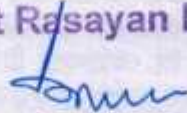


PRE-FEASIBILITY REPORT**(AS PER THE GUIDELINE OF MoEF&CC)****FOR
PROPOSED EXPANSION PROJECT AT**

Name of the Industrial Unit	M/s. Bharat Rasayan Limited, Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392 130, Dist.- Bharuch, Gujarat, India.
Registered Office	1501, Vikram Tower, Rajendra place, New Delhi - 110 008

For Bharat Rasayan Ltd.
Authorized Signatory

Bharat group is the brainchild of visionary and industry veteran Mr. S N Gupta. under his leadership Bharat Group started in 1977 with domestic brand and formulation business. Bharat Group's R&D facilities have been recognized by the Government of India's Ministry of Science & Technology

Bharat group has 3 companies.

1. Bharat Rasayan Limited
2. Bharat Insecticides Limited
3. BR Agotech Limited.

All the three companies have ISO 9001:2008 for Quality Management and ISO 14001:2004 for Environment Management system while Bharat Rasayan limited has an additional feather in the cap with OHS 18001:2007 certification for Occupational Health & Safety norms. Bharat Group is one of the top 10 agrochemical companies in India.

M/s. Bharat Rasayan Limited is Flagship Company of Bharat Group which was started in 1989 as a part of backward integration and first plant was established at Mokhra, Rohtak (Haryana) for manufacturing and intermediate / Insecticides, Herbicides & Fungicides (Technical). Company stock was listed at national stock exchange in 1993. M/s. Bharat Rasayan Limited started additional state of art manufacturing at Dahej, Bharuch (Gujarat) in 2012.

1. EXECUTIVE SUMMARY

M/s. Bharat Rasayan Limited is an operational manufacturing unit since 1977 located Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India. It is Manufacturing of Agrochemical, Pesticide, Insecticide, Intermediate and Formulation.

Bharat Rasayan Ltd. (BRL), is one of the biggest manufacturers of technical grade pesticides in India. The company known for its international quality and a broad portfolio.

Bharat Rasayan Limited (BRL) is a government recognized Star Export House. The company, with a dedicated team of scientists has more than 195 international registrations and has been exporting its products to more than 60 countries across the globe. BRL is a preferred supplier for several MNCs for their global demand of several molecules. The company has a Government approved R & D Centre and a pilot plant focused on process excellence and supporting international registrations.

1.1. Justification of the Project

The plant is located in Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India. The project site is located near to 21°43'26.48"N latitude and 72°35'33.13"E longitude. Dahej is a notified industrial estate therefore it is well developed w.r.t. industrial resources & infrastructure. The proposed expansion project for manufacturing of various products is based on market survey.

1.2. Synopsis of Report

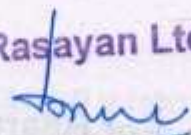
The pre-feasibility report includes a brief introduction of the company, need and justification of the project, manufacturing process description, required and available resources, proposed Environment Management Systems, land-use and proposed infrastructure, project schedule and cost estimate, and proposed Terms of reference for conducting the EIA studies. Bharat Rasayan Limited has engaged M/s. "Siddhi Green Excellence Pvt. Ltd., Ankleshwar" (NABET Accredited consultant by QCI) as their Environmental Consultant to conduct the EIA studies for obtaining Environmental Clearance (EC) for the proposed expansion project at Dahej. Proposed expansion project at a glance is mentioned in following table:

Sr. No.	Description	Proposed Expansion Project Details
1.	Name of Project & Address	M/s. Bharat Rasayan Limited, Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India. EXPANSION IN EXISTING UNIT
2.	Project Category	It falls under Project type 5(b) and Screening Category A of the EIA notification dated 14-09-2006
3.	Project capital cost	Rs. 200 Crores (For Proposed Expansion Only)

For Bharat Rasayan Ltd.

Sr. No.	Description	Proposed Expansion Project Details
4.	Products	As per Annexure – 3
5.	Raw Materials	As per Annexure – 4
6.	Resource Requirement	
	Land	The unit has total area of 105106.75 sq.m
	Water	Existing water consumption as per CTO: Domestic (50 KLD) + Industrial (1309 KLD) + Gardening (60 KLD) Total Fresh water requirement after expansion: Domestic (170 KLD) + Industrial (2807 KLD) + Gardening (100 KLD) The entire water requirement is being met through GIDC. Please refer Annexure – 6 for Water balance.
	Electricity	Power Supplied by: Dakshin Gujarat Vij Co. Ltd. (DGVCL) Existing Power requirement: Approx. 2500 KVA Total Power requirement After Proposed expansion: Approx. 7000 KVA
	Backup power	Existing: D.G. Set: 2 Nos. of 750 KVA of Each [DG Set-2 (Standby) shall be discontinued & replaced with 1500 KVA after proposed expansion.] Proposed: D. G. Set: 2 Nos. of 1500 KVA of Each Both as a standby power source for emergency operations only.
	Man power	Existing Man Power : 350 nos. company employees + 250 nos. on Contract basis Total after proposed expansion : 850 nos. company employees + 650 nos. on Contract basis
7.	Source of Pollution	
	Waste Water Generation	Existing WW generation: Domestic (40 KLD) + Industrial (837 KLD) Total WW generation after expansion: Domestic (100 KLD) + Industrial (1620 KLD) Please refer Annexure – 6 for Water balance
	Air Emission	Existing: <ul style="list-style-type: none"> • Flue gas emission: PM, SO₂, NO_x • Process gas emission: HCl, Cl₂, SO₂, HBr, Br₂, H₂S, PM, DMA, NaCN and VOC After Proposed expansion: <ul style="list-style-type: none"> • Flue gas emission: PM, SO₂, NO_x • Process gas emission: HCl, Cl₂, SO₂, NO_x, HBr, Br₂, H₂S, NH₃, PM, DMA, NaCN and VOC Please refer Annexure – 7
	Solid / Hazardous Waste Generation	Details of all waste category with quantity and their storage and disposal are given in Annexure – 8
8.	Mode of Treatment	
	Waste water	Existing effluent treatment facility: Sewage is disposed to STP (50 KLD) & treated water is used for Green belt development & maintenance Industrial effluent is treated in own ETP and RO. RO permeate is reused or sent to GIDC sewer line- Dahej Vilayat pipeline up to sea. Effluent treatment facility after proposed expansion: Sewage shall be treated in STP (120 KLD) & treated water shall be utilized either in Gardening / utilities purpose OR mixed with industrial

For Bharat Rasayan Ltd.


Authorised Signatory

Sr. No.	Description	Proposed Expansion Project Details
		effluent for further disposal. Industrial effluent shall be sent to own ETP consisting of Primary, Secondary & Tertiary treatment. Treated effluent shall be sent to GIDC sewer line- Dahej Vilayat pipeline up to sea. Please refer Annexure - 6 & 9.
	Air	Existing APCM: Company has adequate Air pollution control devices for control of Flue gas & Process gas emission. Proposed APCM: Company shall provide adequate Air pollution control devices for control of Flue gas & Process gas emission. Please refer Annexure - 7
	Hazardous/ Solid Waste/ municipal solid waste	Hazardous / Solid Waste / Municipal solid waste for Collection, storage and disposal to be carried out as per Hazardous and Other wastes (Management and Trans-boundary Movement) Rules, 2016. Please refer Annexure - 8
9.	Resource Recovery	
	Solvent	Approximately 95-98 % of solvent recovery shall be carried out.
10.	EC Compliance	
	EC Compliance Status	F. No. J-11011/961/2008-IA II (I) , Dated : 5 th Sept,2012 & its corrigendum dated 10 th Jan, 2013 EC compliance has been prepared & submitted.

1.3. Applicability of EIA Notification 2006

M/s. Bharat Rasayan Limited, is an operational manufacturing unit since 2012 located at Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India. Production of new products as well as expansion of existing products is to be started in the existing premises. It shall manufacture of Agrochemical, Pesticide, Insecticide, Intermediate and Formulation. It falls under Project type 5(b) and Screening Category A (Industrial sector) of the EIA notification dated 14-09-2006 and therefore requires prior Environmental Clearance from the Ministry of Environment and Forest Climate Change, New Delhi.

2. INTRODUCTION OF THE PROJECT/ BACK GROUND INFORMATION

2.1. Identification of project and project proponent

Proposed expansion of M/s. Bharat Rasayan Limited is located at Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India.

Promoter Information:

M/s. Bharat Rasayan Limited is the venture of well known board of directors.

Mr. S. N. Gupta (Chairman and Managing Director):

Mr. Sat Narain Gupta, Founder Chairman and Managing Director of Bharat Rasayan Limited, has almost four decades of experience in the manufacture and distribution of pesticides. One of the pioneers of this industry in India, he launched his independent venture of formulating and manufacturing pesticides in the year 1977 as a proprietary concern and later converted it into a limited company named Bharat Insecticides in 1989.

Born in 1948, he holds a Bachelor of Commerce degree in Commerce and also has done post-graduation in Economics. Mr. Gupta is an expert in the arenas of International Business, Overall Marketing Strategy and Corporate Planning.

Key Personnel:

Mr. Ajay Gupta (Whole time Director):

"Ajay Kumar Gupta is the Director (Operations) of our Company for its units located at Dahej (Gujarat). He holds a bachelor's degree of Chemical Engineering from HBTI, Kanpur and Diploma in management. He is responsible for providing business direction to all verticals and leading all functions of Dahej Unit.

He has more than 35 years of experience in the Fertilizers, Pharma intermediate, Specialty Chemicals & Crop Protection industry. Prior to joining our Company, he has worked with Coromandel International Limited, DCM Shriram Industries Limited.

The detail of Directors name and address provided here in (Annexure-2).

Vision:

- Our company creates results for our customers by being a sustainable and innovative world-class supplier of a broad range of quality crop protection products.
- Caring for employees, to work as a motivated team in an open and learning environment.
- Setting, challenging new standards of performance.
- We are determined to be one of the largest, the most preferred and ethical source of technical grade pesticides and their formulation across the globe.

Mission:

- Our company help improves quality of life for the world's population by supplying products that helps farmers increase yields and quality of crops to satisfy the global demand for food, feed fiber and energy.
- We remain dedicated to satiate our customers on all occasions by supplying quality products at prevailing competitive prices with no compromise on time line

2.2. Brief description of nature of the project.

The Company proposes expansion by introduction of new products as well as expand in existing products along with necessary support infrastructure like Waste water treatment plant and other required utilities, to manufacture Agrochemical, Pesticide, Insecticide, Intermediate and Formulation with cost effectiveness by considering good environment and culture.

- Proposed production capacity after proposed EC expansion shall be 29200 MT/Annum & 12000 MT/Annum Formulation product.

PRODUCT LIST (EXISTING + AFTER PROPOSED EC EXPANSION)

Sr. No.	Name of Product	CAS No.	Existing Production MT/Annum	EC applied for additional Production MT/Annum	Total Production after EC expansion MT/Annum	End Use	LD50 – Oral (Rat) mg/kg	Remarks
1.	2,4-D-Ethyl Ester	533-23-3	0	700	700	Weedicide	650 – 800	New Product
2.	4-acetyl-2-methylbenzoic acid (AMBA)	55860-35-0	0	50	50	Intermediate	>300 (Mouse)	New Product
3.	Atrazine	1912-24-9	0	400	400	Herbicide	2220	New Product
4.	Azoxystrobin Technical	131860-33-8	0	200	200	Fungicide	>2000	New Product
5.	Bispyribac sodium salt	125401-92-5	0	200	200	Herbicide	2635	New Product
6.	Butachlor Technical	23184-66-9	0	1000	1000	Herbicide	1740	New Product
7.	Carfentrazone-ethyl	128639-02-1	0	50	50	Herbicide	5143	New Product
8.	Cartap Hydrochloride	15263-52-2	0	300	300	Insecticide	250	New Product
9.	Cypermethric acid chloride (CMAC)	52314-67-7	0	2000	2000	Intermediate	>600	New Product
10.	Isopropyl 5-chloro-4-Methyl-2-nitrobenzoate (CMNBP)	1204518-43-3	0	100	100	Intermediate	>500	New Product
11.	Cymoxanil Technical (98%)	57966-95-7	0	300	300	Fungicide	1100	New Product
12.	3,6-dichloropyridazin-4-ol (DCHD)	2779-81-9	0	100	100	Intermediate	>200 (Fish)	New Product
13.	Deltamethrin Technical	52918-63-5	0	300	300	Insecticide	>5000	New Product
14.	Fenoxaprop-P-ethyl	71283-80-2	0	200	200	Herbicide	3150 – 4000	New Product
15.	Fenpropathrin Technical (90% min)	64257-84-7	0	150	150	Insecticide	1000 (Skin & Eye)	New Product
16.	Halosulfuron-methyl	100784-20-1	0	50	50	Herbicide	8866	New Product
17.	2-hydroxy propyloxyamine hydrochloride (HPOA HCl)	950595-72-9	0	100	100	Intermediate	>300 (Mouse)	New Product
18.	Icaridin	119515-38-7	0	15	15	Insecticide	4743	New Product
19.	Imibenconazole	86598-92-7	0	100	100	Fungicide	2800	New Product

Sr. No.	Name of Product	CAS No.	Existing Production MT/Annum	EC applied for additional Production MT/Annum	Total Production after EC expansion MT/Annum	End Use	LD50 – Oral (Rat) mg/kg	Remarks
20.	Isofetamid	875915-78-9	0	100	100	Fungicide	1302 – 6690	New Product
21.	Lambda Cyhalothric Acid	72748-35-7	0	1000	1000	Intermediate	980	New Product
22.	M,N,O-1,2 dimethyl-N-nitrosourea	255708-86-8	0	100	100	Intermediate	>500	New Product
23.	Paclobutrazol	76738-62-0	0	50	50	Plant growth regulator	1300	New Product
24.	Penoxsulam	219714-96-2	0	100	100	Herbicide	>5000	New Product
25.	Picoxystrobin Technical	117428-22-5	0	50	50	Fungicide	>5000	New Product
26.	Pymetrozine	123312-89-0	0	100	100	Insecticide	>5000	New Product
27.	Pyriithiobac Sodium	123343-16-8	0	50	50	Herbicide	3300	New Product
28.	Spiromesifen Technical	283594-90-1	0	50	50	Insecticide	>2500	New Product
29.	Thiifluzamide	130000-40-7	0	170	170	Fungicide	>6500	New Product
30.	Thiodicarb Technical (94%)	59669-26-0	0	150	150	Insecticide	120	New Product
31.	Thiophanate-methyl	23564-05-8	0	200	200	Fungicide	6640	New Product
32.	Tolfenpyrad	129558-76-5	0	50	50	Insecticide	280 – 386	New Product
33.	Topramezone	210631-68-8	0	50	50	Herbicide	>2000	New Product
34.	Zeta Cypermehrin	52315-07-8	0	350	350	Insecticide	>5000	New Product
35.	Zineb	12122-67-7	0	200	200	Fungicide	1850 – 8900	New Product
36.	Dimefluthrin Technical	271241-14-6	0	15	15	Insecticide	>2000	New Product
37.	Meperfluthrin Technical	915288-13-0	0	8	8	Insecticide	>2000	New Product
38.	Pilot products#	--	0	100	100	--	--	New Product
39.	Acetamiprid Technical	135410-20-7	100	500	600	Insecticide	217	Expansion
40.	Alpha Cypermethrin Technical	67375-30-8	100	300	400	Insecticide	>2000 (Skin & Eye)	Expansion
41.	4-acetyl-2-methylbenzamide (AMBAD)	1095275-06-1	25	75	100	Intermediate	>300 (Mouse)	Expansion
42.	Bifenthrin Technical	82657-04-3	100	600	700	Insecticide	>2000 (Rabbit) (Dermal)	Expansion
43.	Chlorpyrifos-methyl Technical	5598-13-0	100	400	500	Insecticide	3000	Expansion
44.	Clodinafop Propargyl Technical	105512-06-9	250	50	300	Herbicide	1392	Expansion
45.	Cypermethrin Technical	52315-07-8	400	800	1200	Insecticide	7180	Expansion
46.	Chlorimuron Ethyl Technical (95%)	90982-32-4	10	15	25	Herbicide	4102	Expansion
47.	Diafenthuron Technical	80060-09-9	300	500	800	Insecticide	2068	Expansion
48.	Propanil Technical	709-98-8	50	100	150	Herbicide	367	Expansion
49.	Diuron Technical	330-54-1	900	300	1200	Herbicide	3400	Expansion
50.	Difenoconazole Technical	119446-68-3	50	250	300	Fungicide	1453	Expansion
51.	3',5'-Dichloro-2,2,2-trifluoroacetophenone (DCAP)	130336-16-2	25	75	100	Intermediate	>300 (Mouse)	Expansion
52.	Ethion Technical	563-12-2	700	300	1000	Insecticide	1084	Expansion
53.	Fipronil Technical	120068-37-3	60	540	600	Insecticide	>2000 (Skin & Eye)	Expansion
54.	Fenpyroximate Technical	134098-61-6	15	10	25	Insecticide	245	Expansion
55.	Isoprotholane Technical (96%)	50512-35-1	100	50	150	Fungicide	1190	Expansion
56.	Imidacloprid Technical	138261-41-3	250	350	600	Insecticide	410	Expansion
57.	Indoxacarb Technical	144171-61-9	20	80	100	Insecticide	268	Expansion
58.	Imazethapyr Technical (97%)	81335-77-5	50	50	100	Herbicide	>5000	Expansion
59.	Lambda Cyhalothrin Technical	91465-08-6	600	400	1000	Insecticide	632 – 696 (Skin & Eye)	Expansion
60.	m-Phenoxybenzaldehyde	39515-51-0	2200	90	2290	Intermediate	1222	Expansion
61.	Metsulfuron-methyl Technical	74223-64-6	20	10	30	Herbicide	>5000	Expansion
62.	Metribuzin Technical	21087-64-9	300	600	900	Herbicide	1100	Expansion
63.	Novaluron Technical	116714-46-6	10	90	100	Insecticide	>5000	Expansion
64.	Propargite Technical	2312-35-8	25	75	100	Insecticide	2800	Expansion
65.	Pendimethalin Technical	40487-42-1	600	400	1000	Herbicide	3956	Expansion

For Bharat Rasayan Ltd

Authorised Signatory

Sr. No.	Name of Product	CAS No.	Existing Production MT/Annum	EC applied for additional Production MT/Annum	Total Production after EC expansion MT/Annum	End Use	LD50 – Oral (Rat) mg/kg	Remarks
66.	Phenthoate Technical	2597-03-7	400	100	500	Insecticide	435	Expansion
67.	Permethrin Technical	52645-53-1	250	250	500	Insecticide	383	Expansion
68.	Pretilachlor Technical	51218-49-6	100	400	500	Herbicide	2200	Expansion
69.	Pyrazosulfuron-ethyl Technical (97%)	93697-74-6	25	25	50	Herbicide	>5000	Expansion
70.	Sulfosulfuron Technical	141776-32-1	20	30	50	Herbicide	>5000	Expansion
71.	Tricyclazole Technical	41814-78-2	200	100	300	Fungicide	250	Expansion
72.	Transfluthrin Technical	118712-89-3	60	90	150	Insecticide	>5000	Expansion
73.	Thiamethoxam Technical	153719-23-4	600	400	1000	Insecticide	1563	Expansion
74.	Tebuconazole Technical (93%)	107534-96-3	100	500	600	Fungicide	1700	Expansion
75.	Flumethrin Technical	69770-45-2	15	15	30	Insecticide	500 – 1000	Expansion
76.	Imiprothrin Technical	72963-72-5	8	12	20	Insecticide	2400	Expansion
77.	Metofluthrin Technical	240494-70-6	4	18	22	Insecticide	>2000	Expansion
78.	Flumethric Acid	88419-72-1	15	35	50	Intermediate	>5000	Expansion
79.	Propoxy Ethyl Chloride	42149-74-6	100	100	200	Intermediate	204	Expansion
80.	Fenvalerate Technical	51630-58-1	200	0	200	Insecticide	451	No change
81.	Hexaconazole Technical	79983-71-4	150	0	150	Fungicide	>2000 (Dermal)	No change
82.	m-Phenoxybenzyl Alcohol	13826-35-2	400	0	400	Intermediate	1496	No change
83.	Myclobutanil Technical	88871-89-0	15	0	15	Fungicide	1600	No change
84.	Prallethrin Technical	23031-36-9	25	0	25	Insecticide	640	No change
85.	Profenofos Technical	41198-08-7	200	0	200	Insecticide	358	No change
86.	Propiconazole Technical	60207-90-1	150	0	150	Fungicide	1517	No change
87.	Cloquintocet-mexyl Technical (Safener Technical)	99607-70-2	50	0	50	Herbicide	>2000	No change
88.	Temephos Technical	3383-96-8	50	0	50	Insecticide	1000	No change
89.	Triclopyr Technical	55335-06-3	50	0	50	Herbicide	630	No change
90.	Methanesulfonamide, N-(2-cyanophenyl)-1,1,1-trifluoro (TSBN)	53718-42-6	50	0	50	Intermediate	>300 (Mouse)	No change
91.	Amitraz Technical	33089-61-1	60	0	60	Insecticide	400	No change
92.	Bromobenzene	108-86-1	250	0	250	Intermediate	2383	No change
93.	Buprofezin Technical	69327-76-0	140	(-140)	0	Insecticide	2198	Discontinue
94.	Chlorpyrifos Technical	2921-88-2	910	(-910)	0	Insecticide	135 – 163	Discontinue
95.	Dichlorvos Technical	62-73-7	150	(-150)	0	Insecticide	435	Discontinue
96.	Glyphosate Technical	1071-83-6	50	(-50)	0	Herbicide	>5000	Discontinue
97.	Paraquat Technical	4685-14-7	43	(-43)	0	Herbicide	113	Discontinue
98.	Triazophos Technical	24017-47-8	100	(-100)	0	Insecticide	>2000 (skin & eye)	Discontinue
Total			12300	16900	29200			
Formulation Products								
1.	Pesticide Formulation (Solid)		6000	0	6000	--	--	No Change
2.	Pesticide Formulation (Liquid)		6000	0	6000	--	--	No Change

Pilot products shall be carried out for the betterment of proposed products (Sr. No.1 to 37) only. Hence, Total pollution load from Pilot products shall be disposed to common incinerator.

Note:-

1. Total production capacity after proposed EC expansion shall be 29200 MT/Annum.
2. There shall be addition of 38 (Thirty Eight) new products after EC expansion.
3. There shall be expansion of 41(Forty one) existing products after EC expansion.
4. There shall be no change of 13 (Thirteen) existing products after EC expansion.
5. There shall be discontinued of 6 (Six) existing products after EC expansion.
6. Dichlorvos Technical and Triazophos Technical shall be discontinued after proposed expansion which is included in the list of prohibited pesticides as per The Pesticides (Prohibition) Order, 2018 notified by S.O 3951 (E) dated 8th August, 2018.

For Bharat Rasayan Ltd.

[Signature]
Authorised Signatory

2.3. **Need for the project and its importance to the country and or region**

The proposed expansion is necessitated because of the following reasons:

- To make the facility more resource efficient.
- Reduce operational costs and increase productivity.
- Development of the infrastructure of the facility.
- Entry into new product segments.

Its importance to the country can be accounted by

- Add to foreign exchange generated by Exports.
- Ensure continued employment to workforce without affecting work conditions and hence supporting their families.
- Lead to generation of direct and indirect employment opportunities.
- Reduce dependence on Imports hence reducing Forex risks.

2.4. **Demand-Supply Gap**

The gap between demand and availability of Agrochemical, Pesticide, Insecticide, Intermediate and Formulation is likely to increase over the years. The growing demand and supply gap would require increasing emphasis to be given to the exploration and production sector. This calls for such projects which can help in bridging the gap.

2.5. **Imports vs. Indigenous production**

Indian agrochemicals industry is largely dependent on import of raw material and intermediates. Therefore, it is the need of hour to go for back-word integration. M/s Bharat Rasayan is focusing on production of intermediates required for production of agrochemicals. Moreover, we are focusing on getting international registration of new molecules and developing the same in our state of art R&D facilities.

This two end strategy will save foreign exchange at one end and simultaneously earned through exports.

2.6. **Export Possibility**

The proposed products have demand in international market also.

2.7. **Domestic / Export Markets**

The products have good demand of about 70% in local/ national markets and 30% in international market

2.8. **Employment Generation (Direct and Indirect) due to the project**

Existing Man Power: 350 nos. company employees + 250 nos. on Contract basis

Total after proposed expansion: 850 nos. company employees + 650 nos. on Contract basis.

Preference shall be given to local persons.

3. PROJECT DESCRIPTION

3.1. **Type of project including interlinked and interdependent projects, if any**

It is an Independent project.

3.2. **Location (map showing general location, specific location, and project boundary & Project site layout) with coordinates**

M/s. Bharat Rasayan Limited. is an operational manufacturing unit located at Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India.

Latitude: 21°43'26.48"N

Longitude: 72°35'33.13"E

Elevation: ~ 3-6 m

- The unit has total area of 105106.75 sq.m. land area. Unit will commit to maintain green belt @ 33%.
- The existing site is located within Dahej GIDC Industrial Estate, hence there is no agricultural or forest land involved in the project site.

For Bharat Rasayan Ltd.



- The estate is located at sufficient distance from sanctuaries, archeological sites and historical sites to ensure that there is no impact of industrial activities.
- Dahej Reserved forest is covered in study area.
- Detailed site plan is attached as Annexure - 1.

3.3. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted

No alternative site study will be carried out as this is an expansion project at existing premises. The unit is located in a well-developed Industrial Area (GIDC). Following infrastructure is already available to the unit:

- Site is very well connected by road.
- Availability of sufficient land free from cultivation.
- Availability of power evacuation facilities
- Availability of water facilities from GIDC.
- Easy availability of raw materials.
- Transportation cost will be cheap.
- Availability of liquid terminals and possibility of solid cargo in future.
- All infrastructure facilities will be available.

Sr. No.	Description	Name & Distance
1	Nearest Highway	SH 6 – 0.32 km to 138°SE
		SH 206 – 1.37 km to 139.17°SE
2	Nearest Railway Station	Dahej Railway Station – 1.37 km to 179.82°S
3	Nearest Airport/ Airbase	Surat (Domestic) – 68.58 km to 166.92°SSE
		Vadodara – 93.13 km to 43.51°NE
4	Nearest Town/City	Bharuch City– 40.00 km to 95.44°E
		Ankleshwar Town – 43.71 km to 104.49°SEE
5	Nearest settlement	Dahej Village – 1.66 Km towards 219.47° SW

3.4. Size or magnitude of operation

M/s. Bharat Rasayan Limited is a large scale industry. The total existing production capacity is 12300 MTA & 12000 MTA Formulation products. After proposed expansion also it will remain as large scale unit. (CA certificate attached as Annexure-13)

3.5. Project description with process details

Detailed manufacturing processes are attached as an Annexure - 5. The manufacturing processes for the proposed expansion products are detailed step-wise with material balance.

3.6. Raw material required along with estimated quantity, Likely source, marketing area of final product/s, Mode of transport of raw material and Finished product

The raw materials required for the proposed expansion products will be either imported or procured from domestic market and transported conveniently by road, sea, by rail & air.

Detailed raw material list MT/ Month is provided as Annexure - 4.

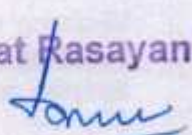
3.7. Resource optimization/ recycling and reuse envisaged in the project, if any, should be briefly outline

M/s. Bharat Rasayan Limited has developed system for 95 - 98% solvent recovery for proposed expansion and same technology will be utilized. The unit will try for possible waste conversion in to valuable products/ by-Product. More effective scrubber is provided for existing scenario and shall be provided the same for maintaining the emission in limits. Proponents commit that they shall optimize resources and recycling/ reuse is envisaged in the project at the time of commissioning.

3.8. Availability of water & its sources, Energy power requirement

- **Water :** Water shall be supplied by GIDC.
Existing water consumption: 1419 KLD
Total water consumption after proposed expansion: 3077 KLD

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- **Power :** Electricity Supply is from DGVCL
Existing Power requirement: Approx. 2500 KVA
Total Power requirement after proposed expansion: Approx. 7000 KVA

Existing: D.G. Set: 2 Nos. of 750 KVA of Each [DG Set-2 (Standby) shall be discontinued & replaced with 1500 KVA after proposed expansion.]

Proposed: D. G. Set: 2 Nos. of 1500 KVA of Each

All D.G. set as a standby power source for emergency operation only

- **Fuel :** Existing : Natural gas or Furnace Oil (10000 Sm³/day OR 30 MTD), Coal (60 MTD) & HSD (5 KLD)
Total fuel consumption after proposed expansion: Natural gas or Furnace oil (80000 Sm³/day OR 90 MTD), Coal (200 MTD) & HSD (17 KLD)

3.9. Quantity of wastes to be generated (liquid and solid) and scheme for their management/ disposal

3.9.1. Wastewater Generation, Treatment and Disposal

- Refer Annexure 6 for water break-up & Annexure - 9 for ETP & STP details.
- **Existing effluent treatment facility:**
Sewage is disposed to STP (50 KLD) & treated water is used for Green belt development & maintenance
Industrial effluent is treated in own ETP and RO. RO permeate is reused or sent to GIDC sewer line- Dahej Vilayat pipeline up to sea.
- **Effluent treatment facility after proposed expansion:**
Sewage shall be treated in STP (120 KLD) & treated water shall be utilized either in Gardening / utilities purpose OR mixed with industrial effluent for further disposal.
Industrial effluent shall be sent to own ETP consisting of Primary, Secondary & Tertiary treatment. Treated effluent shall be sent to GIDC sewer line- Dahej Vilayat pipeline up to sea.

3.9.2. Air pollution and Control Measures

- Details of existing & proposed flue gas stack and process stacks, nature of emitted pollutants and system provide for air pollution control is mentioned in Annexure - 7

3.9.3. Flue gas Emission

- Natural gas or Furnace Oil, Coal, HSD are used as fuel for production
- The flue gas parameters shall remain within permissible limits. The stack will be provided with sampling point and access ladder.
- Please refer Annexure-7 for details.

3.9.4. Process Emissions

- There shall be process gas emission of HCl, Cl₂, SO₂, NO_x, HBr, Br₂, H₂S, NH₃, PM, DMA, NaCN and VOC from after proposed production activity.

3.9.5. Solid/ Hazardous wastes

- Details of all waste category with quantity and their storage and disposal are given in Annexure- 8.

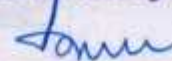
3.9.6. Environmental Monitoring Plan:

The unit has an established EHS cell and shall prepare an Environmental Monitoring plan for carrying out the following activities:

- To follow the trend of parameters those have been identified as critical.
- To comply with the conditions of consent order of GPCB.
- To check / assess / maintain the efficiency of controlling measures.

Monitoring of certain parameters shall be done by appointing external recognized/ approved agencies. The monitoring of environmental parameters shall be carried out from time to time and the reports of all the monitoring / analysis / assessment studies shall be well-documented.

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3.10. Schematic representations of the feasibility drawing which give information of EIA purpose
It will be submitted later upon the requirement.

4. SITE ANALYSIS

4.1. Connectivity

Existing site is located in Dahej GIDC Industrial Estate. Proposed expansion shall be in existing site which is connected with road, rail and air transport. Transportation of Raw materials, finished products & personnel during the construction and operation phase shall be done by means of existing transportation facility.

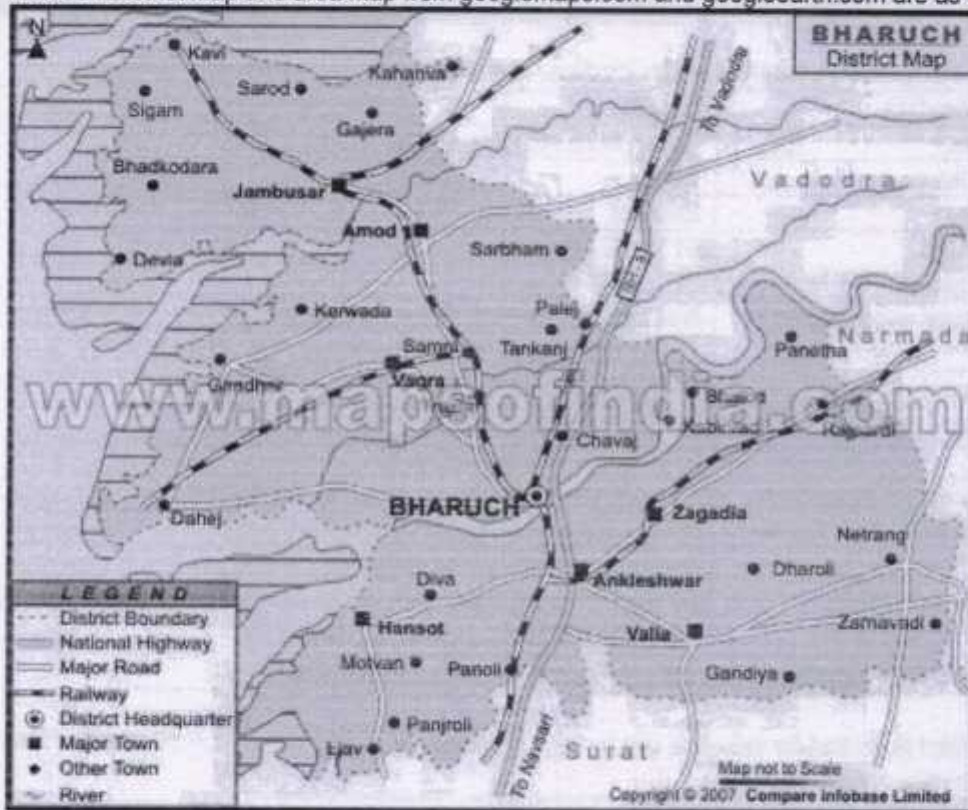
- Nearest towns / cities : Bharuch City-- 40.00 km to 95.44°E
Ankleshwar Town – 43.71 km to 104.49°SEE
- Transport by road : SH 6 – 0.32 km to 138°SE
SH 206 – 1.37 km to 139.17°SE
- Transport by Rail : Dahej Railway Station – 1.37 km to 179.82°S
- Transport by Air : Surat (Domestic) – 68.58 km to 166.92°SSE
Vadodara – 93.13 km to 43.51°NE

4.2. Land form, Land use and land ownership

Project land is acquired from Dahej GIDC; land possession document is attached herewith as Annexure - 12. Proposed expansion is to be carried out in existing site located in industrial Area (GIDC Dahej and adjacent to many industries, thus land use pattern is non-agricultural and declared for the industrial activities by town planner. Proposed break-up of land is as per Annexure-1.

4.3. Topography (along with map)

Bharuch District map and area map from googlemaps.com and googleearth.com are as under:



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Google Earth Image



4.4. Existing land use pattern, nearby water bodies, forest, eco sensitive zones, CRZ.etc.

Sr. No.	Particulars	Details
1.	Town	Dahej GIDC Industrial Estate
2.	Taluka	Vagra
3.	District	Bharuch
4.	Latitude	21°43'26.48"N
5.	Longitude	72°35'32.99"E
6.	Nearest water bodies	Narmada Estuary – 6.47 km, 169.89°S Gulf of Khambhat – 10.05 km, 270.04°W
7.	Nearest Highway	SH 6 – 0.32 km to 138°SE SH 206 – 1.37 km to 139.17°SE NH 48 – 44.22 km to 85.54°E
8.	Nearest Railway station	Dahej Railway Station – 1.37 km to 179.82°S
9.	Nearest Airport/ Airbase	Surat (Domestic) – 68.58 km to 166.92°SSE Vadodara – 93.13 km to 43.51°NE
10.	Nearest town/city	Bharuch City – 40.00 km to 95.44°E Ankleshwar Town – 43.71 km to 104.49°SEE
11.	Nearest Settlement	Dahej Village – 1.66 Km towards 219.47° SW

- Proposed land is allotted for industrial use by GIDC, Dahej
- No eco sensitive zone.
- The project is not covered under CRZ.
- Dahej Reserved forest is covered in study area.
- The estate is located at sufficient distance from sanctuaries, archeological sites and historical sites to ensure that there is no impact of industrial activities.

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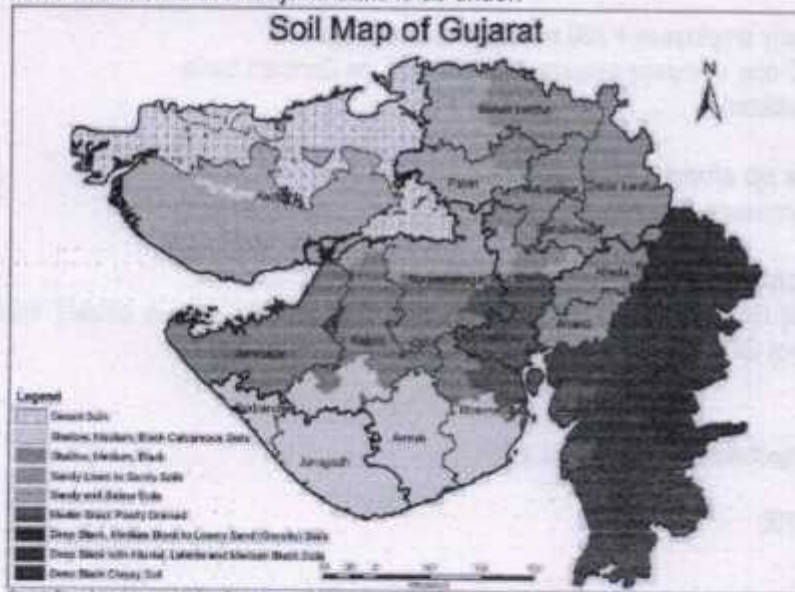
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4.5. Existing infrastructure

- This is proposed expansion project; hence infrastructure is already available at the site.
- Proposed expansion project site is located in industrial Area (Dahej GIDC), where land is already developed for industrial purpose.
- Key infrastructure such as hospitals, schools, bank, fire station, disaster management center, places of worship and social/ community facilities such as park, market, playground etc. education, health care, community development, income distribution, employment and social welfare are available in nearby area of the unit.

4.6. Soil classification

The soil classification of Gujarat state is as under:



Source: Based on data provided by Department of Agriculture, Gujarat

- The quality of Bharuch district area soil had been identified as deep black coastal alluvial type.
- Proposed expansion project site is located in Dahej GIDC industrial Area (GIDC), where land is already developed for industrial purpose. Quality of soil is not considerably fertile for agriculture activities and no evidence of any influence of soil contaminant has been noticed.

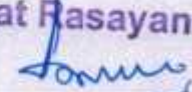
4.7. Climate data from secondary sources

Month 2017	Temp in °C		Relative humidity in %				Wind speed in kmph				Total Rainfall in mm	Rainy days
	Min.	Max.	07:39 hrs		14:39 hrs		07:39 hrs		14:39 hrs			
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
Jan	10.00	35.40	53.00	88.00	23.00	46.00	0.00	9.10	2.00	34.00	0.00	0
Feb	13.00	39.00	40.00	81.00	13.00	48.00	0.07	9.02	2.00	36.00	0.00	0
Mar	15.00	43.00	46.00	91.00	13.00	35.00	0.41	7.73	2.00	36.00	0.00	0
Apr	20.00	43.40	47.00	92.00	11.00	43.00	1.22	17.90	5.00	34.00	0.00	0
May	25.00	44.20	61.00	88.00	18.00	52.00	1.09	19.26	16.00	32.00	0.00	0
Jun	21.40	39.40	67.00	92.00	40.00	92.00	3.15	14.95	18.00	32.00	95.40	8
Jul	22.40	35.00	71.00	100.00	52.00	97.00	1.30	17.20	9.00	27.00	166.00	17
Aug	23.00	34.00	73.00	97.00	46.00	92.00	1.71	11.52	18.00	32.00	170.30	12
Sept	22.00	36.80	78.00	92.00	48.00	80.00	0.00	7.83	2.00	34.00	53.00	6
Oct	18.60	38.00	47.00	95.00	19.00	76.00	0.09	6.47	5.00	36.00	30.50	3
Nov	16.00	36.20	53.00	79.00	17.00	45.00	0.01	5.23	5.00	36.00	0.00	0
Dec	13.00	33.40	53.00	94.00	24.00	96.00	0.23	11.32	5.00	36.00	5.20	1

(Source: Indian Meteorological Department, Regional Cotton Research Center, Bharuch Station-2017)

4.8. Social infrastructure available

- Educational facilities in project area are quite good because all nearby villages have primary schools.
- The town has private dispensaries and hospitals in all major branches of medicines and surgery.
- All small villages have postal and telephone connection facilities.

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- Electricity for all purpose (Industrial and residential) is available.
- All small villages are connected with pakka roads.

5. PLANNING BRIEF

5.1. *Planning concept (Type of industries, facilities, transportation etc)*

M/s. Bharat Rasayan Limited is a large scale industry. Its existing unit is located at Plot No. 42/4, Dahej GIDC Industrial Estate, Dahej - 392130, Dist.- Bharuch, Gujarat, India. It proposes to add new products as well as expand existing products at existing premises to meet the market demands.

5.2. *Population projection*

Existing Man Power: 350 nos. company employees + 250 nos. on Contract basis

Total after proposed expansion: 850 nos. company employees + 650 nos. on Contract basis

Locally employed manpower shall be utilized.

5.3. *Land use planning; break up along with green belt etc.*

Proposed break-up of land is as per Annexure -1.

5.4. *Assessment of infrastructure demand (physical & social)*

This is an existing unit located Dahej GIDC Industrial Estate. Well developed Infrastructure is already available since project site is located inside Dahej GIDC Industrial estate.

5.5. *Amenities/Facilities*

The existing amenities/ facilities of project area are explained as earlier.

6. PROPOSED INFRASTRUCTURE

6.1. *Industrial area (processing area)*

Site plan indicating the existing and proposed structures is attached as Annexure - 1.

6.2. *Non processing area*

Ware house & storage area will be constructed as per the requirement of proposed product storage.

6.3. *Greenbelt*

Approximately - 34792 sq.m. of Green belt is already developed inside the plant premises. (Approx. 33% of total plot area of plot no.)

6.4. *Social infrastructure*

The total investment for the project will be approximately Rs. 200 Cr (for proposed expansion). The project proponent is planning towards the social and economic development of small villages around estate.

6.5. *Connectivity (Transportation)*

Existing site is located inside Dahej GIDC industrial estate. The existing connectivity is convenient for future also.

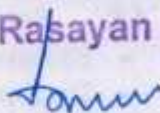
6.6. *Drinking water management (Source and supply)*

This is an existing unit & the source of drinking water is from GIDC water supply & same will be continued after proposed expansion.

6.7. *Sewage system*

Presently, Sewage effluent is treated in STP. STP treated water is reused in Green Belt Development & Maintenance & after proposed expansion Sewage shall be treated in STP & treated water shall be utilized either in Gardening / utilities purpose OR mixed with industrial effluent for further disposal.

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6.8. Industrial waste management

Detailed water balance of existing & proposed expansion is attached as Annexure: 6
Please refer Annexure-6 for existing & proposed waste water management and Annexure-9 for ETP details.

6.9. Solid waste management

The unit shall append the membership of TSDF Site & Incineration site for additional quantity of solid / hazardous waste.

Details of Solid / Hazardous waste management for existing & proposed expansion are explained in Annexure- 8.

6.10. Power requirement and supply source

Existing Power (2500 KVA) is supplied from DGVCL.

Existing emergency power source: D.G. Set: 2 Nos. of 750 KVA of Each [DG Set-2 (Standby) shall be discontinued & replaced with 1500 KVA after proposed expansion.]

Total Power supply from DGVCL after Proposed expansion shall be 7000 KVA.

Proposed additional emergency power supply source – D. G. set: 2 Nos. of 1500 KVA of Each

7. REHABILITATION AND RESETTLEMENT (R & R) Plan

7.1. Policy to be adopted (central/ state) in respect of the project affected persons including home outtees, land outtees and landless laborers (a brief outline to be given)

Proposed expansion will be carried out at existing site located inside Dahej GIDC Industrial estate, which is developed for industrial purpose and there is no population or local inhabitant at the proposed expansion at existing site. Thus Rehabilitation & Resettlement (R&R) Plan is not applicable to proposed expansion.

8. PROJECT SCHEDULE & COST ESTIMATION

8.1. Likely date of start of construction and likely date of completion (Time schedule)

The proposed expansion project will be started after getting Environmental clearance from MoEF&CC. Project proponent is expected to start construction activity after obtaining EC from MoEF&CC. Likely completion time is considered approximately two years of project construction / commission.

8.2. Estimated project cost along with analysis in terms of economic viability of the project

The estimated approx. capital cost of the project shall be approx. Rs. 200 Cr. & details as follows:

Group	Particulars	Nos. / Capacity	Cost Rs (In Lakh)
Land			NIL as existing
Civil	2 Plants building civil and structural work	Lump sum	2400
	Preoperative expenses	Lump sum	192
Process Plant	Reactors	110 Nos.	3300
	Condenser	300 Nos.	1500
	Hydrogenated reactor	02 Nos.	100
	Centrifuge (CF)	10 Nos.	400
	Agitator Nutch cum filter dryer	05 Nos.	250
	Spin Flash Dryer (FBD)	02 Nos.	130
	Rotary vacuum dryer (RVD)	04 Nos.	160
	Tanks (2 KL to 50 KL)	400 Nos.	200
	Process pumps	200 Nos.	140
	Ejectors	50 Nos.	500
	Dry vacuum pump	10 Nos.	150
	Valve & Instruments	Lump sump	1500
	Column	10 Nos.	200
	Utilities	Brine (up to - 30°C)	100 TR x 2 Nos.
Boiler (For water and oil)		25 MTH	400
Thermic Fluid Heater		4.0 Lacs kcal/hr x 2 Nos.	40

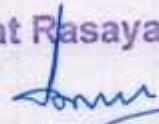
Group	Particulars	Nos. / Capacity	Cost Rs (in Lakh)
	DM Water Plant	15 KL/hr	10
	D.G set	1500 KVA x 2 Nos.	160
	Chilling plant	200 TR x 4 Nos.	240
	Cooling tower	800 TR x 5 Nos.	50
	Air Compressors	200 CFM x 2 Nos.	20
	Nitrogen Plant	150 Nm ³ /hr x 2 Nos.	60
Storage Tanks	Water Storage Tank	3000 KL x 1 No	250
	Raw material storage tank	30 KL x 10 Nos.	100
Environ	Effluent treatment plant (ETP)	400 KL	180
	MEE Plant	200 KL x 2 Nos.	600
	Agitator thin film Evaporator (ATFD)	30 m ² x 2 Nos.	220
	Sewage Treatment Plant (STP)	70 KLD	100
	Air Pollution Control Measure (APCM)	16 Nos.	150
	Piping	Lump sump	100
	Civil work	Lump sump	200
	Green Belt Development	Lump sump	50
	Hazardous storage facilities	As existing use	NIL
Others	Piping	Lump sump	1750
	Installation	Lump sump	500
	Electrical installation	Lump sump	1400
	Misc expenses:- Lab, office, ware house, furniture & fixtures, office & lab requirement	Lump sump	400
	Total		18182
	Contingencies (10%)		1818
	Grand Total		20000

9. ANALYSIS OF PROPOSAL

9.1. *Financial and social benefits with special emphasis on the benefit to the local people including tribal population any in the area:*

- From the proposed expansion project, there shall be increase to foreign exchange generated by Exports.
- Reduce dependence on Imports hence reducing forex risks.
- There shall be direct or indirectly increase in employment generation for the local people and lead to ensure continued employment to existing workforce without affecting work conditions and hence supporting their families.
- Company shall increase its contribution for community welfare of the local connected area.
- The proposed expansion project shall not have any adverse environmental impacts because adequate protection measures will be provided to achieve permissible norms of GPCB.

For Bharat Rasayan Ltd.


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