Executive Summary

1.0 INTRODUCTION

Emcure Pharmaceuticals Ltd is situated at Kurkumbh, Pune. Company headquarter is situated in Pune, Kurkumbh is One of the unit of Emcure Pharmaceuticals Ltd. Emcure Pharmaceuticals Ltd., proposes to expansion of existing project at Plot No. D-24/24-1,MIDC Kurkumbh, Tal : Daund, Dist – Pune. MIDC has well developed infrastructure facilities like Road, Water & Drainage network. Daund Railway Station is 10 Km & Pune airport is about 75 Km away from the project site. Company falls under 5(f) & Category B of EIA Notification 2006.

Emcure Pharmaceuticals headquartered at Pune in West India is a vertically integrated Indian pharmaceutical company. The company's products as API with tablets, capsules (both soft gel capsules and hard-gel capsules) and injectables.

Established in 1983, Emcure was born out of the vision to create a healthcare company that would address the vast healthcare needs. Their commitment and drive have propelled there growth from a single manufacturing facility during the genesis, to a range of world class manufacturing facilities spread across API, formulations and biotechnology.

1.1 NEED OF THE PROJECT

The Indian pharmaceutical sector has come a long way, being almost non-existent before 1970 to a prominent provider of healthcare products, meeting almost 95 per cent of the country's pharmaceuticals needs.

The Industry today is in the front rank of India’s science-based industries with wide ranging capabilities in the complex field of drug manufacture and technology. It ranks very high in the third world, in terms of technology, quality and range of medicines manufactured. From simple headache pills to sophisticated antibiotics and complex cardiac compounds, almost every type of medicine is now made indigenously.

In view of this Emcure Pharmaceutical Ltd is exist in this area of industry. Emcure is already having existing unit and product as ARV products, Cardiovascular, CNS product, Anti Hypertensi, Anti cholesterol, Synthetic Organic Chemicals, Intermediates, Haematinic, Phytochemicals 20MT/M. Emcure is now planned for manufacturing of new product API and Drug intermediates & Therapeutics 40 MT /M.

1.2 THE NEED FOR ENVIRONMENTAL ASSESSMENT

Economic, social and environmental change is inherent to development. While development aims to bring about positive change it can lead to conflicts. The promotion of economic growth as the motor for increased well being was the main development thrust with little sensitivity to adverse social or environmental impacts. The need to avoid adverse impacts and to ensure

long term benefits led to the concept of sustainability. This has become accepted as essential feature of development if the aim of increased well being and greater equity in fulfilling basic needs is to be met for this and future generations. In order to predict environmental impacts of any development activity and to provide an opportunity to mitigate against negative impacts and enhance positive impacts, the environmental impact assessment is carried out.

Moreover pharmaceutical industry proposed to be set up in the State of Maharashtra Government require environmental clearance from Department of Environment, Government of Maharashtra and Ministry of Environment and Forest, New Delhi based on Sept 2006 notification on Environment Impact Assessment by Union Ministry of Environment and Forest vide No. SO 1533 subject to project is located within radius of 10 kms boundary of reserved forest, ecologically sensitive area which may include National Parks, Sanctuaries, Biosphere Reserves, critically polluted area and interstate boundary shall require environmental clearance from Central Government.

As Emcure Pharmaceutical Ltd. planned for manufacture API and Pharmaceutical intermediates 40 MT/M submitted an application for Environmental Clearance to Department of Environment, Mumbai, Maharashtra for terms of approval industrial project. The ToR was approved during the expert committee meeting held on 27, February 2013 held at DoE, Mumbai, Maharashtra.

2.0 PROJECT AT GLANCE

The proposed site is located at MIDC Kurkumbh, Tal : Daund, Dist Pune. Project brief is presented below:

Sr. No.	**Project Requirement**	**Details**
1	Proposed Project	Emcure Pharmaceuticals Ltd.
2	Location	Plot No. D-24/24-1 MIDC – Kurkumbh, Dist – Pune.
3	Latitude and Longitude	18^0 23’ 58.75”N 74^0 31’ 51.78”E
4	Plot Area	1,52,212.0m^2
5	Total Built up Area	Total Built up area of Plot D-24 & D-24/1 Existing:- 17066.22m^2 Proposed:- 45630.765m^2
6	Expected Manpower	276 Nos.
7	Total Water requirement	Existing- 456.0m^3 /day Proposed – 156 .00 m^3/day

8	Wastewater Generation	**Industrial** – Existing Effluent Generation– 229.0 m^3/day proposed Effluent Generation - 21.0 m^3/day **Domestic** – Existing Effluent Generation – 21.0 m^3/day Proposed Effluent Generation - 21.0 m^3/day
9	ETP Capacity	300.0 m^3/day
10	ETP Sludge	382.0 MT/Year
11	Total Power Sanctioned	2477 KW

2.1 INFORMATION OF INDUSTRY

1.	Name & address of the industry:		M/s Emcure Pharmaceuticals Limited, D-24/24-1, MIDC Industrial area, Kurkumbh, Tal. - Daund, Dist. – Pune – 413 802.
2.	Capital investment:		195.55 Crores (Existing) 350.00 Crores (Proposed)
3.	Type & category:		LSI / RED
4.	Consent status:		Valid up to 30 Apr. 2015
5.	Water consumption:		456 CMD (Consented), 260 CMD (Actual)
6.	Effluent generated:		250 CMD (Consented), 135 CMD (Actual)
7.	Treatment facility:		
	a) Domestic:		Treated along with industrial effluent in secondary treatment in ETP
	b) Industrial:		Treated in ETP & Thermal evaporator system.
8.	Land available for disposal of treated effluent:		Approx 10.6 acres
9.	Number of trees planted:		Approx 3000 No.
10.	CESS category: Water Requirement		
	Sr. No.	Particulars of category	CMD
	1	Domestic	25.0
	2	Industrial processing	231.0
	3	Industrial cooling/Boiler	200.0

	4	Agriculture/Gardening	0.00
11.	CESS amount paid up to:		May- 2013
12.	Air pollution control status:		We have installed scrubbers, dust collectors & ventilation system and the limits given below are monitored on regularly.

a) Details of process emissions:

Sr. No.	Particulars of emission	Limits
1	SPM/TPM	Not to exceed 150 mg/Nm^3
2	SO_2	Not to exceed 1132.8 Kg/Day
3	NOx (Process)	Not to exceed 50 mg/Nm^3
4	Acid Mist	Not to exceed 35 mg/Nm^3

b) Type of fuel used and quantity:

Sr. No.	Type of Fuel	Quantity
1	Furnace Oil	12 MT/Day
2	Diesel	500 lit/hr

c) Details of stack:

Sr. No.	**Stack attached to**	**Height in Meters**
1	Boiler 02 numbers (one stand by)	32 meter
2	DG set 06 numbers	6.5 From building roof
3	Scrubber 8 numbers	10 meter
4	Dust collector 7 numbers	10 meter

13.	Hazardous waste:	Sent to CHWTSDF for scientific disposal Date of Agreement 31st December 2009 Valid till 30th December 2014 Existing = 322.1MT/Y (Chemical sludge from waste water treatment -250MT, Distillation residue-50MT, Spent Carbon-20, Date expired/off specification discarded drugs-2MT & Dust from Pharma area-100Kg) b. Proposed = 410.1MT/Y (Chemical sludge from waste

		water treatment -132MT, Spent Solvent (20.2)-50MT, Distillation residue-100MT, Spent Carbon-40MT, Date expired/off specification discarded drugs-08MT, Process Residues and wastes (28.1)- 50MT,Off specification products (28.3)-30MT & Dust from Pharma area-100Kg) C.Total (a+b) = 732.2 MT/Y
14.	Non hazardous waste:	Sent to approved scrap vendor
15.	Whether member of CETP:	Yes Agreement date 15th Dec. 2006
16.	Legal action taken (if any):	No

Access:

The site is located at MIDC close to the National highway 9 towards Pune to Solapur. It is very much accessible by MIDC road Kurkumbh.

2.2 LIST OF PROPOSED FINISHED PRODUCTS

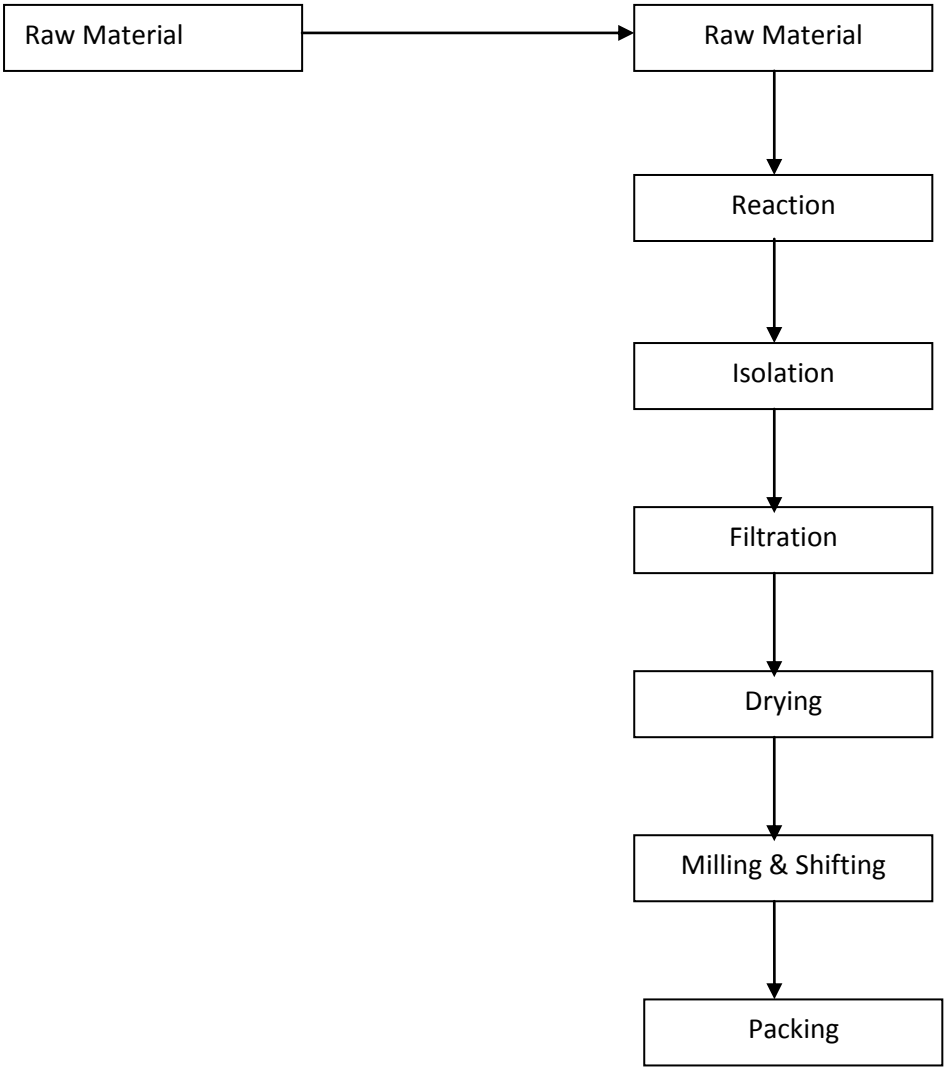
Sr. No.	**Therapeutics**	Sr. No.	**Therapeutics**
1	Antihypertensive	12	Chelating Agent
2	Antiretroviral	13	Antiviral
3	Food additive	14	Non-steroidal anti-inflammatory
4	Antiglaucoma	15	Antihyperphosphatemic agent
5	Antimalaerial	16	Anxiolytics
6	Hematinic	17	Anticancer
7	Anti inflammatory	18	Anti obesity Agent
8	Calcium Supplement	19	Antihyperammonemic
9	Anti ulcerative	20	Antidepressant
10	Anesthetic	21	Anticonvulsant
11	Nootropic	22	Bone resorption inhibitor
23	Anorexic	33	Antiasthmatic

24	Antipsychotic	34	Antiandrogen
25	Class I antiarrhythmic	35	Non nutritive sweetener
26	Anti inflammatory, analgesic	36	Antineoplastic
27	Antixiolytic	37	Neuroprotective
28	Immunosuppressant	38	Antispasmodic
29	Antiarrhythmic	39	Antiparkinsonian
30	Antiemetic	40	Antithrombotic
31	Astringent	41	Intermediate
32	Antianginal		

LIST OF EXISTING FINISHED PRODUCTS

Sr. No.	**Particulars**	**Quantity**
1	ARV Products	20 MT/M
2	Cardiovascular	
3	CNS Products	
4	Anti hypertensive	
5	Anti cholesterol	
6	Synthetic organic chemicals	
7	Intermediates	
8	Haematinic	
9	Phytochemicals	

2.3 PROCESS FLOW DIAGRAM



2.4 WATER BUDGET

Existing + Proposed

Water Consumption, Balance & Effluent generation						
Sr.No.	**Description**	**Consumption Cum/day**	**Loss Cum/day**	**Loss As**	**Effluent Cum/day**	**Remarks**
1	Domestic	50.00	08.00	Consumption & Evaporation	42.00	Domestic Effluent
2	Process	245.00	08.00	Evaporation & product assimilation	237.00	Industrial Effluent
3	Cleaning & Washing	09.00	2.00	Evaporation	07.00	Industrial Effluent
4	Boiler	226.00	223.00	Evaporation	03.00	Boiler Blow down
5	Cooling	82.00	79.00	Evaporation	03.00	Industrial Effluent
Total		**612.00**	**320.00**		**292.00**	**-**

3.0 Baseline Status of the Environment

3.1 Project Site

The project site is at plot no., D-24/24-1 Kurkumbh MIDC area, Taluka Daund, District Pune. The geocodes of Daund, Taluka are at 18^0 23'S 58.75"N

74^0 31' 51.78"E has an average elevation of 514 m (1686 ft). Daund Taluka encompasses 1,290 km^2 (500 $miles^2$), and comprises 65 villages. The main water ways through the region include the Bhima, Mula and Mutha rivers.

Daund is a railway junction on South Central Railway. Many trains pass through Daund junction for Manmad, Bhusawal, Solapur, Hyderabad, Chennai, Hubali, Vijapur. MIDC located at Kurkumbh in Daund is declared as Chemical Zone.

3.1.1Topography

Majority of the site is plain with gentle slope.

3.2 Ambient Air Quality Monitoring

In general air quality is expressed in amount of pollutants present in air at respective time like Particulate Matter, Sulphur Dioxide and Oxides of Nitrogen. Many sources add to

concentrations of these agents in ambient air like vehicular movement, venting of gases from industrial processes, construction and erection activity, units in the vicinity, dust storms, high speed winds etc. Sulphur dioxide results in combustion of fuels like coal, lignite, oils, LDO, HSD, LPG etc. Larger quantities of SO_2 create acid rain and affect flora, they create respiratory track problems to human beings in vicinity also. High temperature combustion of fuels yields oxides of Nitrogen. Flue gases from boiler chimney and motor vehicles add to the levels of photochemical oxidants. SPM results due to leakage of fine materials from processes,

Ambient air monitoring at Emcure pharmaceuticals Ltd. and surrounding villages like **Project Site, Kurkumbh, Pandharwadi, Wasunde, Gopalwadi, Patas, Maladgaon** will be performed each year and observed well in limits prescribed by SPCB.

3.3 Noise Environment

Processing of chemicals need many types of machines, cranes, lifts, equipment, boilers, mixers, grinders, agitators of tanks, etc. which are source to initiate insignificant rise in noise levels. As unit processes and operations are performed inside the plant, their noise intensity will be less to outside people. Noise levels in the Emcure pharmaceuticals Ltd. premises will be monitored. At the nearby villages of Project Site, Kurkumbh, **Pandharwadi,**Wasunde, Gopalwadi, Patas, Maladgaon noise levels was checked.

3.4 Water Environment

3.4.1 Ground water quality

One ground water sample each was collected from Project Site, Wasunde, Gopalwadi and analysed for parameters stated in using standard methods of I.S / APHA and Water Pollution Control Federation

3.4.2 Surface water quality

Near MIDC Kurkumbh at about 11 Km Bhima River is flowing near Daund city. The surface water sample from Bhima River from Daund was taken. The analysis was carried out.

3.5 Soil Environment

Major portion of the District is covered by shallow well drained, clayey soils on gently sloping lands with mesas and buttes with moderate erosion and slight stoniness of soil. This include major portion of Talukas Maval, Khed, Mulshi, Velhe, Bhor, Purandhar Haveli and Daund. Small stretches are spread in Taluka Pune City, Indapur, Baramati, Ambegaon, Shirur and Junnar.

3.5.1 Cropping Pattern

The following major crops and cash crops are cultivated in Pune District.

Types	Names	Cropping Period in Months
Major Crops (Irrigated)	Ground nut, Tur, Soya, Corn Wheat,	June-July

	gram	
Major Crops (Non - Irrigated)	Kharif--Bajra, Tur, Mug, Udid, Sunflower Rabi----Jowar	June –July Sept- Oct
Major Cash Crops	Sugarcane	June-July Sept-Oct. Jan-Feb
Major Plantations	Mango, Chickoo, Pomegranate, Anjir, citrus fruits Rose flowers, shevanti etc.	June- July All the year

3.6 Biological Environment

Following is the list of flora and fauna in the study area of 10 km radius of Emcure pharmaceuticals Ltd., MIDC, Kurkumbh.

List of Flora

No.	Local Name	Botanical Name	Family
LARGE TREE			
01.	Arjun	T.arjuna Bedd.	Combretaceae
02.	Aamba	Mangifera indica linn	Anacardiaceae
03.	Aonla	Emblica Officinalis gaertn	Fuphorbiaceae
04.	Anjani	Memecylon edule	Combretaceae
05.	Aen	Terminalia tomentosa	Combretaceae
06.	Anjan	Hardwickia binata	Caesalpinaceae
07.	Asana	Bridelia retusa	Euphoribiaceae
08.	Babhul	Acacia Arabica	Minosoideae
09.	Bel	Aegle marmelos, Correa	Rutaceae
10.	Bahava	Cassia fistula	Caesalpinaceae
11.	Bar (Bargad)	Ficus bengalensis	Moraceae
12.	Ber	Ziziphus mauritiana	Rhamnaceae
13.	Chandan	Santalum album	Santalaceae
14.	Chinch	Tamarindus indica. Linn	Caesalpineae
15.	Dhawda	Anogeissus latifolia	Combretaceae
16.	Govinda	Diaoapyros Montana	Ebebaceae

No.	Local Name	Botanical Name	Family
SMALL TREES			
01.	Amaltash (Karkacha)	Cassia fistula, Linn	Leguminosae
		Sub family	Cacsalpinieae
02.	Kakai (Katai)	Flacourtia indica, Merr	Bixaceae
03.	Kachnar	Bauhinia variegata, Linn	Leguminosae
		Sub family	Cacsalpinieae
04.	Kathjamun	Syzygium heyneanum, wall	Mytraceae

List of Fauna

No.	Local Name	English Name	Scientific Name	Schedule
MAMMALS				
1.	Chinkara	Indian gazelle	Gazella gazelle bennetti	I
2.	Landga	Indian Wolf	Canis lupas pallipes	I
3.	Kolha	Jackal	Canis aureus	II
4.	Khokad	Fox	Vulpes bengalensis	II
5.	Sayal	Spiny Anteaters, Echidnas	Tachyglossus	
6.	Sasa	Common Hare	Lepus refieeandatus	IV
7.	Mungoos	Indian mongoose	Herpastes edwardsi	II
BIRDS				
1.	Titar	Grey Francolin	Francolinus pondicerianus	
2.	Mor	Pea fowl	Pavo cristatus	I
3.	Myna, Salunki	Common Myna	Acridotheres trists	IV
4.	Kokil	Koyal	Endynamys scolopacea	VI
5.	Chimani	Sparrow	Passeridae	
6.	Kawala	Crow	Corvus	V
7.	Holla	Red turtle dove	Strptonelia fransquebarica	IV

3.7 Socio – Economic Environment

Assessment of Socio-economic environment forms an integral part of an EIA study. As regards to baseline environmental data in respect of Demography, Occupational Structure, Community Services such as Post Offices, Post & Telegraph Offices, Telephone, Educational and Health Care Facilities, Banks and Co – Operative institutes, social and Cultural Institutions present command area were collected from Department of Census operations, Government of India,

Department of Statistics and Economics of the Government of Maharashtra, Village Patwaries, Department of Post and Department of Health for preparation of existing environmental scenario in respect of these parameters. The amenities available in the villages under the study area denote the economic well being of the region.

The above data is obtained from Census 2001.

4.0 Prediction of impact and mitigation measures

Prediction of impacts is an important component in environmental impact assessment process. Such predictions are superimposed over the baseline status of environmental quality to derive the ultimate scenario of environmental conditions. The quantitative prediction of impacts lead to delineate suitable environmental plan needed for implementation during operational phase in order to mitigate the adverse impact on environmental quality.

4.1 AIR ENVIRONMENT

The air pollution from a pharmaceutical industry on surrounding air quality would not be significant. Although it depends on designed capacity, process technology, process units, fuels, operation and maintenance of process units and air pollution control devices installed. The severity of impacts on air environment is also governed by the surrounding terrain features and the prevailing micro-meteorological conditions in the project region. Generally, a refinery project involves besides process units, several onsite and off-site facilities viz., storage of organic liquids, intermediates and marketable products, transportation of liquid products and their handling (loading & unloading) activities also contribute to air pollution.

4.1.1 Sources of Emission

A. <u>Existing- Sources Air Emission & stack Details</u>

Details of stack	**Boiler-02**	**D. G. SET (500 KVA) - 04 nos. & (1010 KVA) – 01 no.**	**Primary & Secondary scrubbers**	**Dust Collector**
Stack numbers	01	06	08	07
Attached to	Boiler (3 TPH*1 & 6 TPH*1)	D G Set	Secondary Scrubber	Dust Collector
Fuel type	FO	HSD	-	-
Fuel quantity	2400 LPH	Existing 500 LPH	-	-
Material of construction	MS	MS	FRP	MS
Shape	Round	Round	Round	Square / Rectangle
Height in meters	30 meters	6.5 Meters above roof each	10 M each	10 M each

Proposed - Sources Air Emission & stack Details

Details of stack	**Boiler-01**	**D. G. SET (1010 KVA) - 02 no.**	**Primary & Secondary scrubbers**	**Dust Collector**
Stack numbers	**01**	**02**	**16**	**18**
Attached to	Boiler (7 TPH*1)	D G Set	Secondary Scrubber	Dust Collector
Fuel type	Briquette	HSD	-	-
Fuel quantity	550 KGH	320 LPH	-	-
Material of construction	MS	MS	FRP	MS
Shape	Round	Round	Round	Square/ Rectangle
Height in meters	**30**	**6.5 Meters above roof each**	**10 M each**	**10 M each**

Process Emission Details (Scrubber & Dust collector)

A. Existing –

Details of stack	**Scrubbers**	**Dust Collector**
Stack numbers	08	**07**
Attached to	Scrubber	Dust Collector
Fuel type	-	-
Fuel quantity	-	-
Material of construction	FRP	GI
Shape	Round	Square / Rectangle
Height in meters	10 M each	10 M each

B. Proposed –

Details of stack	**Scrubbers**	**Dust Collector**
Stack numbers	**16**	**18**
Attached to	**Scrubber**	**Dust Collector**
Fuel type	**-**	**-**

Fuel quantity	**-**	**-**
Material of construction	**FRP**	**GI**
Shape	**Round**	**Square / Rectangle**
Height in meters	**10 M each**	**10 M each**

4.2 Water Environment:

Water required during operational phase of Emcure pharmaceutical industry as Existing 456.0 m^3/day and Proposed – 156.0 m3/day. This water requirement will be met from MIDC water supply.

Pharmaceutical manufacturers generate process wastewater containing a variety of conventional parameters (e.g. BOD, TSS, and pH) and different chemical constituents.

4.3 Noise Environment

Noise is defined as any loud, discordant or disagreeable sound or sounds. More commonly, in an environmental context, noise is defined simply as unwanted sound. Certain activities inherently produce sound levels or sound characteristics that have the potential to create noise. The sound generated by proposed or existing facilities may become noise due to land use surrounding the facility. When lands adjoining an existing or proposed facility contain residential, commercial, institutional or recreational uses that are proximal to the facility, noise is likely to be a matter of concern to residents or users of adjacent lands.

4.4 LAND ENVIRONMENT

4.4.1 Sources of Impact

In general, one or more of the following activities impart adverse impacts on the land environment:

- Handling of solid raw materials, where from fugitive solids may deteriorate the soil characteristics;
- Handling and disposal of solid wastes, which may deteriorate soil characteristics and change the physical features, drainage, etc;
- Acquisition of land, resulting into change in land use pattern;
- Disposal of liquid wastes on land, thereby deteriorating soil quality;
- Disposal of miscellaneous used/damaged materials and garbage thereby imparting negative impact on aesthetic value.

- Extraction of landfills material, thereby changing the drainage pattern.

Prediction of Impacts

The impacts of the proposed facilities during operation stage are as follows:

Solid raw material will be handled using proper techniques. Hence, carry-over of raw material to land or water bodies does not arise at all. Thus, no impact on land environment is envisaged during handling of solid raw material.

It is, therefore, concluded that the proposed facilities do not have any impact on land environment.

4.5 Biological Environment

No direct impact would be envisaged due to the upcoming project on nearby ecological environment.

4.6 Socioeconomic Environment

Due to this upcoming project will create direct or indirect positive impact on the society.

5.0 ENVIRONMENT MANAGEMENT PLAN

5.1 PURPOSE OF ENVIRONMENTAL MANAGEMENT PLAN

Various purposes of the environmental management plan are:

- To treat and dispose off all the pollutants viz. liquid, gaseous and solid waste so as to meet statutory requirements (Relevant Pollution Control Acts) with appropriate technology.
- To support and implement development work to achieve environmental standards and to improve the methods of environmental management.
- To promote green-belt development.
- To encourage good working conditions for employees.
- To reduce fire and accident hazards.

5.2 WATER ENVIRONMENT

Water requirement during construction is fulfilled through purchasing from outside party. Water quantity being small, no major impact on existing water resources of the study area is envisaged. Further, there will be no housing facility at site for construction workers and hence a major source of impact on water environment will be avoided. Proper and sufficient sanitary facility will be provided to construction workers to maintain hygienic conditions at site. Storm water drain compatible with the local hydrological pattern of the area is provided to carry - off any run - off or storm water from the premises and this water will be harvested through ground water recharge or storage. Care will be taken during construction work not to create

any obstruction / dips in the topography which can lead to accumulation of water within premises leading to undesirable consequences like health and hygiene problems etc.

To compensate and mitigate impact on ground water availability in the area due to continuous withdrawal of ground water by the project to the tune, a comprehensive rain water recharge scheme will be developed.

The sewage is treated in a common sewage treatment plant. While the purified water will be reused for the cement manufacturing process, the sewage sludge, which is an excellent fertilizer, shall be set out in the areas where reforestation is anticipated.

5.3 NOISE ENVIRONMENT

Following measures are proposed during construction period to mitigate adverse impacts:

- Construction machinery and vehicles will undergo periodic maintenance to keep them in good working condition.
- All machineries to be used for construction purpose will be of highest standard of reputed make and compliance of noise pollution control norms by these equipments will be emphasized by company.
- Acoustic laggings and silencers will be used in equipments wherever possible.
- Feasibility of putting up acoustic enclosure / temporary barrier around areas with high noise levels will also be explored.
- All construction workers working in high noise areas will be provided appropriate PPEs like ear muffs and made to wear them during working hours.
- Possibility of raising green belt along with construction activity will also be explored so as to serve as a noise barrier.

5.4 LAND ENVIRONMENT

There will be no major generation of hazardous waste from the project.

A small quantity of used lubricating oil will be generated which will be properly stored and disposed off. There will be no disposal of industrial effluent on land as small quantity of treated industrial effluent will be re-used. Only treated sewage will be used on land for gardening purpose.

Thus, no impact on land is envisaged due to discharge of gaseous emission, solid waste or liquid effluent from the proposed unit.

Following steps are proposed to take care of impact of construction activity on project land area:

- On completion of civil work, all debris etc. will be completely removed from site to avoid any incompatibility with future use.
- Other material like paints, diesel etc. will be properly stored and handled to prevent any spillage on land.
- All the wastes will be stored at a designated site within the premises to prevent scattered discharge on land.

5.6 ECOLOGY

- As the proposed expansion will be within premises no major tree cutting exercise will be there and no major impact on ecology is anticipated.
- However, possibility of rising of green - belt along with construction activity will be explored so that greening of area can be started at the beginning of proposed expansion project.

5.7 SOCIO-ECONOMIC ENVIRONMENT

- Socio Economic impact analysis is the systematic analysis used during EIA to identify and evaluate the potential socio-economic and cultural impacts of a proposed development on the lives and circumstances of people, their families and their communities. If such potential impacts are significant and adverse, SEIA can assist the developer, and other parties to the EIA process, find ways to reduce, remove or prevent these impacts from happening. To promote activities related to environmental awareness as well as skill and abilities in the peoples of the nearby area by the project proponent.

OPERATION PHASE

Operation phase of any industry being longer in duration and because of its' potential to create continuous impacts, is much more important from the environmental impact point of view and a comprehensive and effective EMP has to be prepared and implemented to safe-guard environmental concerns during operation phase of any unit.

5.8 ACTION PLAN FOR RAINWATER HARVESTING

Rain water harvesting is essential because:-

Surface water is inadequate to meet our demand and we have to depend on ground water. Due to rapid urbanization, infiltration of rain water into the sub-soil has decreased drastically and recharging of ground water has diminished.

As you read this guide, seriously consider conserving water by harvesting and managing this natural resource by artificially recharging the system. The examples covering several dozen

installations successfully operating in India constructed and maintained. Rain Water Harvesting is a way to capture the rain water when it rains, store that water above ground or charge the underground and use it later. Recycle rainwater and keep your landscaping looking healthy, the eco-friendly way. Building a rainwater collection system is fast, easy and can save you money on your water bill, as well as significantly reduce your total water usage.

As per day today requirement for rain water harvesting we are collecting rain water from all trace area in our premises also on road in a collection tank. The collected rain water is reused for gardening also some water is used to fill in to land. The land filled water is useful to maintain the ground water level. The use of harvested rain water for gardening minimizes use of surface water.

Total Coverage (Roof) Area - 12586.4 Sqm.

Benefits of Artificial Recharge in Urban Areas:

- Improvement in infiltration and reduction in run-off.
- Improvement in groundwater levels and yields.
- Reduces strain on Special Village Panchayats/ Municipal / Municipal Corporation water supply
- Improvement in groundwater quality

5.9 SOLID WASTE MANAGEMENT

Main solid waste generation during construction phase will be construction debris like rubble, brick bats, debris, steel scrap, wooden scrap, sand, gravel etc. However, these materials are inert in nature and will not result into leaching of any substance or constituent.

These materials will be properly sorted and will be used within premises for filling of low lying areas. Wooden scrap, steel scrap will be given to scrap dealers. On completion of civil work, all debris etc. will be completely removed from site to avoid any incompatibility with future use.

Pharmaceutical waste, excluding Cytotoxic, may arise from:

- Pharmaceuticals that have passed their recommended shelf life;
- Pharmaceuticals discarded due to off-specification batches or contaminated packaging;
- Pharmaceuticals returned by patients or discarded by the public;
- Pharmaceuticals that are no longer required by the establishment; and
- Waste generated during the manufacture and administration of Pharmaceuticals.

Non-hazardous materials such as normal saline or dextrin need not be considered as pharmaceutical wastes. Excess stock of pharmaceuticals, either current or expired, may be returned to a relevant authority or collection centre for appropriate disposal or distribution.

The disposal method depends on the chemical composition of the material. This must be checked with the manufacturer.

5.10 GREEN BELT DEVELOPMENT

The greenbelt development plan aims at overall improvement in the Environmental conditions of the region. The plan with a five-fold objective addresses issues such as prevention of land degradation due to activities during construction phase; enhancing the forest cover for increasing the biodiversity of the region; providing aesthetic value to the project area. Tree plantation is one of the effective remedial measures to control the Air pollution and noise pollution.

Green Belt area

Existing Green Area – 18867.00m2

Proposed Green Area – 24505.00m2

Total Green Belt Area – 43372.00m2

The species proposed to be planted

Sr.No.	Vernacular Name	No. of Species
1.	Ficus	390
2.	Nagamali	60
3.	Sunari	70
4.	Jacaranda	80
5.	Kanchan	60
6.	Karanja	300
7.	Neem	300
8.	Mahudo	140
9.	Paladhua	142
10.	Pink cassia	185
11.	Sisam	265
12.	Pimple	200
13.	Suru	150
14.	Lagerstroemia	140
15.	Gulmohar	100
16.	Poonam	80
17.	Arjun	116
18.	Akesha	160
19	Petrofarma	150
20	Greenseedia	150
21	Putranjiva	105
22	Rain tree	120
23	Butea monosperma (palas)	50

24	Bhava	158
25	Shitashok	134
26	Wad	170
27	Kadamba	180
28	Chinch	140
30	Bakul	80
31	Pangara	140
32	Booch	140
33	Bhawa	150
34	Umbar	15
35	Coconut	10
36	Bamboo	170

5.11 Effluent Treatment Plant

EFFLUENT TREATMENT SCHEME

Effluent is classified in three categories & treated in two systems as given below:

1. Week polluting effluent stream
2. High polluting effluent stream
3. Domestic effluent stream

Part – A. Weak polluting and domestic effluent is treated in effluent treatment Plant

Part – B High polluting effluent is treated in Evaporator system.

Part- A. Effluent treatment plant

ETP inlet & outlet parameters

Sr No	Parameters	Industrial Weak polluting	Domestic	Unit
1	pH	1.00 -14.00	6.00-7.00	
2	Suspended solids	1000-1500	100-200	Mg/lit
3	Total Dissolved solids	<4000	700-1000	Mg/lit
4	Chemical oxygen Demand	<10000	300-500	Mg/lit
5	Biochemical Oxygen demand	3000-5000	200-300	Mg/lit
6	Chlorides	NS	300	Mg/lit
7	Sulphates	NS	400	Mg/lit
8	Phosphate	NS	NA	Mg/lit
9	Oil & Grease	NS	<10	Mg/lit

NS – Not standard

Outlet Quality

Sr No	Parameters	Treated parameters	Unit
1	pH	5.5 – 9.0	
2	Suspended solids	< 100	Mg/lit

3	Total Dissolved solids	< 2100	Mg/lit
4	Chemical oxygen Demand	< 250	Mg/lit
5	Biochemical Oxygen demand	< 100	Mg/lit
6	Chlorides	<600	Mg/lit
7	Sulphates	<1000	Mg/lit
8	Phosphate	<5	Mg/lit
9	Oil & Grease	<10	Mg/lit

5.11.1 TREATMENT SCHEME

Weak polluting Effluent Stream Collection- Weak polluting effluent from production would be collected in separate collection tank for transferring of effluent to the combined collection tank. The tank is provided with the diffuser system for equalization. The air requirement for the same is mate from centralize positive displacement type roots blowers.

Domestic Effluent Collection- Domestic Effluent after over flow from septic tank would be taken in separate collection tank. From this collection tank effluent would be transferred to aeration tank - 1 for further treatment. The tank is provided with the diffuser system for equalization. The air requirement for the same is mate from centralize positive displacement type roots blowers.

Primary Treatment:

The effluent from Weak stream would be combined in common collection tank. Then combined effluent would be transferred to the flash mixer -01 for neutralization & coagulation by using neutralizing agent & coagulant. Over flow of flash mixer 01 would be taken in flash mixer -02 for flocculation by using flocculating agent. Suspended and Colloidal organic and inorganic impurities in effluent are forming in large flocks. Overflow of flash mixer -02 would be taken in primary settling tank (PST) for settling. PST would be provided with clarifier mechanism for removal of sludge. The removed sludge from PST would be taken in sludge drying beds for drying. After drying the sludge would be sent to CHWTSDF for further treatment & disposal. Overflow of clarifier would be taken in Aeration tank.

Secondary Treatment:

Secondary treatment would be carried out in two stages with three phages each. Primary treated effluent is taken in Ist stage aeration tank (AT-01); activated sludge process would be carried out for the reduction in COD/BOD. Air requirement for the same is mate from centralize positive displacement type roots blowers. Overflow of the effluent from aeration tank -01 from all 3 phases would be taken into secondary settling tank -01(SST-01). Settled mass would be recycling back to aeration tank for maintaining the MLSS in aeration tank. Excess biological sludge would be drained on sludge drying beds. Over flow of SST-01 would be taken in IInd stage of aeration tank (AT-02), remaining COD/BOD would be reduced in AT-02.Overflow of effluent from AT-02 from all 3 phases would be taken into SST-02. Over flow of SST-02 would be taken in intermediate tank (IT).

Tertiary treatment

Treated effluent from Intermediate tank would be passed through Pressure Sand Filter (PSF) and Activated Carbon Filter (ACF)
a) **PSF:** Pressure sand Filter is used for removal of suspended and colloidal impurities from effluent if any present.
b) **ACF:** Activated Carbon Filter is used for removal organic impurities, color and odor from effluent if any present.

Disposal of treated effluent:

Treated effluent is used for garden inside the factory premises & remaining is discharge to CETP. If the treated effluent parameters are not matching as per MPCB guidelines, then effluent is send back to collection tank for retreatment.

Part B- Evaporator

Evaporator inlet parameter

Sr No	Parameters	High Polluting Effluent Stream	Unit
		INLET	
1	pH	1.00 -14.00	--
2	Suspended solids	>1500	Mg/lit
3	Total Dissolved solids	> 4000	Mg/lit
4	Chemical oxygen Demand	>10000	Mg/lit
5	Biochemical Oxygen demand	>5000	Mg/lit

Treatment Scheme

Evaporation

High polluting effluent stream is feed to stripper for remove the volatile organics. Bottom of stripper is feed to evaporator and concentrated mass is CHWTSDF. Top of evaporator is send to ETP for further treatment.

5.12 HEALTH AND SAFETY

Following measures will be adopted in the plant:

1. Regular inspection and maintenance of pollution control systems.
2. All measures related to safety such as safety appliances, training, safety awards, posters, slogans are undertaken.
3. The workers exposed to noisy sources are provided with ear muffs/plugs.
4. Adequate facilities for drinking water and toilets are provided to the employees.
5. The fire and safety equipments are properly utilized and maintained regularly.

6. The health of the workers will be regularly checked by a well qualified doctor and proper records will be kept for each worker.
7. Isolated storage for all hazardous chemicals with adequate safety measures, sign board outside storage etc.
8. Fire – proof electric fittings will be used.
9. Good air circulation will be ensured within the plant area.

5.13 BUDGETS FOR ENVIRONMENTAL MANAGEMENT

The management will set aside adequate funds in its annual budget to fully meet the stated objectives of the environmental policy. The capital equipment for environmental management includes effluent treatment plant, pipelines and channels for wastewater discharge, green belt development, and the environment laboratory.

The Capital investment and operation & maintenance cost on EMP.

Sr.No.	Investment	Capital (Rs. Lakh)		O & M cost (Rs. Lakh)		Total (Existing + Additional)	
		Existing	Additional proposed	Existing	Additional proposed	Capital (Rs. Lakh)	O & M cost (Rs. Lakh)
1	Air Pollution Control Facilites	60.00	300	15.00	50.00	360.00	65
2	Green Belt	15.00	25.00	6.00	10.00	40.00	16.00
3	Laboratory Facility for Monitoring	06.00	2.00	2.00	1.0	08.00	3.00
4	ETP	250.00	100	--	--	350	--
5	Evaporator	200	300	60	60	500	120.00
6	Occupational Health	04.50	1.5	04.00	01.00	6.00	05.00
7	HWFCOST	10.00	35.00	20.00	50.00	45.00	70.00
	Total	**545.5**	**763.5**	**107**	**172**	**1309**	**279**

5.14 CORPORATE SOCIAL RESPONSIBILITY:

At Emcure Pharmaceutical, Social Initiatives is an integral component of Corporate Social Responsibility. Their investments in the community have gone beyond the adhoc disbursement of funds, to planned programs in areas of healthcare, education and environment.

Various CSR Activities: -

- CSR Activities for the Quarter October - December 2013
- CSR Activities for the Quarter Jan – Mar- 2014

- CSR Activities for the Quarter April - June 2014
- CSR Activities for the Quarter July – July 2014
- Project DiSHAA
- Emcure Celebrates World AIDS Day 2010
- Medical Van
- Diwali Fair
- Blood Donation Camp
- Children's day collection drive
- Christmas party at orphanage
- Normally
- CSR - NGO
- Cancer Patients Diwali party
- Children's day drive
- Dental Camp
- Education:
- Supports following NGO's in the field of Education, Soft Skill Training, Vocational and Technical Training:
  - Friends of Children
  - CYDA
  - Vidya Jyoti School
  - Jagrut Apang Sanghtana
  - Navkshitij
  - Gurukul
  - Pune Region Brain Bee Competition

6.0 Risk Assessment and Disaster Management Plan

Every product and every process has an associated risk. Every enterprise should have a methodology for identifying and evaluating the risks it faces and it should have a process for generating intervention plans to reduce the risks to an acceptable level. This process is generally referred to as a Risk Management Plan (RMP).

6.1 Risk Assessment Process

It is the process of identifying and analyzing inherent and residual risks to the achievement of an organization's objectives.

Risk Analysis Methodologies

- Quantitative Method
- Qualitative Method

6.2 Risk Mitigation

- To mitigate the risk from Raw materials and products, the MSDS should be followed of specific/particular chemicals.
- All the workers will be provided PPE's like Mask, safety goggles, gumboot, apron.
- All the workers will be trained to handle hazardous chemicals.
- In the plant premises instructions posters will be displayed prominently about handling Do's & Don't of chemicals.

6.3 Hazard and Operability studies (HAZOP)

The HAZOP technique was developed in the early 1970s by Imperial Chemical Industries Ltd. HAZOP can be defined as the application of a formal systematic critical examination of the process and engineering intentions of new or existing facilities to assess the hazard potential that arise from deviation in design specifications and the consequential effects on the facilities as a whole.

This technique is usually performed using a set of guidewords: NO/NOT, MORE OR/LESS OF, AS WELL AS, PART OF REVERSE, AND OTHER THAN. From these guidewords, scenarios that may result in a hazard or an operational problem is identified. Consider the possible flow problems in a process line, the guide word MORE OF will correspond to high flow rate, while that for LESS THAN, low flow rate. The consequences of the hazard and measures to reduce the frequency with which the hazard will occur are then discussed. This technique had gained wide acceptance in the process industries as an effective tool for plant safety and operability improvements.

6.4 DISASTER MANAGENENT PLAN

An emergency is said to have arisen when operators in the plant are not able to cope up with a potential hazardous situation i.e. loss of control of an incident causes the plant to go beyond its normal operating conditions, thus creating danger. When such an emergency

evolves, chain of events affect the normal working within the factory area and / or which may cause injuries, loss of life, substantial damage to property and environment both inside and outside the factory and a DISASTER is said to have occurred.

The various steps involved in the process of DISASTER MANAGEMENT can be summarized as:

(1) Minimize Risk Occurrence (Prevention)

(2) Rapid Control (Emergency Response)

(3) Effectively Rehabilitate Damaged Areas (Restoration)

Disaster Management Plan is evolved by careful scrutiny and interlinking of :

(a) Types and causes of disaster.

(b) Technical know – how.

(c) Resource availability

6.4.1 ONSITE EMERGENCY CONTROL PLAN

This "**ON-SITE EMERGENCY CONTROL PLAN**" has been prepared to outline the response of the management to control emergencies at EMCURE PHARMACEUTICALS LIMITED, KURKUMBH PLANT.

THE OBJECTIVES

To outline facilities provided and the organizational response to control and contain risk arising out of loss of containment of flammable liquids and resultant fire.

To outline the responsibilities and functions of the key members of the emergency response team, to safeguard other employees, the people living in the surrounding area and environment.

To provide information to local authorities, local fire brigade, hospitals, factory inspectorate and all the concerned government agencies regarding the plant hazards and equipment, facilities and procedures provided by the management in case of any emergency.

Emergency

A situation created by an accidental release or spill of hazardous chemicals, which poses a threat to the safety of workers, residents, the environment or property.

On-Site Emergency

An accident that takes place in an industry and its effects are confined to the factory premises involving only the people working in the factory.

6.4.2 OFF-SITE EMERGENCY

If an accident takes place in an industry and its effects are felt outside the factory premises, the situation thus generated is called an “Off-Site Emergency”.

7.0 CONCLUSION:

The location of Emcure Pharmaceutical Ltd. Kurkumbh, Tal: Daund, Dist: Pune is at designated industrial zone of Govt. of Maharashtra. Since the establishment of Emcure, the environmental protection measure has been addressed efficiently. The environmental baseline data collected in summer season also convey that there is no increase in environmental pollution due to proposed activity. Hazardous waste generated will be disposed to Hazardous waste disposal site duly authorized by MPCB. The Emcure has fire and safety management which includes fire hydrant and other related systems. The occupational health plan will also be addressed properly. In view of all above points and having commitments towards protection of environmental by the company it is concluded that the propose unit will not add any pollution load and no negative impact on the environment is predicted.