-coke based CFBC boiler (410 TPH & 130 TPH , total 540 TPH*) along with Turbo-alternator and utilizing some surplus steam from existing boilers.

* Capacity of proposed boilers may vary however total proposed capacity of steam generation will remain same as 540 TPH.

Arrangement has also been made for sourcing power through sub-station of Gujarat State Electricity Board.

Fuel: Coal: 240.25 T/hr. &/or Lignite: 245 T/hr. &/or Pet coke: 163 T/hr. (93 T/hr for proposed boilers + 70 T/hr for existing boilers). Light Diesel Oil (LDO) shall be required for start-up of CFBC boiler.

Raw Water: Existing Seawater intake facility i.e. from Sonarai Creek, near village Gundala. Existing seawater intake – 14 x 10^5 m^3/day. Additional seawater intake - 3.6 x 10^5 m^3/day.

Manpower: Existing manpower at the operational site is 1,630 nos. Manpower during Construction phase would be 150 nos. The manpower for operation phase of Expansion plants would be 100 nos. Thus, the total manpower during full operation phase of Nirma-Kalatalav complex will be approximately 1,730 nos.

1.4 Environment

Environmental issues associated with proposed units are:

- **Air Emissions**: These would be due to presence of various Flue Gas stacks and process vents.
- **Wastewater**: The wastewater generated from the proposed activities would be treated in Effluent treatment plant. The treated effluent would be discharged into the Gulf of Khambhat through existing outfall equipped with diffuser system.
- **Solid & Hazardous Waste**: Hazardous waste generated from the proposed project would be managed as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

1.5 Sensitivity

Project boundary is well beyond minimum distance of 500 m from CRZ boundary. About 6.5 km in North (Gundala Creek), 6.0 km East side (Malcolm Channel), and 3.0 km in the South direction (Bhavnagar Creek). Project site falls in Zone-III of Seismicity. Civil and Structures shall be designed according to applicable code. It is 6.0 km from Malcolm Channel (Gulf of Khambhat) thus susceptible to natural hazards like cyclone/storm etc.

1.6 Conclusion

There is no adverse impact on the water environment due to the operation of the project. The air environment has negligible effect due to the activities related to the operation of the project.

After implementation of pollution control measures there will be no emission from the plant beyond the norms specified by Gujarat Pollution Control Board (GPCB). The project is not contributing to any adverse impact on the surrounding soil, as the pollutants emitted are of the negligible amount.

Project intends to generate employment for local people and unskilled / semiskilled workers during construction phase. If this project comes up, it will have social, financial benefits and will be environmentally sustainable.

Pre-feasibility study confirms viability of the project.