

## IMPACT OF INDUSTRIAL POLLUTION ON BBN AREA OF HIMACHAL PRADESH: A CASE STUDY OF BBNIA

Nandan Sharma

Assistant Professor, Deptt. Of Laws, Maharaj Agarsen University, Baddi, Solan, H.P.  
nandansharma5@gmail.com

*An environmental hazard is a substance, state or event which has the potential to threaten the surrounding natural environment and or adversely affect people's health. This term incorporates topics like pollution and natural disasters such as storms and earthquakes. Human-made hazards while not immediately health-threatening may turn out detrimental to man's well-being eventually, because deterioration in the environment can produce secondary, unwanted negative effects on the human ecosphere. The effects of water pollution may not be immediately visible because of a sewage system that helps drain off toxic substances. If those substances turn out to be persistent (e.g. persistent organic pollutant), In that respect, a considerable number of environmental hazards listed below are man-made (anthropogenic) hazards. In this research paper the researcher intends to study the impact of industrialization on health, agriculture, environment, ecology and climate based on industrialization of Baddi, Barotiwala, Nalagarh Industrial Area (BBNIA) in Himachal Pradesh.*

### Research Problem

The problem to be discussed in this paper is the impact of industrialization on the environment of BBN area of Solan district of H.P. The problem being faced by the residence of the area even becomes worse as they are being denied of their basic right to life including right to live with human dignity.

### Introduction

Environmental hazards may be defined as those extreme events either natural or anthropogenic which exceed the tolerable magnitude within or beyond certain time limits, make adjustment difficult, resulting catastrophic losses of property, income and lives and become head lines of different news media at world level.[1]

The term environmental hazard may be distinguished from environmental disaster as follows.[2] Hazards are the processes which cause an accident or extreme event or danger whereas disaster is a sudden adverse or unfortunate extreme event which causes great damage to human beings as well as plants and animals, i.e., disasters occur rapidly, instantaneously and indiscriminately. Thus, environmental hazards are the processes whereas

environmental disasters are the results or responses of environmental hazards.

### Introduction about Baddi Brotiwala Nalagarh Development Authority (BBNDA)

The Baddi Barotiwala Nalagarh Development Authority (BBNDA) was constituted under the provision contained in Section 67(i) of Himachal Pradesh Town & Country Planning Act, 1977 vide H.P Government Notification No. TCP-F(5)GAD-C-(F)-51/2006 dated 30/11/2006 headed by the Chief Executive Officer of I.A.S rank. To control & Govern the BBNDA, a Governing Body under the Chairmanship of Hon'ble Chief Minister of H.P. has been constituted vide H.P. Govt. notification No. GAD-C-(F)-501/2006 dated 30-11-2006.[3]

The BBNDA has very vast Planning area consisting of 41 Nos. of Panchayats having 229 Revenue Villages measuring 31814 Hectares including 5000 Industrial Units, 4 Growth Centers i.e. Baddi, Barotiwala, Nalagarh & Panjhera and 2 Urban Local Bodies.[4] The BBN area is the biggest Special/ Planning area in the Himachal Pradesh. It attracts lots of investments and development activities by virtue of location, availability/suitable topography for spatial Planning. The pace of urbanization & Industrialization has reached at its climax, so the planned and regulated development is required through the modern technologies such as GIS, GPS and Remote Sensing Imageries. The mandate of BBNDA is to create hygienic environment and world class infrastructure facilities to cater the investors as well as local population.[5] All the growth centers of BBN area are required to be managed by effective spatial Planning, preparing Regional Plan, Sector Plan, Land Pooling and infrastructure development. Besides a comprehensive traffic & transportation planning is required in view of haphazard growth.

The Authority is still in its infancy, although the vision of the Himachal Pradesh Government is to develop the BBN area on the pattern of modern Industrial Township like NOIDA, GMADA etc. It is endeavor of the Govt. to make this area as a Model Industrial Town of the North India. To develop BBN area on modern lines into an integrated Industrial Township having provision to acquire, hold, develop, manage & dispose of land and other property & to carryout construction activities for Industrial, Residential, Commercial, Institutional & recreational area and put it in league with the other major cities in the region i.e. Chandigarh. Panchkula & Mohali etc. The Development Plan of BBN Area has been prepared and objections & suggestions of the public have been invited. After incorporating the genuine suggestion in the said development plan, it will be notified by the H.P. Government.[6] The creation of BBNDA has raised the expectation of the people, Industrialist & business

houses of the area and they look forward to the authority for meeting their requirement pertaining to Infrastructure development and basic amenities in BBN Area.

### Impact of Environment Pollution in BBN

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 industrialization 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. 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.[7]

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. 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.[8] 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.[9] 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 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.[10] 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.

### Major Pollutants of BBN

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 has been some of the key problems identified 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 Sutlej. 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<sup>1</sup> 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. 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. 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.

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. [11]

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.
<b>Total</b>	<b>1652</b>	<b>401</b>	<b>1251</b>	

*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.[12] 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.

To know the real work being undertaken according to the good governance by the BBND, SWCA and other government bodies set up in Baddi Barotiwala Nalagarh

(BBN) region, an assessment has been attempted by providing the respondents from with twelve important statements. These were put across to a sample of 150 respondents from industry drawn from small scale, medium scale large scale industrial set up in Baddi Barotiwala Nalagarh industrial area and where the respondents were available in the industry on the day of the visit.

The respondent were asked questions relating to functions performed by BBND, working of single window clearance Agency, HPSIDC and PCB. The following response have shown in the table below:-

#### INDUSTRIAL DEVELOPMENT IN BBN REGION

Sr.	Statement	Agree	Undecided	Disagree
1	<b>To promote Hood Governance the Baddi Barotiwala Nalagarh Development Authority (BBND) has played effective role towards transportation linkages to facilitate movement of goods and persons.</b>	47.6%	29.8%	22.5%
2	<b>It is true that BBND has catered to the various needs such as industrial, residential, commercial, institutional and recreational of the Region to promote industries in BBN region.</b>	37.7%	32.6%	29.7%
3	<b>Infrastructure development in the BBN Region was promoted by BBND.</b>	36.3%	37.5%	26.2%
4	<b>The BBND effectively takes part in the redressal of Grievances regarding industries.</b>	40.8%	45.4%	13.8%
5	<b>Meetings are regularly conducted by BBND regarding industrial growth in BBN region.</b>	45.0%	43.1%	11.9%

6	The BBND A is successful in undertaking the management of Solid Waste in the BBN Region.	52.5%	27.6%	19.9%
7	BBNDA is Promoting Good Governance by maintenance work of various infrastructural projects as and when required.	29.8%	36.1%	34.0%
8	Good Governance to demonstrate with the functioning of single Window Clearance Agency (SWCA) in BBN Region has helped to enhance the industrial development in Region.	55.1%	31.1%	13.8%
9	Himachal Pradesh State Industrial Development Corporation (HPSIDC) is promoting Good Governance by working to strengthen the Industrial Development in BBN Region of Himachal Pradesh.	50.6%	28.1%	21.3%
10	Good Governance in terms of industrial development is promoted through ESI.	50.3%	23.7%	26.0%
11	Government is promoting Good Governance through Educational facilities in BBN region.	31.8%	19.0%	49.2%
12	Pollution Control Board (PCB) working effectively to control pollution in the BBN industrial region.	36.6%	28.1%	35.3%

### Analysis of the Results

We can see from the above table that respondents were of the opinion that BBND A has reasonably played an effective role for the transportation linkages to facilitate movement of goods and persons as 47.6 per cent were in agreement with the statement and only 22.5 per cent disagreed and remaining were undecided with the statement

Similarly, it was found that respondents have shown mixed views on the statement that BBND A has catered to the various needs such as industrial, residential, commercial, institutional and recreational of the Region to promote industries in BBN region. The noticeable proportion (37.7 per cent) of respondents was in agreement and noticeable proportion of the respondents (32.6 per cent) was undecided about the statement. However, 29.7 per cent expressed that BBND A was not useful to promote various needs as mentioned in statement.

Further, table has revealed mixed opinion on the statement that infrastructure development in the BBN Region was promoted by BBND A. It was found that noticeable proportion (37.5 per cent) of the respondents was undecided on the statement. Likewise noticeable proportion (36.3) of the respondents was in the favor and only marginal opined that BBND A has promoted infrastructure development in the BBN Region.

The table also shows that more highly noticeable respondents (45.5 per cent) were not ready to share their views on the statement about BBND A's effective role in grievance redressal and almost similar number of the respondents (40.8 per cent) agreed with the statement. However, only 13.8 per cent respondents expressed that BBND A is not playing effective role in the redressal of grievances related to industries.

Similarly, it was found that highly noticeable respondents (45 per cent) were in the favour of the statement and likewise 43.1 per cent were not ready to share their views on the statement that is meetings are regularly conducted by BBND A regarding industrial growth in BBN region. In addition to this only 11.9 per cent were in disagreement with the statement.

However, table revealed that majority of the respondents (52.5 per cent) agreed that the BBND A is successful in undertaking the management of Solid Waste in the BBN Region. While marginal proportion of the respondents (27.6 per cent) were undecided on the statement and only 19.9 per cent disagreed with the statement.

Source: Data Collected and Compiled by the Researcher.

Further, it was found that respondents have opined mixed views on the statement that is BBND A is promoting Good governance by maintenance work of various infrastructural projects as and when required in BBN region. The noticeable proportion of the respondents (36.1 per cent) was undecided and likewise the noticeable proportion of the respondents (34 per cent) was disagreeing on the statement. Number of respondents was very less who expressed their views in favor of statement

The table has also shown that majority of the respondents (55.1 per cent) were in agreement with the statement that is Single Window Clearance Agency (SWCA) set up in BBN area has demonstrated the Good governance concept to enhance the industrial development in region. Further, it was found that noticeable proportion of the respondents (31.1 per cent) was undecided on the statement and 13.8 per cent respondents opined that there is need to strengthen the working of SWCA in BBN region.

Similarly, it was found that majority of the respondents (50.6 per cent) were in the favour of the statement that is Himachal Pradesh State Industrial Development Corporation (HPSIDC) has promoted good governance by working to strengthen the Industrial Development in BBN Region of Himachal Pradesh. However, marginal proportion of the respondents (28 per cent) was undecided and less proportion of the respondents (21.3 per cent) disagreed with the statement.

Further, table has shown the views on the statement that Good governance has promoted work through ESI. Majority of the respondents (50.3 per cent) were in agreement that ESI is performing the good work according to the good governance. On the other hand marginal proportion of the respondents (26 per cent) disagreed and around same proportion of the respondents (23.7 per cent) was undecided with the statement.

It is very true that good education facilities are the need of every society, and equally significant for the industrial area that it should have good quality education facilities to promote education, to provide skilled and qualified manpower for the industries from nearby. The analysis of responses revealed that government is not promoting good education facilities for the benefit of the society and industrial growth. Almost half (49.2 per cent) of the respondents expressed that BBN region did not have good education facilities whereas, 31.8 per cent were in the favour of statement. Further, it was found that marginal proportion of the respondents (19 per cent) was undecided on the statement.

For the twelfth and last statement, table revealed no clear view. The noticeable proportion of the respondents (36.6 per cent) was in the favour of the statement that Pollution Control Board (PCB) was working effectively to control pollution in the BBN industrial region. Likewise the noticeable proportion of the respondents (35.3 per cent) disagreed with the statement. Whereas, it was found that marginal proportion of the respondent (28.1 per cent) was undecided on the statement

On the basis of above we can say that BBND A and department of industries, government of Himachal Pradesh have made some efforts for improving the industrial scenario in BBN region. However evaluation on the basis of select parameters of good Governance reveal that much needs to be done as out of twelve as many as six areas of governance did not find favor with the respondents from industries. Thus, there is need to work a lot to see the results of good governance.

#### **Environmental monitoring by the HP Pollution Control Board**

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 PCBs monitoring are listed below: [13]

1. a) PCBs 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.
2. 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 to 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. [14]

3. c) Lack of suitable infrastructure is another stumbling block in HP PCBs 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.
4. 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 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.[15] Officials of the PCB blame kucharoads for the dust pollution in the region rather than cement units and stone crushers.

### Efforts to Strengthen the Infrastructure for Industrial Development of BBN Region

**Natural Gas :** The state government has signed and MOU with Gas Authority of India Limited for the supply of Natural Gas for industrial, commercial, domestic and transportation sectors. This environment friendly step as Natural gas is a clean source of energy. BBN area along with Parwanoo area of the state has been included in the city gas distribution geographical area of Chandigarh by Petroleum and Natural Gas Regulatory Board.

**Trade Centre:** To facilitate the exports and provide platform to the exporters to exhibit their products, have direct interference with the clients, to facilitate the already established industries to take part in the facilities, a Trade Centre is proposed to be created in Baddi. For this state government had initiated a proposal and has approved a project of Rs. 10.81 crores on PPP mode. The centre government has also given Rs. 5.40 crores BBND through State.[16]

**Construction of Labour Hostel at Baddi:** The state government has approved the construction of two labour hostels (one each for men and women) for accommodating about 800 to 1000 workers. Finances had given to the HPSIDC.

**Setting up of Pharma-Cum-Food Technical Institution:** This is being set up at Baddi by Himachal Pradesh drug Manufacturing Association (HDMA) to create a pool of skilled manpower to avail the job opportunities in pharma and food processing industries. This will also help industries to avail the trained manpower.

**Common Effluent Treatment Plant (CETP):** This plant is being set up to prevent the industrial effluents from polluting the local environment. The plant will be set up in Village *Sheetalpure*, Tehsil *Nalagarh*, District *Solan*. This project would also work for the strengthening of roads and skill development centre (setting up of Research and Development Centre).

**Solid Waste Management Plant/ Treatment Storage Disposals:** Solid Waste Management Plant was set up at Baddi with PPP mode. This plant is providing significant results in the protection of environment, ecology of the area by handling hazardous and solid waste primarily generated by industry. This plant has been working since 2008

**Facilitation and Creation of Allied Infrastructure:** State government has opened a Tehsil office, police district, PWD Division, office of Drug Controller and ESI hospital in Baddi in order to provide these different services to the industrial units in region/ H.P.State.

**Construction of Truck Parking at Baddi:** Since Baddi industrial area was showing the regular growth of industries and transportation is the important medium to reach the material and products to their destination inter and intra state. With the time industrialisation in region led to the increase in the number of transportation vehicle according to the need and Industrial area Baddi has started facing the acute problem of parking. To solve this issue department of state government has proposed the huge finances (Rs. 11.845 crores). (Department of Industries of Himachal Pradesh)[17]

**Inland Container Depot (ICD) at Baddi :** To provide the facilities ware housing store custody and handling of cargo to the industrial units established in the state a Memorandum of Understanding (MOU) and lease deed had been signed with Container Corporation of India (CONCOR) for establishment of Inland Container Depot at Baddi. This would include setting up of warehouses, administrative buildings, railways siding installation of heavy machinery and equipment etc. Further, CONCOR would provide a single window services to customers and fix tariff for booking/delivery/handling/transporting/warehousing of container and of cargo. Fright station and of ICD in Baddi region of Himachal Pradesh will give a tremendous boost to the development and growth of industries in the region. (Department of Industries of Himachal Pradesh).[18]

### Conclusion

Thus at the end it is concluded that the plight of residents of BBN is in the hands of its authorities. Today this region is in dire need of a strong policy aimed at good sewerage system, roads and transportation to gear up the industrial sector and save the inhabitants of the area from tremendous pollution hazards. The State Pollution Control Board needs to check the harmful disposal of effluents into air, water, and soil needs to be strictly controlled. The large scale industrialization and one of the biggest in Asia should not be a blot on the beautiful, safe and rich environment of the state of Himachal Pradesh. The rapid and uncontrolled industrialization that BBN is witnessing today is indicative of bigger disasters waiting 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 estate the cost of human health and lives speaks of a development completely undemocratic to its roots.

- [1] Oxford English Dictionary, 12<sup>th</sup> edition, 2014, p. 32  
[2] Dr.S.C Tripathi, Environmental Law, Central Law Publication, Vth Ed. 2013, p. 2  
[3] <http://bbndahp.nic.in/> visited on 10/02/17  
[4] Ibid  
[5] Ibid  
[6] [http://dipp.nic.in/English/Schemes/Special\\_Category/Himachal\\_Uttranchal/indpol\\_uthp.htm](http://dipp.nic.in/English/Schemes/Special_Category/Himachal_Uttranchal/indpol_uthp.htm) visited on 02/01/17  
[7] Economic Survey of Himachal Pradesh 2013-2014.  
[8] <http://hppcb.nic.in/Consent/Red.pdf>, Orange: visited on 15/02/17  
[9] Ibid  
[10] <http://www.epa.gov/air/lead/pdfs/20081015pbfactsheet.pdf> visited on 12/12/16  
[11] A study conducted in 2011 by the Department of Environment Science, Punjab University titled Impact of Industrialization on Groundwater Quality- A case of Baddi-Barotiwala Nalagarh Industrial belt, District Solan, and 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.  
[12] <http://www.himparivesh.him/hg/about.htm> visited on 19/12/16  
[13] [www.hppcb.nic.in](http://www.hppcb.nic.in) visited on 26/03/17  
[14] Ibid  
[15] Ibid  
[16] Supra note 4 at 17  
[17] Economic Survey of Himachal Pradesh 2013-2014.  
[18] Supra note 16