Report of

PEOPLE'S PUBLIC HEARING ON

INDUSTRIAL POLLUTION

IN

BADDI BAROTIWALA NALAGARH

INDUSTRIAL AREA

5th April 2014

Baddi, Himachal Pradesh

Organised by

HimParivesh Environment Protection Organisation and Himdhara Environment Research and Action Collective

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I. A Background

The Baddi Barotiwala Nalagarh (BBN) area in Nalagarh tehsil of Solan district- the biggest industrial hub of the state of Himachal Pradesh has witnessed rapid industrialisation since 2003. The granting of industrial subsidy package to the state by the BJP led Centre government back in 2003 ushered in a virtually unplanned, poorly regulated and environmentally unaccountable industrial development in the state, and particularly in the BBN area which is about 35 Kms. long, consists of 21 Panchayats and 115 villages.[1] As per the state's Economic Survey report for the year 2013-2014, as on 31.12.2013, there are 39,819 industrial units registered with the Industries Department within the state on permanent basis having the total investment of 17,339.89 crore.[2]

Owing to the subsidies, the BBN area witnessed a mass migration of industries from badly polluted areas like Vapi in Gujarat and Pattancheru in Andhra Pradesh. The incentives offered by the Ministry of Commerce and Industry in the form of tax and central excise concessions did come in with certain terms and conditions. For the industries to be eligible for incentives, the industrial units were expected to be environment friendly, but the much worsening air, water and noise pollution in the area proves the contrary.[3] As per the data provided by the HP State Pollution Control Board, the BBN area today has a total of 2063 operational industrial units of which 176 are red category, 779 are orange and 1108 fall under the green category respectively.[4] This segregation into Red, Green and Orange categories is based upon the pollution potential these industrial units carry. Some of the red category units include thermal plants, cement factories, textile units, stone crushers, aluminium smelters, lead acid battery manufacturers and boiler factories. While the orange category units that have been defined as relatively less polluting include brick kilns, those excavating sand from river bed, infrastructure development projects, pharmaceuticals are considered relatively less polluting but are contributing equally to the environmental crisis brewing in the region.

Taking into account the haphazard growth rate of polluting units in BBN, in the year 2009, the area was identified for a Comprehensive Environmental Pollution Index Study along with other 88

1 http://dipp.nic.in/English/Schemes/Special_Category/Himachal_Uttranchal/indpol_uthp.htm

2 Economic Survey of Himachal Pradesh 2013- 2014, page 71. http://admis.hp.nic.in/himachal/economics/pdfs/ESEng2013-14_A1b.pdf

3 The Ministry of Commerce & Industry's department letter dated January 7, 2003 under its subject " New Industrial Policy and other concessions for the state of Uttaranchal and Himachal Pradesh mentiones that for industries to be eligible for concessions, they have to be environment friendly, create local employment and use local resources

4 "Red" represents highly polluting industries, "Orange" represents moderately polluting industries, and "Green" represents" marginally polluting industrial units. Some To check the category list, see: For Red: http://hppcb.nic.in/Consent/Red.pdf, Orange: http://hppcb.nic.in/Consent/Orange.pdf, Green: http://hppcb.nic.in/Consent/green.pdf)

industrial clusters throughout the country. With an index rating of 69.07% the BBN industrial area almost made it to the Central Pollution Control Board's list of "critically polluted" areas, and despite that, the Ministry of Commerce with pressure from the State government has extended the industrial subsidy packages for Himachal up to 2017. If today, five years on from the previous study, a fresh study is conducted, BBN, in all likelihood, would fall into the "critically" polluted category.

Depletion of ground water due to heavy extraction, increasing river pollution, toxic air pollution, fly ash, and illegal dumping of hazardous waste, illegal river bed mining have been some of the key problems identified in in the area. Discharge of contaminated waste from the industrial units into the local water bodies have gravely polluted 6 to 7 small streams flowing into the Sarsa river, a tributary of the Satluj.

It is an already well-established fact that industrial development drastically impacts local environment, causes damage to agriculture, livestock, impacts health and sanitation among other several issues. In context of BBN industrial area, a study published in 2011 by Punjab University[5] has indicated high concentration of heavy metals in groundwater due to excessive contamination by industrial units, that it was rendered unsuitable for drinking purposes.

Another IIT Kanpur study submitted to the Himachal Pradesh Pollution Control Board (HP PCB) in 2012 too revealed high levels of particulate matter, lead and arsenic in the ambient air; thus violating standards prescribed by the Ministry of Environment and Forests (MoEF). Volatile organic compounds have been found beyond permissible limits in air samples based on a community monitoring sampling done by Himparivesh, a local environment group.[6] Even, Central Pollution Control Board's own findings in 2011 have confirmed the presence of VOCs and cancer causing carcinogens in the air in BBN[7].

Such an appalling situation then raises questions about the role and effectiveness of state monitoring mechanism- a body like Himachal Pradesh State Pollution Control Board, its role in monitoring environmental pollution and implementation of guidelines in BBN industrial cluster. Till date, no independent monitoring and documentation of industrial pollution has been carried out in the area.

5 A study conducted in 2011 by the Department of Environment Science, Punjab University titled " Impact of Industrialisation on Groundwater Quality- A case of Baddi- Barotiwala Nalagarh Industrial belt, District Solan, Himachal Pradesh, India" attributed the dense unplanned industrial development in the area as the main cause of groundwater contamination. Groundwater samples from 44 different locations and sources were collected and subjected to standard analytical techniques for physio-chemical analysis.

6 http://www.himdhara.org/2010/08/25/independent-air-sampling-in-bbn-industrial-area-reveals-11-chemicals-in-the-atmosphere-of-which-four-beyond-safe-levels/

7 http://www.himdhara.org/2011/06/15/air-pollution-alarming-in-baddi-area-central-board-confirms-presence-of-volatine-organic-compounds/

Mitigation and regulatory measures are grossly inadequate. The data gathered through file inspections of the Pollution Control Board and under the Right to Information Act reveals that out of the total of 2063 industrial units operating in BBN, more than 50% are operating without any valid consent. Hardly have show cause notices been issued to units, and in cases where they are issued, there is virtually no follow up by the Board. 60% of the units do not have Effluent Treatment Plant (ETP) in the area and the ground water is severely polluted.

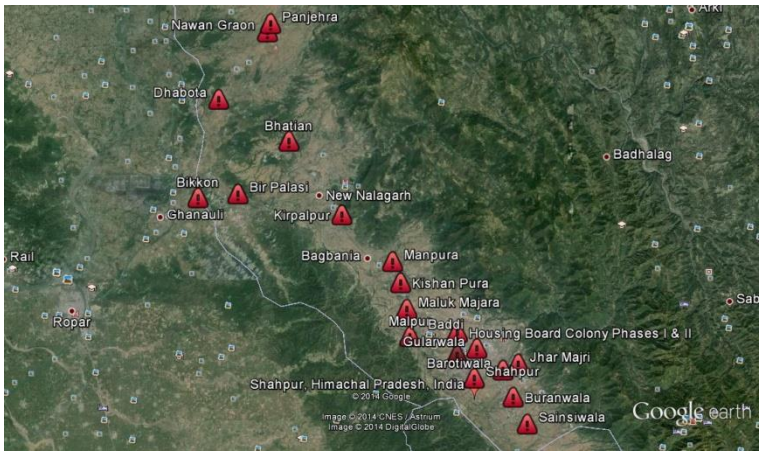
Area	**No. of industries under Water Act, 1974 (as on 15.09.2007)**	**No. of industries with ETPs**	**Industries without ETPs**	**Main types of industries**
Baddi-Barotiwala	985	173 (43 under installation making total 216)	769	Textile, dyeing, pharma, chemicals formulation, pulp & paper, pesticides
Nalagarh	667	124 (61 under installation making total 185)	482	Same as above+ distillery & engineering
Total	**1652**	**401**	**1251**	

Source: Data from a study conducted in 2011 by Punjab University, Department of Environment Science

Inviting more polluting units to invest in order to accelerate industrial growth of the state at the cost of local population and environment is what begs the question now. In the last ten years, the area has witnessed several agitations and legal action initiated by the local pollution affected populations. Some of the important cases raised by local people and Himparivesh include the case of the Jhiriwala Beer factory, the leather tannery, problems of dust due to the cement units and contamination of water by pharma and other chemical companies to name a few.

Another project that met with much local opposition was Jaiprakash Associates Limited's thermal power project at Bagheri in Nalagarh tehsil. The landmark judgement of the Himachal High Court against Jaiprakash Associates Limited (JAL) on May 4, 2012, directed that Jaypee's part constructed power plant be dismantled as the company blatantly violated environmental laws and illegally sought the clearances by misleading the State government and other regulatory authorities. Also, a fine of Rs. 100 crore was levied separately on Jaypee's cement blending and grinding unit at Bagheri, and a special investigation team was set up to identify the government authorities and regulatory bodies involved in the matter. Today, those living in close vicinity of the cement plant suffer with respiratory problems, lung infection, cardiovascular disorders, with cancer and asthma having claimed lives of a few already, and rising constantly. The villages in and around of Bagheri are plagued with the menace of dust, and it's only more than visible. The High Court had stated it clearly in its order that if JAL's cement unit does not comply with conditions laid down by EAC or

is guilty of causing pollution, it would meet the same fate as the thermal plant. But, the cement unit clearly seems not to be guilty of causing all the pollution around Bagheri, with virtually no action on part of the pollution control board. The experiences so far have shown that if at all grievances of the locals have to be heard, the affected people need to exercise pressure on the Pollution Control Board through public actions or events.

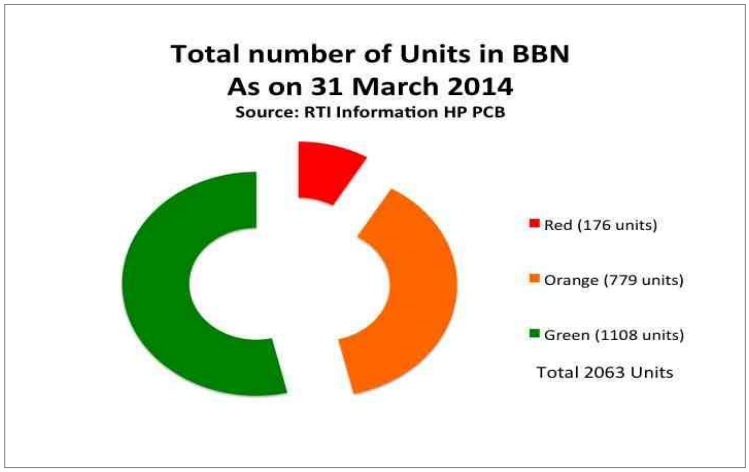


Some of the toxic Hotspots within BBN Area

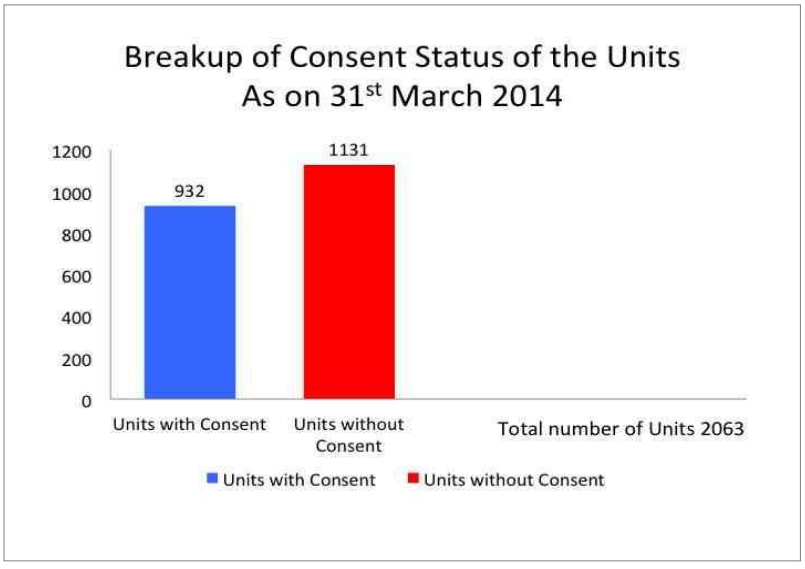
Given this context of the lackadaisical attitude of the authorities on one hand, the need for the public to question, and urgency to devise a multi pronged approach for environmental action, a people's public hearing was conducted on April 5, 2014 at Baddi by Himdhara, Environment Research and Action Collective. The public hearing was conducted in collaboration with Himparivesh, a local organisation based in Nalagarh. He Parivesh has for some years now been actively taking forward the issue of industrial pollution and illegal river bed mining in the area. The public hearing saw an overwhelming presence of close to 200 people from across the Baddi Barotiwala Nalagarh area, who are forced to breathe the polluted air and drink contaminated water. The hearing was presided over by an eminent independent panel which included Dr. Rajesh Kumar, Head of School of Public Health, PGI Chandigarh, Anil Gupta, a Scientist from People's Science Institute, Dehradun and Rakesh Lohumi, a senior journalist based in Shimla. Based on the written submissions recieved by the panel and the oral testimonies recorded, this report attempts at highlighting major industrial pollution related issues, nature of the issue, findings of the ambient air samples, the key violators, role of the State Pollution Control Board, and potential future strategies in monitoring of environmental pollution.

II. Status of Consent to Units in the BBN Industrial Area

1. **Consent Status:** The units in BBN area are notorious for operating without the mandated licenses and consents as per the law. Information obtained by the community groups under the Right to Information Act[8], 2005 reveal that as of March 2014, at least 1131 units out of a

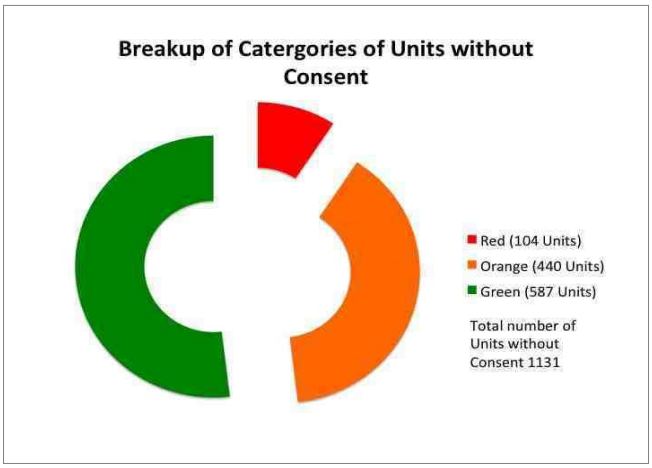


total 2063 units did not have a valid consent to operate.



Out of these 1131 units without consent, 104 units were from the red category, 440 units from orange and 587 from green category.

8 Data received under Right to Information Act on 13th March 2014 from HPPCB



Overall the data reveals that more 50% of units in all categories – red, orange and green are without consents as of 31 March 2014.

III. Status of Air Pollution in BBN Industrial Area and Environmental monitoring by the HP Pollution Control Board[9]

It is the mandate of the state pollution control board to monitor the quality of the environment – air, water, soil and ensure that there is no adverse impact from the industrial activities in the region. In reality, the HP PCB has failed to discharge its duty in monitoring the environment. Some of the serious lacunae in the HP PCB's monitoring are listed below:

a) PCB's operations especially monitoring is conducted in clandestine manner with no information ever shared with the affected communities on the details of such monitoring. Data unless sought under Right to Information Act is never made public. Even if the data reveals violations of the environmental parameters set under the law, strict action on the violator is seldom taken.

b) The PCB has failed to monitor the environment, especially air quality in the region, as per the set parameters defined under law. In 2009 the National Ambient Air Quality standards were amended to accommodate monitoring of at least 12 parameters including PM 10, PM 2.5 and a range of volatile organic compounds and heavy metals in the air. As per the annual report submitted by the HP PCB in 2012, the agency continues the follow the outdated parameters set in 1998 and monitors mere 4 parameters in air. Out of these 4 parameters currently monitored, 2 parameters, SPM and RSPM do not even exist as per the 2009 National Ambient Air Quality standards.

c) Lack of suitable infrastructure is another stumbling block in HP PCB's way to monitor the air quality in the region. Many members of PCB have time and again un-officially stated their inability to monitor air due to the lack of proper monitoring devices. Community members have often reported dysfunctional air monitoring devices placed in their localities for air sampling.

d) The officials of the PCB lack the scientific ability to choose the correct locations for air sampling. With over 2000 units in the region, most polluting (air pollution) of which are

9 Presentation made by Shweta Narayan of Community Environment Monitoring at the Public Hearing

cement plants and pharmaceutical units, the PCB still chooses to place the air sampling devices on the road sides in these regions rather than downwind of these units. Officials of the PCB blame “kucha” roads for the dust pollution in the region rather than cement units and stone crushers. Need we say more?

3) **Environmental monitoring data generated by the communities:** Disappointed by the lack of transparency in the operations of the HP PCB and the lack of data on the environmental quality, local residents in collaboration with NGOs have generated their own data about environmental pollution in the region. At least 6 samples of dust from around cement plants and stone crushers were collected and analysed and 1 sample downwind of the pharmaceutical industries was taken and analysed for the presence of Volatile Organic Compounds (VOC) and sulphur compounds.

Jaiprakash Associate’s Cement Grinding and Blending Unit at Bagheri

(i) **Dust Samples:** All the dust samples revealed excess levels of PM 10 and PM 2.5 by up to four and seven times of the permissible limits, respectively. Heavy metals like cadmium, lead, nickel, manganese and mercury were also found several times above the permissible standards in the dust.

What do presence of these chemicals in the air mean?

PM2.5: Particles less than 2.5 micrometers in diameter (PM2.5) are referred to as "fine" particles and are believed to pose the largest health risks. Because of their small size (less than one-seventh the average width of a human hair), fine particles can lodge deep into the lungs.

“Health studies have shown a significant association between exposure to fine particles and

premature mortality. Other important effects include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absence from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia. Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children."[10]

The Indian Ministry of Environment and Forests (MoEF), the U.S. EPA and the World Health Organization have all adopted health-based air quality standards for exposure to fine particulate matter. They have also adopted short-term (24-hour) and long-term (annual average) standards for exposure to fine particulate matter in order to prevent both acute and chronic effects of exposure to particulates.

Manganese: Manganese is a neurotoxin with regards to its health impacts the U.S. EPA has observes:

"Chronic (long-term) exposure to high levels of manganese by inhalation in humans may result in central nervous system (CNS) effects. Visual reaction time, hand steadiness, and eye-hand coordination were affected in chronically-exposed workers. A syndrome named *manganism* may result from chronic exposure to higher levels; *manganism* is characterized by feelings of weakness and lethargy, tremors, a mask-like face, and psychological disturbances. …. The Reference Concentration (RfC) for manganese is 0.00005 mg/m3 based on impairment of neurobehavioral function in humans."[11]

Lead: Lead is a neurotoxin with regards to its health impacts the U.S. EPA observes:

• EPA has revised the level of the primary (health-based) standard from 1.5 micrograms per cubic meter (μg/m3), to 0.15 μg /m3, measured as total suspended particles (TSP). EPA has revised the secondary (welfare-based) standard to be identical in all respects to the primary standard.

• Scientific evidence about lead and health has expanded dramatically since EPA issued the initial standard of 1.5 $\mu g/m^3$ in 1978. More than 6,000 new studies on lead health effects, environmental

10 http://www.epa.gov/ttn/naaqs/pm/pm25_index.html
11 http://www.epa.gov/ttn/atw/hlthef/manganes.html

effects and lead in the air have been published since 1990. Evidence from health studies shows that adverse effects occur at much lower levels of lead in blood than previously thought.

• Children are particularly vulnerable to the effects of lead. Exposures to low levels of lead early in life have been linked to effects on IQ, learning, memory, and behaviour. There is no known safe level of lead in the body."[12]

Mercury: Mercury is a neurotoxin. With regard to mercury, according to the U.S. EPA:
"Mercury in the air eventually settles into water or onto land where it can be washed into water. Once deposited, certain microorganisms can change it into methyl-mercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish. Fish and shellfish are the main sources of methyl-mercury exposure to humans. Methyl-mercury builds up more in some types of fish and shellfish than others. The levels of methyl-mercury in fish and shellfish depend on what they eat, how long they live and how high they are in the food chain. **Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune systems of people of all ages.** Research shows that most people's fish consumption does not cause a health concern. However, it has been demonstrated that high levels of methyl-mercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn."[13]

Nickel: Nickel is a human carcinogen. Based on human epidemiological studies, the World Health Organization has estimated that long-term exposure to 0.025 micrograms of nickel per cubic meter is associated with an excess 1:100,000 risk of cancer, and that the risk is linearly proportional to the dose.[14]

Cadmium: The acute (short-term) effects of cadmium in humans through inhalation exposure consist mainly of effects on the lung, such as pulmonary irritation. Chronic (long-term) inhalation or oral exposure to cadmium leads to a build-up of cadmium in the kidneys that can cause kidney disease. Cadmium has been shown to be a developmental toxicant in animals, resulting in foetal malformations and other effects, but no conclusive evidence exists in humans. An association between cadmium exposure and an increased risk of lung cancer has

12 http://www.epa.gov/air/lead/pdfs/20081015pbfactsheet.pdf

13 http://www.epa.gov/hg/about.htm

14 http://www.euro.who.int/__data/assets/pdf_file/0014/123080/AQG2ndEd_6_10Nickel.pdf

been reported from human studies, but these studies are inconclusive due to confounding factors. Animal studies have demonstrated an increase in lung cancer from long-term inhalation exposure to cadmium. US EPA has classified cadmium as a Group B1, probable human carcinogen.[15]

(ii) **VOC & Sulphur results:** The air sample downwind of pharmaceutical units revealed the following:

1. Total of 11 chemicals detected. These are – Carbon Disulfide, Ethanol, Propene, Isopropyl Alcohol, Methylene Chloride, Chloroform, Methyl tert-Butyl Ether, Ethyl Acetate, Toluene, d-Limonene

2. Four out of eleven chemicals detected exceed the USEPA Region 6 levels or any other levels of safe levels in the air. These chemicals are Carbon Disulphide, Methylene Chloride, Chloroform and Tetrahydrofuran.

3. 2 carcinogens detected – Chloroform was detected 321 times and Methyelene Chloride was detected 6.8 above the US Environmental Protection Agency Region 6 levels.

4. Out of the 11 chemicals found – all target the eyes, 9 chemicals target the skin and respiratory system, 7 chemicals target the central nervous system, 5 chemicals target the liver, 4 chemicals target the kidneys, 2 chemicals target the reproductive system and 1 chemical targets the Cardiovascular system, blood, heart and the Peripheral Nervous System.

4) **The Study by IIT Kanpur:** Scientists at Indian Institute of Technology, Kanpur submitted a study titled "Environmental Pollution Sources and their Apportionment to Ambient Environment: A GIS-based Study of Solan District, (Preliminary Report)" to the Himachal Pradesh State Pollution Control Board in November 2012. The report contained sample results of 16 sampling locations in and around Baddi and Nalagarh industrial area. Some of the main findings of the report are:

- Results of PM 10 exceeded in all 16 sampling sites

15 http://www.epa.gov/ttn/atw/hlthef/cadmium.html

- Results of PM 2.5 exceeded in 6 out of 16 sites
- Results of Sulphur Dioxide (SO2) exceeded in 2 out of 16 sites
- Results of Benzene-a-Pyrene (BaP) exceeded in 5 out of 16 sites; BaP is also an indicator of presence of Volatile Organic Compounds in the air.
- Results of Lead (Pb) exceeded in 3 out of 16 sites
- Results of Arsenic (As) exceeds in 5 out of 16 sites

Results of the IIT study clearly support the claims of pollution by the local residents and also support the sampling results found by the community sampling exercise.

IV. Solid and Hazardous Waste issue in the region

Solid hazardous waste and its dumping is a major issue in the entire state but especially in Baddi Barotiwala and Nalagarh industrial area. Apart from the red category units, the orange and green category industries also indulge in illegal and ad hoc dumping of waste all over the BBN area – in residential areas, riverbeds, forests, road sides and any open space available. This has become a serious hazard as well as nuisance for the area. Companies apart from dumping paper, plastic and other waste are disposing needles, expired tablets and medicines near riverbeds. Many units are continuing to operate without valid authorisation under the Hazardous Waste Rules 2006. Almost all units do not display any or updated information on the mandatory 'Environmental Boards' outside the plants.

Hazardous waste dumped on the river bed, Balad Khad, Barotiwala

We have obtained the following information from State Pollution Control board as well as the Shiwalik Waste Management Limited (SSWML), a company handling the treatment and disposal of Solid Waste in the State. As per the information received, SSWML is the only solid waste management and disposal facility in the State of Himachal Pradesh. However, if one compares the figures of the total Solid Waste generated annually with that of the Solid Waste handled by SSWML, there is a stark difference in the same. The data compiled in the table below indicates that the actual solid waste generated is substantially higher than that which is being treated and disposed by SSWML.

INFORMATION PROVIDED BY SPCB (23-12-11)			Information Provided by Shiwalik Solid Waste Management Ltd	
Type of Unit	**Total Number**	**Total solid waste generated/annually (MT)**	**Units registered with Shiwalik**	**total rcd by Shiwalik**
Textiles	17	7616.62	17	4914.3
Pharma	518	15889.25	404	1896.5
Cosmetics and detergents	68	1942.156	32	904.21
Others	?	?	406	3639.7
TOTAL	**603**	**25448.026**	**859**	**11354.71**

ALL INFORMATION IS FOR THE YEAR 2010-11

The State Pollution Control Board needs to examine this matter seriously and answer the following questions:

1. If SSWML only handled 11354 MT of solid waste in the year 2010-11, what happened to the rest of the solid waste amounting to 14093.316 MT? Does the Pollution Control Board have any record of how this waste was handled by the companies or where it has been disposed?
2. Secondly, the number of units registered under the category of pharmaceutical and cosmetics & detergents with SSWML is much lower than the actual number of units that are listed with the Pollution Control Board. What is the reason for this discrepancy? Is the Pollution Control Board aware of the units that are not registered with SSWML and whether or not they have any solid waste disposal and treatment plants?
3. Additionally, the SSWML has provided data related to 'other' units apart from the three categories listed here. The same has not been provided by the Pollution Control Board. However, if this missing figure is added, we presume that the total amount of Solid Waste which does reach not SSWML for disposal will be much higher.

V. Concerns about the Common Effluent Treatment Plant to come up in the area

On 8th January 2013, Environment Clearance was given to establish a Common Effluent Treatment Plant at Kaindhuwal, Baddi by Baddi Infrastructure. The Unit costing Rs. 60 crore, plans to cover 1260 odd industries situated in Baddi and Barotiwala Industrial area. It is important to note that there are a total of 2063 industrial units in entire BBN area and many units will be left out of the purview of this CETP. The CETP will handle:

4102.4 KLD of Sewage load

6 TPD (tonnes per day) of Bio sludge per day

24 TPD of Inorganic Sludge

Given below is a detailed critique of the Environment Impact Assessment Report submitted by the CETP project proponents:

Poorly regulated industrial development in the area has made a mess of the environment. BBN area has already been declared a critically polluted area with a Comprehensive Pollution Index of almost 70. The Draft EIA/EMP report of the CETP to be set up in the area does not hold back on this. On page 3 it says, "The Sisra River is a mess. Dissolved oxygen levels are far too low to support fish; E.coli levels are too high to safely drink the water."

On page 76 it says:

"Comparing the values of pH, DO, BOD and Total Coliforms with 'Use based classification of surface waters' published by Central Pollution Control Board; it can be seen that the analyzed surface waters is highly polluted and classified as "Below Class 'E'" and cannot be used for designated uses of water. Bacteriological examination of surface water indicates the presence of total coliforms, which may be due to presence of human activities in the area and inorganic industrial waste."

The track record of the HP State Pollution Control Board has been particularly bad in monitoring and control of pollution in the BBN area. What is the guarantee that:

4. HPPCB, which has till now not been able to effectively regulate pollution from the existing 990 units, would be able to do so even after the CETP gets commissioned?
5. If the effluents coming to the CETP from the individual units are poorly monitored for their quality, then the CETP would not be able to treat them effectively and result in more

pollution in Sarsa River and ground water.

The EIA report mentions that the CETP would be constructed within 18 months. With such high levels of pollution in the BBN area and the Sarsa river, what happens in the between now and the time when the CETP starts working? If the effluents from all of these the 990 industrial units are causing the mess that the EIA report is admitting to, then action needs to happen now. Either they should start adequately treating or adequately containing their effluents by HPPCB or the 990 industrial units should cease operating until the CETP is up and running.

The EIA report does not propose a good plan for dealing with CETP sludge and it is likely that they would create a mess somewhere else when cleaning up the Sisra River. The Section 2.21 of Draft EIA/EMP report reveals that sludge from the treatment plant would be applied to land as a fertilizer (manure) or to also be sent to the Shiwalik Solid Waste Management unit. If so, the Draft EIA/EMP report should provide information about this facility (its design and track record) and its capacity to accept waste from the proposed CETP.

CETPs have failed to address the issue of toxics and pollution is a well accepted fact and there are reports of the CPCB and many other organisations to back this. Some of the main reasons for the failure have been:

a) The different nature (heterogeneity) of the effluents involved and the inability for the plant to treat all of these effectively.

b) The violations at the inlet stage where companies do not abide by norms by letting out untreated effluents.

c) The inability of the State Pollution Control Boards to monitor pollutants effectively.

d) The EIA report provides no measures to ensure that the points b and c above are taken care off.

CPCB in its report on the Performance of CETPs published in 2005 has clearly said that -Collection of wastewater from individual industries through tankers is not a foolproof system and should be discouraged in new areas and reviewed and rectified in old ones by the SPCB's unless it is technically impossible. The EIA report reveals that this mode of transportation would be used in this CETP also. How is the design of the CETP contrary to the CPCB’s recommendations?

Effluents of 990 units are to be discharged into the Sarsa but the EIA report says little about the use of the river Sarsa. It assumes that the current pollution of Sarsa with untreated toxics and effluents

will stop and thus this will benefit the environment and the river - but again the experience from industrial areas like Vapi in Gujarat and Jajmau in Kanpur shows that the pollutants are instead discharged in a more concentrated form by the CETPs - how will this be prevented in the current case? Yet another example is of the GEPIL company in Surat which had been discharging untreated effluents for last many years in the CETPs's main line.

A polluted Sarsa river, CETP site at village Kainduwal

Industries change their products as per the orders received or sometimes manufacture products which are not even listed in consents to operate which is popularly known as job work. What happens if the nature of the effluents from a unit changes this way – the EIA report is silent on this issue.

For the above reasons we recommend:

Involvement of the community in monitoring of the industry in BBN area, including the proposed CETP should be made mandatory or else the pollution cannot be checked. Till the time this is done, we would oppose any new industry and also the CETP.

The effluents from the CETP should be stored in tanks for some time and fish released as an indicator that the quality of the treated effluents is good enough.

Till the time the outstanding pollution related issues in BBN area are sorted out, the new CETP is not going to be effective and could create more problems than those that already exist.

VI. River Bed Mining

The BBN area is mainly comprised of the Shiwalik foothills and the terai region below them. The area abounds with the detritus that has been brought downhill due to erosion over thousands of years. The area has seven streams/khads that eventually flow into the River Satluj, Sarsa River being the biggest among them. With the rise in industrialisation in the BBN area during the early 2000s, the need for construction material also grew rapidly, putting strain on the river ecosystem. The ban on mining or minor minerals inside Punjab further accentuated the already critical situation in the BBN area vis-a-vis river bed mining. The area borders Punjab along its southern and western periphery, and Haryana along its southern and eastern part. Years of rampant illegal mining and clandestine export of the mined stone, sand and bajri to the nearby stone crushers in the BBN area as well as Punjab have decimated the area's ability to support this activity. As a consequence, the riverine ecology has undergone drastic transformation for the worse. Among the major impacts of the over-exploitation of minor minerals in the area are:

The Baglehar Khad – hardly any material left for mining

1. **Over-mined streams:** Almost all of the streams now lie in an extremely depleted condition as far as minable material is concerned. Starting from the Western extremity of the industrial area if one travels along the NH 21 Balad, Sarsa, Ratta, Chikni, Mahadev, Palli Mahadev, Kundlu, Baglehar and Lohund streams have all been badly mined. The river bed levels in these streams has gone down by 3-12 meters below that of their original levels – most vividly visible at the bridges built along the highway where the difference in the level of the

river bed upstream of the bridge to that downstream is starkly visible. Perhaps the most remarkable reminders of the impact of the depletion of river bed levels is the manner in which these bridges are constructed - almost all of them are standing on retaining walls which then cascade downwards, towards the lower level of the river downstream. In fact it is only because of these bridges that the stretches of the rivers upstream retain some of their original condition.

The following table shows the causes of damage to bridges built along NH 21A and is based upon the information supplied by National Highway Division Solan:

Name of the Bridge	Reason for damage
Baglehar (Kundloo Khad)	Scouring on downstream due to lowering of river bed up to 5.0 meters
Chikni Nadi	Chikni II damaged due to flash flood during 2006-07
Mahadev Khud	Scouring downstream due to lowering of river bed up to 8.0 meters
Balad Bridge	Due to lowering of river bed the foundation exposed in two nos. piers in year 2007. The river bed has lowered up to 2.5 meters
Ratta Bridge	Due to scouring of river bed on downstream of the bridge

This information accessed by the local NGO Himparivesh in the year 2008 clearly indicates

The big fall downstream of the bridge over Mahadev R.

The cascading bridge over Pali Mahadev River on Palli Mahadev River

that the condition of bridges due to river bed mining downstream of them was precarious even then. With little or no check on mining activities, the degradation has continued

unabated.

2. **Failure of Irrigation Schemes**: Information received from the Irrigation and Public Health Department reveals that at least three of the Lift Irrigation Schemes in the area have been rendered defunct due to heavy mining of material from the downstream areas in the rivers. These schemes viz. Kishanpura-Hariraipur, Bhud and Sandholi used to collectively used to irrigate 415 hectares of cultivable land. Some of the other irrigation schemes are being sustained through heavy expenditure incurred on construction of diversion structures located at much higher elevations as compared to earlier. Huge embankments have to be constructed over long distances to channelise the waters into the irrigation channels. These embankments along the bed of the river get damaged and have to be repaired regularly adding to the expenditure.

Silt in the rivers: Since almost all the streams in the area are severely depleted of minable material, the stone crusher operators, in order to remain in business, have promoted the practice of mining minerals on private land which they often get on lease. Loose rock is mined along with soil and transported to the stone crushers where it is washed to separate out the stone (to be converted into bajri), sand and silt. Silt, being of no use to the crusher owners, is conveniently discharged into the nearby streams. As a result of the excessive silt in the streams, their water level rises, resulting in water and silt entering the farmlands

Silt from stone crushers choking the Kanahan khud near Bir Palasi

located in the flatter areas downstream of the crushers, affecting agricultural productivity adversely.

This mining is done in the guise of excavation for undertaking construction on the land, the maximum limit for which is up to a depth of 1m from the adjoining land. However, the more

ambitious landowners have found a workaround to this stipulation on maximum minable depth – they are now mining up to a depth of 5 m in the guise of constructing a fish tank. As a result the adjoining land also becomes susceptible to erosion and landslides, and consequent degradation. However, the greatest impact of this sort of mining that on the agricultural fields downstream is going un-noticed by the government and the State Pollution Control Board.

3. **Law and order problem**: The illegal and unscientific mining operations in the area being such huge money spinners, the crusher owners and the transporters are not afraid to take on the law whenever challenged by upright officials. There have been incidents of tractor drivers carrying mined material having tried to block the paths of the officials' vehicles as they were trying to bring them to book. SDM, Nalagarh as well as the the Superintendent of Police, Baddi have had to face this situation in 2013.

The Regulatory Mechanism

The river bed mining operations in the State of Himachal Pradesh are governed by:

1. Mines & Minerals (Development & Regulation) Act, 1957.
2. Mineral Concession Rules, 1960.
3. HP Minor Minerals (Concession) Revised Rules, 1971.
4. HP River Stream Bed Mining Policy Guidelines for the state of HP- 2004
5. Policy Guidelines for Registration, Location, Installation and Working of Stone Crushers in HP

Besides these, the operation of stone crushers is also governed by Air (Prevention and Control of) Pollution Act, 1981, Water (Prevention and Control of) Pollution Act, 1974 and Environment Protection Act, 1984.

Despite so many legislations having been formulated for regulating the mining and stone crushing activity within the state, they have largely been ineffective to bring about a semblance sustainability to or 'control' over this industry. Considering the worsening situation of the rivers in the area, members of Himparivesh had moved the High Court in 2001 with a writ petition challenging indiscriminate mining in local rivers leading to environmental degradation and threat to safety of bridges. In its decision, it had been noted by the Hon'ble High Court that the government officials resorted to the collection of paltry fines from the offenders, when caught, instead of prosecute them

under the law. However, the practice of imposing fines on offenders is still the rule within the area if the fines imposed by the Sub Divisional Officer (Civil) are an indicator. In all only 32 instances of fine having been collected were reported for the year 2011, most of them amounting to Rs. 3100 while just two amounting to Rs. 5,000 and one amounting to Rs. 25,000.

In order to catch the elusive offenders, five flying squads consisting of officials of various departments were also formed in the January, 2012 for keeping vigil in five different areas within BBN. However, the fact that about 24 stone crushers in the area is still carrying on their day and night operations indicate that these regulatory measures might only have helped in making the mining operations more covert.

Current scenario

1. There are about 24 mining leases in operation in the Nalagarh area and 13 in Baddi, many more are waiting in line. Especially of note are the 5 big leases (>5 Ha) proposed in the Rehru, Kundlu and Pali Mahadev Khads. Public Hearings for these have been held in the year 2013 wherein most of the people present were local youth/farmers who supply stone to the stone crushers; there were few voices of dissent.
2. Precious top soil continues to be discharged as silt in local rivers as agricultural land is increasingly being mined for stones and sand.
3. Even as the paperwork is being completed for leases on these river stretches, the Geological wing of Industries Department has admitted that it has made no assessment of the carrying capacity study of the rivers in BBN area for mining purposes.
4. The Government has done no cumulative impact assessment of the mining operations, whether undertaken on Government land or on private lands.
5. The National Green Tribunal, in its order dated 5th August, 2013 in the matter NGT Bar Association vs. Ministry of Environment and Forest (MoEF) imposed a ban on all sand mining activities from river beds without approval from MoEF/State Environment Impact Assessment Agency. Public Hearings under Environment Impact Assessment Notification, 2006 are going on for river bed mining projects at various places within the BBN area but many shortcomings in this process have been reported from the ground. For example, public hearing for mining activity in Kundloo khud near Dhalathan village was held at village Ria Chotta, whereas Dhalathan, Joghon and Jagatpur Panchayats are nearer and would be more severely impacted by the mining activity. It is alleged by the local Panchayat Pradhans of

Joghon and Dhalathan Panchayats that there was little prior information about the public hearing and as a consequence, most of the people gathered there were the ones having interests in the mining activity.

VII. Testimonies at the Public Hearing on April 5, 2014

The panel on the day of public hearing received close to 60 written submissions and 25 oral testimonies were recorded. The industrial units identified as major violators were Khurana Chemicals at Maganpur, Greenply unit at Panjhera, Kangra Steel Mill and Eastman battery unit at Kripalpur, Amico Tex at Bir Palasi, Sara Textiles at Bhatiya, Him Chem at Kheda, Vardhaman Auro Mills at Bassi, Gilvet Ispat at Jharmajri. Stone and sand crushers were also identified as a major cause for air and water pollution, with practically no check on the numbers operating.

Some of the common issues raised at the hearing by those affected by industrial pollution included:

Illegal discharge of effluents:

The recorded testimonies of residents from village Balad, Malku Majra, Sitalpur, Malpur, and Thana brought into light the issue of illegal discharge of effluents and severe impacts on the groundwater and surface water quality. The state the once clean and free flowing Ratta khad, Berson khad and Sarsa river are in today speaks volume about how gravely local water sources have been affected by uncontrolled and unethical discharge of effluents.

Effluent discharged at Paterh Bonku, Green-Ply Industries

Sarsa River, a lifeline for those living on its banks, especially the Gujjar Community live under the looming danger of health impacts on their cattle. In fact, the cases of cattle developing skin allergies are already on the rise. Livestock is being forced to drink polluted water and graze on contaminated grass. In fact, experiences from gravely polluted industrial regions of Andhra Pradesh have shown decline in reproductive capacity of the cows due to drinking polluted water leading to drastic

changes in the composition and holding of livestock[16].

Contaminated stream, animals at Sandholi Khad

A testimony heard from village Jhar Majri highlighted the environmental havoc created by 200 odd units operating in Jhar majri alone, mainly pharma, cosmetic and steel units. The case aptly highlighted what goes on in the name of treating the effluents. In Bhatoli Kalan and Jhar majri, the treatment plants were instead releasing toxic effluents into fields, and more so during monsoons. The Su-kam factory in village Katha was reported to be releasing acidic water into fields and open spaces. Another worrying issue reported was of units not just discharging effluents but injecting untreated effluents into the ground.

Dumping of Hazardous waste:

Outright violation of hazardous waste rules 2006 by uncontrolled dumping of hazardous waste along the river beds, in farms and open spaces was a key complaint registered by residents living close to units like Green ply and Sonax power in village Paterh Bhonku in Nalagarh tehsil. Polythene was being openly dumped by Green ply in fields surrounding the factory.

Fly ash and Dust pollution:

The menace of fly ash from factories, in particular Jaypee's Cement Grinding Unit continues to plague the area in and around Bagheri. A testimonial recorded from Bagheri shockingly revealed that incidences of cancer and respiratory diseases had gone up in the area, and chronic cough and cold prevails perpetually.

Siltation and erosion due to stone crushers:

In Baglehar village in Nalagarh tehsil, which houses a number of stone crushers, people reported

16 http://www.epw.in/special-articles/environment-and-accountability.html (by Bhagirath Behera and V Ratna Reddy)

that even the schemes of Irrigation and Public Health (IPH) department were failing due to lack of water. The bore wells are no longer functional and water level has gone down by at least 200 feet, and even at that level the water remains contaminated. Watermills had to be shut down and kuhls no longer have fresh water flowing in them. The clothes left to dry outside have layers of dust settled on them in a matter of seconds, and on crops too.

Suresh Kumar’s contaminated well at Bir Palasi (AMICO Textiles)

Noise Pollution:

Acme Formulations and Immacule life sciences in Chaukiwala in particular were creating excessive noise pollution. A person from Chaukiwala shared that his wife's ear drum got torn due to extreme noise generated by the factories. The units with heavy machinery were functional throughout the night making thus it difficult for local residents to sleep peacefully.

Impacts on Agriculture:

Despite the locals having raised issues of air, water, and noise pollution in their respective areas, there was little action from the factory authorities and PCB. With the locals even having resorted to protests, like in the case of Sara textiles at Bhatiyan, the effluents continue to be released day and night impacting health and agriculture in the area. Ironically, the pharmaceutical units producing life saving drugs have become a nuisance for the farming communities. As a result of the contaminated water seeping into the fields, the land productivity was reported to be rapidly declining. The fields close to the pharma units stand virtually destroyed today due to the effluents.

Impacts on Irrigation:

Irrigation systems have been worst affected by industrial pollution and the farmers are left with no option but to irrigate with polluted water. The situation was particularly grave in case of Sara Textiles in Bhatiyan village. Locals reported that working on fields, especially for women was becoming increasingly difficult and has to be done at the risk of developing several skin allergies. Few active locals had raised this issue in the past with the factory management, and the solution devised was rather a trick to fool the locals. The factory management to cool down the local agitation and to show that action had been taken stopped releasing effluents during the day. It was only much later, the locals realised that the effluents were now being discharged at night. With the pharma and cosmetic units at Jhar majri and Bhatoli Kalan, the units were mixing fresh water with toxic effluents to dilute the impact. People living close to the units were worried with the constant exposure to toxics- while working in the fields, while bathing, washing clothes.

IPH scheme (Lift Irrigation) put to disuse due to river bed mining at Manpura

Lack of in depth studies on health impacts of Industrial Pollution:

People are suffering from several water borne diseases like skin allergies, irritation in the eye, cardiovascular disorders, respiratory problems, lung infection, chronic cough and cold, malaria, typhoid, tuberculosis and general muscular weakness. There are increasing cases of asthma and cancer. There is a dearth of in depth studies on health impacts of industrial pollution, and more so in case of workers inside the factories. Children are particularly being exposed to unhealthy substances and toxins in case of factories situated very close to the school premises. One such case is of Him Chem unit producing polyester thread in village Kheda Chack and effluents released from it run through the drain adjacent to the school building. This is also true for pharma units like Acme formulations and Immacule life sciences in Chaukiwala.

Abysmal condition of migrant labour camp at Barotiwala

The rapid and uncontrolled industrialisation that BBN is witnessing today is indicative of bigger disasters awaiting during coming times. The percentage of affected people per household is bound to increase amidst no environmental check and regulations. Ensuring development, and blindly treading forward hungry for gross domestic product figures, and the desire to be “Switzerland of the east” at the cost of human health and lives speaks of a development completely undemocratic to its roots.

VIII. Response of the PCB at the Hearing

The public complaints came all out on the poor role of the pollution control board in regulating the pollution in BBN Industrial area. DK Sharma, Senior Scientific Officer of the Pollution Control Board, who attended the hearing, after listening to the grievances was requested to place his views in front of the panel and the public. According to him, the pollution control board was doing all it could to resolve the issue of pollution, and the fact that till date the Central Pollution Control Board has not yet raised any objection about Himachal Pollution Control Board's monitoring methods. However, more shockingly, attributing the traffic and heavy vehicular movement in the area as a reason for the pollution was far too a naive response to convince the public. Also, PCB's ludicrous argument that industrial pollution situation in BBN is far better than other industrial areas of the country outrightly suggests that pollution should be taken as an inescapable truth in the lives of the local population.

Sh. DK Sharma responding to a query at the Public Hearing

The Tribune article dated April 15, 2014[17], however contradicts the Senior Scientific Officer's statement about no objections raised by the Central pollution control. In fact, it is only now that the pollution control board is devising strategies to control pollution in the area. Dust sampler machines which are supposed to be running 24 hours a day, merely run for about 16 hours, or even lesser. Atomic Absorption Spectroscopy (AAS), a specialised instrument to detect presence of metals in the air is only present at the regional laboratory in Parwanoo, being the only one in the entire state. Despite the amendments made to the National Ambient Air Quality standards in 2009, pollution

17 http://www.tribuneindia.com/2014/20140416/himachal.htm#12

control board till date continues to follow the outdated parameters set in 1998. Ironically, CPCB's own study found the presence of heavy metals in the air, but irrespective of its own findings, only 4 out of 12 parameters are being monitored. Such an alarming situation, clearly speaks of more complexities within the functionings of State pollution control board and CPCB, and merely justifying its inability to monitor pollution due to lack of infrastructure and trained staff is clearly a response far from satisfactory.

IX. Panel Observations and Recommendations

Sh. Harbans of village Rajpura with sample of highly polluted water from Chikni River

Dr. Anil Gautam, People Science Institute, Dehradun

The facts and figures, and experiences shared at the public hearing are very alarming. The region is in a critical state as a result of the pollution. Scientifically too, the level of pollution has been confirmed. The Central Pollution Control Board too has declared this area as critically polluted and studies have confirmed the presence of heavy metals above permissible limits. The air contains gases which can cause cancer and even chloroform.

Recommendations and future actions

Role of Industries: The industries that can and should be regulating the pollution- air, water and noise – that they are responsible for. They are all capable of reducing as well as regulating the high levels of pollution they generate, with use of pollution control devices. The fact that self-regulation and monitoring is not being done by industries is to save costs.

Role of regulatory agencies: State Pollution Control Board and Central Pollution Control Board are the key agencies responsible to ensure that units are in compliance to norms and pollution is under control. However, the State boards are functioning amidst many challenges - manpower, infrastructure, lack of proper information, no proper instruments and devices and corruption. There are always some honest officials within the government who want to do good work but are forced to function within the limitations of the structures.

As far as the CPCB is concerned it only issues order to the State Pollution Control Board. There are some very capable individuals in CPCB, but since CPCB merely issues orders to the state boards

and so the responsibility is with an agency that is virtually failing to do its job.

Role of Communities: In such a situation, either affected communities could approach the courts or unitedly raise their voices against environmental violations. People have every right to information about the industry, its functioning and why and how are they capable of such extreme levels of pollution. It is the duty of the PCB and the administration to keep people informed and educate them about their environment, kind of industries, what they make, how many, but clearly this is not happening. People in the area are not even aware that their air and water is so toxic and can cause cancer. The situation is particularly dangerous in context of pharma and dying industries and those that use heavy metals. Affected people have to put pressure on the government and most importantly on the Pollution Control Boards. Failure of the industries and government authorities to regulate pollution has now made it clear that communities have to take on the responsibility of the environment and bring the violators to account.

Need of action from local communities:

The affected communities could collectively make an inventory of major polluting industries and do regular monitoring of some selected parameters backed by strong facts and figures. This would create a pressure on some major polluting industries. The local population should also file Public Interest Litigation in case of selected industries in the National Green Tribunal.

Dr. Rajesh Kumar, PGI, Chandigarh

It is very evident that people are being affected by industrial pollution in this Industrial area. People have presented their personal issues through medium of this PH but the issues are collective and we need to assess the cumulative impact of these.

Health based impacts: Air samples have shown presence of heavy metals like mercury, lead, manganese, nickel and cadmium in the air which could be very fatal for the local populations. If people are forced to live in such conditions, one can only imagine the state of those working inside these industries. Sadly, this issue was not raised by anyone in the Public hearing. The level of air pollution is very serious and more worrying is the fact that air pollution travels. We cannot assume that we are living in a clean environment and breathing fresh air if we do not live close to an industrial unit. Air pollution travels and the air quality is going to be affected everywhere in this region. There is enough evidence to support how critical the pollution problem is, and this does not need to be proved scientifically. Studies previously have established this fact. The problem is very visible and people are forced to live with it.

Groundwater Contamination: Ground water contamination has emerged as another main issue. The effluents and toxins flushed out by industries into streams and rivers or injected into the ground are

not just penetrating into the ground but spread to nearby areas as well.

Invisibility of Chemicals:

People have complained of different kinds of smell which means that the toxins in the air can be felt. But in case of chemicals in water, we cannot see them and are totally invisible. This worrying aspect needs to be taken seriously. Further, there are compounds that do not have a distinct smell and particles that cannot be seen with the naked eye – pollution by them is not even in our cognisance.

Recommendations and future actions:

We need to urgently come up with effective solutions. The source of pollution needs to be controlled. Merely looking at the red category industries in itself is very worrying concerning the numbers and types of industries. The government and the Pollution Control Board would have to be accountable to the people.

Rakesh Lohumi, Senior Journalist

The already existing industrial units have impacted the quality of air and water so much, the level will only exacerbate if more units come up in the area. The local people of the BBN area are paying a heavy price due to sharp degradation of environment, a consequence of unplanned growth of industries. The BBN Area as has reached the stage of saturation from the environment (air, water and soil quality) point of view as it has exhausted its carrying capacity. The water quality has been the worst affected and the air quality had also been severely hit due to failure of the authorities to enforce pollution norms.

Recommendations and Future Actions

***Stricter Monitoring and Accountability*:** There is need to restrict the setting up of new industries in the region and highly water polluting and highly air polluting industries should be avoided at all costs.

Role of Communities: Given the fact that local population is at the receiving end and facing the brunt of all the pollution, serious solutions need to be devised urgently. There is need for an effective community monitoring system and the pollution control board's needs to be more transparent with its sampling and restore its credibility in the eyes of the suffering people.

An Online mechanism to ensure transparency: The board should also take steps to put the test reports of samples online straight from the testing laboratories. These days, medical labs are providing test reports online and there is no reason that for the PCB not making its labs online

A SUMMARY OF RECCOMMENDATIONS

- HP PCB should take immediate action on the units and their directors which are operating without valid consents.
- Complete transparency in the operations of the HP PCB officials. PCB should share all records, scientific study and data collected with the residents in order for them to understand the quality of environment they live in.
- As a part of this the board should also take steps to put the test reports of samples online straight from the testing laboratories. These days, medical labs are providing test reports online and there is no reason that for the PCB not making its labs online
- HP PCB should make it mandatory for the units to reveal information about their products, by-products, raw materials and chemicals stored inside their facilities and their impacts on the health and the environment.
- The HP PCB should encourage community participation in pollution monitoring. They should seek to involve community intelligence while deciding the spots monitoring and sampling.
- The board needs to take cognisance of the indiscriminate discharge of silt by stone crushers under the provisions of Water (Prevention and Control of Pollution) Act 1976.
- There is need for an effective community monitoring system and the pollution control board's needs to be more transparent with its sampling and restore its credibility in the eyes of the suffering people.

Apart from the Pollution Control Board some of the other bodies for which recommendations emerged during the testimonies include:

- BBNDA: The siting guidelines for different units (as per their category) should be included in the BBNDA master plan. The master plan should have clear statutory provisions for siting. Residential and educational areas should be clearly demarcated and should be no-go areas for industries. A consultative process needs to be initiated for finalising the master plan with inputs from residents of the BBN area
- The Irrigation and Public Health Department needs to monitor the ground water status on a regular basis specifically in the identified hotspots. Immediate action should be taken against those contaminating ground water. The Ground Water Authority clearances and compliance conditions need to be monitored
- The issue of Hazardous Waste similarly needs attention along the guidelines of the Supreme Court Committee on Hazardous Waste

- The industries and the environment departments should conduct a cumulative impact assessment as well as a carrying capacity study for stone crushers in the area to assess the sustainable volumes of extractable material

X. Annexures

1.1 About the Panellists

The Panel (from L to R): Sh, Rakesh Lohumi, Dr. Rajesh Kumar and Dr. Anil Gautam

Dr. Anil Gautam is with People's Science Institute in Dehradun, and heads the Environment Quality Monitoring Group (EQMG). Working in the field of environment monitoring for almost two decades, he has extensively studied practices of participatory ground water management in selected locations in Uttarakhand and Himachal, impacts of dams on river quality in Uttarakhand, water and air quality monitoring, and implemented Community based water quality monitoring and sanitation in nine different states across India. He holds a Phd. In Environmental Science from Mahatma Gandhi Chitrkoot Gramodaya Vishwavidhyaka, Chitrakoot in Madhya Pradesh.

Dr. Rajesh Kumar is Professor and Head of PGIMER School of Public Health at Chandigarh in India. He obtained MD in Social and Preventive Medicine from Rohtak Medical College and MSc in Epidemiology from London School of Hygiene & Tropical Medicine. He has worked as Temporary Adviser to World Health Organization. He has received several honours, notable among these are: Fellowship of National Academy of Medical Sciences, Indian Public Health Association, and Indian Association of Preventive & Social Medicine, and he has delivered Dr. S. C. Seal, Dr. B. C. Dasgupta, Dr. Harcharan Singh and Dr. Siddharath N Shah. He has published 265 research papers in leading scientific journals. He is associate editor of Journal of Epidemiology and Community Health.

Rakesh Lohumi is a Physicist by education and a journalist by profession. He has during his professional career spanning over three decades written in-depth articles on a range of issues. Environment has been one of his areas of specialisation and has authored several analytical pieces on the fall out of hydropower projects, cement plants, unplanned industrialisation, excessive urbanisation ,deforestation, climate change, air and water pollution, cloudbursts and flash floods, human-animal conflict, deforestation and other related issues.

He was conferred the State Award for Developmental Journalism in 1987 for his story on illegal and reckless mining of slates in Dhauladhar ranges. He was also honoured with Himotkarsh Award (1988-89) for outstanding leadership, dedication and achievement in the field of Journalism. He joined The Tribune, largest circulated English daily newspaper of the region, in June 1980 and retired as Bureau Chief in December 2013.

2.1 Testimonies Presented at the Public Hearing

S.No	Name	Village	Name of the Industry	Products Manufactured	Issues Raised
1	Suresh Kumar	Bir Palasi, Tehsil Nalagarh	EMCO Textiles, ACC Cement	Nylon Polymers/Recycling of plastic to make it into fibre, Cement	Air Pollution-smell of plastic burning, Fly ash problem, Water Pollution due to effluent discharge, Bore wells polluted, Soil Pollution Agriculture affected.
2	Manjeet Singh, Shahid Bhagat Singh Youth Club	Paterh Bhonku, Tehsil Nalagarh	Greenply, Sonax Octane Power	Ply Board, Batteries	Water and Soil Pollution- Effluent being released in fields, Air pollution (smell+dust), Hazardous Waste- polythene dumped on fields, Toxic Fumes being released into the air.
3	Gurdial Singh	Baglehar, Tehsil Nalagarh	Sood Crusher+ 20 More	Stone & Sand	Water level has gone down by 200 feet: IPH bore well is dysfunctional, Watermills have shut down, Kohl collapsed: Agriculture affected greatly.
4	Desraj	Bir Palasi, Tehsil Nalagarh	ACC Cement, Brick Kiln, Amco Textiles, Kishan Moulding, BB Agro	Cement, Threads, Nylon Polymers, Pipes, Plastic Chairs	Air pollution (Dust),Noise Pollution, Effluent discharge by Amco Textiles, Agricultural fields polluted, Condition of the village roads bad due to movement of vehicular movement.
5	Jitender Singh	Bikkon, Dist. Ropar, Punjab	Saini & Jai Mata Stone Crusher, Nathu Palasi, H.P.	Stone & Sand	Water and Soil Pollution: Silt laden water released into drains & channels, 400 Bighas of agriculture land affected in 2-3 villages.

6	Neelam Rana	Pandyana, Tehsil Nalagarh	Jaypee Cement Mixing and Grinding Unit	Cement	Air/Dust Pollution: Agriculture affected, Health Problems: Neelam's Sister-in-law expired due to respiratory problems, other sister-in-law is suffering from Tuberculosis, brother-in-law a victim of Cancer. Tuberculosis, Asthma has become a common problem : 80% of village suffering from Cough and Cold, Impact on livestock : Sudden Death of cows and calves in the last few years
7	Balvinder Thakur	Jhar Majri,	200 Units in Jhar Majri	Pharmaceutical, Cosmetics, Steel	Air pollution in form of Ash & Dust, 90% units don't have Wet Scrubbers in their chimneys, Treatment plants release toxic effluents during rains. Some units are mixing fresh water with toxic to dilute the impact, Bore well extraction, Health problems : Respiratory issues, Cancer.
8	Ramesh Chand, Mangat Ram	Bhatoli Kalan, Tehsil Baddi	VVF India Limited, Johnson & Johnson	Glycerine, Soap & Shampoo	Air pollution: Bad smell+ Fly Ash, Water + Soil pollution: Agriculture affected, Noise pollution
9	Dharampal Sharma	Malpur, Tehsil Baddi	Torrent Pharma, Dr. Reddy's, Comed Pharma, FDC Limited, Dabur's Balsara Unit, Aristo Pharma, Sara Biotech, D.M Pharma	Injectables, Tablets, Syrup, Capsule, Shampoo	Water pollution(Surface+Ground), Ground water being extracted, water level has reached 150-200 feet, Soil pollution: Soil has become less productive, Animals dying because of water pollution, Air pollution: Bad smell; Acid and chemicals being released freely during evening and night.

10	Vikas Puri	Majholi, Tehsil Baddi	Khurana Chemicals	Shampoo and Soap	Contamination of water; impact on drinking water; agriculture affected.
11	Raju & Pappu	Malpur, Bhud, Tehsil Baddi	Pharma companies		Issues faced by Bagadia community as a result of water contamination – pig rearing affected to a great extent.
12	Ramphul Singh	Barotiwala	Pharma companies		Health issues faced by workers living in slum areas. Extremely unhygienic conditions in and around the slum areas.
13	Dr. Sidhu	Housing Board Colony, Baddi	.		Water quality has deteriorated, Dust due to vehicle movement is the main issue, Sanitation is a major problem in housing colonies, There are no proper Drainage facilities, no green spaces. Parthenium grass-weed is causing skin allergies, respiratory diseases, boilers-don't have APCD's-black dust.
14	Nauriya Ram	Berson, Majholi, Tehsil Nalagarh	Stone Crushers	Stone & Sand	Ground water, Dust, Agriculture affected by extreme silting. Respiratory problems reported.
15	Balbir Singh	Berson, Majholi, Tehsil Nalagarh	Stone Crushers	Stone & Sand	Ground water contaminated, Dust and fly ash problems, extreme silting, Respiratory problem reported.
16	Karnail Singh	Berson, Majholi, Tehsil Nalagarh	Stone Crushers	Stone & Sand	Ground water, Dust, Agriculture affected by silting, cases of respiratory problems increasing.

17	Shiv Ram	Thana, Tehsil Baddi	Mining, Devyani Food Limited, Alkem Laboratories	Stone & Sand, Ice-Cream, Pharmaceutical	Water level has gone down , pungent smell in the air, fly ash and dust menace, Agriculture affected. Drinking water contamination- breathing problems, cancer, heart-attack, malaria, asthma now a common occurrence.
18	Bhagwan Ram	Thana, Tehsil Baddi	Devyani Food Limited, Rangaliya Limited	Ice-Cream, Ply Board	Smoke, Smell, Water of Ratta Khad contaminated, Land Acquisition: close to 200-259 bighas of Shamlaat land diverted to BBN Industrial purposes, Cough and cold problems very common.
19	Shiv Ram	Thana, Tehsil Baddi	Devyani Food Limited, Rangaliya Limited	Ice-Cream, Ply Board	Smell, Dust, decline in agricultural production, Health problems increasing: breathing problems, asthma. Noise pollution a common issue.
20	Jagat Ram	Manpura, Tehsil Nalagarh	National Laboratories, Bennett Pharmaceutical	Pharmaceutical	Contamination of water: impact on drinking water; agriculture & animals affected, Bad smell-Breathing problem, Increasing cases of malaria.
21	Pawan Kumar	Malku Majra, Tehsil Nalagarh	Martin & Brown Bio Sciences, Indo Swift Private Limited	Pharmaceutical	Pharma units causing contamination of water in Ratta khad, Drinking water problem, Agriculture affected, Dust problem and noise pollution on a rise.
22	Mahendra Singh	Malku Majra, Tehsil Nalagarh	Shiv Bhola Stone Crusher	Stone, Sand	Noise Pollution, Dust - Agriculture affected, Cough and respiratory problems common.
23	Nirmal Chand	Katha, Ward 6, Baddi	Su-Kam Power Systems Limited	Battery	Respiratory diseases, acidic smell, Water contaminated- injected with effluents, Noise pollution.

24	Manjula Sharma	Vikas Nagar, Kirpalpur, Tehsil Nalagarh	Kangra Steel Unit, Eastman Auto & Energy	Iron, Batteries	Noise Pollution, Air Pollution, Water Pollution, Unhygienic conditions, Skin problems- allergy, respiratory problems, malaria, typhoid cases on a hike.
25	Mohamad Alam	Chundni, Tehsil Nalagarh	Pollution in River Sarsa	Effluents being released into the River by Industrial Units	Pollution in river Sarsa, Water for cattle and drinking water highly contaminated, Health problems- particularly skin problems in children.
26	Ram Ratan Thakur	Thana, Tehsil Baddi	Devyani Food Limited , Rangaliya Limited	Ice cream, Ply	Air Pollution- bad smell, dust, and smoke. Respiratory problems- cases of asthma have increased. Dust pollution leading to eye problems. 5 bighas shamlaat land transferred to BBNDA.
27	Kuldeep Singh, Hardeep Singh, Amarjeet Singh	Berson, Tehsil Nalagrah	Khurana Oleo Chemicals, Rupana Paper Mill	Detergent, Paper	Toxic and waste water being released without any check into fields and streams. Waste paper from Rupana Mills being dumped in the nallah and in open spaces.
28	Gurcharan Singh	Khera, Tehsil Nalagarh	Krishna Package, Him Chemical	Therma Col, Polyester	Fly ash menace, Noise pollution, Water pollution.
29	Pratap Singh Mehta	Bhangla, Dabhota, Tehsil Nalagarh	Mahavir Brick Kiln, Bhangla Distillery, Jhiriwala Distillery, Laxmi Brick Kiln, Shiv Shakti Brick Kiln	Bricks, Distillery	Air pollution- extreme levels of dust in the air. The living conditions of migrant labour is very poor- living admits toxics.
30	Bhag Singh Chaudhary	Guranwala, Tehsil Baddi	Mountain Steel Private Limited, Friends Alloy Private Limited, SK Fial Private Limited, Haripur Paper Mill	Iron Products- Sariya, Steel Plant, Paper Industry	Air Pollution- fly ash and dust, Water polluted , Respiratory problems increasing. Waste Paper and water from emanating from Haripur Mill being dumped in nallahs and agricultural fields. 3 schools in the vicinity- children being exposed to toxins

					and pollution.
31	Laxmi Singh	Rauntawala, Tehsil Baddi	Raj Industries in Village Belideyor	Soap Factory	Strong pungent smell, Dust Pollution- fly ash, toxic water being released into fields.
32	Pyaare Lal	Kheda, Tehsil Nalagarh	Him Chem Limited	Polyester Thread	Factory situated close to the school. A nallah carrying effluents nallah running through school premises.
33	R.K Negi	Upper Sanesiwala, Tehsil Baddi	Sylvan Greens Private Limited	Paper	Air highly polluted, Contaminated surface and ground water, Noise Pollution, Asthma, Skin problems in animals reported.
34	Amarjeet Singh	Berson, Tehsil Baddi	Majholi Stone Crusher, Himalayan Stone Crusher, Pritam Stone Crusher, Jai Mata Stone Crusher	Sand & Stone	Illegal extraction of ground water, GW used for separating mud and water and same dirty water dumped into Berson khad.
35	Harbans Lal	Rajpura, Tehsil Baddi	Sara Textiles Limited at Bhatiyan	Dying, Textiles	Acidic water being released at night into Chikni stream which later merges with Sarsa River. Waste toxic water being flushed into fields, difficult for farmers to work in fields, fly ash settling on crops, skin problems reported.
36	Gulzar	Sitalpur, Tehsil Nalagarh	Pollution in River Sarsa	Effluents being released into the River	Toxins from all factories flowing into Sarsa River, Cattles forced to drink polluted water, Allergy and other skin diseases increasing with children

37	Mohammad Sadiq	Malpur, Tehsil Nalagarh	2 to 3 Stone Crushers	Sand & Stone	Pollution in River Sarsa, Water for cattle and drinking water contaminated, Health problems- particularly skin problems in children.
38	Jawahar Thakur	Shahpur, Tehsil Baddi	Reckitt Benkiser Private Limited	Shoe Polish	Problem of fly ash and dust- clothes left outside for drying up turn black within a few minutes. The locals have in the past tried approaching the factory manager but no action from the factory management.
39	Kundan Lal, Draupadi Devi	Plasada, Tehsil Baddi	Ruhani Stone Crusher	Stone & Sand	The area has undergone heavy deforestation. The problem of dust very extreme.
40	Rajiv Bhalla	Kherawali, Tehsil Baddi	Him Chem	Polyester Thread	Chemicals from factory polluting the fields. One person suffering from cancer, and one complainant has already died of cancer. Drinking water heavily polluted.
41	Vijay Kumar Joshi	Chaukiwala, Tehsil Nalagarh	Acme Formulation Private Limited, Immacule Lifesciences Private Limited	Pharmaceutical	Pollution- noise, water, air. Wife's ear drums got torn due to noise pollution. Living in close vicinity to the factory, and also a school close by.
42	Zakir Husaain, Narender Kumar	Billanwali Gujran, Near Housing Colony, Tehsil Baddi	Open sewerage problem in Market area behind Janta Sweets. The effluents released particularly from Vardhaman Unit and other units are released into the stream.		Water Pollution, Sewerage problems- water pipes broken at several point- a menace during monsoons. Cases of dengue and malaria shooting up.

44	Satbir Singh	Pandyana,Tehsil Nalagarh	Jaypee Cement Mixing and Grinding Unit	Cement	Difficult to work in the fields particularly for women. Women and men have to work at the risk of developing several skin allergies.
45	Rajinder Singh	Gullarwalan	Vardhman Spinning Mill, Birla Textile, Nox Lifetime	Thread, Textile, Pharmaceutical	Water Pollution- nallahs are polluted and get flushed during monsoons. Dengue becoming common, and 2 people died due to dengue last year.
46	Bhag Singh Saini	Housing Board, Phase III, Baddi	Parental Drug Private Limited (PDDPL), Morepen Laboratories	Pharmaceutical	Water Pollution- toxic water being flushed into Ratta khad, and heavy problem of fly ash.
47	Manjeet	Bhatoli Kalan, Tehsil Baddi	Rich Offset, Abbot, Sahni Paper Mill	Printing Press, Pharmaceutical, Paper	Respiratory problems, dengue, chemicals being flushed into the nallahs and fields.
48	Narender Kumar	Bhatoli Kalan, Tehsil Baddi	GMH Company, Johnson & Johnson, Su-kam Power Systems Limited	Pharmaceutical, Soap & Shampoo, Battery	Water and Air Pollution and respiratory problems.
49	Hoshiar Singh	Bhatoli Kalan, Tehsil Baddi	Unichem Laboratories Limited, Hesa Pharmaceuticals, Ozone battery	Pharmaceutical, Battery	Fly ash and dust problem. Surface and ground water contamination.
50	Diwan Chand	Bhatoli Kalan, Tehsil Baddi	Montek Bio Pharma, Puja Printing, Poonam Cylinder Private Limited	Pharmaceutical, Printing Press, Cylinder	Water and Air Pollution, Respiratory problems, Cattles forced to drink toxic water, cases of dengue on a rise.

51	Ajmer Chand	Dhakdu Majra	Vardhaman Textile Mills	Textile	Effluents being flushed into the nallahs. Cases of cattle dying and drinking toxic water.
52	Joginder Lal	Vill. Sakedi, Khalsa	Jaypee Cement & Grinding Unit	Cement	Dust settling on crops, Different kinds of skin allergies.
53	Narveer Singh Thakur	Kripalpur, Tehsil Nalagarh	Eastman Auto & Power Limited	Battery	Water and Air pollution, Acidic smell in particular lead oxide in particular.
54	Mat bar Singh	Kirpalpur, Tehsil Nalagarh	Eastman Auto & Power Limited	Battery	Water and Air Pollution – Water, air, noise, acidic smell, in particular lead oxide, diseases increasing.
55	Bhagat Ram	Kripalpur, Tehsil Nalagarh	Eastman Auto & Power Limited	Battery	Water and Air Pollution. Pungent and Acidic smell in the air.
56	Ram lok Thakur	Malku Majra, Tehsil Nalagarh	Indo Swift Limited, Martin & Brown Bio Sciences, Morpen Laboratories, Stone Crushers	Pharmaceutical	No action from PCB despite several complaints, Spring water no longer drinkable, Dust emanating from stone crusher, Noise pollution- difficult to residents to sleep at night.
57	Ram Nath	Upper Sanesiwala, Tehsil Baddi	Sylvan Greens Private Limited	Paper	Skin problems increasing in cattle, Toxic water being flushed into the fields, Cattles forced to drink toxic water.