Ambuja Cement

Ref. ACH/EMD/F-20/11/2017 **30** Nov, 2017

Dr.S.C. Katiyar,
Regional Office MoEF,
Pearson Road, FRI Campus,
New Forest Dehradun – 248006.

Sub: Compliance Status for the period from April, 2017 to Sep, 2017 for:-

(i) **Point wise compliance of specific and general conditions of Environmental Clearance for 1.8 MTPA Cement Plant at village Rauri, Tehsil Arki, Darlaghat, Distt. Solan (H.P.) – J-11011/203/2005 IA-II(I).**

(ii) **Proposed 1.8 MTPA Cement Plant at Village Rauri, District Solan in Himachal Pradesh by M/s Ambuja Cements Limited- regarding Amendment in environmental clearance dated 27th January, 2006 due to drawl of ground water instead of surface water – J-11011/203/2005-IA II(I)**

Dear Sir,

Please find the enclosed point-wise compliance of Specific and General Conditions of above mentioned Environmental Clearances.

List of tables attached are as below:
1. Stack Monitoring results are given in table -1.
2. Monitoring results of SWRP for the stipulated parameters like pH, BOD and TSS at inlet and outlet is given in table - 2.
3. Results of Ambient Air Quality monitored in plant at fixed locations are given in table 3.
4. Noise level report inside plant is enclosed as table - 4.
5. Plantation details is enclosed as table-5.

List of annexure attached are as below:
1. HPSPCB report of final outlet of SWRP is attached as annexure – 1.
2. Expenditure details for Environmental Protection activities annexure 2.
3. Consent compliance for Rauri Plant is enclosed as annexure 3.
4. HFRI Green Belt Development assessment report is enclosed as annexure 4.

This point wise compliance of specific and general conditions of **EC** is being forwarded along with relevant/ready **reference photographs & annexures** to your kind goodself in a systematic context, please.

Thanking you,

Yours Faithfully,
For **Ambuja Cements Ltd., (Unit Rauri)**

30/11/2017

(Sandeep Bhimta)
Head,Environment

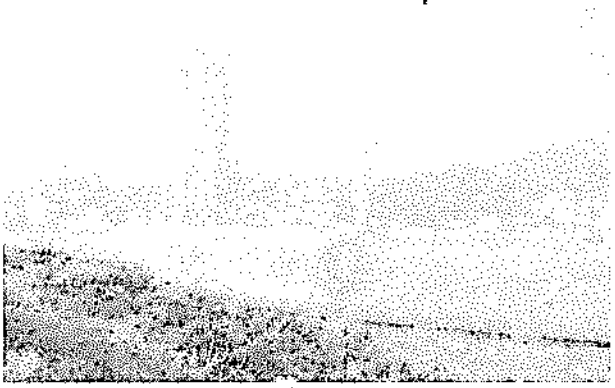
CC to:
Zonal Office (North) PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow - 226 010

Regional Officer, H P State Pollution Control Board, S.C.F. 6, 7 and 8, Sector – IV,PARWANOO, Distt. Solan (H.P.)

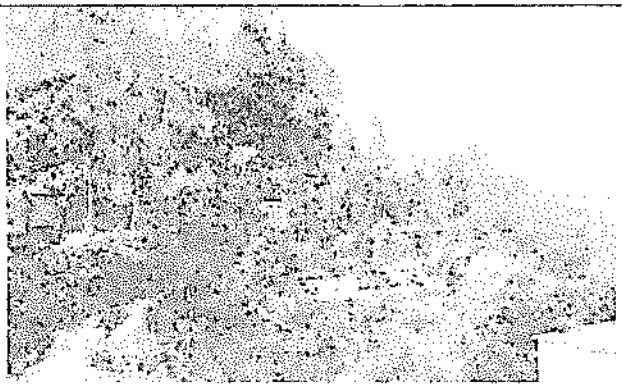
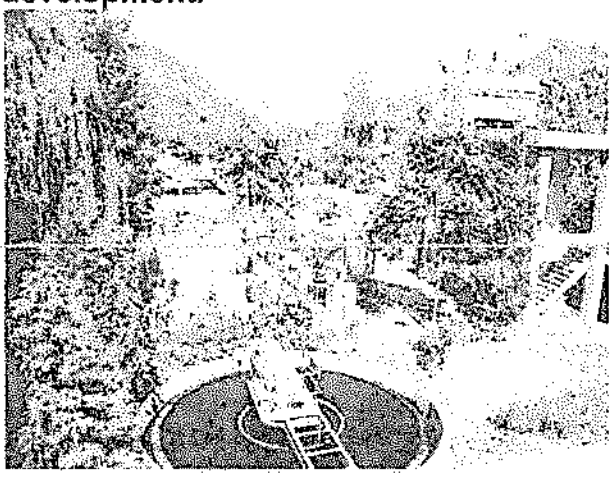
Encl.: (i) As above
(ii) Soft copy in CD

AMBUJA CEMENTS LIMITED
(UNIT RAURI)
P. O. Darlaghat - 171 102, Tehsil Arki, Distt. Solan (H.P.)
Phone : 01796-306190, 306468 Fax : 248335, 248316, Website : www.ambujacement.com
(Regd. Off. : P. O. Ambuja Nagar, Taluka - Kodinar, Distt. - Junagarh, Gujarat - 362715)

Sr. No.	Conditions	Implementation
	A. Specific Conditions:	
i.	The gaseous and particulate matter emissions from various units should conform to the standards prescribed by the State Pollution Control Board. At no time, the particulate emissions from the cement plant and captive power plant (CPP) shall exceed 50 mg/Nm^3. Continuous on-line monitors for particulate emissions, SO_2 and NO_x in Raw/Kiln mill, clinker cooler, coal mill, cement mill etc. shall be provided and shall make necessary arrangements for submission of on-line real time emission data to CPCB website. Low NO_x burners shall be installed to control NO_x emissions. Interlocking facility shall be provided between pollution control equipment and the process operation so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically.	**(a). The gaseous and Particulate Matter emissions from various units conform to the standards prescribed by the SPCB i.e. below 50mg/Nm3. Stack Monitoring report is enclosed as table 1.** **(b). We have installed the Continuous Particulate Matter (CPM) at our coal mill stack and cooler stack, Continuous Emission Monitoring System is installed at our main stack (stack attached to Raw Meal & Kiln). Low NOx burners have been installed to control the NOx emissions.** **(c). Interlocking facility has also been provided between pollution control equipment and the process operation so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically.** **(d) In addition to this we also conduct third party stack monitoring by SGS India Ltd.**
ii.	Ambient air quality including ambient noise levels shall be monitored at different locations including fence of the sanctuaries and must not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and stack emissions shall be carried out regularly in consultation with HPSEP & PCB and report submitted to the Board quarterly and to the Ministry's Regional Office at Chandigarh half-yearly. Continuous stack monitoring system shall be installed.	**(a).** We are monitoring the ambient air quality and ambient noise levels at our different locations and at the fence of the sanctuaries and the results are well within limits as compared to the standards laid down by the EPA. We have also installed one CAAQMS at Rauri Plant and the realtime data of the same is being reported to CPCB & HPSPCB website. Installation of two more CAAQMS for Rauri Plant is under progress. **(b).** There is a regular monitoring of ambient air quality; the results of the same are being submitted to SPCB. **(c).** Continuous stack emission monitoring systems have been installed at our stacks attached to Raw/Kiln mill, coal mill and clinker cooler stack.
iii.	Electrostatic precipitators (ESP) shall be installed in clinker cooler	**(a). Electrostatic precipitator has been installed in clinker cooler and bag house**

	to control air emissions. Bag house in raw mill and kiln, bag filters in cement mill and all the transfer points shall be provided. The dust collected from the pollution control equipments shall be recycled back into the process. Storage of raw materials viz. lime stone, coal, clinker shall be in closed roof sheds covered stockpiles. Water sprinkling arrangement should be made in the raw material stockyard and cement bag loading areas.	**in raw meal and kiln sections to control the emissions. All the transfer points have been provided with bag filters.** **(b). Dust collected from the APCE's is automatically recycled back into the process.** **(c). All the raw materials are being stored under closed roof sheds. Clinker is being stored under covered stockpiles.**  Chinese Sheds for Limestone & Coal
iv.	The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points. Fugitive emissions from raw material storage yards, loading and unloading operation, material transfer points shall be controlled by providing bag filters and water sprinkling systems etc. Covered sheds shall be provided coal storage, iron containing material and red ochre. Unloading of the fly ash shall be carried out by providing pneumatic conveying system up to silo.	**Adequate dust collection and extraction system has been installed to control fugitive dust emissions. All the material transfer points have been provided with bag filters. Covered sheds has been provided to store the raw materials. As the unit is only clinkerisation unit & there is no usage of fly ash. Tennant Road sweeping Machines are also being used to clean the roads to control the fugitive dust emission. All the roads are pucca however sprinkling is also being carried out wherever necessary.**  **Water sprinkling system installed**
v.	Total water requirement shall not exceed the limit stipulated by the Central/State Ground Water Board and prior permission shall	**(a). Being a dry process no effluent is generated from the process.** **(b). However the domestic waste water generated from residential facilities as**

	be obtained for drawl of ground water. No effluent shall be discharged from the process outside the premises and all the treated wastewater from Sewage Water Reclamation Plant (SWRP) shall be utilized for green belt development and other plant related activities. SWRP shall be further augmented as per the requirement of the expansion project.	**well as from the offices is being treated at SWRP. Treated water thus generated is reused for greenery development, dust suppression, cooling makeup etc. and the biological sludge generated is used for greenery development.** **(c) Treated water analysis report is enclosed as table 2.** **(d) HPPCB analysis report of final outlet of SWRP is attached as annexure 1.**
vi.	Due to enhanced movement of the trucks due to expansion of the project and other cement industries in the same region, the industry may consider feasibility of setting up of the conveyer belt transportation system for the raw material as well as final product to decongest the traffic in the hill region in collaboration with the Central Road Research Institute, New Delhi.	a) We have successfully commissioned 3 nos. of Over Land Belt Conveyors (OLBC) with 3 nos. tunnels , criss- crossing mountains covering 6.3 Kms from Mangu crusher to Rauri plant for the transportation of Raw Material i.e. Limestone. **b)** Central Road Research Institute has carried out study on Road Network connecting Darlaghat - Ropar and Darlaghat – Nalagarh in 2012.
vii.	The company must harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	Six rainwater recharging pits have been constructed in the plant premises. The total Rain water recharged during the year 2016 is 11460 m3.
viii.	Green belt shall be developed in and around the expansion project in at least 25 % of the area as per the CPCB guidelines in consultation with the local DFO. Plantation shall also be done along the roadside between Ropar and Darlaghat in collaboration with the State Forest Department due to regular plying of trucks carrying fly ash and cement.	**a) A report on green belt has been submitted vide letter ACL/EMD/F-13/03(6)/2016.** **(b). We have already initiated the plantation works along NH- 205 for the widened sites in collaboration with SFD.** **(c) A report on Green Belt assessment carried out by HFRI Shimla is enclosed as annexure 4.**

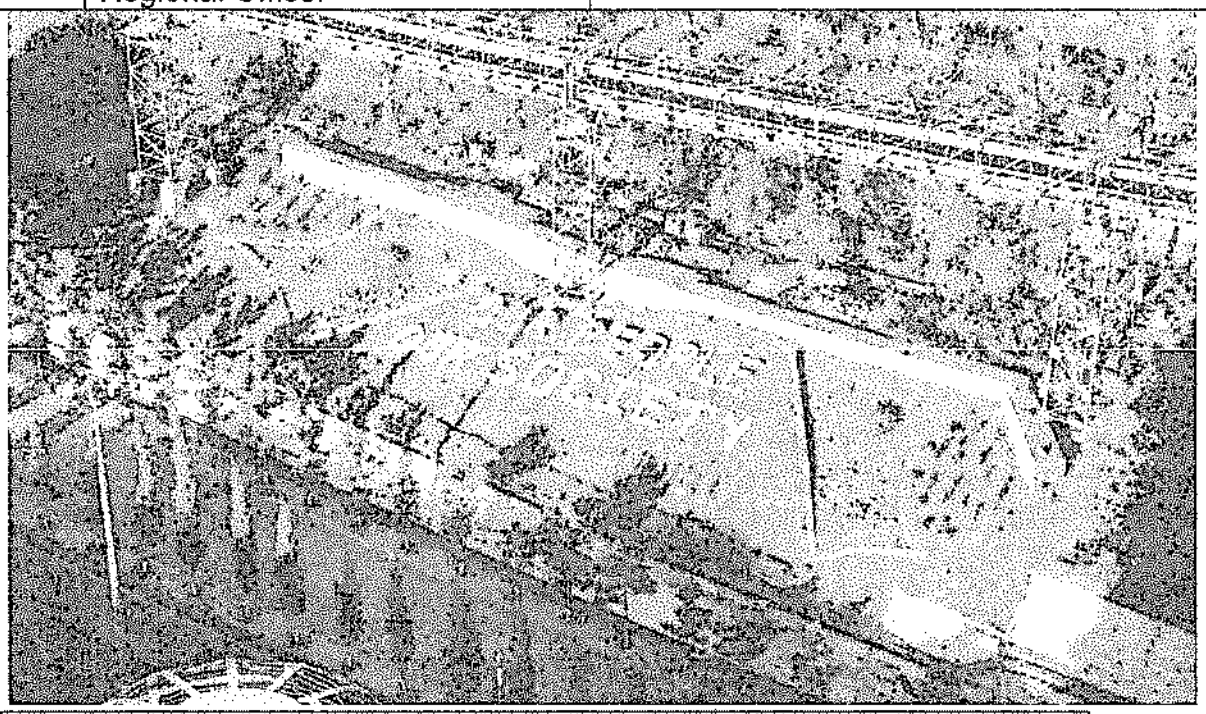
		 **Eco- Green Park along NH - 205 Kararaghat**
ix.	Solid waste generated shall be 100 % recycled and reutilized in the process itself. Treated STP sludge shall be used for green belt development.	**(a). Solid waste generated is being recycled and reutilized in the process by 100 %.** **(b). Treated Biological Sludge generated from STP is being used for green belt development.**  **Sewage Water Reclamation Plant**
x.	The company shall undertake eco-development measures including community welfare measures in the project area.	Ambuja Cement Foundation, (N.G.O.) has already been formed to look after the community welfare activities like plantation, rain water harvesting systems, agricultural improvement, health camps, infrastructural development etc. Expenditure on Community development is given in Annexure 2. Ambuja Cement Foundation has been awarded in various disciplines as below – **a)** 1 st Prize in 3rd CII conference on Corporate Social Responsibility "Ensuring Equity between Business and Society – May 17, 2013. **b)** 1st Prize "Corporate Meet and CSR Awards - We Care" organized by Amity Global Global Business School in CII Chandigarh-Nov 22, 2013

		c) 1 st Prize by NABARD for Best Partnership in Watershed Projects on excellent performance in implementation of Watershed Development Projects in Himachal Pradesh. –January 20, 2015
xi.	The company shall follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP) especially all the major stacks shall be provided with continuous emission monitoring for particulate matter.	All the major stacks i.e. Raw Mill/Kiln stack, Coal Mill stack and Clinker Cooler stack have been provided with Continuous Particulate monitor systems. We are sending our online realtime emission data of CEMS to CPCB & HPSPCB.  **CEMS Installed at Raw Meal/Kiln Stack**
xii.	Rehabilitation and resettlement plan prepared and submitted for the land acquired for the expansion project shall be implemented as per the R & R policy of the State Govt. in a time bound manner and report submitted to the Ministry.	Rehabilitation and resettlement is being carried out as per State Govt. R & R Policy.
xiii.	No work at site shall be undertaken without obtaining prior permission from the Chief Wildlife Warden, Govt. of H.P.	Necessary permission has been obtained from Chief Wildlife Warden, Govt. of H.P.
	B. General Conditions:	
i.	The project authority must adhere to the stipulations made by H.P. State Environment Protection & Pollution Control Board (HPSEP & PCB) and State Government.	Company is adhering to comply with the stipulations made by H.P. State Environment Protection & Pollution Control Board (HPSEP & PCB) and State Government.
ii.	No further expansion or modification of the plant should be carried out without prior approval of this Ministry.	Noted & shall be adhered.
iii.	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level	We are already monitoring the ambient air quality at four locations and regularly submitting the reports to SPCB and to MoEF. We have also installed the Continuous Ambient Air Quality monitoring station and

	concentration of SPM, SO_2 and NO_x are anticipated in consultation with the HPSEP & PCB. Data on ambient air quality and stack emissions should be regularly submitted to this Ministry including its regional office at Chandigarh and HPSEP & PCB once in six months.	the realtime data of the same is being reported to CPCB & HPSPCB website. Installation of two more CAAQMS for Rauri Plant is under progress. Ambient Air Quality Monitoring report is enclosed as **table 3.**
iv.	Industrial wastewater should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December 1993 or as amended from time to time. The treated wastewater should be utilized for plantation purpose.	**Being a dry process, no industrial waste water is being generated from the process. However the waste water generated from offices and residential facilities is being treated and utilized for plantation and other purposes.**
v.	The overall noise level in and around the plant area should be kept within the standards (85 dbA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under Environmental (Protection) Act, 1986 Rules 1989 viz. 75 dbA (day time) and 70 dbA (night time)	Noise control measures have been provided at all sources of noise generation. The results are well within limit as prescribed under Environmental (Protection) Act, 1986 Rules 1989.Several measures have been taken for noise reduction in Raw Material Hopper building and are as under – **a)** Entire Building has been covered with GI sheets. **b)** All working entrance provided with mechanized automatic doors. c) Insulation on raw material hoppers has been provided. **d)** Raw material hopper inlet point with double metallic jacket filled with concrete. **e)** Two Acoustic enclosures have been provided in Raw Material Hopper area. **f)** Acoustic working for raw mill building has been completed to reduce the noise level.
vi.	Proper housekeeping and adequate occupational health programmes must be taken up. All the persons working in the sensitive areas shall wear protective covers. Occupational health surveillance programmes shall be done on a regular basis and records maintained. The programme must include lung function and sputum analysis	Ambuja Cement Ltd. company is very much conscious about the occupational health and safety of employees and workers. Different types of health and house keeping programmes are regularly being organized by the company and the records are maintained. All the workers and employees are trained about the use of Personal Protective Equipments. Being a conscious company about the safety of employees the company has its own five cardinal rules for safety which

	tests once in six months.	each and everyone has to followed.
vii.	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP	These are being complied.
viii	A separate Environmental management cell with full-fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive.	**(a).** A separate Environmental Management Division has already been set up to look after environment related activities. **(b).** Monthly EMS awareness program & other regular eco-green activities are being carried out as per our scheduled targets.  **WED celebration**
ix	The project authorities will provide adequate funds both recurring and non recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Adequate funds have been taken for wild life conservation, emission monitoring (water / air / noise / soil etc.), sewage water treatment plant operation, water harvesting, noise reduction measures, plantation, mines site restoration etc. The funds earmarked for environmental protection measures are taken as a separate budget and six monthly expenditure is reported to the regional office of MoEF.
x	The Regional Office of this Ministry at Chandigarh / Central Pollution Control Board / HPSEP & PCB will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with the statistical interpretation should be submitted to them regularly.	Six monthly compliance reports for the conditions stipulated in environmental clearance granted by MoEF are being submitted to The Regional Office of CPCB & HPSPCB.
xi	The project authorities should	Land development work for the project has

	inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	been started from June 2007 and the same has been conveyed to the Regional Office of ministry.
xii	The project proponent should inform the public that the project has been accorded environmental clearance by the Ministry and the copies of the clearance letter are available with the HPSEP & PCB/Committee and may also be seen at website of the Ministry of Environment and Forests at http:/envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional Office.	Advertisement has been made in two local news papers and a copy has been submitted to the Regional Office of MoEF, Chandigarh.



Protect our environment, keep it safe; tomorrow, we'll be saved!
EMD- Team, ACL Darlaghat

Compliance of conditions imposed by MoEF regarding Amendment in EC for Rauri Plant at Village Rauri, Distt. Solan, Himachal Pradesh [(F.No. J-11011/203/2005-IA II (I)]

S. No.	Conditions	Implementation
(i)	No contaminated water shall be diverted in to the storm water drains. The peripheral drains shall be constructed to divert the runoff to the recharge structures. Before the onset of monsoon, the catchment area considered for recharge shall be cleaned. The recharge structures shall be in operation during monsoon season.	Being complied.
(ii)	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 8226 (E) dated 16th November, 2009 shall be followed.	Being Complied.
(iii)	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Chandigarh / CPCB/SPCB shall monitor the stipulated conditions.	We are submitting the six monthly compliance reports on regular basis along with the results of monitored data (both in hard and soft copies).
(iv)	The environmental statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MoEF by e-mail.	Environmental statement is being submitted to HPSPCB every year. Monthly reports and six monthly compliance reports are uploaded on our website on regular basis.
(v)	A copy of clearance letter shall be sent by proponent to concerned Panchayat, Zila Parishad/Municipal	Being complied.

Compliance of conditions imposed by MoEF regarding Amendment in EC for Rauri Plant at Village Rauri, Distt. Solan, Himachal Pradesh [(F.No. J-11011/203/2005-IA II (I)]

	Corporation, Urban Local Body and the Local NGO, if any, from whom clearance letter shall also put up on the website of the Company by the proponent.	
(vi)	The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/procedure to being into focus any infringement / deviation / violation of environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance /violation environmental norms to the Board of Directors of the company and /or stakeholders or shareholders.	Corporate Environment Policy is enclosed as annexure 5.

Table - 1

Monthly Average of Stack Monitoring Results

(Average Value)

(From April 2017 to September 2017)

MONTHS	Monthly PM Value in mg/Nm3			
	Glass Bag House	Cooler ESP	Coal Mill B/F	Limestone Crusher B/F
Apr-17	8.37	16.66	19.85	17.83
May-17	10.23	21.73	25.40	15.47
Jun-17	7.50	21.10	6.59	16.20
Jul-17	11.62	22.48	11.44	17.49
Aug-17	4.44	23.77	6.76	11.40
Sep-17	9.80	19.05	10.38	16.60

* Plant under maintenance

Table - 2

Inlet and Outlet Sewage Water Characteristics (Monthly Average)

(From April 2017 to Sep 2017)

MONTHS	INLET			OUTLET		
	pH	BOD	TSS	pH	BOD	TSS
Apr-17	8.10	253.00	366.00	7.50	11.30	12.50
May-17	8.10	255.00	364.70	7.50	11.50	12.40
Jun-17	8.10	257.00	359.70	7.50	12.50	12.90
Jul-17	8.10	255.00	357.60	7.50	12.50	14.00
Aug-17	8.10	257.00	364.30	7.60	13.50	12.30
Sep-17	8.10	254.00	378.00	7.50	11.20	12.30

Except pH, all parameters are in mg/lit.

Table- 3

Monthly Average of Ambient Air Quality Monitoring Results Rauri Plant
(PM 10, PM 2.5,SO2 & NO2)
(From April, 2017 to Sep, 2017)

MONTH	Rauri - 1				Rauri - 2				Rauri - 3			
	PM 2.5 (µg/m3)	PM 10(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	PM 2.5 (µg/m3)	PM 10(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	PM 2.5 (µg/m3)	PM 10(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)
Apr-17	16.90	66.40	4.60	11.20	18.30	63.05	4.60	11.00	20.40	61.70	6.50	12.50
May-17	20.42	54.62	4.25	12.88	16.72	52.92	4.63	10.63	22.40	58.83	4.75	11.38
Jun-17	19.43	61.46	5.25	11.38	26.98	59.50	4.38	11.63	24.27	66.23	5.00	11.38
Jul-17	13.91	42.16	4.00	10.88	14.43	35.05	4.50	11.38	17.60	36.39	4.50	11.50
Aug-17	16.35	38.67	4.00	9.14	16.82	44.24	4.33	9.43	18.39	42.26	4.57	9.38
Sep-17	17.14	49.66	3.88	9.63	18.65	55.64	3.88	10.63	20.78	52.08	4.50	10.75

Monthly Average of Ambient Air Quality Monitoring Results Rauri Plant
(Lead, Nickel, Arsenic & CO)
(From April, 2017 to Sep, 2017)

MONTH	Rauri - 1				Rauri - 2				Rauri - 3			
	Lead (µg/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	CO (mg/m3)	Lead (µg/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	CO (mg/m3)	Lead (µg/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	CO (mg/m3)
Apr-17	ND	ND	ND	0.520	ND	ND	ND	0.610	ND	ND	ND	0.450
May-17	ND	ND	ND	0.540	ND	ND	ND	0.480	ND	ND	ND	0.450
Jun-17	ND	ND	ND	0.470	ND	ND	ND	0.400	ND	ND	ND	0.480
Jul-17	ND	ND	ND	0.390	ND	ND	ND	0.340	ND	ND	ND	0.340
Aug-17	ND	ND	ND	0.400	ND	ND	ND	0.410	ND	ND	ND	0.410
Sep-17	ND	ND	ND	0.570	ND	ND	ND	0.590	ND	ND	ND	0.570

Table-4

MONTHLY NOISE MONITORING RESULTS (INSIDE PLANT)
AT AMBUJA CEMENTS LTD. (UNIT - RAURI)
(From April 2017 TO Sep 2017)

MONITORING LOCATIION	Apr-17		May-17		Jun-17		Jul-17		Aug-17		Sep-17	
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
TIME OFFICE RAURI												
(i) With Vehicular Movement	63.7	60.2	76.1	75.5	75.2	73.6	69.7	68.5	69.4	66.1	64.3	61.7
(ii) Without Vehicular Movement	61.4	57.6	69.3	66.9	62.5	61.3	59.5	57.3	64.7	61.3	62.5	59.4
Coal Dump Hopper	63.9	58.2	64.9	60.3	63.6	58.6	69.9	66.3	61.3	59.5	62.7	58.4
Near Raw Maerial Hopper	75.1	74.5	82.6	83.1	75.6	74.2	70.3	79.4	70.1	68.3	74.1	72.3
GBH (Bear YSS 15)	83.5	82.7	71.4	70.5	83.3	82.5	71.5	70.9	81.6	80.9	82.5	81.7
Raw Mill	85.2	84.1	87.7	87.1	85.2	84.6	84.8	83.5	85.0	84.4	84.2	83.9
Infront of CCR	81.4	79.7	72.5	72.3	81.7	79.7	82.1	81.2	80.1	78.5	80.6	78.5
Compressor House - 1 Inside	84.1	83.8	84.6	82.5	84.4	83.8	82.6	81.3	84.3	83.7	83.1	82.2
Compressor House - 1 Outside	86.8	85.5	87.2	86.8	87.9	86.5	79.2	78.9	87.4	86.2	84.0	83.5
Compressor House - 2 Inside	87.3	86.2	89.4	87.2	89.4	87.5	85.8	84.6	86.9	85.8	87.3	86.2
Compressor House - 2 Outside	88.5	87.4	84.9	83.3	84.9	83.1	82.1	81.3	85.4	84.1	86.1	87.1
Compressor House - 3 Inside	87.7	85.9	86.5	85.8	88.5	86.7	87.4	86.8	88.1	87.6	88.7	87.6
Compressor House - 3 Outside	86.2	84.5	86.8	86.7	8.8	85.6	86.9	85.1	88.5	87.2	87.1	84.2
Near Coal Mill	87.6	86.3	87.3	84.1	85.3	84.9	85.2	86.5	87.3	86.5	84.3	82.5
(i) With Vehicular Movement	83.2	80.4	71.8	68.6	74.5	72.1	78.9	77.1	78.2	76.5	80.2	75.3
(ii) Without Vehicular Movement	71.5	68.9	65.3	62.9	65.7	63.4	67.6	65.4	68.4	65.9	64.5	62.7

Table - 5

TOTAL NOS. OF PLANTS PLANTED
(FROM April. 2017 TO September 2017)

Area of Plantation	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Total
Inside Plant Area	8	12	28	40	59	32	179
Around Plant Area	0	0	0	0	0	0	0
Within Colony Area	0	2	6	11	17	9	45
Inside Mines Area	22	18	14	1844	1361	582	3841
Total	**30**	**32**	**48**	**1895**	**1437**	**623**	**4065**

Total plantation inclusive cuttings,Saplings,Shrubs and replacement etc.

Annexure - 1

ANALYSIS REPORT FOR
WATER / WASTE WATER SAMPLE

Sample ID:47644 - Analysis Completion:08/10/2017

Cement. / LAB Inward : 7068

Himachal State Pollution Control Board, Paonta
Y-Point Chowk
Paonta Sahib, Distt. Sirmour
Paonta Sahib-173025
Tele:01704225870

TEST REPORT

Test Report No. : 7068 Date: 09/10/2017

1. Name of the Customer : Ambuja Cements Limited (Suli Plant) - 10034
2. Address : Cement,Village - Suli, P.O. - Darlaghat, Tehsil - Arki,, District - Solan, Himachal Prade Suli-171102, Taluka : Arki, District : Solan(Parwanoo), GIDC : Not In SIDC
3. Nature of Sample : WAT-Water Act(Legal), (Insp Type : HOR-H.O.Reference)
4. Sample Collected By : Lalit Kumar,AEE
5. Quantity of Sample Received :
6. Code No. of the Sample : 47644
7. Date & Time of Collection & Inwarding : 15/09/2017 , (1330 to 1330) & 23/09/2017
8. Date of Start & Completion of Analysis : 23/09/2017 & 08/10/2017
9. Sampling Point : final outlet of STP ~ -
10. Flow Details (Remarks) : -
11. Mode of Disposal : -
12. Ultimate Receiving Body : 0
13. Temperature on Collection : - & pH Range on pH Strip :6-8
14. Carboys Nos for : A & Color & Appearance :Colorless
15. Water Consumption & W.W.G (KLPD) : Ind :800.000 , Dom :400.000 & Ind :0.000 , Dom :150.000

Sr	Parameter	Unit	Test Method	Range of Testing	Result
1	Suspended Solids	-	-	-	9.0 mg/l
2	Biochemical Oxygen Demand (BOD)	-		-	4.0 mg/l
3	COD	-	-	-	56.0 mg/l
4	Oil and Grease	-	-	-	0.4 mg/l
5	pH	-	-	-	7.05

Laboratory Remarks : Analysis results are within prescribed limits. Data other than analysis results pertains to RO concerned. By.27-lab_27 Dt.: 09/10/2017

Prakash Sharma,SSO

Field Observation : -

Note :

1. * - These parameters are covered under the scope of NABL.
2. The results refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied.
3. Samples will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
4. This report is not to be reproduced wholly or in part or used in any advertising media without the permission of the Board in writing.
5. The Board is not responsible for the authenticity for the samples not collected by the Board's officials.
6. Total liability of our laboratory is limited to the invoiced amount. Any dispute arising out of this report is subject to Himachal Pradesh Jurisdiction only.
7. Permissible Limits: as per Schedule VI of EPA Rules, 1986 as ammended by Second and Third ammendment 1993 for Effluents

Annexure - 2

Environmental Expenditure – RAURI(April,2017 – Sep,2017)

Sr. No.	Environmental Expenditure Area	Capital/Recurring	Amount(Rs)
1	a) Sound Barriers/ Acoustics, road works, plant flooring, shed provision etc. b) Any other important environmental asset/ expenditure	Capital	1200000
2	Air pollution control equipments maintenance, STP maintenance, Analyzers and other monitoring equipments maintenance.	Recurring Capital	2899910 5455100
3	Monitoring and analysis of environmental parameters, studies, purchase of small new equipments ,plantation, fees, salaries etc.	Recurring	3778652
4	Air pollution control equipments running expenses	Recurring	34415438
5	Mines – construction of check dams/ check filters, Toe walls etc, Water spraying on haul roads, use of IKON, plantation, soil conservation works, water harvesting etc.	Recurring	2947300
6	Depreciation on Environmental assets	Capital	48,016,437
7	Community development works	Recurring Capital	6805559 79578
	TOTAL	105597974	

Annexure – 3

Compliance of Renewal of Consent conditions imposed by HPSPCB Rauri Plant – 2.6 MTPA No HPSPCB/PCBID-12845/3479-81 dated 19/10/2016

S.No.		
1.	This Consent /Renewal of Consent is for a) The Compliance to the norms for emission as prescribed in schedule-1 of environment (protection) Rules, 1986 as may be prescribed by the Board. b) Noise and ambient air quality to be maintained within Ambient Air Quality Standards for Noise as specified in schedule III of aforesaid Rules. c) The effluent (domestic / industrial) conforming to the limits as prescribed in Schedule – I or Schedule – VI of Environment Protection Rules 1986 as amended or as may be prescribed by the Board.	Being complied.
2.	Pollution Control Devices provided by the unit shall be operated and maintained to achieve the norms as prescribed in Environment (Protection) Act, 1986 as amended from time to time.	Being complied.
3.	The State Board reserves the right to revoke/review and alter the conditions of consent as the case may be.	Noted.
4.	Unit shall not undertake any expansion activity / or additional product in the existing nit without obtaining consent from State Board.	Noted.
5.	Unit shall not pollute any water sources in the area like drinking, pond or well etc.	No water source is being polluted by the industry. Due dry process no effluent is generated from the industry. Domestic waste water is being treated in STP and recycled water is used for plant cooling make up and horticulture use.
6.	No debris shall be thrown along the roads or water course and the debris shall be either utilized or disposed in designated dumping sites.	Complied.
7.	The project proponent shall be liable to clear any past/current liability on account of difference consent fees f detected at any subsequent stage.	Noted.
8.	The emission / effluent shall be got	Samples are being tested by RO concerned and

Compliance of Renewal of Consent conditions imposed by HPSPCB Rauri Plant – 2.6 MTPA
No HPSPCB/PCBID-12845/3479-81 dated 19/10/2016

	sampled and tested by the unit as well as concerned Regional Officer as prescribed and further renewal shall be dependent up on the results of samples so collected and tested.	the result of the same is enclosed as annexure 1
9.	The samples of effluent /emissions shall be collected by the RO concerned and the unit shall also get the self monitoring of effluent / emission done within the month and convey the results to the State Board.	Monthly reports are being submitted to State Board.
10.	This consent is subject to the compliance any order passed by Hon'ble High Court or National Green Tribunal or any other court in litigation pending against the unit. This consent is subject to ratification of the State Board.	Noted.
11.	This consent is subject to conditions imposed in EC letter granted by MoEF & CC, Govt. of India or any other amendment / its renewal & any other mandatory valid permissions required for the operation of the plant viz. mining permission, mining consent and mining deed.	Noted.
12.	The unit shall not manufacture the clinker more than the consented capacity and shall submit certified annual proof thereof.	Noted.
13.	The unit shall comply with revised norms notified vide Notification No. G.S.R. 612(E) dated 25.8.2014 and shall maintain noise level less than or equal to the standards prescribed for residential area in Environment Protection Act,1986 near boundary walls.	Unit is complying with revised norms.
14.	In case of any contempt of court orders or violation of instructions issued by MoEF & CC/CPCB/HPSPCB or other concerned departments, the RCTO shall be deemed as withdrawn.	Noted.

Annexure-4

हिमालयन वन अनुसंधान संस्थान
Himalayan Forest Research Institute

Dr. V.P. Tewari
Director

Conifer Campus, Panthaghati
Shimla - 171013
Tel.: +91-177-2626778
Fax: +91-177-2626779
E-Mail: dir_hfri@icfre.org

संख्याः 3-1(12)2017/ 855 दिनांकः 10th नवम्बर, 2017

To,

Mr. Anupam Agarwal
Unit Head
M/s Ambuja Cements Ltd.
DARLAGHAT, District Solan (H.P.)

Sub. : **Consultancy services for Green Belt Development at Ambuja Cements Ltd., Darlaghat - reg.**

Sir,

As agreed in the proposed activities of Memorandum of Understanding (MoU) signed between this institute and M/S Ambuja Cement Ltd., Darlaghat on dated 10th August, 2017, please find enclosed herewith two copies of the report titled **"Assessment of the Past Efforts Made by M/S Ambuja Cement Ltd., Darlaghat towards Green Belt Development (GBD)"** for your kind information and records please.

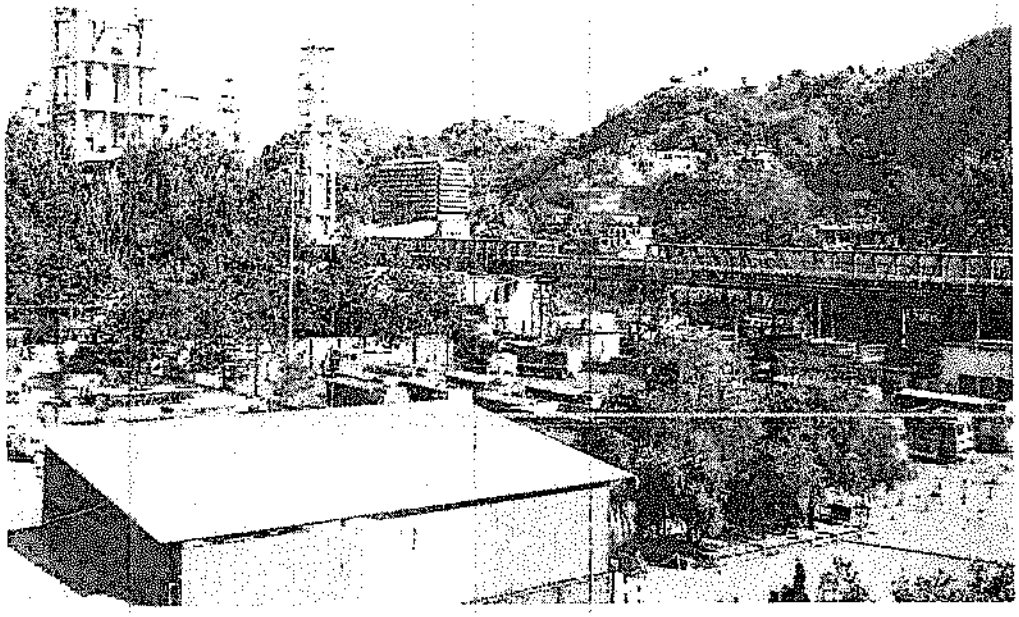
Yours Sincerely,

10/11/2017

[Dr. V.P. Tewari]
Director

Encls. : as above.

Assessment of the Past Efforts Made by M/s Ambuja Cements Ltd., Darlaghat towards Green Belt Development (GBD) : A Baseline Report



Sponsorer: **M/s Ambuja Cements Ltd., Darlaghat**
District Solan, Himachal Pradesh

हिमालयन वन अनुसंधान संस्थान
HIMALAYAN FOREST RESEARCH INSTITUTE
(भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्)
(Indian Council of Forestry Research & Education)
(पर्यावरण एवं वन मंत्रालय, भारत सरकार की एक स्वायत्त परिषद्)
(An Autonomous body under the Ministry of Environment & Forests, Government of India)
कॉनिफर कैम्पस, पंथाघाटी, शिमला-171013 (हिमाचल प्रदेश)
Conifer Campus, Panthaghati, SHIMLA-171 013 (Himachal Pradesh)

November, 2017

Assessment of the Past Efforts Made by M/s Ambuja Cements Ltd., Darlaghat towards Green Belt Development (GBD) : A Baseline Report

Sponsorer: M/s Ambuja Cements Ltd., Darlaghat
District Solan, Himachal Pradesh

HIMALAYAN FOREST RESEARCH INSTITUTE
(Indian Council of Forestry Research & Education)
(An Autonomous body under the Ministry of Environment & Forests, Government of India)
Conifer Campus, Panthaghati, SHIMLA-171 013 (Himachal Prade

PREFACE

Green belt, normally refers to an area which is mostly kept in reserve as an open space around larger cities, during development of townships and also during establishment of industries etc., so as to protect the environment including the land adjacent to such urban centres, industries from the urban sprawl. In-fact, these areas are maintained subsequently, mainly for forestry purposes and with a clear objective to provide better habitat and environment to the communities living around such establishments. The Green Belt (GB) in-fact, serves as an instrument to prevent soil erosion, enhances aesthetic value and beautify the landscape apart from abating the air and noise pollution.

In view of the above, Government of India has also now made it mandatory to develop Green Belt (GB) areas in and around the new as well existing industries. No specific norms regarding the width of GB and pollution potential activity have, however, been promulgated so far. It must be clearly understood that the width of GB may vary from industry to industry. It should however, need to be ensured that during development of such areas, locally available species and a right mix of deciduous & evergreen, perennials are required to be recommended with an objective for pollution abatement besides, serving as a measure for protection of the environment around in totality.

At Rauri and Suli, where Clinkerisation unit and Cement manufacturing Plant of M/s Ambuja Cements Ltd., Darlaghat had been established in the past and the land availability within the unit seems to be a constraint for the Green Belt development. As per the observations made and discussion held during the survey/tour, it is quite evident that the efforts made so far by the Cement Industry have been taken up with multiplicity of objectives/agenda, those encompass management of air pollution, noise pollution including enhancement of socio-economic value of the area, thereby, fulfilling the prime objective of GB. Records available with the unit, followed by the related discussions with the relevant authorities also revealed that due consideration has been/ is being given for selection of the appropriate plant species of course, in consultation with the adjoining authorities in the forest department. In general, plants selected are of fast growing nature with thick canopy cover which then act as a mechanical and biological barrier, perennials having large leaf area index preferably indigenous, resistant to specific air pollutants for maintaining regional ecological balance of the region.

It was also seen that while developing GB, Central Pollution Control Board (CPCB) guidelines have been followed to a major extent and a checklist has been prepared keeping location specific baseline information into consideration under GB Development. Efforts made also reflected that specific pollution abatement measures have been taken at the source level and where GB serves as secondary measure to mitigate air and noise pollution. A scientific approach has been adopted for providing aesthetic value to beautify the land-scapes too. In-fact, GB Development plan has been implemented with specific objective for a systematic and scientific upkeep of plants & surroundings otherwise useful for sustainable environmental monitoring to achieve multiplicity of the objectives of the Green Belt Development.

(Dr V.P.Tewari)
Director, HFRI

ASSESSMENT OF THE PAST EFFORTS MADE BY M/S AMBUJA CEMENTS LTD., DARLAGHAT TOWARDS GREEN BELT DEVELOPMENT: A BASELINE REPORT

Background:

As earlier mentioned and logically pointed out in the preface part of the report that Green belt (GB) normally refers to an area that is mostly kept in reserve as an open space, around larger cities, during development of townships including industries etc., so as to protect the environment including the land adjacent to the industries, urban centres from urban sprawl and subsequently maintain the area mainly for forestry purposes and with a clear objective to provide better habitat and environment to the communities around such establishments. The Green Belt (GB) in-fact, serves as a measure to prevent soil erosion, enhances aesthetic value and beautify the land-scape apart from abating the air and noise pollution.

While developing Green Belt (GB) it should never be under estimated that in addition to the above issues GB also helps in generating employment for the local populace around by involving the people during tree planting and related activities. Therefore, while phasing out the activities, it must be kept in mind that up-liftment of socio-economic standards of the locality should also not take the back seat. Accordingly, equal thrust must be given for socio-economics for raising standards and status of the area so as to provide better habitat and environment to the communities living around such establishments at local level.

Land availability at majority of the places becomes a major constraint during GB development around any source of pollution which then calls for Qualitative assessment for the land requirement on systematic and scientific basis so that authorities can be convinced in the subsequent phases of implementation of such activities. At the same time optimum returns to be obtained through the developmental activities must not be jeopardised.

Though, Government of India has made it mandatory to have GB areas and as per the CPCB guidelines, 33% of total area for GB development has been defined, yet specific norms regarding the width of GB and pollution potential activity have yet to be promulgated so far on the regional basis as also mentioned earlier. How to achieve this through local consultations, with scientific logic and also with best possible inputs of course, by using the locally available material, forms/need to be an essential component of planning.

Hence, the above issues have been identified and taken as the parameters while preparing this baseline report as far as the development of Green Belt around the cement industry is concerned. This line of action has been explained as under;

Consultations:

Scrutiny of the relevant records reveal that this Cement Industry in the past at local level had approached **Divisional Forest Officer, Kunihar Forest Division** with an earnest request to provide a list of forestry species those can be used during establishment and development of GB. Further analysis also revealed that the plantation under GB were taken up as per the guidance received and the list of species provided by the department.

The plants species recommended by local DFO are as under;

i) *Cupressus species*	***ii)*** *Pinus roxburghii*	***iii)*** *Grevellia robusta*
iv) *Callistemon lanceolatus*	***v)*** *Robinia peudoacacia*	***vi)*** *Dodonia*
vii) *Vitex negundo*	***viii)*** *Olea glandulifera*	***ix)*** *Melia ozadirach*
x) *Punica granatum*	***xi)*** *Dalbergia sisoo*	***xii)*** *Sapindus mukorossi*
xiii) *Bauhinia variegate*	***xiv)*** *Prunus padus*	***xv)****Jacaranda mimosaefolia*
xvi) *Mangifera indica*	***xvii)*** *Cedrus deodara*	

Relevant scientific literature pertaining to the species to be used and having direct relevance to the abatement of pollution in the required scenario was also consulted.

A first step in the right direction indeed

Green Belt Development works done by Ambuja Cements at Rauri & Suli Units:

A good initiation towards development of GB have been made and it was seen that **Criterion** for selection of forest tree species used while development of GB were **(a)** Nature of pollutants in the vicinity of cement plant; **(b)** Emission level–height and source strength; **(c)** Determination of Air Pollution Tolerance Index; **(d)** Fast growing nature of plants; **(e)** Thick canopy thereby, acting as a mechanical barrier, perennial and evergreen having large leaf area index and **(f)** Preferably indigenous species and having resistance to specific air pollutants and also maintaining regional ecological and hydrological regimes of the region.

In view of the above, **GB Development** in and around Rauri & Suli units comprised of the following and required steps;

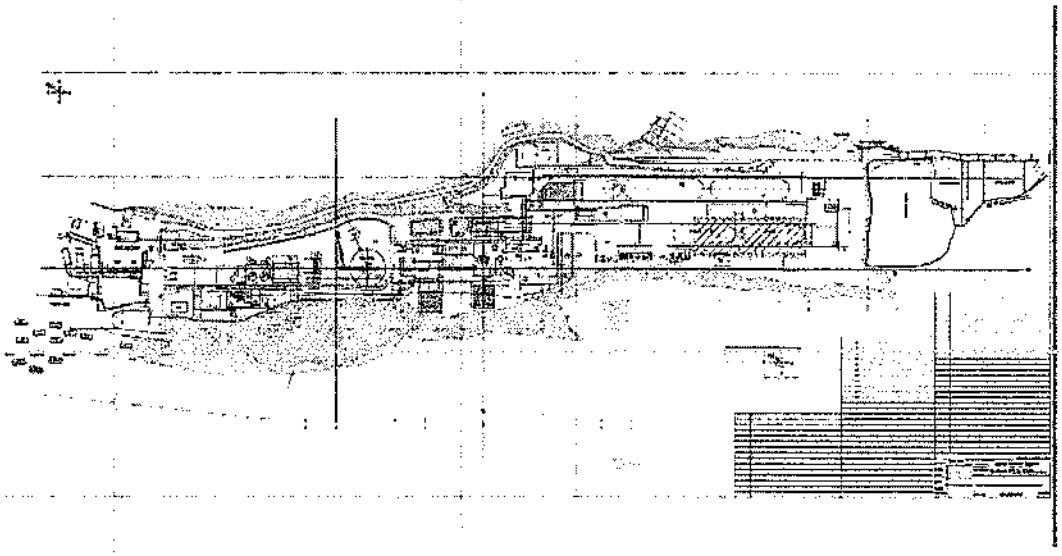
(i) Planting of tall saplings with height more than 10 m around the source. Fast growing species with wide canopy and perennial foliage those are most suitable for the purpose have been selected.

(ii) Planting of saplings in appropriate rows, each row alternating with the previous one to prevent further fanning and horizontal pollution dispersion had been ensured and also attempted.

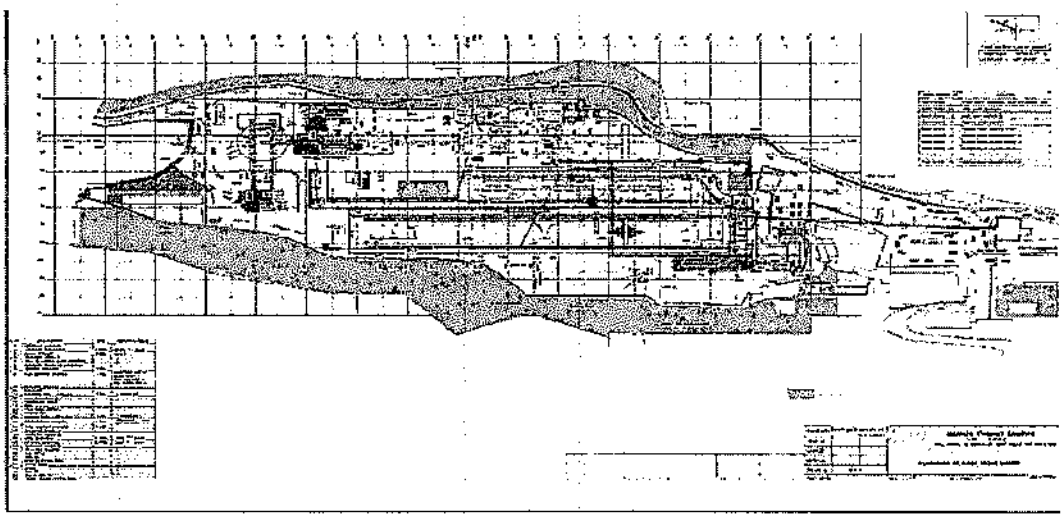
(iii) Plantations have been done along the roads and approach roads to arrest pollution generated due to line source with a clear objective to decrease the noise levels.

(iv) Since, tree trunks at some point of time become devoid of foliage and to meet such exigencies, planting of small shrubs in front of and in between the tree spaces had been made essential and is being practised since then.

(v) In open areas (between the process installations) where planting of the trees is to be essentially avoided, dibbling of lawn grasses carried out with a clear objective that this will help in effective trapping and absorption of pollutants.

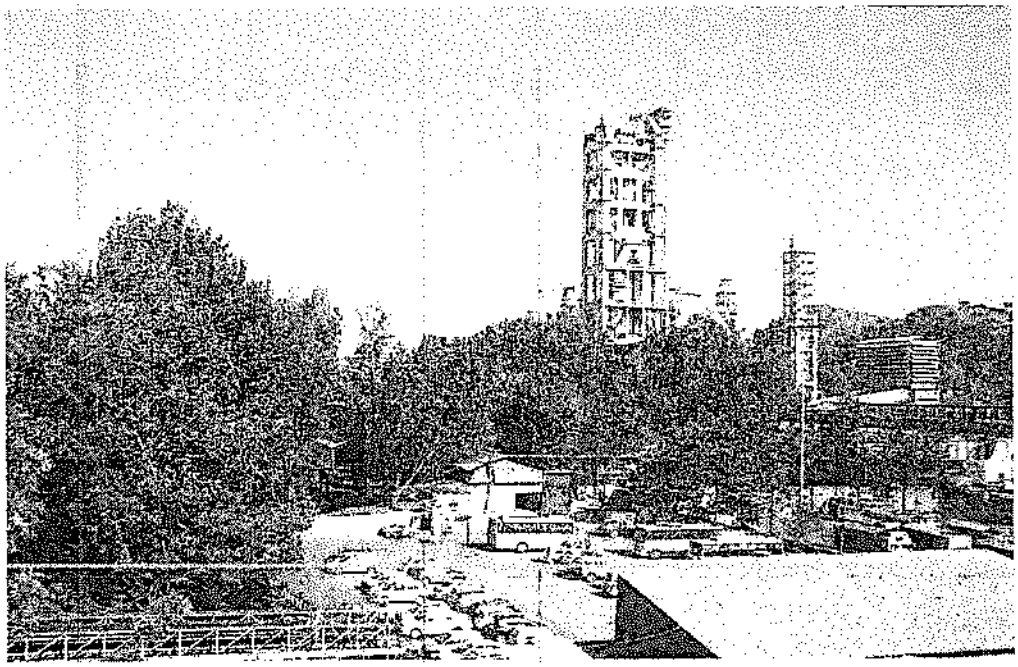


Green Belt Development Layout Plan implemented for Suli Plant

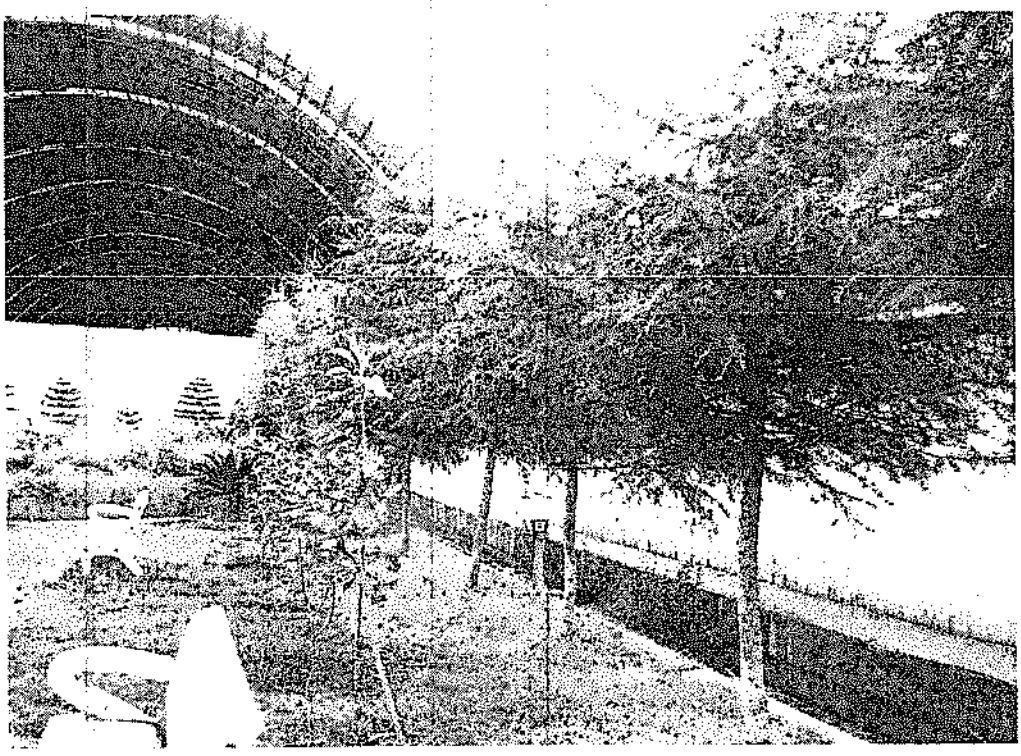


Green Belt Development Layout Plan implemented for Rauri Plant

To bring the cost of these essential activities down and also with an objective to use the locally available material, which is an essential component as indicated in the forgoing paras, waste water and solid waste generated from the plant is being best utilized for the maintenance of Green Belt (GB) related activities including composting into manure.



Green Belt Development in Rauri Plant



Location Specific GB Check list developed as per CPCB Guidelines & its implementation:

To check and also to see that whether the activities pertaining to GB development accomplished by the unit so far, follow the CPCB guidelines or there are deviations to this effect. Accordingly, some of the relevant CPCB guidelines were seen, compared and discussed as per the details below and answered accordingly;

i) While making choice of plants species for cultivation in Green Belt, weightage was given to the natural factor of bio-climate. *(Ref: Chapter 5 CPCB guidelines for GB).*

Yes, the guidelines have been kept in view.

ii) Trees to be grown as per normal horticultural (Forestry) practice & authorities responsible for plantation. (*Ref: Chapter 5 CPCB guidelines for GB*).

Yes, the available records and practices followed revealed so.

iii) Width of the belt as presented through the model, is necessary to decide to have Green Belt in places around the industry *(Source – oriented plantation) as well as around habitats (receptor oriented plantation) (Ref: Chapter 5 CPCB guidelines for GB).*

Width of the belt as presented through the model, for one or more reasons may prove to be a difficult option to attain for this already established industry. Hence, found new options for development of Green Belt including the places around the industry through community involvement.

iv) In extreme areas (e.g. where stresses due to water, salanity, salt sprays etc. are acute) only tolerant species need to be chosen *(Ref: Chapter 5 Selection of Plants for Green Belts CPCB guidelines).*

Deviation to the extent possible is also required in the instant case with special reference to the totally dry and refractory conditions of the area under reference.

v) Though a comprehensive list of plants recommended for green belts in the country is presented in Appendix-B yet, the list is not complete in itself to the site specific conditions and accordingly, there is a definite scope to add some more species to it. Criteria for inclusion of species in this list include availability, knowledge about their horticultural (Forestry) aspects, particularly propagation methods and growth rates and (sometimes) observed or reported information about their tolerance to air pollution. Numerous species, indigenous to certain regions, may also be included wherever possible *(Ref: Chapter 5 Selection of Plants for Green Belts CPCB GB guidelines).*

Yes, the guidelines issued has been kept in view by the company. Concerted R&D efforts of the company in this direction paves the way for inclusion of more and more local species to the list, development of their planting technology, thereby, fulfilling the requirement of CPCB also.

vi) In the source oriented approach, green belt of suitable dimension is planted around a source emitting pollution and hence, studies are essentially required to know the usefulness of green belt in reducing the effects of pollution for ground level releases *(Ref: Chapter 3 Theoretical models for development of Green Belt, CPCB GB guidelines).*

Efforts of the company in the instant case are no exception to it.

vii) In the receptor oriented approach , green belt of suitable dimension is planted around an object which is getting deteriorated or likely to get deteriorated as a result of pollution in and around it and studies made to protect it against pollution (Ref: Chapter 3 Theoretical models for development of Green Belt, CPCB GB guidelines).

Yes. Biodegradation is a continuous process in such environment and to achieve the best in this scenario and also to fulfil the requirement of CPCB guidelines, community based approach has been adopted in the surrounding/ adjoining areas.

viii) For absorption of gases freely exposed foliage, through **a)** Adequate height of crown, **b)** Openness of foliage in canopy, **c)** Big leaves (long and broad laminar surfaces), **d)** Large number of stomatal apertures, **e)** Stomata well – exposed (in level with general epidermal surface) *(Ref: Chapter 5 Selection of Plants for Green Belts CPCB GB guidelines).*

These issues/ points are quite scientific and relevant. Essentially these have been taken care of by the company during subsequent selection of the species.

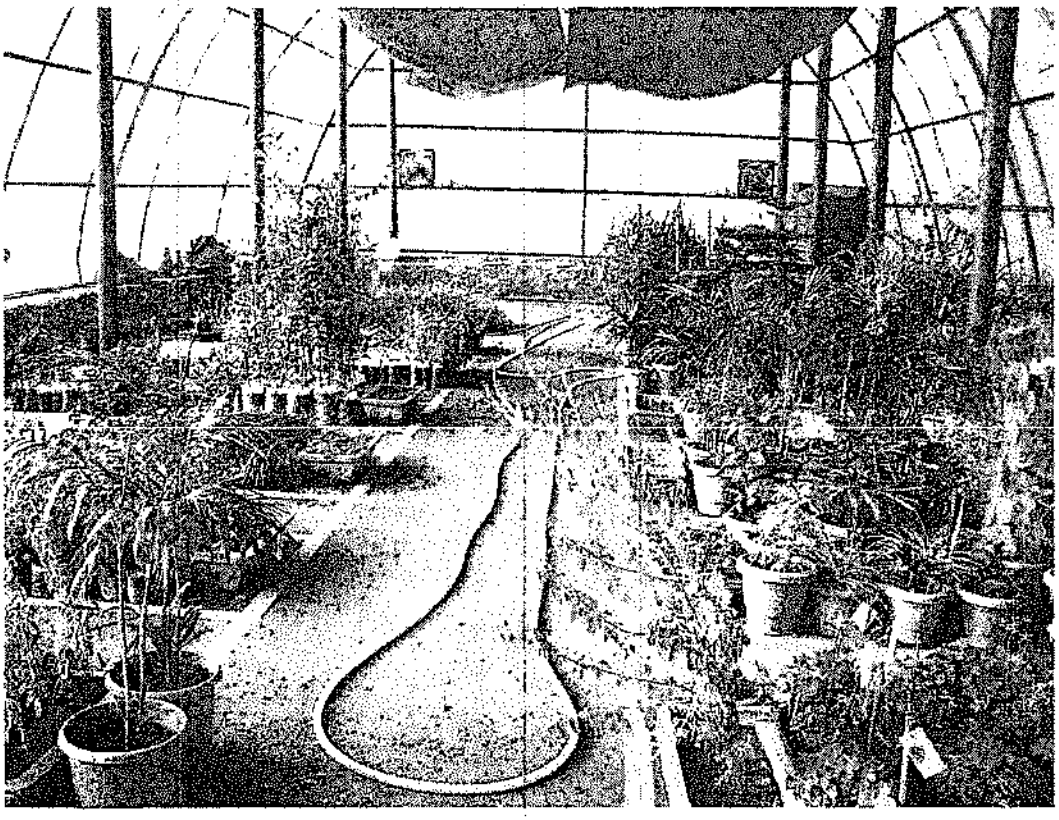
ix) For removal of suspended particulate matter, a) Height and spread of crown **b)** Leaves supported on firm petioles, **c)** Abundance of surface on bark and foliage through **c.1)** Roughness of bark, **c.2)** Epidermal outgrowths on petioles, **c.3)** Abundance of axillary hairs, **d)** Hairs or scales on laminar surfaces. **e)** Stomatal protected (by wax, arches/rings, hairs etc) (Ref: Chapter 5 Selection of Plants for Green Belts CPCB GB guidelines)

Quite relevant and the company is already putting up its best and certainly have been adopted subsequently too to the best possible extent through selection of the locally available species.

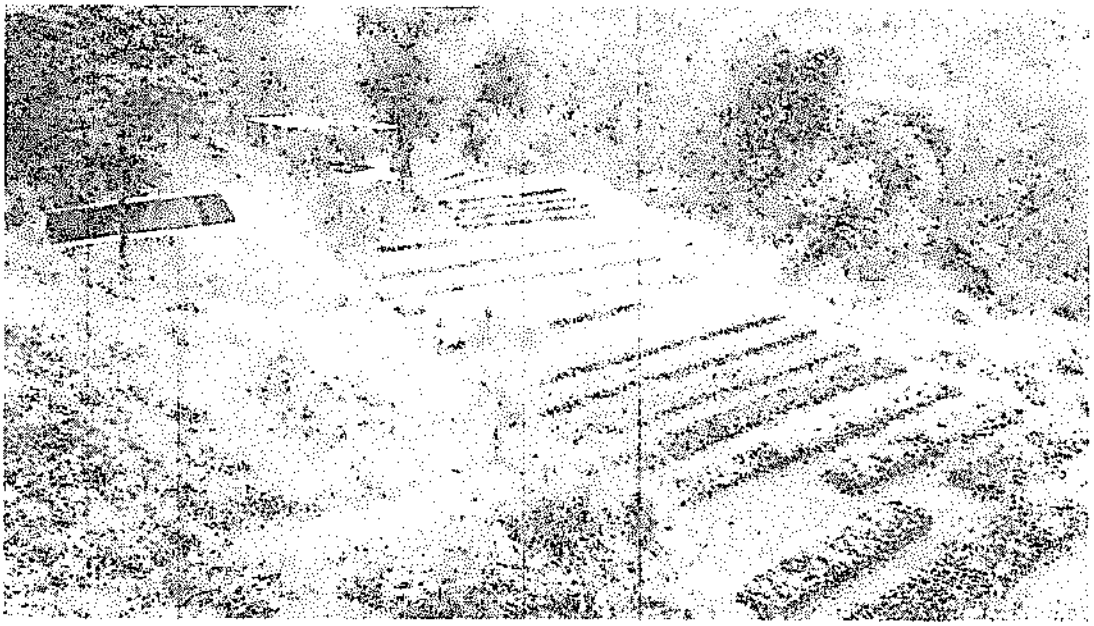
Own Efforts, Collaborations and Seeking Scientific Expertise:

Observations made and discussions held during the survey revealed that to boost its scientific and professional endeavour and to further sharpen the required skills in the direction, the company is all out to develop collaborative efforts with the universities, forest departments and other research organisations in its surroundings. Concerned person of the company always remain in touch with the scientists and specialists for raising / propagation / planting techniques and plants procurement etc. for bringing more and more effectively in its efforts towards GB development.

Plants used by the company during development of GB have/had been developed in their own nursery. At the same time it was also seen that planting stock of some of the species was also procured had been procured from local forest department, Dr Y.S. Parmar University and from the nurseries of Himalayan Forest Research Institute (HFRI) Shimla. Local Forest Department has also been approached with an implicit faith to propagate plants for our future green belt development plan to be implemented in Rauri plant.

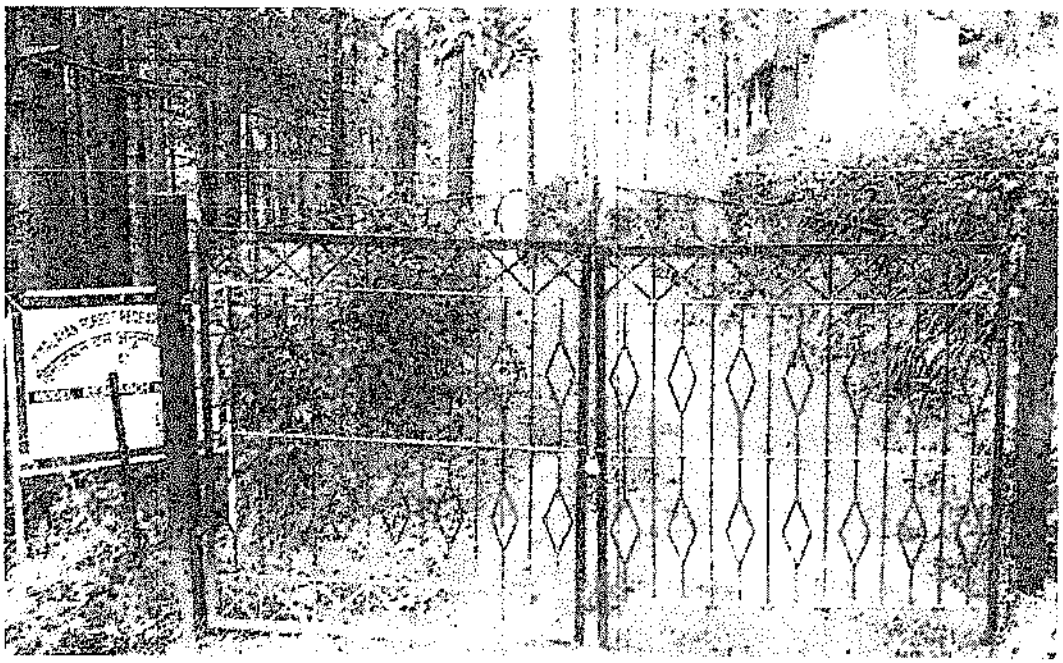


Ambuja's Poly-house for Production of Nursery Stock

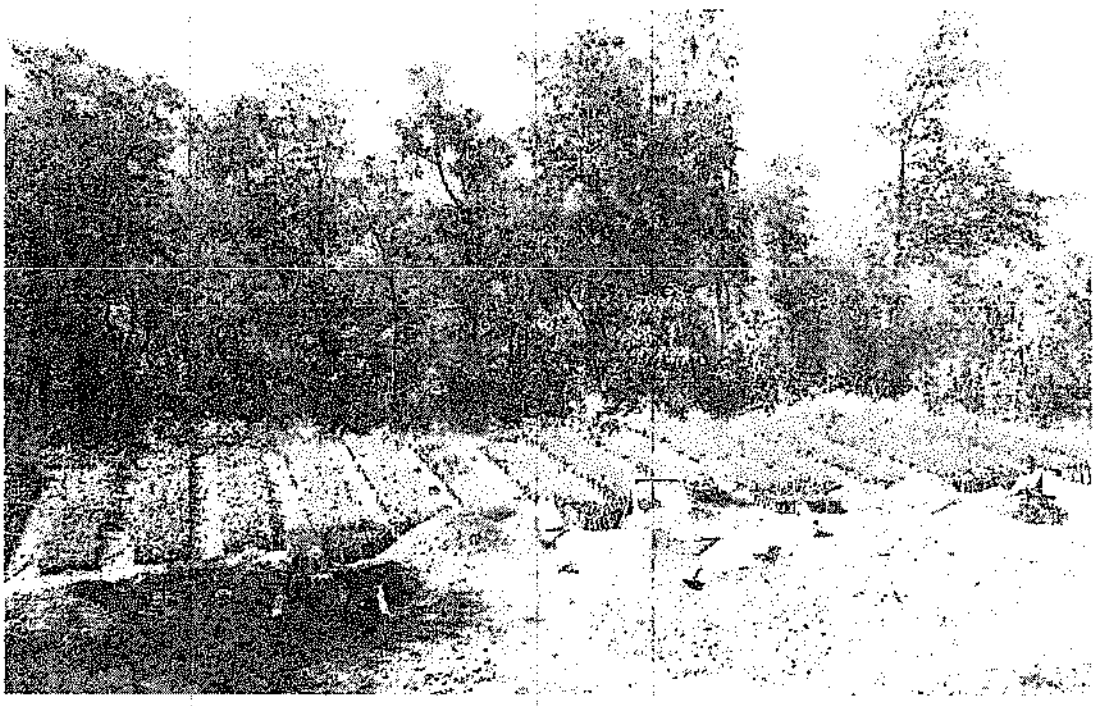


Local Forest Department Nursery at Pathragal near Darlaghat

The company is always in touch with Himalayan Forest Research Institute, scientists and specialists from Dr. Y.S. Parmar University of Horticulture & Forestry for raising / propagation / planting techniques and plants procurement etc. for an effective green belt development at their site.



Himalayan Forest Research Institute Nursery in Shimla



Local Forest Department Nursery at Chhamla near Darlaghat

Materials Procured and Methodology adopted and Maintenance Schedule for Green Belt Establishment:

- Planting materials were/ is being arranged from its own nursery / Local Forest Deptt / Dr Y. S. Parmar University / HFRI, Shimla /Horticulture Research Station Craignano / Horticulture deptt. Shimla and from some other outside nurseries.

- Water and manure being the important resources for raising the planting stock and accordingly, efforts in the direction were also not lost sight of the company. For an effective utilization of water and for better upkeep of plants several means like drip irrigation for focal trees and micro-sprinkling at strategic points have been done. Farm yard manure/vermin-compost/compost procured from own /local sources have been used.

- Pit size of 60cmx60cm60cm is normally being used for the planting of trees but its size in the instant case was increased for tall plants in gunny bags as per physical site stock inspection of nurseries. In case of shrubs pits of the size 45cm x 45 cm x 45 cm were used to attain good growth and survival.

- Since, aesthetic uses deal principally with visual qualities and feelings and hence, factors like plants size, growth behaviour and texture with compositional arrangements and relationship to the surroundings have been importantly considered while GB development. Looking into all aspects of developing such sites, plants species of deciduous and ever green combination considering height and colour components have been incorporated accordingly.

- Trees, shrubs, creepers and grasses for different uses have also been planted and some of them are being pruned in various desired shapes to upgrade aesthetic look of the site. Shrubs like Jasmenium, Rosa sp., Spiria having wild growing habit were shaped and the same were used and designed for their specific arrangements with trees coinciding with specific requirements of the sites.

समन्वयक (अनुसंधान)

- Especially height of the trees is being maintained as per the requirement of the site for those particular conditions. The trees, shrubs and hedges are being pruned & maintained as per the suitability of the proposed developing forest landscape.

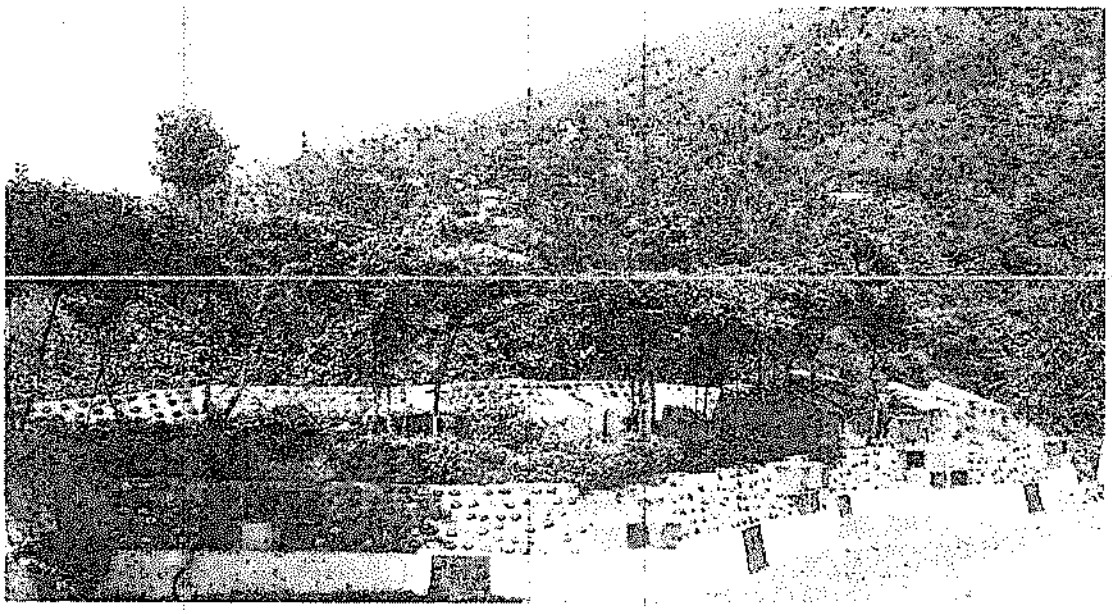
- Till date more than 50,000 saplings have been planted inside Suli plant & around 14,000 saplings have been planted in Rauri plant. Major plants species are *Grevellia robusta*, Poplar, *Jacaranda*, *Cupressus*, *Punica granatum*, *Bauhinia variegata*, *Toona*, Paja, Rosa sp., *Duranta*, *Ficus* sp., *Alstonia*, *Callistemon lanceolatus*, *Hibiscus*, *Nerium*, *Thuza*, *Hypericum*, *Ledgerstroemia*, *Woodfordia*, *Cuphea*, *Hydrangea*, *Dodonia* etc.

A standard forestry/ horticultural practices is involved for planting of causalities, hoeing, weeding, watering, pruning and manuring so as to ensure better upkeep of plants. The vermin-composting and other bio-nutrient supplements are being used for the fast growth of plants in Green Belt development. During rainy season the frequency of weeding practices is increased so that undesired / unwanted vegetation do not compete for nutrients uptake from the soil. Desired pruning technique is also adopted for the proper shape and growth behaviour of different plants species in Green Belt development. The plants are regularly being monitored for their growth requirements / inputs during initial five years of gestation phase. This is being done to ensure and achieve best survival rate keeping in view of an effective Green Belt development for the desired purpose. It is also important to mention that final treated water & dried biological sludge from Sewage Water Reclamation Plant (SWRP) are being utilized for the plantation activities in Green Belt development. In nut shell aftercare is utmost important/ essential tool for a systematic and effective biological green facelift of Green Belt development.

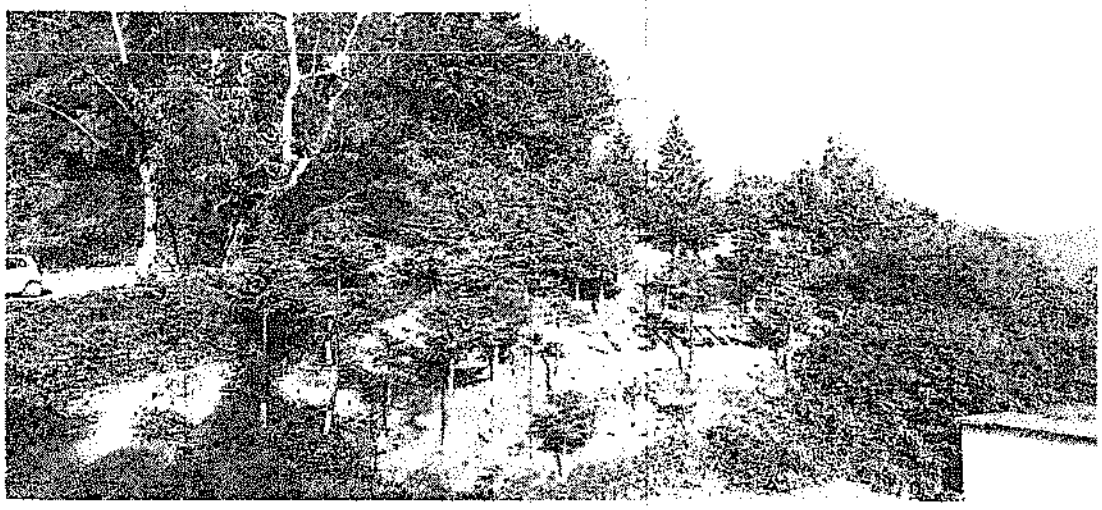
समन्वयक (अनुसंधान)
हि०ऊ०नु०स०, शिमला-9

Plantation Efforts in and Around Plant Area:

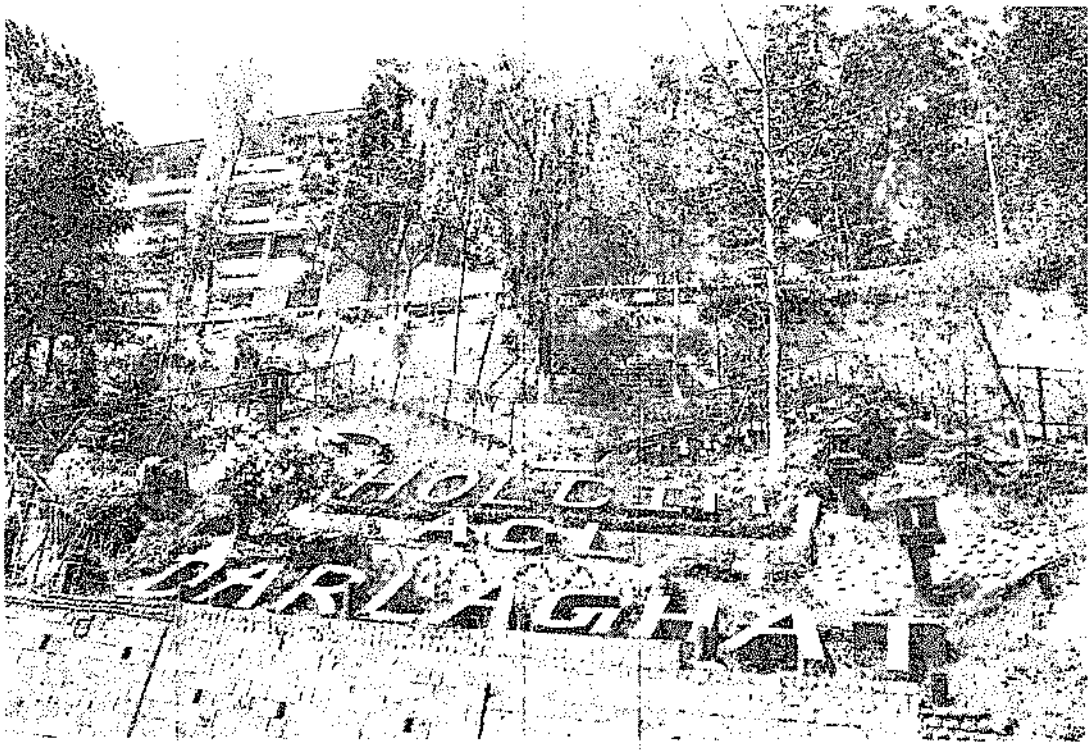
Plantation has also been undertaken around plant areas to improve overall ambient air quality and societal economic uplift. The major plants species are Bauhinia, *Grevillia robusta*, Citrus sp., Leucaena etc. More than 5000 saplings have been planted in the vicinity of Suli & Rauri units. Plantation is also being undertaken along NH 205 in collaboration with State Forest Department from Darlaghat to Ropar. To offset CO2 from the atmosphere, Navgrah Vatika has also been developed near Chamakri along NH205. A small eco-park has also been developed at Kararaghat.



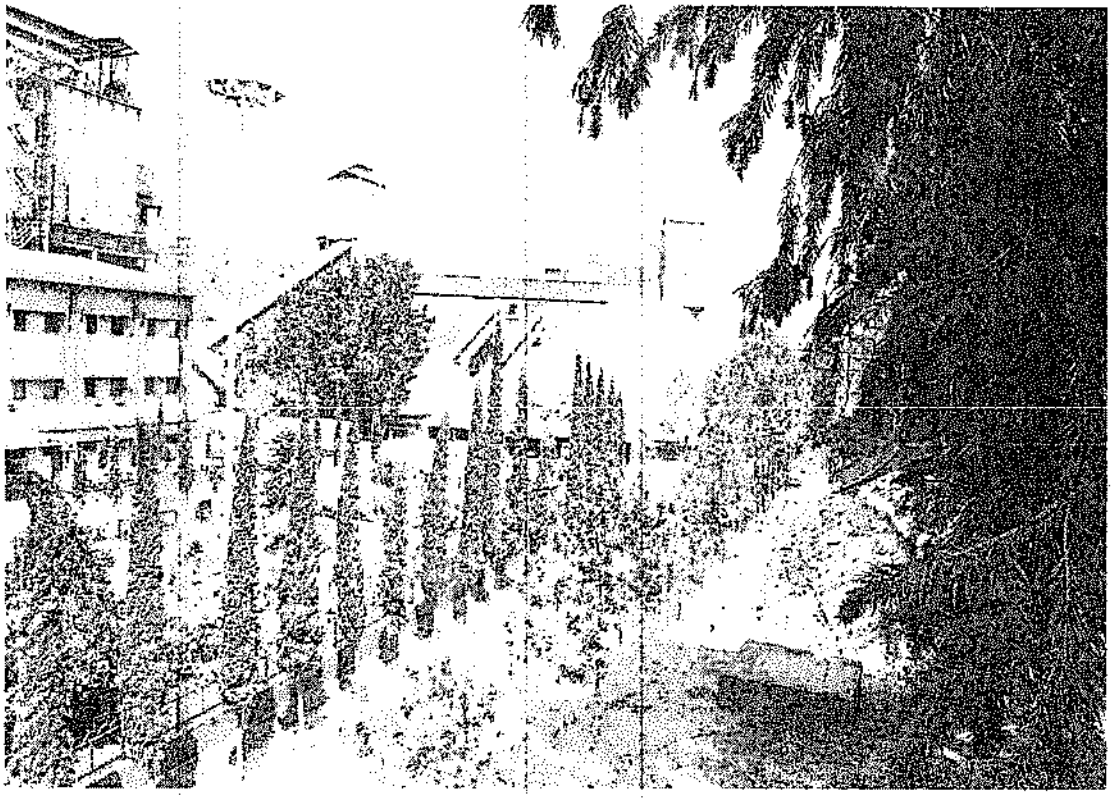
Navgrah Vatika along NH205 near Chhamla

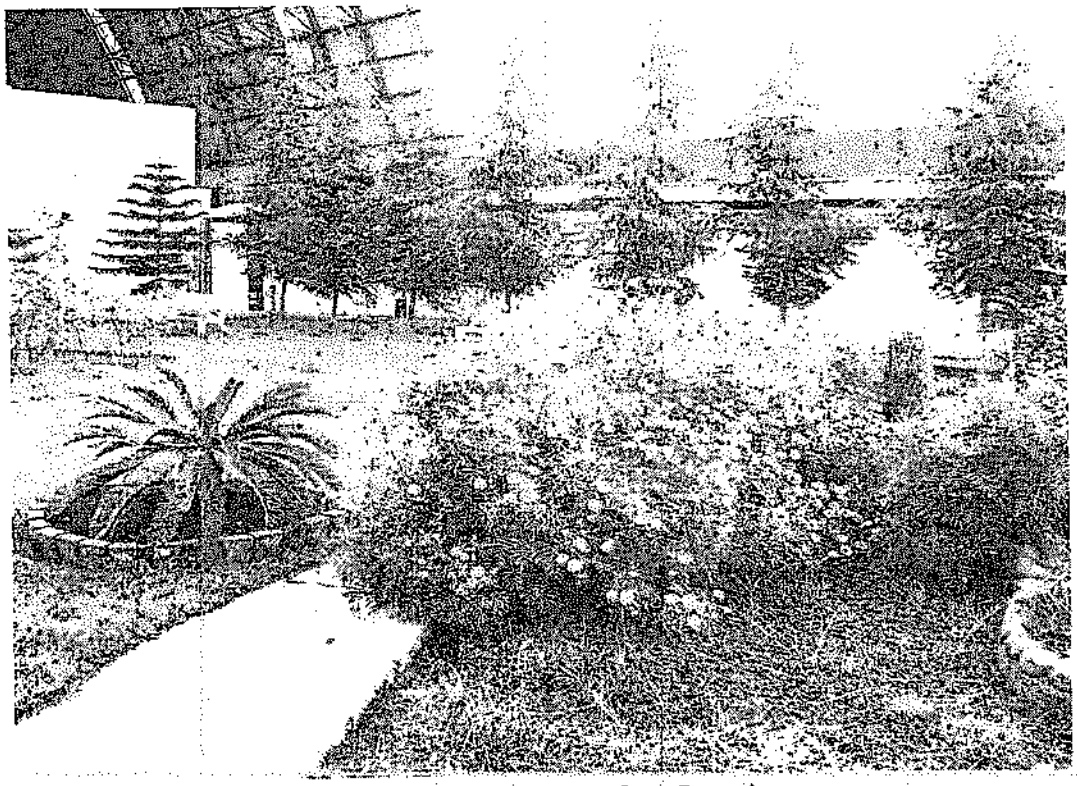


Plantation Efforts along NH205 at Kararaghat

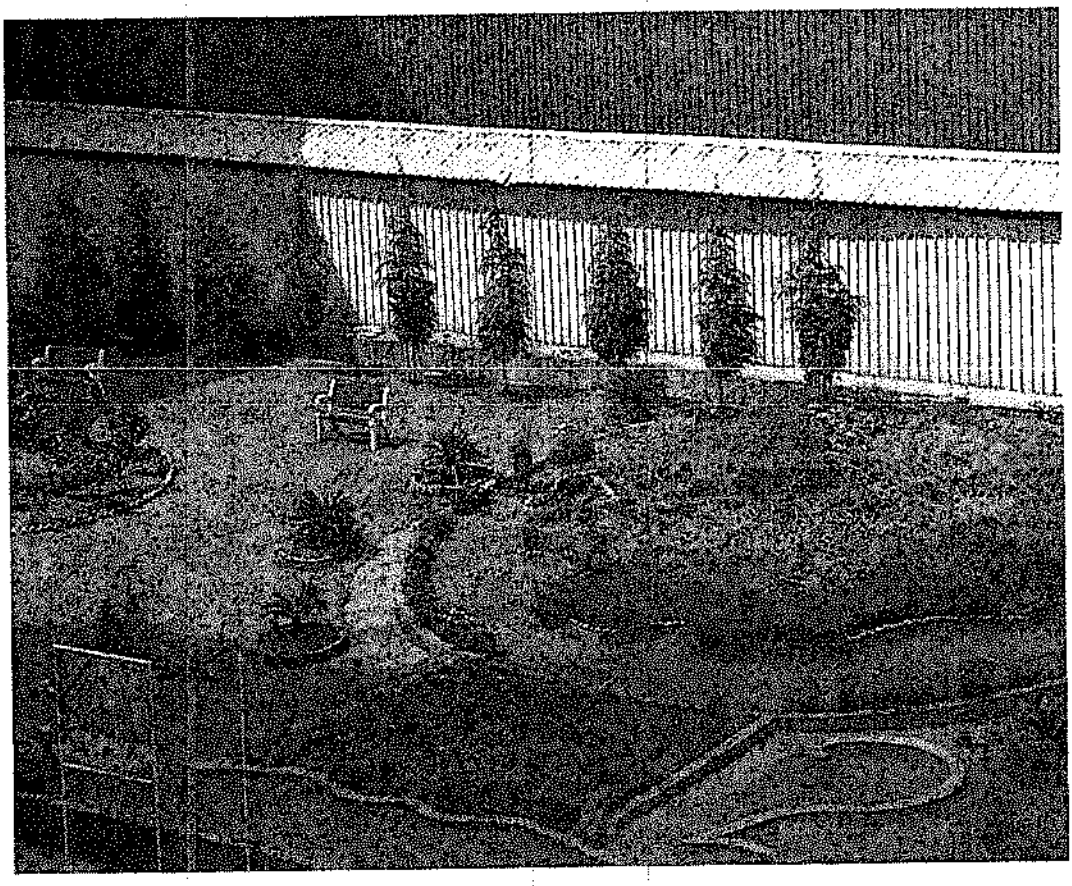


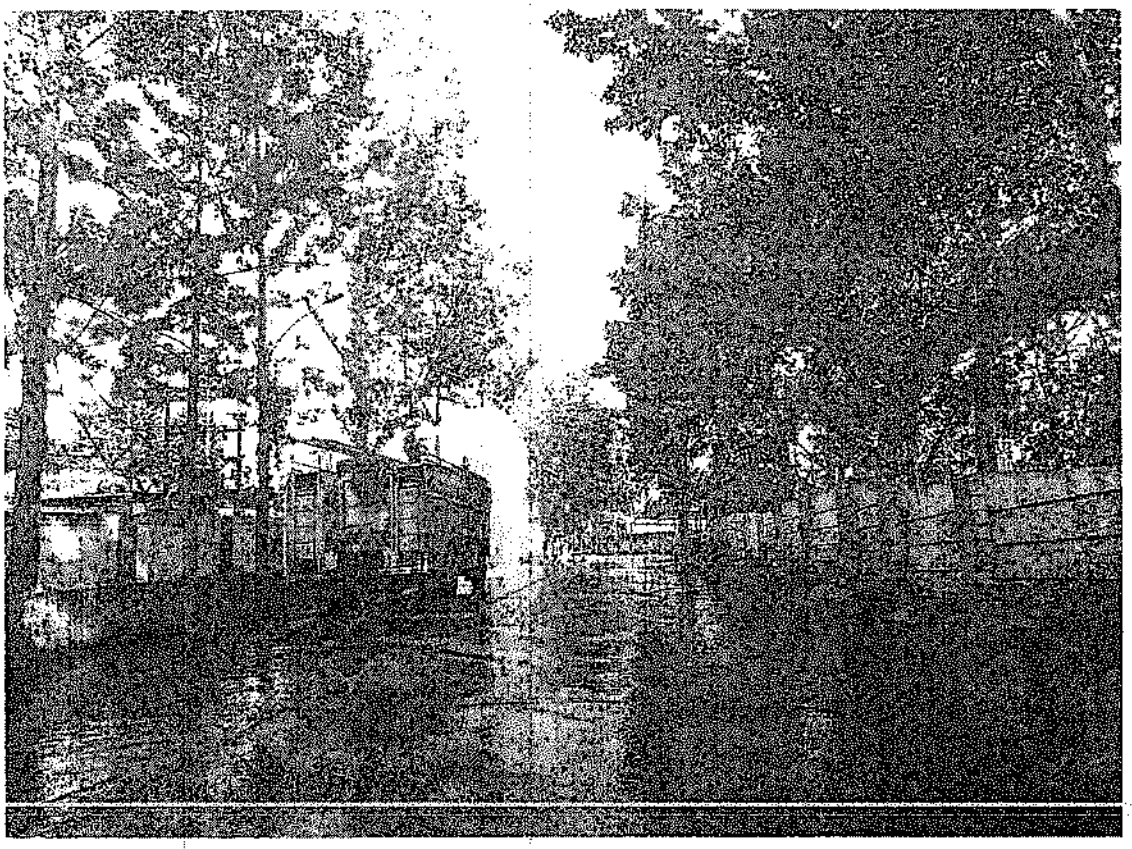
Green Belt Efforts At Ambuja Cement , Dalaghat



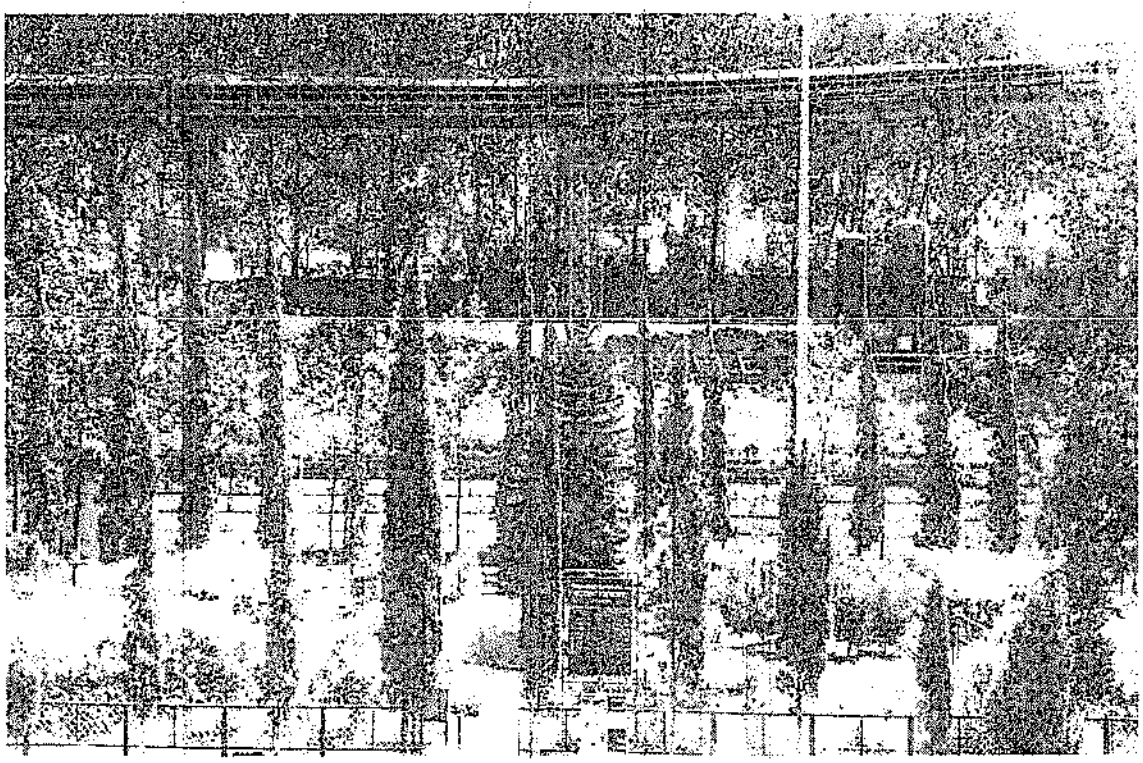


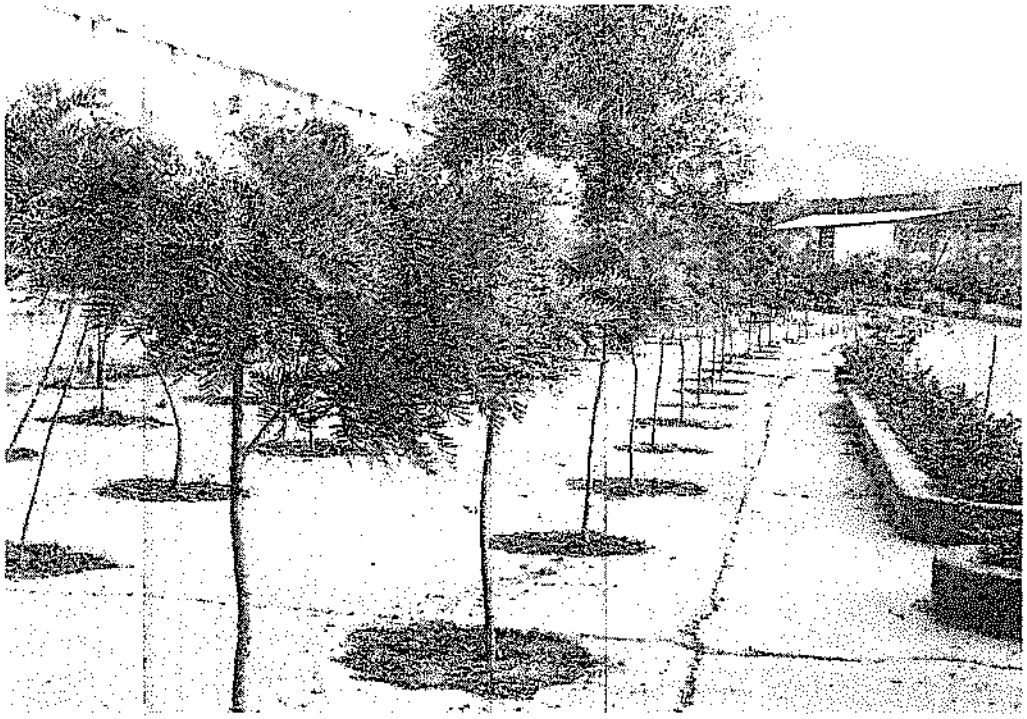
Green Belt inside Rauri Plant Premises



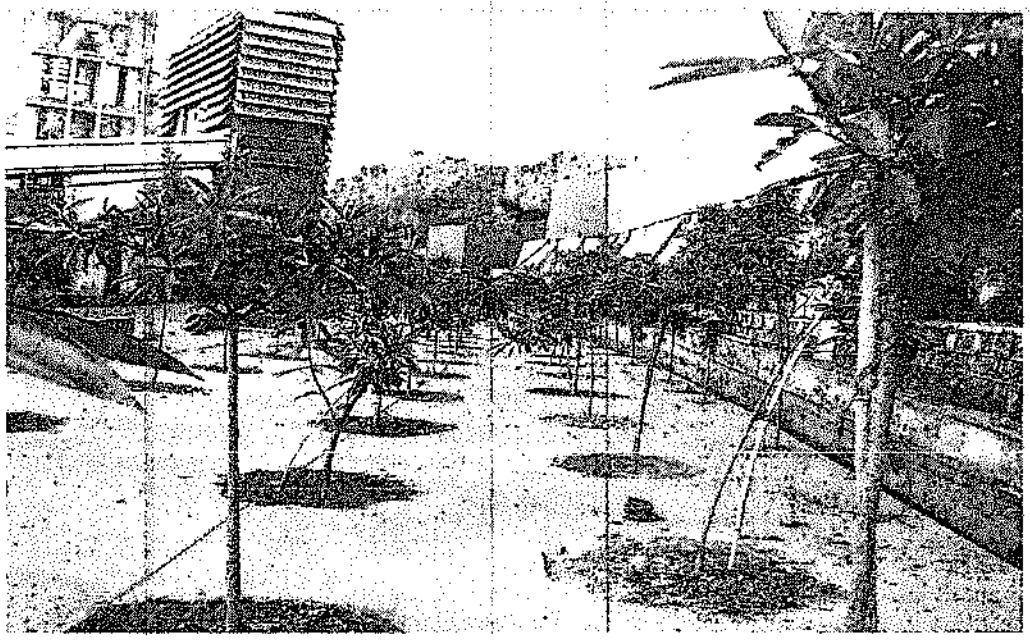


Green Belt Efforts Inside Plant Premises By Ambuja Cement, Darlaghat





Green Belt Efforts inside Rauri Plant Premises



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Group Coordinator
निदेशालय वन अनुसंधान

CORPORATE ENVIRONMENT POLICY (As per MoEF Circular J-11013/41/2006-IA.II (I) dated 18 May 2012)

1.0 Corporate Environmental Policy

Ambuja Cements Limited (ACL) adopted sustainability as the way of doing business and give due regard to the environmental protection. ACL investsin environmental protection measures with a view to leave no or minimal traces of our operations. Ambuja Cement believes that the vision of environmental conservation can be achieved more effectively through a structured and systematic approach. ACL is empowered by the overarching Corporate Environment Policy along with unit specific environment policy. ACL also has various specific policies like Corporate Environment Policy, Sustainability Policy, Climate Change Mitigation Policy, Corporate Social Responsibility Policy and Green Procurement.

The Corporate Environmental Policy (CEP)in the form of major commitments including for even going beyond legal requirement. This was formulated and approved by ACL Board of Directors (BoD) vide its meeting on 28 July, 2011 soon after the MoEF OMs of 26 April, 2011 and 09May, 2011 (a copy of CEP is enclosed). The CEP was later on revalidated wef. 27 June, 2014 and signed by MD& CEO (a copy of old and updated CEP are enclosed). ACL commits to the following as per the CEP:

- Adopt ecologically sound mining and process technologies along with best practices for prevention & control of emissions, effluents and waste.
- Rehabilitate mines and development of green belt.
- To optimise key resources including minerals, coal, petroleum products, water & energy.
- Maintain and strive to 'go beyond compliance'with applicable legal and other requirements including environment, forest and wildlife clearances, consents, permits and licences.
- Implement & maintain environment management system all across our operations along with monitoring, reporting and continually improving our environmental performance.
- Be reliable provider of sound waste management solutions by co-processing wastes such as fly ash, and hazardous & non-hazardous wastes from other industries/ waste generators /Service Providers.
- Develop and propagate environmental awareness amongst employees and other stakeholders including surrounding communities.

Above commitments made in the CEP followed through the international Environment Management System (ISO 14000). Review a monitoring is under taken in the management review committee at the unit level and by ExCo and Regional Cluster meetings on a regular basis. Board level compliance committee reviews the compliance issues at the apex level.

2.0 Standard Operating Procedure

ACL establishes and maintain the standard operating procedure and process to bring into focusany infringement /deviation / violation of the environmental or forest norms / conditions. These procedures stipulate relevant operating criteria to ensure that such activities are performed under specified conditions, complying with legal & other requirement and also

- ✓ To review control measures and procedure of application on regular check-ups, effectiveness and to bring in changes that are identified and necessary to implement.
- ✓ To eliminate or reduce adverse environmental impacts at source with application of suitable operating instructions, considering their adaptation to the human capabilities by proper designing of work place, process and to take precaution while installation of machinery.
- ✓ Establish & maintaining documented procedures to cover situations where their absence could lead to deviation from the environmental policy.

2.1 Operational Control Measures

Operation and activities of ACL are associated with environmental aspects in line with its environmental policy. The activities for the operation of ACL Plants and Mines are carried out under specified conditions by ensuring the following:

- *Air Management*
- *Water Management*
- *Noise Management*
- *Control of Ground Vibrations*
- *Solid Waste Management*
- *Soil Conservation and Slope Stabilization*
- *Green Belt Development*
- *Biodiversity Management*
- *Legal compliance Management*
- *ISO certifications for data base management*
- *Resource Management*
- *Product and Environment Sustainability*

3.0 Hierarchical System / Administrative Order

ACL has developed the well-definedhierarchical system / administrative order of the company to deal with the environmental issues for ensuring compliance with the ECconditions. The role and responsibilities of various personnel, who manage, perform and verifythe activities having effect on environment have been fixed by top management.

3.1 Head- Plant Environmental Management Division (EMD): Executive responsibilities lie with Head FMD at the respective site of operation.

3.2 Unit Head: Unit head (Manufacturing Head) is ensuring that environment policy of the organisation isimplemented as per the planned procedure. He provides all resources to Environmental Management Division so that system of compliance is operated efficiently. He reports to respective Regional Cluster Heads of the organisation who in turn report to the Chief Manufacturing Officer (CMO), on all issues related toCompliance of Environmental Clearances (ECs)/ Forest Clearance (FC).

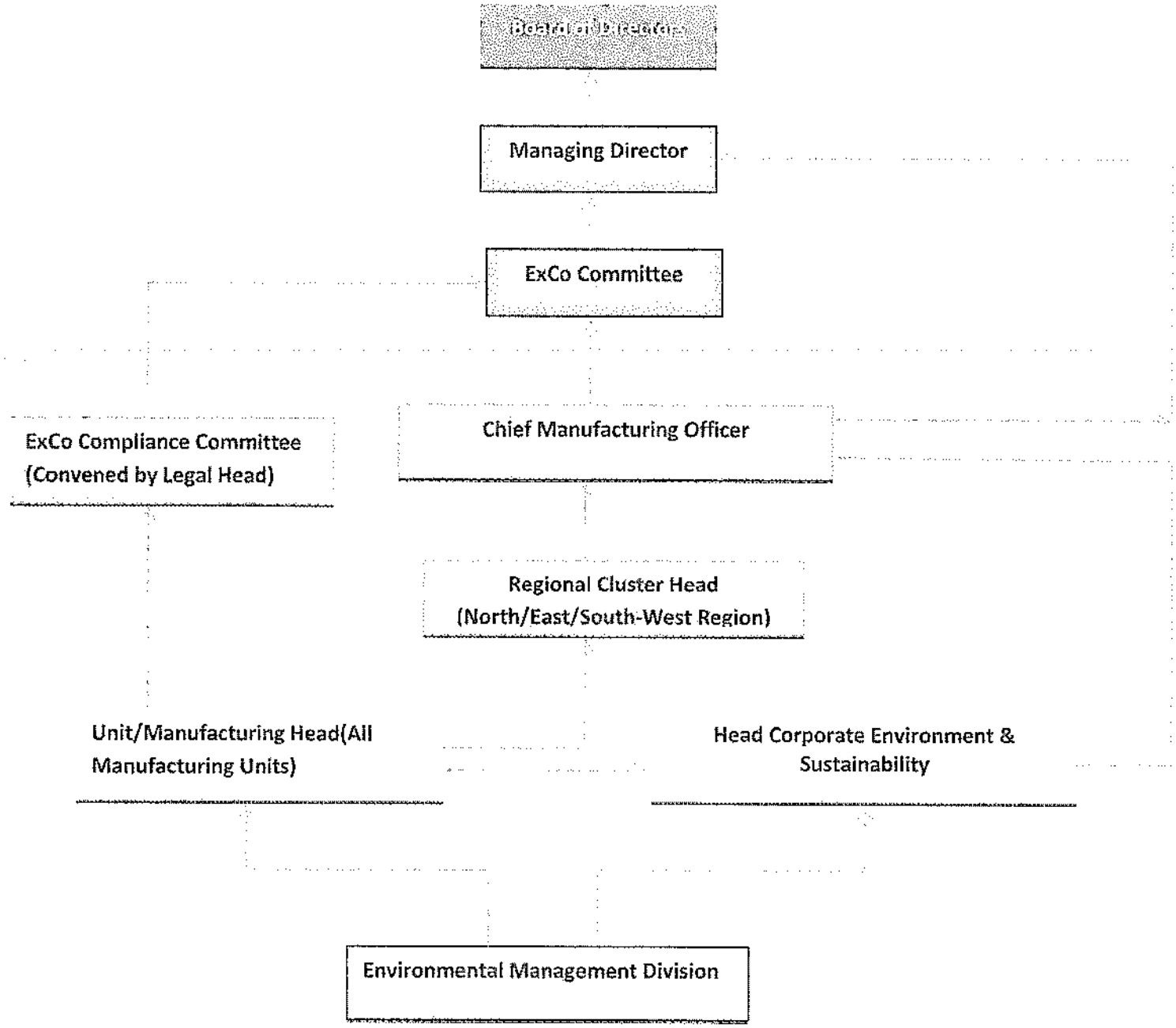
3.3Head: Environment and Sustainability: He is responsible for all the activities and fulfilment of requirement for compliance of ECs/ FC and also co-ordinate with all Heads of EMD and Unit Heads at respective sites of operation. He reports to the Chief Manufacturing Officer.

3.4Regional Cluster Head: He is responsible for compliance of ECs/ FCat theirrespective regional level.

3.5 Chief Manufacturing Officer: Coordinates with all Regional Cluster Heads andUnit Heads and Head (Environment & Sustainability) for implementation of Corporate Environmental Policy.

3.6 Managing Director: To oversee the overall compliance of Corporate Environmental Policy thro' the CMO and Head- Legal who also presents, on a quarterly basis, a compliance confirmation/ non-compliances regarding all the legal requirements applicable to ACL (including environmental), to the Board level Compliance Committee headed by an independent director.

The organisation structure for implementation of Corporate Environmental Policy is as under

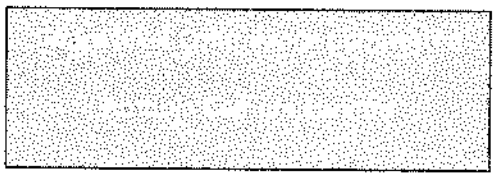


Organisation Structure for Implementation of Corporate Environmental Policy

4.0 System of Reporting of Non-Compliance

All ACL plants are implementing Environment Management System (ISO 14001) to identify the applicable and new legal requirements on a regular basis and remain in compliance all the time.ACL has also established a system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large. The environmental non-compliances are governed and reviewed by the management at the unit and corporate levels and reported as per the system as given below. Regular non-compliance issues if any in relation to the environmental requirements are presented by Head- Environment & Sustainability to the ExCO level Compliance Committee which is convened by the Legal Head from time to time. Legal head reports the non-compliance issues to the Executive Committee from time to time as well as to Board Level Compliance Committee every quarter.

The detailed system of reporting of environmental legal non-compliance is as under:



Stakeholders/Shareholder

MD &CEO

Legal Compliance Committee
(Convened by Legal Head)

Executive Committee

Chief Manufacturing Officer

Head- Environment & Sustainability

Manufacturing Officers (UHs)

Head –Plant EMD

System of Reporting of Environmental Legal Non-Compliance