EXECUTIVE SUMMARY

for

INSTALLATION OF SINGLE SUPER PHOSPHATE & GRANULATED SINGLE SUPER PHOSPHATE PLANT

at

Gat No. 499, Biranwadi, Tal: Tasgaon,
District: Sangli, Maharashtra-416311

Category as per EIA Notification 2006	Item No. 5(a); Chemical Fertilizers, Category B	
Cost of Project	Rs. 35 Crores	
Production Capacity (Proposed)	**Name of Product**	**Production Capacity**
	Single Super Phosphate (SSP)	600 MTPD
	Granulated SSP (GSSP)	400 MTPD

Project Proponent:

M/s Nirmiti Asmita Agro Pvt. Ltd.
Gat No. 499, Biranwadi, Tal: Tasgaon,
District: Sangli, Maharashtra

Environmental Consultant:

Gaurang Environmental Solutions Pvt. Ltd.
QCI/NABET Accredited Consultant No. – NABET/EIA/2023/RA0192
SNG Shree Ratna Apartments, Near Tambi Petrol
Pump, Bani Park, Jaipur, Rajasthan-302016
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1.1. Project Description

M/s Nirmiti Asmita Agro Pvt. Ltd. has proposed for "Installation of Single Super Phosphate and Granulated Single Super Phoshate Plant" at existing plant location i.e., Gat No. 499, Biranwadi, Tal: Tasgaon, District: Sangli, Maharashtra. Recently, M/s Nirmiti Asmitra Agro Pvt. Ltd. (NAAPL) has entered manufacturing of Micronutrient Mixture fertilizer. The plant is under construction for installation of micronutrients machineries. Unit has valid CTE granted through MPCB vide letter no. 0000137606/CE/2205001222. As micronutrient mixture fertilizer doesn't attract EIA Notification, 2006, environmental clearance is not applicable to the existing plant. Now, due to increase in demand of complex fertilizer, NAAPL has planned for installation of SSP and GSSP plant at existing plant. The total production capacities of proposed products are mentioned in ***Table 1.1*** below:

Table 1.1 : Total Production Capacity

Sr. No.	Name of Product	CAS No.	Unit	Production Capacity
1	Single Super Phosphate (SSP)	8011-76-5	MTPD	600
2	Granulated SSP (GSSP)	8011-76-5	MTPD	400

As per the EIA Notification 2006 and subsequent amendments, proposed project falls under Activity 5(a) i.e., Chemical Fertilizers and requires prior environmental clearance under Category 'B'. Detailed statement of the project is shown below in **Table 1.2.**

Table 1.2 : Details of Project

S. No.	Particulars	Unit	Details
1.	Total Project Cost	Rs. (In Crores)	35
2.	Net Plot Area	m^2	21477
3.	Green Area	m^2	7087.41 (33% of net plot area)
4.	Workers/Staff	No.	250
5.	Total Water Requirement	KLD	181
6.	Fresh Water Requirement	KLD	173
7.	Wastewater Generation (Including Domestic Sewage & Industrial Effluent)	KLD	Industrial Effluent- Not Applicable Domestic Sewage - 9
8.	Wastewater Treatment Schemes/Capacity	KLD	Industrial Effluent- Not Required Sewage Treatment Plant- 10 KLD
9.	Wastewater Discharge outside premises	KLD	0
10.	Power Requirement	kVA	1500
11.	DG Sets (Backup)	kVA	2x250

1.2. Description of the Environment

The baseline environmental data generation has been done for the period of 1st October 2022 to 31st December 2022. The study area within a 10-km radius around the proposed plant site has been considered as impact zone for EIA study.

1. *Site Characteristics*

The proposed project is located at Gat No. 499, Biranwadi, Tal: Tasgaon, District: Sangli, Maharashtra. The coordinates of center of site are **Latitude**: 17° 8'32.32"N and **Longitude**:

74°44'16.26"E. The proposed site is very well connected via road, rail & air transport. The nearest highway from the project is State Highway-136 located 0.31 km way from project in North direction. The nearest railway station from the project is Bhilvadi Railway Station located 28.12 km away from project in SW direction. The nearest airport from the project is Kolhapur Airport located 76 km, SW from project. Nearest town from the project is Tasgaon at 18.64 km, W. Agran River is flowing about 3.18 km away from the project site in east direction. Kaapurodha River is flowing 4.7 km away from the project in WSW direction. There are no environmentally or ecologically sensitive places located around the project. There are a few reserved forests located in vicinity of project. The nearest reserved forest is located 6 km away from the project. The nearest Sagreshwar Wildlife Sanctuary is located more than 15 km away from the project site. Topography of the plant site is almost plain. No archaeological, historical site is located within the study area.

2. Topography

The topography of the site is almost plain and the elevation of the site ranges between 744 to 746 amsl. The Topography around 10 km area of the proposed site is highly undulating. The average elevation in 10 km area around the site ranges between 600-823 metres above mean sea level.

3. Climate and Meteorology (IMD)

Temperature– December, January and February constitute winter months with daily mean minimum temperature around 14.4 ^{o}C and daily mean maximum temperature around 34.1 ^{o}C. April and May are the hottest months with daily mean maximum temperature around 37.3 ^{o}C and daily mean minimum temperature around 22.2 ^{o}C.

Relative Humidity– The air is generally moist in the region. The humidity level ranges between 30-88%. The maximum humidity during rainy season is 88%.

Rainfall – The annual total rainfall is 681.8 mm. Over 77% of the total annual rainfall is received during between July to September.

Wind Speed– The wind speed was mostly between 1.2 to 5.3 km/hour for all the months. The wind speed during summer season was mostly between 2.8– 5.3 km/hr while during rainy season, it was between 4.4 to 5.0 km/hr and in winter months wind speed ranges between 2.2 to 2.4 km/hr.

Wind Direction – The predominant wind direction during winter season is from east. Rest of the season the wind blows from West.

Calm Periods – The calm period constitute an important factor in the dispersion of air pollution. The maximum calm period occurs during April-May and September to November month.

4. Seismicity

Based on tectonic features and records of past earthquakes, a seismic zoning map of India been prepared by a committee of experts under the auspices of Bureau of Indian Standard (BIS Code: IS: 1893: Part I 2002a, the project area falls in Zone IV of seismicity. Thus, lies among the High damage Zone earthquake areas.

5. Soil

The soil sampling was done at 8 locations in the study area. The sand levels range from 55.9-59%, clay levels range from 17.6-26.1% & silt levels range from 17.5-23.6%. The bulk density of the soils was found in the range of 1.12 to 1.44 gm/cm3. Water Holding Capacity of study area soils was observed as 27.9 to 41.2%. pH values of the soil sample range from 6.99 to 8.08. The nature of the soil is slightly basic in nature. The Organic Carbon content of soil varied from 0.23 to 0.48%, thereby implying that soils are low in organic content. Available nitrogen content in the surface soils ranges between 158 to 381.3 kg/ha, thereby indicating that soils are low to medium in available nitrogen content. Available phosphorus content ranges between 34 & 71.8 kg/ha, thereby indicating that soils are high in available phosphorus content. Available potassium content in these soils ranges between 135 & 225.1 kg/ha, thereby is indicating that the soils are medium in potassium content. Overall, the soil of the study area is moderately fertile.

6. Water

Eight ground water samples and two surface water samples were collected from locations around the site during study period. pH value of the sample varies from 6.12 to 7.66 in all locations, which is well within the specified standard of 6.5 to 8.5. Electric Conductivity levels vary from 478 to 1418 µmho/cm. Total dissolved solids range from 310 to 919 mg/l which was found to within standards. The hardness values in ground water of the study area ranges between 162 to 456 mg/l which is well within the permissible limit at all locations. Calcium levels were observed within range of 39-110 mg/l. Magnesium values in ground water of the study area are well within the specified permissible limit of Indian drinking water standard. The chloride values in ground water of the study area ranges between 41 to 98 mg/l which is well within the permissible limits. No biological and metallic contamination has been found in any of the ground water sample of the study area. Overall, the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012 all locations. No metallic and bacterial contamination was found in the ground water samples.

Seven surface water samples and two surface water samples were collected from locations around the site during study period. Bacterial and metallic contamination was observed in the surface water sample. However, the surface water was found to meet the Best Designated Use – 'C' Criteria of CPCB (i.e Drinking water source after conventional treatment and disinfection).

7. Air Quality

AAQ monitoring was done at nine locations within the study area considering dominant wind direction, populated area and sensitive receptors. The monitoring results of ambient air quality were compared with the National Ambient Air Quality Standards (NAAQS) prescribed by MoEF; GoI Notification dated 16.11.2009. The maximum concentration of PM10, PM2.5, SO2, NOx, CO and NH_3 was 80.1 µg/m^3, 44.6 µg/ m^3, 8.9 µg/ m^3, 14.2 µg/ m^3, 18.8 µg/ m^3 and 0.43 mg/ m^3, respectively.

8. Noise

8 locations were monitored for ambient noise quality in the study area. Day Time Leq level varies from 50.2 dB(A) to 62.2 dB(A) and Nighttime varies from 40.4 dB(A) to 54.2 dB(A).The noise level is observed within the prescribed limit at all the monitoring stations. The ambient noise quality of the study area is found within the prescribed National Ambient Noise Quality

Standards prescribed for respective residential area (standards of 55 Leq dB(A) during day time and 45 Leq dB(A) during night time), commercial area (standards of 65 Leq dB (A) during day time and 55 Leq dB(A) during night time) and Industrial area (standards of 75 Leq dB(A) during day time and 70 Leq dB(A) during night time).

9. Biological Environment

The baseline study for existing ecological environment was carried during baseline study. Field sampling efforts covered the proposed project site and 10 km area around the proposed site. Most of the land within the 10 km area of the proposed site is industrial.

Flora: Species like *Acacia spp, Zizyphus jujuba, Phoenix sylvestris, Borassus flabellifer Azadirachta indica, Albizia lebback, Delbergi sisso, Casia fistula, Pterocarpus marsupium. and Delonix regia* trees are predominantly observed spanning over part of this buffer zone.Herb & shrubby species *Xanthium strumarium, Nerium indicum,* Parthenium *spp. Calotropis procera, Lantana camara, Vitex negundo, Zizyphus mauritiana, Canabis sativa* and few grasses species. The listed as well as observed floral species has been cross-checked with the Red Data Book of Indian Plants (Botanical Survey of India). No extinct, endangered, vulnerable, rare and/or critical floral species has been found in the the study area.

Fauna: The 10 km area around the proposed site is mixture of rural and urban settlements. Due to lack of any forest area at present, there is hardly any wildlife present in the area. Mammals, rarely sighted in the area the other fauna that can rarely see are Mangoose and reptiles. However, avifauna diversity is good due to presence of water bodied in the area. The listed fauna found in study area has been cross-checked with Red Data Book of Indian Animals (Zoological Survey of India). There is no endangered or Schedule-I faunal species present in the study area.

10. Demography

The district's area is around 8,572 square feet. The district is bounded by the district of Satara in the north and northeast, Solapur in the north and northeast, Bijapur (Karnataka) in the east, Belgaum in the south, Kolhapur in the south, and Ratnagiri in the west. Shirala taluka on the west comes in the main line of Sahyadri. The western part of the district is mountainous. The district has an area of 8,572 sq.kms and a population of 28, 22,143 persons as per 2011 Census. While the area of the district accounts for 2.78 percent of the total area of the State, the District population constitutes 2.51 percent of the total population of the State.

1.3. Anticipated Environmental Impacts and Mitigation Measures

1. Air Pollution

During Construction Phase, civil construction activities and foundation development for project may lead to dust generation. Operation of construction machineries and fuel combustion will lead to air emissions. Construction activities will be short-lived and restricted within vicinity of project area. Impact generated due to construction activities will be regulated within limits by implementation of mitigation measures like Barricading will be done around the construction site to control dust dispersion into the surroundings, Dust suppression by regular water sprinkling in and around the project site, Routine preventive maintenance of construction equipments etc.

During Operation Phase, the main types of air emission from project will be flue gas emissions, process emissions and fugitive emissions. Fugitive emissions may generate from improper

handling, spills & leaks from storage tanks & drums. Air emissions could affect general ambient air quality in project site and nearby residential areas that might lead to discomfort and related respiratory & odour problems to people. Flouride emissions will also be generated from acidulation of rock phosphate & curing of product. To control such emissions, air pollution control measures like Four-stage scrubbing system (PPGL+FRP Scrubber fan with suction duct), dust collector chamber & cyclone (Dryer cyclone & cooler cyclone) will be installed with effective efficiency. To control process emissions, four-stage venturi scrubber, cyclone & scrubbing system with anti-current will be installed. Appropriate stack height of DG Sets will be maintained as per CPCB norms. Emissions from plant stacks will be maintained within statutory limits prescribed by MPCB/CPCB.

2. Noise Pollution

During Construction Phase, main causes of noise will be operation of construction machineries & equipments like compressors, mixers, cranes, generators. Noise will also be generated from movement of vehicles carrying materials, loading & unloading activities, operation of DG Sets etc. Due to construction activities, there may be increment in noise levels in the area that may also lead to nuisance and disturbance. However, all preventive measures will be executed to avoid noise pollution like limiting time of construction activity during daytime only, Regular noise level monitoring, provision of noise mufflers & noise suppression equipments to all machineries etc.

During Operation Phase, the most probable sources of noise generation in the project will be various instruments like blowers, vacuum pumps, process pumps, granulator dryers, coolers, crushers etc., & vehicular movement along the road around the plant. The proposed SSP project will be a smaller project with advanced technology and improved equipment both in terms of energy efficiency and less noise. Continuous noise and vibrations may cause several problems to human as well as animals. However, noise will be maintained within permissible limits by implementation of mitigative measures like use of suitable muffler system/enclosures/sound-proofing glass panelling on heavy equipment/pumps/blowers, insulation of equipments with enclosed doors, appropriate placement of equipments in such an orientaion that would direct the noise away from sensitive receptors, plantation around the project etc.

3. Water Pollution

During Construction Phase, freshwater during construction phase will be sourced by private tankers. Wastewater generated will be disposed through soak pits. Mitigation measures like dry vehicle cleaning, use of freshwater only for domestic works, no excavation during monsoon season etc. will be done to avoid negative impacts on the site.

During Operation Phase, freshwater requirement of the project will be 181 KLD. Out of total, 173 KLD freshwater will be required for SSP Plant, GSSP Plant, Domestic Purpose and gardening that will be sourced by Sangli Irrigation Division. Rest of requirements will be met be reusing effluent and STP treated water. SSP/GSSP process doesn't generated industrial wastewater. Only, there is generation of scrubbing waste which will be reused for sprinkling over product SSP or recycled for Acid dilution. However, there will be generation of 9 KLD sewage that will be treated in Sewage Treatment Plant (Capacity-10 KLD). Treated water will be reused within the premises for gardening purposes. The project will be Zero-Liquid Discharge project. Plant shall adopt all possible measures to reduce the water consumption.

Dry dust shall be collected and kept in enclosed containers / areas & not allowed to mix with water. Good Housekeeping shall be maintained. A four - stage fluoride (HF) scrubber will be provided to efficiently scrub the vent gases from the SSP processing plant. Water will be pumped to the scrubber and sprayed inside void towers by nozzles. The bleed stream of scrubber liquor will be sprinkled over the product SSP, and thus the process will operate on ZLD basis. Spillage during loading, unloading & storage will be channelized properly to drains. Wastewater shall not be discharge into surface or ground water.

4. Waste Management

During Construction Phase, no major solid waste expected to be generated during construction phase. Only small quantities of construction debris, discarded metal pieces and empty containers, etc. will be generated. Apart from this some quantity of municipal waste may also generate from labour and excavated soil will be generated. This waste is required to be collected, segregated and disposed in manner that it does not mixes or pollutes air, water and land environment.

During Operation Phase, there will be generation of different kind of Industrial hazardous wastes from production process and associated activities. Waste will be packed in drums/HDPE bags and stored at designated area. Industrial hazardous wastes such as spent lube oil, Discarded containers will be sold to recyclers. All waste will be disposed as per The Hazardous & Other Waste (Management and Transboundary Movement) Amendment Rules, 2021. The scrubber liquid bleed containing H_2SiF_6 (8-10% Conc.) and filtrate will be reused in the plant. Solid waste Management Rules,2016 shall be followed. Fly ash will be collected at designated place. It shall be sold through contractors to Cement / Brick Manufacturer.

5. Land & Soil Environment

Land has been in possession of M/s Nirmiti Asmita Agro Private Limited. Land use of the project is industrial only. During Construction Phase, soil erosion may happen if open areas are left without paving or plantation. Thus, it is required to either pave or green the open areas. Sanitation and waste magaement practices will be adopted, used oil will be stored and disposed responsibly, spillage will be avoided to reduce impact to soil during construction phase.

During Operation Phase, there will be generation of waste which could pollute the surrounding agricultural land. Spillage of material like effluent, chemical (acid), Hazardous waste, used oil and fuel may contaminate the soil. Thus, acid, fuel tanks will be provided with secondary containment & extra prevention measures to control leakage. Sensors will be provided to detect leakage. No area shall be left excavated or open after any repair & maintenance works. Drains will be constructed with acid proof lining near process machinery area to collect spillage or leakage. All precautions will be taken to avoid spillage from storage leading to soil contamination. Paved area will be provided near the process area to avoid soil contamination. The loading unloading activity will be done within a safe zone defined as per prevailing rules.

6. Ecology and Biodiversity

During Construction Phase, no tree cutting shall be required for the proposed project hence the direct impact on terrestrial ecology (loss of flora and fauna) is likely to be negligible. As the site is devoid of natural as well as manmade forest, the overall impact on terrestrial ecosystem will be NIL.

During Operation Phase, the impact on the surrounding ecology of the project will mainly occur from the deposition of air pollutants. The incremental concentration of air pollutants is not likely to cause any significant changes in the ecology, because during operation of proposed project the ambient air quality is likely to remain within the national ambient air quality standards. The deposition of small number of pollutants (PM) may affect the surrounding agriculture & ecosystem. The project is therefore planned with most efficient air pollution control systems for achieving air emissions norms, so that the impact on nearby crops & ecosystem becomes insignificant. No national park, wildlife sanctuary, biosphere reserve, route of Migratory Birds exists within 10 km area of the project. No endangered or rare or threatened plant or animal species was observed within 10 km area of the project site hence impact on RET species is negligible.

7. Socio-Economic Environment

Proposed land is in possession of M/s Nirmiti Asmita Agro Private Limited and no R&R is applicable to the site. Project development involves transportation of material and construction activities.

During Construction Phase, construction will generate employment options for skilled and unskilled labour. Most of the unskilled and semi-skilled labour will be taken from nearby villages. Thus, the project construction activity will have positive impact on the social environment. Accident and Noise problem in the plant are the main concern for local labour. Thus, measures are necessary to be adopted to overcome these impacts. PPE shall be given to all labour working in noisy and risky area. And, to avoid accidents during construction phase, wide internal roads and proper parking of trucks – without interference with movement of personnel will be ensured. Additionally, all construction safety devices and certified equipment, belts, cranes, etc. will be ensured. The contractor/s will adhere to the norms prescribed by Factories Act, ensure Workmen Compensation Act cover, and related guidelines.

During Operation Phase, there will be requirement of labours of approximately 250 no. Indirect employment opportunities will be generated in various activities like raw material and final products transportation, contractual manpower for non-critical activities at the plant (canteen, gardening, housekeeping, etc.). The industrial growth of the region will help in infrastructure development in the area. The socio-economic impacts are intrinsically linked with the economic, environmental and health impacts. These impacts relate to positive changes in the quality-of-life parameters of a community. The proposed project will increase the production of /SSP/GSSP that will be sold to farmers. It will also generate income for government through Taxes. Overall, the project will have positive impacts on socio-economic environment. Use of fertilizer affects farmers agricultural production patterns through increase in agricultural crop yields in the surrounding areas.

However, due to operation & maintenance there may be various risks for the staff and other nearby people. All possible measures will be adopted to reduce negative and hazardous impacts on workmen, staff and nearby area.

Conclusion

From above analysis, it is safe to conclude that the impacts anticipated vary from moderate to low significance and magnitude. No Major impact is anticipated during the preconstruction and constriction phase from the proposed prohect and all basic facilities are planned at the site to overcome the impact. However, during operation phase, impact is anticipated due to increased polluted air quality and increased noise level. The project also has various positive impacts like indirect employment generation, increase in the indigenous production and ease of the availability of chemical fertilizers to farmers. It is believed that the anticipated negative impacts can be normalized by taking the proposed mitigation measures.

1.4. Environmental Monitoring Programme

Environmental monitoring plan will be implemented as per regulatory requirement to comply the consent conditions. As per the MoEF&CC guideline, Environment monitoring report and compliance of conditions mentioned in the environment clearance will be submitted to the RO-MoEF&CC, SPCB, MoEF&CC online portal i.e., Parivesh; and shall be uploaded on company's website.

1.5. Additional Studies

Risk assessment study has been undertaken to identify the hazards and preparation of risk mitigation plans. All measures shall be adopted as per the guideline. On-site and Off-site Emergency plan will be place and management will have strict supervision and vigil on the operative aspects. Based on the risk assessment studies, the following recommendations have been made for the proposed project:

1. Ensure that dyke's integrity is maintained, and dyke drain valves is operated through administrative controls only to prevent loss of containment through dyke drain valve.
2. Ensure adequate inventory of SCBA sets is available in respective use area for emergency response.
3. Train emergency responders and management team on consequence and damage distance of various emergency scenarios covered in this QRA and ideal emergency response in case of onsite and off-site emergency.

1.6. Project Benefits

- It will increase the indigenous production capacity of SSP/GSSP's
- It will maintain stability in Indigenous / domestic market for Single Super Phosphate/GSSPs
- It will reduce the import of fertilizers to some extent and yield foreign currency drain.
- The project follows "Zero-liquid Discharge" guidelines. There are minimal freshwater requirements for the project and also involves minimal effluent generation.
- There will be employment generation due to the project.
- It will ease the availability of chemical fertilizers to farmers of the State.
- It is proposed to spend 2% of the total project cost i.e., 0.7 Crores on Corporate Environmental Responsibility (CER). The company will also undertake community

development in surrounding villages & supporting various actions like - education, sanitation and community plantation in nearby areas.

1.7. Environment Management Plan

EHS policy will be adopted by the plant for sustainability. A separate EMP cell, Fire & Safety cell and Occupational Health First Aid Centre will be provided in the plant for compliance of Environmental management plan and OHSAS guideline.

Total cost for proposed project is Rs 35 Crores. Construction will be started after getting all approval from concern department. Installation of machinery & commissioning of plant will be completed in 12 months after start of construction. The capital cost for environmental management of the proposed project is estimated to be Rs. 225 Lakhs. Budget allocation of Rs. 47 Lakhs has been made every year to meet the recurring expenditure for implementing the environmental control and improvement measures. NAAPL will implement all guidelines laid down by CPCB and MoEF&CC.