EXECUTIVE SUMMARY

for

PROPOSED EXPANSION IN "PESTICIDE TECHNICAL MANUFACTURING UNIT"

at

Village Rampura, Tehsil Rampura Phul, District-Bathinda, Punjab

Type of Project	Brown Field Project
Category as per EIA notification 2006 and its amendments:	Schedule **5(b);** Pesticides industry and pesticide specific intermediates (excluding formulations) **Category A**
TOR Details	**TOR Letter No**. J-11011/351/2021-IA-II(I) dated 7th September 2022
Production Capacity after Expansion	**Existing Formulation:** 200 MTPA **After Expansion production Capacity:** 3000 MTPA (Insecticides: 1140 MTPA, Fungicides: 300 MTPA, Herbicide: 1200 MTPA, Intermediates-products: 360MTPA) **Formulations-60000 MTPA**
Cost of Proposed Expansion	**₹15 Crores**
Monitoring Season and Laboratory:	**October-2022 to December-2022** (J. P Test House & Research Centre Shahibabad Industrial Area Shahibabad Ghaziabad (UP); NABL Accreditated-Certificate No. TC-8047 valid till 30/06/2022
NABET Acc. No.:	**Certificate no** : NABET/EIA/1922/RA0196 extension letter no QCI/NABET/ ENV/ACO/22/2575 valid till 03.05.2023

Project Proponent

M/s SAI RAM AGRITECH PVT. LTD.
1st Floor, Lehra Bazar, Rampuraphul, Bathinda, Punjab-151103
Email: sairamagritech@gmail.com **Phone No**: - 9216626301

ENVIRONMENTAL CONSULTANT:

(Approved Consultant)

EQMS INDIA PVT LTD.
QCI/NABET Accredited Consultant
304-305, 3rd Floor, Plot No. 16, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi – 110092
Phone: 011-42270087, 43062757; Website: www.eqmsindia.com ; E-mail: eqms@eqmsindia.org

EXECUTIVE SUMMARY

INTRODUCTION

Sai Ram Agritech Pvt. Ltd, a leading agrochemical company in India, deals in all kinds of insecticides, herbicides, fungicides, fertilizers, manures and plant growth regulators. In just over a decade from it's inception, Sai Ram Agritech has become a name to reckon with among the farmer fraternity owing completely to the quality of products, manufactured with excellence to meet international specification.

Existing plant is located at **Village Rampura, Tehsil Rampura Phul, District-Bathinda, Punjab**. The unit is currently involved in manufacturing of **Formulation (Formulation of pesticides / weedicides and Fungicides: 200 MTPA).** As of now, this unit is manufacturing formulation products, hence **environment clearance is not applicable** for the existing unit. Existing unit has valid **consent to operate granted from Punjab Pollution Control Board vide application no 9347862** and **9343484** dated **22nd February 2019** .Chronology of project is given below in **Table 1.1.**

Table 1.1 : Chronology of Project

Year of Establishment	Total Production Capacity	Whether covered under EIA Notification or Not
2013	Formulation of pesticides / Weedicides and Fungicides @ 50 MT/Annum	• The industry was not covered under EIA Notification, 2006 and its amendments because Environment Clearance is exempted for formulation unit. • CTE and CTO was obtained from PPCB time to time for the establishment and operation of existing industry.
2018	Formulation of pesticides / Weedicides and Fungicides @ 200 MT/Annum	• The industry was not covered under EIA Notification, 2006 and its amendments because Environment Clearance is exempted for formulation unit. • Approval for site clearance was obtained from Director of Factories, Punjab for increasing the production capacity (formulation) of Pesticides / Weedicides and Fungicides from 50 MT/year to 200 MT/year vide dated 24.09.2018. • CTE expansion was obtained from PPCB for increasing the production capacity (formulation) of Pesticides / Weedicides

Year of Establishment	Total Production Capacity	Whether covered under EIA Notification or Not
		and Fungicides from 50 MT/year to 200 MT/year vide Certificate No. CTE/Exp/BTI/2019/9143245 dated 06.02.2019. • CTO was granted by PPCB for Formulation of pesticides / weedicides and Fungicides @200 MT/year vide Certificate No. CTOA/Varied/BTI/2019/9343484 for Air & CTOW/Varied/BTI/2019/9347862 for Water dated 22.02.2019 and valid till 30.09.2023.

Now, Sai Ram Agritech has planned to expand their existing unit. The project will involve in production of pesticides and pesticide specific intermediates. **The total production capacity of the plant after expansion will be 3000 MTPA (excluding formulation). The plant also proposes to enhance their formulation capacity from 200 MT/Annum to 60000 MT/Annum**. Since environmental clearance has been exempted for formulation units as per EIA Notification, 2006 and further amendments, formulation capacity for the plant has not been added.

As per the Government of India (Ministry of Environment, Forests & Climate Change (MoEF&CC),) EIA Notification 2006 and further amendments, the proposed expansion project for introducing the production of technical grade pesticide will be covered under **Activity 5(b); Category A** and hence requires environmental clearance from MoEF&CC, New Delhi.

The proposed project site is not located in a Notified Industrial Area. **Therefore, Public Hearing has been applicable for this project.**

Details of products and By-products are given below in **Table 1.1.**Salient features of the projects are given below in Table **1.2.**

Table 1.2 : Details of Products and By-product

Sr.no.	Name of Products	Cas No.	Quantity (MT/Annum)
HERBICIDE GROUPS			
Group 1: UREAS/ ALS-SULFONYLUREACONT/ALS-IMIDAZOLINONE			
1	Bispyribac-Sodium	125401-92-5	180
2	Bensulfuron	83055-99-6	
3	Chlorimuron	90982-32-4	
4	Pyrazosulfuron	93697-74-6	
5	Sulfosulfuron	141776-32-1	
6	Penoxsulam	219714-96-2	
7	Imazethapyr	81335-77-5	
Group 2: AMINO ACIDS / UREAS/ ACETAMIDES/CYCLOHEXANDIONES			
8	Glyphosate	1071-83-6	300
9	Glufosinate	77182-82-2	
10	Pendimethalin	40487-42-1	
11	Pretilachlor	51218-49-6	
Group 3: PPO-DIPHENYL EHTERS/ ARYLOXYPHENOXYPROPIONATES			
12	Clodinafop	105512-06-9	120
13	Quizalofop	100646-51-3	
Group 4: TRIAZINES/PGR / OTHERS			
14	Metribuzin	21087-64-9	600
15	Atrazine	1912-24-9	
16	Ethopen	16672-87-0	
17	2,4 D Sodium Salt		
FUNGICIDE GROUPS			
Group 5: SDHIs / OTHERS – CONT			
18	Thifluzamide	130000-40-7	**120**
19	Isoprothiolane	50512-35-1	
Group 6: STROBILURINS/SBI – TRIAZOLE			
20	Azoxistrobin	131860-33-8	**180**
21	Picoxystrobin	117428-22-5	
22	Trifloxystrobin	141517-21-7	
23	Tebuconazole	107534-96-3	
24	Tricyclazole	41814-78-2	
25	Propiconazole	60207-90-1	
26	Difenoconazole	119446-68-3	
INSECTICIDE GROUPS			
Group 7: ACARICIDES COMPOUNDS/ BENZOYLUREA/OTHERS			
27	Diafenthiuron	80060-09-9	120
28	Spiromesifen	283594-90-1	
29	Pyriproxyfen	95737-68-1	
Group 8: NEONICOTINOIDS			
30	Dinotefuran	165252-70-0	**600**

Sr.no.	Name of Products	Cas No.	Quantity (MT/Annum)
31	Imidacloprid	138261-41-3	
32	Thiamethoxam	153719-23-4	
33	Pymetrozine	123312-89-0	
Group 9: SYNTHETIC PYRETHROIDS			
34	Lamda-Cyhalothrin	68085-85-8	**360**
35	Bifenthrin	82657-04-3	
36	Cypermethrin	52315-07-8	
37	Deltamethrin	52918-63-5	
Group 10: ORGANOPHOSPHORUS & OTHERS			
38	Chlorantraniliprole	500008-45-7	**60**
39	Flubendiamide	272451-65-7	
Group 11: ADVANCE SPECIFIC PESTICIDE INTERMEDIATES			
40	PEDA		**240**
41	PMIDA		
42	RHPPA		
43	LAMBDA ACID		
44	Research & Development Based Products		**120**
	Total		**3000**

Table 1.3 : Salient Features of the Project

S. No.	Particular	Details
1.	Plot/Survey/Khasra No	Khasra Nos. 15/23, 24/1/1, 24/2, 24/3/1, 31//4/1/1, 15//24/1 (0-19), 24/2(0-19),24/3(2-1),31//4/1 (5-7), 15/23(8-0), 24/1 (2-0), 24/2 (2-0),24/3(4-0),31//4/2 (0-15)
2.	Village	Rampura
3.	Tehsil	Rampura phul
4.	District	Bathinda
5.	State	Punjab
6.	Latitude	**30°15'51.32"N**
7.	Longitude	**75°15'16.68"E**
8.	Land Area	Land belongs to M/s Sai Ram Agritech Private Limited The total land area is **7770.874** m^2. 33.62% of total land is allocated for green area development.
9.	Land use and Land cover	Land Use- Industrial Land Cover- Industrial
10.	Defense Installations	None
11.	Ecological Sensitive Areas/ Protected Areas as per Wildlife Protection Act 1972	None

S. No.	Particular	Details
	(National Parks / Wildlife sanctuaries / bio-sphere reserves / tiger reserves)	
12.	Reserved / Protected Forest	None
13.	State Boundary	None
14.	Water Bodies	None
15.	Nearest National Highway/ Other Road	• National Highway-7 (0.05 km, S)
16.	Nearest Rail Head	• Rampura Phul Railway Station - 1.77 km, NW
17.	Nearest Airport	• *Bathinda Airport* (46.5 km, W).
18.	Nearest Residential Area	• Rampura Phul city (0.20 km NW)
19.	Nearest Educational Institute	• Mother Teacher International School (0.06 km, SW) • Shivalik-Hills Senior Secondary School (0.26Km, NW)
20.	Nearest Hospital	• Bansal Hospital, Bathinda (1.35 km, WSW) • Raj Hospital (1.95 km, W)
21.	Seismicity	• Seismic Zone-III (Moderate Risk Zone)

Description of the Environment

Site Characteristics

The project site is located at Barnala-Bathinda Road, Rampura phul, District-Bathinda, Punjab. The site is located near Rampura Phul city (0.20 km W from the project site) and well connected with National Highway-7 located at 0.05 km in South direction. Nearest Railway station is Rampura Phul Railway Station which is located at 1.77 km in NW direction from the Project Site. Nearest Airport from the project site is Bathinda Airport located at 46.5 km in West direction. It is a brown field project having total plot area of **7770.874 Sqm**.The coordinates of center of the site are **Latitude: 30°15'51.32"N and Longitude: 75°15'16.68"E.**
There are no environmentally sensitive components such as National Park, Wildlife Sanctuary, Elephant / Tiger Reserve, migratory routes of fauna and wet land present within 10 Km radius of plant site.

Topography and Meteorology

The project site is Plain and elevation of site ranges between 218 to 219 amsl. The topographical levels of the 10 Km area vary from 216 to 221 amsl.

Temperature– The Annual mean minimum temperature of around 2^0C and annual mean maximum temperature of around 43.3^0C. May is the hottest month with daily mean maximum temperature at 43.3^0C and January is the coldest month with daily mean minimum temperature of 2 ^{0}C.

Relative Humidity–Mornings are more humidity than evenings; highest relative humidity is recorded as 93% in Months of January.

Rainfall- Total annual mean rainfall was observed to be 751.7 mm. Around 78% of total rainfall occur in the months of June to Sep. The maximum total monthly rainfall is 221.4 mm and minimum monthly rainfall during monsoon is 6.9 mm.

Wind Speed- Mean wind speed was observed from 2.8 kmph (November) to 8.1 kmph (June).

Wind Direction- The wind pattern of the region shows that the predominant wind direction is NW, SE.

Baseline Period

The baseline environmental data generation has been done for the period of **October -2022 to December -2022**. The study area within a 10-km radius around the proposed plant site has been considered as impact zone for EIA study. Primary and secondary data has been collected for 10 Km radius of the project site.J. P Test House & Research Centre along with EQMS Team carried out sampling and testing.

Site Specific Met Data

Temperature – During the study period daily minimum temperature was 5.78 deg C and daily maximum temperature was 33.22 deg C.

Wind Speed–The average wind speed is 0.16 m/s.

Wind Direction – The predominant wind direction is North- West.

Soil Quality

Eight locations were monitored for checking soil Quality in study area. Based on Nutrient Index Value for N, P & K, the soils of study area fall into "***LOW to* MEDIUM *FERTILITY STATUS".*** Soils have medium organic carbon and are capable of *moderately supporting for agriculture*. The soils of study area area and project site is slightly alkaline in nature as pH value of soils in all analyzed samples is less than 8.5 and simultaneously the value of EC is less than 1 dS/m (1000 µmhos/cm).

Water Quality (Ground Water & Surface Water)

Eight ground water samples were collected from different locations around the site during study period. The water samples were examined for physicochemical parameters and bacteriological parameters. As per the study conducted, overall the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012.The Water Quality Index based on weighted average of 11 parameters (Total Hardness as $CaCO_3$, Calcium, Alkalinity, Chloride, Magnesium, TDS, Sulphate, Fluoride, pH, Iron, Nitrates) has been found to range between poor to good water.

Four sampling locations of surface water near the project were selected Within 10 km study area but two canel were found dry. Comparing the values as per classification for designated best use water quality criteria by CPCB, SW-1 (Pond in Rampura) were classified under "Class D" Propagation of Wild life and Fisheries and SW-2 (Pond Near Gill Kalan) were found in "Class E" Irrigation, Industrial Cooling, Controlled Waste disposal.

Air Quality

AAQ monitoring was done at Nine locations within the study area considering dominant wind direction, populated area and sensitive receptors. The ambient air quality monitoring during post -monsson Season (October-2022 to December -2022) was conducted, on 24- hourly twice a week basis for PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO (1 hr), NH_3, VOC & HC for a season. The maximum concentration of PM_{10}, $PM_{2.5}$, SO_2, NO_X & CO was 92 µg/m^3, 40 µg/m^3, 14.20 µg/m^3, 23.89 µg/m^3 & 0.53 mg/m^3 respectively.On the criteria of AQI the AQI Category for each of monitoring station has been found **between the range good to satisfactory** for all locations.

Noise

The noise levels observed in the project site and study are within prescribed limits except the location Amar Hospital - Rampura **(N-4).** The noise level exceeded at this location due to commercial activities and extensive traffic at NH-254.

Traffic

The site is accessible through NH-7. Site is well connected to 10m wide industrial road through entry/exit. The transportation of material will be through industrial Road which is further connected to the NH-7. During the study period maximum traffic in study area was observed during evening**.** Less traffic movement is found during early morning hours**.** With the operation of the proposed project, the traffic volume would increase. However, the incremental will be very less in comparison to the carrying capacity of the road. At Maximum the expected PCU/hr from the site will be 37 PCU/day which is very less in comparison to the carrying capacity of the Road. Thus, no major impact is anticipated in the nearby road due to the proposed project.

Socio-Economic

As per the census records 2011, the total population of 10-km radius study area was recorded as 142664 persons of 27 revenue villages/towns of Rampura Phul (22 villages) Bhatinda (3 villages) in Bhatinda District and sub district Tapa (2) in Barnala District of Punjab state.
Total number of 'Households' was observed as 27634 in the study area. Male-female wise total population was recorded as 75673 males and 66991 females respectively. As per the census records 2011, the data reveals the sex ratio as 885 females for every 1000 males in the study area. On the basis of the village/town wise SC & ST population distribution for the study area during 2011, the 'Scheduled Castes' population was observed as 45583 consisting of 24036(16.84%) males and 21547(15.10%)females respectively which accounts as 31.95% to the total population (142664) in the study area.

Ecology & Biodiversity

Most of the land around the study area (10 km radius around the project site) is under agriculture uses. No national parks, wildlife sanctuary, biosphere reserve is present within 10 km area of the project site. No Reserve Forest and protected forests are present within the study area. Because there is no forest in the study area and the vegetation is restricted along roadside and other open areas along the agriculture fields.

Flora: The land use of the 10 km area around the project site is mainly dominated by agrian ecosystem. Vegetation type of study area and its surroundings including Bhatinda is the type that grows in semi-arid region. Bathinda and its surroundings has improved irrigation facilities and the soil type of area is changing its nature.

The Ground vegetation covered by dominant shrubs and herbs is *Eucalyptus hybrid* (Mysore gum), *Acacia nilotica, Dalbergia sissoo* (Tahli), *Morus alba* (Mulberry),

Acacia tortilis, *Melia azedarach* (Baikan), *Ailanthus excelsa* (Maha rukh), *Azadirachta indica* (Neem), *Prosopis cineraria* (Jand), *Prosopis juliflora* (Mesquite) along with some scattered trees of *Albizzia lebbek* (Siris). *Syzigyum cumini* (Jamun). Some ornamental trees like *Delonix regia* (Gulmohar), *Jacaranda, Cassia fistula* (Amaltas), *Cassia siamea* (Cassia), *Pongamia pinnata*, *Terminalia arjuna* (arjuna), *Toona ciliata* (Tun), *Zizyphus mauritiana* (Ber), *Kigelia pinnate* (Kigelia) species.

Fauna: There is no reserve, protected and revenue forest present in the study area. No national parks, wildlife sanctuary, biosphere reserve is present within 10 km area of the project site. As per the satellite Image of the study area about maximum land ins study area is under cultivation and settlement. Such scanty vegetation coupled by rapid urbanization and speedy urbanization development has left the area devoid of any significant faunal species or wildlife.

Mammals: No significant carnivorous and herbivorous wild animals are found in the area. Langurs (*Presliptis entellus*), Mongoose (*Herpestes edwards*) and Jungle Cat (*Felis chaus*) are the common mammals observed in the area.

Amphibian & Reptiles: Frog, Indian bull frog, snake like Indian cobra (Naja naja); Dhaman (Lycodon aulicus), and \lizard is encountered at various places in study area.

Anticipated Environmental Impacts and Mitigation Measures

Air Pollution

Air quality may get impacted in the area during construction/installation phase due to various project activities including excavation and filling, Transportation and storage of raw materials & debris, movement of construction vehicle, Operation of construction machinery & equipment and Operation of DG sets. All these activities have potential to generate fugitive dust emissions. Major pollutants will be dust, SO_2, NO_2 & CO. Operation of DG sets, construction equipment/machinery and vehicles may also generate the exhaust which affects the air quality of the area. Existing highways shall be used for transportation and present road conditions are reasonably good. Water Sprinkling shall be done at site at regular intervals to reduce the dust emissions. Locally available raw material will be preferably used. Storage of raw materials like cement, sand, soil, etc. shall be done in covered sheds or should be covered by tarpaulin cover.

During operation phase, the proposed expansion is in the existing unit. As per the baseline data assessment, it is found that all the parameters monitored, i.e., PM (10), PM (2.5), SO2, NOx, CO, VOC and Hydrocarbon are well within the permissible limit. However, cumulative and continuous emissions from existing and proposed industries in an area may increase the pollutant level in the air. Thus, use of efficient mitigation measures and air pollution control system is required.

Efficient fuel and Conventional methods will be used in the plant to reduce the emission. All sources of emission shall be provided by appropriate air pollution control system and stack height as per CPCB norms to maintain the emission norms given by CPCB/MoEF&CC/PPCB. A continuous online Ambient Air quality Monitoring system and stack monitoring system will be installed at the plant to monitor the parameters are within the limit. Various mechanisms have been planed

in plant to control the emission. Sai Ram Agritech will have defined systems in place at each step of plant, process, and packing. These systems consist of Dust collector's, Air Handling Unit's, close Reactor systems, etc. Boilers will be provided with Bag filter with cyclone followed by 32 m stack height to achieve the emission levels. Quarterly Air pollution monitoring will be done by an external agency to ensure the effective working of pollution control equipment's & compliances of Air pollution norms.

Noise Pollution

There will be noise generation during construction phase in the project site due to construction activities such as site levelling, foundation; operation of construction machinery such as machinery and other activities. Also, there will be noise generation from movement of vehicles carrying material, loading & unloading activities, operation of DG set, etc. However, magnitude of the impact will depend upon the type and nature of the machinery, time schedule of operations, construction method and management practices followed during activities. The construction activities will be limited, to the extent possible, to day hours only.
During Operation Phase, the plant has various machines like dryers, blowers, vacuum pumps, process pumps, compressors, etc. along with DG sets, Boiler, which generates noise. These machines come with inbuilt appropriate control measures to maintain the noise levels within limits. The equipment like Compressors, blowers, fans, various drums and elevators will be provided with Acoustic pad insulation / Acoustic enclosures to limit the noise level as per the standard. Noise level at Boundary Fence will be controlled by providing green belt throughout the boundary wall of plant. The noise levels at the periphery of the plant will be maintained within 70 -75 dB (A). Placing of unwanted material as noise barriers along noise emitting area shall be done. Transporters shall be instructed to follow road safety and use well maintained trucks and tankers. A wide green belt is proposed as a noise barrier.

Water Pollution

Approx. 5 KLD (Domestic use: 2 KLD + Construction use: 3 KLD) of water shall be required during the construction phase. Water required for domestic purpose shall be met by supply water and for construction purpose shall be taken from authorized tanker supplier. 1.4 KLD of domestic sewage will be generated from construction workers and will be treated in septic tanks followed by soak pits.

All existing facilities like drinking, sanitation shall be used during the installation/construction purpose. No additional facility will be required for the additional work force. The existing supply of water shall be used for meeting requirement of labour. No wastewater will be discharged to the surface or ground. Thus, no impact on Water Quality is envisaged during construction phase. However, all standard practice shall be maintained at site to maintain water quality.

The existing total water requirement of the plant is 2.3 KLD. After expansion, total water requirement shall increase to **60 KLD** out of which **15 KLD** freshwater requirement shall met through Borewell after getting permission from concerned authority i.e. PWRDA and rest **45 KLD** from in-house treatment schemes i.e., ETP, MEE and SBT.

In the pesticide industry the main source of water pollution is the manufacturing process and use of water in other utilities. The sources of wastewater from the plant are process, boiler blow down, Softner Blow down, cooling tower blow down, canteen facilities, etc., The wastewater If not properly disposed off, then it can deteriorate the surface water quality of nearby water body. The wastewater and oil spillage from machinery can deteriorate the surface water quality of nearby water body by increase in the no. of pathogens, BOD, COD, TSS, etc if not disposed off properly. Many new techniques, efficient and sustainable manufacturing process is proposed to be adopted to reduce the water requirement.

After expansion, the effluent generation will increase to 43.7 KLD (Domestic: 1.7 KLD + Industrial:42 KLD). The source of effluent will be Domestic use, Process, scrubbers, washing, Boiler and cooling towers. The project will be a **"Zero-liquid Discharge"** Project.

Process Description for Different Wastewater Treatment Schemes

The sources of wastewater from the proposed plant will be from construction site during construction phase and process, boiler, cooling tower, washings, canteen facilities and admin building during operation phase.

The domestic wastewater will be discharged to soak pit followed by septic tank.

For industrial effluent Zero Liquid Discharge (ZLD) will be proposed. Wastewater streams will be segregated into two streams i.e., Concentrated stream from process waste- Stream I and Diluted stream from scrubbing, washing, boiler and cooling – stream 2. The entire operation will be in a closed system.

Stream 1 will be treated with Fenton treatment and then sent to MEE. MEE condensate will be sent to SBT for further treatment and recycled back to Industrial usage. Steam 2 will be treated in ETP (primary treatment) and then treated water further will be sent to SBT(Soil Bio Technology)for further treatment. Treated water from SBT will be recycled to Industrial purpose inside factory premises.

There will be no process effluents discharged. All the treated effluent will be recycled in process and other utilities. The ETP sludge will be temporarily stored and treated at the site and further will be disposed at the TSDF site. Hence impact on water quality from the proposed project is insignificant.

Waste Management

Construction activities lead to generation of sand, gravel, concrete, stone, bricks, wood, metal, glass, polythene sheets, plastic, paper etc. as waste. Various operations during the construction activities lead to the varied compositions in the total solid waste stream and affect the site. Improper storage and disposal of waste may enhance the risk of microbial contamination and enhance the risk of disease occurrence and cause foul smell. Thus, this waste is required to be collected, segregated and disposed of in manner that it does not mixes or polluting air, water and soiling environment. Excavated topsoil shall be used for backfilling/ greenbelt development & plantation. Municipal waste will be minimal as most of the construction workforce will come from near areas. The waste generated will be

collected and segregated and will be disposed off suitably. Hence impacts will be insignificant and for short duration only. These impacts will be confined to the construction site only and no adverse impact on the surroundings is anticipated. As soon as the construction will be over, all wastes from the site will be cleared with due care, meeting regulatory requirement, if any.

During Operation phase, There is generation of different kind of Industrial hazardous wastes from production process and other activities. Industrial hazardous wastes such as used or spent oil, spent carbon or filter medium are sold to recyclers. Chemical sludge generated from waste water treatment is disposed off at TSDF site, while other solid wastes are segregated in salable and non-salable waste. All waste is disposed as per The Hazardous & Other Waste (Management and Transboundary Movement) Amendment Rules, 2021.

The site will take valid membership of TSDF operated by M/s Rajasthan Waste Management Project located at Village Nimbua, post-office Rampur sainia (Derabasi), District Mohali, Punjab.

The municipal solid waste generation at the project site which is being segregated in biodegradable waste and recyclable waste. Recyclable waste is being sold off to different authorized vendors. Biodegradable waste is being sent to solid waste site. After expansion, municipal solid waste generated in the plant area will be disposed as per existing practices.

Land Environment

There will be no Land use / Land cover change as this is an expansion of the existing project. The proposed expansion shall be undertaken within the existing site of the project and the present land use of the existing site is industrial. No undeveloped or agriculture land will be used. There will be no physical changes outside the project boundary or any development of labour colony outside the project site. The majority of the labor will be hired from nearby villages and if required housing or shelter facilities required for construction workers will be provided at the site. Only Minor Digging shall be done in the plant area. Solid Waste Management Rules, 2016 and Construction and Demolition Waste Management Rules, 2016 shall be adhered to.
During Operation Phase, there will be generation of waste which could pollute the land. Hazardous waste generated in the Plant aredisposed as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and its subsequent amendments.

Soil Quality

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. Soil may get contaminated, if sewage is disposed of on the soil, littering of municipal waste, e-waste and spillage of HSD, oil and fuel. No major excavation is proposed in the plant during proposed project, only minor digging shall be done.

During Operation Phase, spillage of material like effluent, chemical, Hazardous waste, used oil and fuel may contaminate the soil. Due to improper disposal of solid

waste & liquid waste includes the leaching from biodegradable waste and effect on flora from spillage of waste on soil. Liquid effluent will be collected through closed loop channel to treatment scheme. Only treated water will be used for gardening after assuring standards norms of irrigation. No untreated water will be discharged on the land. All underground tanks will be provided with extra prevention to avoid leakage. Sensors will be provided to detect leakage. Separate room with paved area will be provided at plant for storage of Hazardous waste. Solid waste collection and disposal area will be paved area to avoid contamination of soil through leachate. Water less cleaning will be adopted wherever spill occurs to avoid runoff. No area shall be left excavated or open after any repair & maintenance works.

Ecology and Biodiversity

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 insignificant.
As the site is devoid of natural as well as manmade forest, the overall impact on terrestrial ecosystem will be negligible.
No RET species, reserve and protected forest, wildlife sanctuary, national park etc is present in the study area. Hence impact of such is not anticipated.
However, the excavation and filling up operation during construction period may result in fugitive dust emission. The dust deposition on pubescent leaves of the surrounding vegetation may lead to temporary reduction of photosynthesis. Though such impacts would however be confined mostly to the initial period of the construction phase only.
During Operation Phase, the impact on the surrounding ecology during the operation of the project will mainly occur from the deposition of air pollutants. Chronic and acute effects on plants and animals may be induced when the concentration of air pollutants exceeds threshold limits.
No national park, wildlife sanctuary, biosphere reserve 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. There is no endangered or Schedule-I faunal species present in the study area. The impact on the surrounding ecology during the operation of the project will mainly occur from the deposition of air pollutants.
Air pollution affects the biotic and abiotic components of the ecosystem individually and synergistically with other pollutants. Chronic and acute effects on plants and animals may be induced when the concentration of air pollutants exceeds threshold limits. Particulate emission and other gaseous emissions from the proposed plant are the major pollutant that may affect the ecology of the area. The incremental emission of air pollutants is not likely to induce any significant changes in the ecology because the national ambient air quality standards will remain within the limits. The incremental GLC of PM, SO_2, CO and NOx generated from the proposed plant will be very less and overall incremental GLC will remains within the NAAQS. Proposed plant is zero liquid discharge basis so no wastewater will be discharged. All solid waste and hazardous waste shall be disposed as per norm. Therefore, impact of emission on the surrounding vegetation will be insignificant.

Socio-Economic Environment

During Construction Phase, The proposed land is in the possession of Sai Ram Agritech and no R&R is applicable to the site. Project development involves transportation of material and construction activities. Construction activities have their impacts on surroundings like unpleasant views, increased traffic, increased noise, emissions, waste generation & piling of waste etc. All these have impacts on society. However, the construction phase will generate employment options for skilled and unskilled labour. The livelihood activities of this increased human population during construction period may contribute to the local environmental impacts in terms of collecting firewood and food as well as enhancing recreational activities. Accident and Noise problem in the plant are also the concern for local labour. Accidents may cause disability or life loss and working in noisy areas may cause speech interference, annoyance, hearing impairment, increase in heartbeat/ blood pressure of the human.

During Operation Phase, there will be requirement of the skilled and unskilled labour. Indirect employment opportunities will also 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 proposed production will increase the production of pesticide and reduce the Demand-supply gap. It will also generate income for government through taxes. Overall, the project will have positive impacts on socio-economic environment. Through CER activity company management will be committed to improve infrastructural facilities for the local people in the field of Environmental, Medical, and Transportation etc.

However, due to operation & maintenance there may be various risks for the staff and other nearby people. Thus, all the workers will be continuously trained for proper handling and transportation of hazardous materials as per the rule. All staff will be provided with personal protective equipment like ear plugs/mufflers, masks, gloves, etc as required. Workers medical Tests will be undertaken periodically. OHSAS guidelines will be followed in the plant.

Chapter 2. Environmental Monitoring Programme

Environmental monitoring plan will be implemented as per regulatory requirement to comply the necessary compliances. 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. Compliances will be submitted in month of June and December for the period of October to March and April to September respectively. Third party laboratory (approved MoEF&NABL laboratory) shall be appointed for carrying out the monitoring. Also, self-environmental audit, Health & safety audit and Energy audit shall be conducted annually.

Additional Studies

Risk assessment study has been undertaken to identify the Hazard and preparation of mitigation. All measures will be adopted as per the guideline.

- All storage tanks in the tank farm should be dyked. Other operation and maintenance features shall be based on established best safety practices.

- Concentration detectors for hazardous chemical vapours (e.g. organic solvents/chemicals etc.) fire Smoke / heat detectors and fire alarm should be installed at all strategic locations in the plant.
- A schedule for preventive maintenance including health survey of all plant equipment should be adhered to as far as possible.
- Ensure the absence of ignition sources in storage area.
- Ensure placement of firefighting facilities, such as, carbon dioxide, dry chemical powder and foam type fire extinguishers in addition to fire hydrant system, at strategic locations. Spill control measures, such as, removal of all ignition sources from the spill area and ventilating the area as well as soaking the spilled material with paper, towel or mud and letting the volatile substance evaporate slowly in a safe area.
- Compulsory use of protective clothing, non-sparking tools and warning signs during critical operations and maintenance.
- Training / refresher courses on safety information's / norms.
- Eyewash and showers should be put up at strategic places for use during emergencies.

Following steps for OHS activities have been suggested:

- Employee's health check-up: pre-employment and periodic check-up during employment. The health check-up observations should be informed to employees.
- The health should include any impact due to hazards at work place including (but not limited to) due to noise, heat, illumination, dust, any other chemicals, metals being suspected in environment and going into body of workers either through inhalation, ingestion or through skin absorption and steps taken to avoid musculo-skeletal disorders (MSD), backache, pain in minor and major joints, fatigue etc.
- Training and refresher courses on safety to all employees.
- Employees should be made aware of the hazards in the plant and the preventive actions to be safe from such hazards.
- **Response to Injuries:** Based on a survey of possible injuries, a procedure for response to injuries or exposure to hazardous substances should be established. All staff should have minimum training to such response and the procedure ought to include the following:
    - Immediate first aid, such as eye splashing, cleansing of wounds and skin, and Bandage etc.
    - Immediate reporting to a responsible designated person
    - If possible, retention of the item and details of its source for identification of possible hazards.
    - Medical surveillance
    - Recording of the incident
    - Investigation, determination and implementation of remedial action

Project Benefits

- It will fulfil the demand supply gap of pesticides and related intermediates.
- It is expected to improve the profitability of Sai Ram Agriotech and contribute to growth of economy of Country.
- It will maintain stability in Indigenous / domestic market for pesticides.
- It will ease the dependency of import of pesticides within the country and contribute to the Vision of Make-in-India.
- There will be temporary employment generation during construction phase.

Environment Management Plan

EHS policy will be adopted by the plant for sustainability. A separate EMP cell, Fire & Safety cell and Occupational Health Centre will be provided in the plant for compliance with the Environmental management plan and OHSAS guideline. Sai Ram Agritech will implement all guidelines laid down by PPCB, CPCB and MoEF&CC.

The cost of the project is estimated to be about **Rs 15 Crores**. Rs **1.61 Crore of capital cost** & Rs. **0.46 crore/year of recurring cost** will be spent on the Environment Management Plan.