CHAPTER - XI
Summary and Conclusion

11.1 SUMMARY OF THE WORK

In comparison to any other mining industrial area of the country or the state, Asansol subdivision has not received due attention of the policy makers and planners. So a study was imperative for this area.

In comparison to economic issues dealt within mining and industrial geography, lesser importance was attached to the study of human impact of primary and secondary activities. So any attempt to go through the critical area of man’s relationship with inorganic and organic components of nature along with deterioration of the component parts requires conceptual clarity, proper identification of the problems and adequate collection of information from primary and secondary sources. Setting the objectives with well-designed methods, for working on such a vast field is essential. All these organizational areas were taken into consideration while preparing the first chapter of this thesis.

Asansol subdivision has experienced mining over two centuries accompanied with industrialization from the early 19th century. So much importance has been laid on the study of historical background of mining and industrial expansion. Geographical personality of this belt has been incorporated in the same chapter through discussion on geology, relief and drainage system, climate, and geohydrology.

The entire third chapter was devoted to the appraisal of resource base in the area under study. Main components of resources – minerals as well as industrial, have been discussed at length mentioning their nature of utilization. A stock of human resource was also taken in order to assess demographic and socio-economic problems prevailing in the local community. These anthropogenic problems are due to utilization of natural resources without paying proper regard to environmental ethics. It was revealed that lack of planning and vision are responsible for improper utilization of human resource. Chapter four deals with land utilization pattern and its evolution. In this chapter agriculture, mining and urban industrial activities have been
given due importance. Urban morphology and recent trend has also been critically discussed.

Intricate issues which have cropped up due to mining have been focussed in the fifth chapter. Causative factors of subsidence, land degradation, mine fire as well as water and air pollution have been explicitly discussed.

The sixth chapter was devoted towards industry oriented problems like degradation of air and water quality along with sickness of the industries. The causative factors have been identified and dealt within detail.

The seventh chapter has analyzed the various urban problems, which have a deleterious effect on the liveability in the urban units in the Asansol belt.

Eight chapter has identified the impacts of mining, industrial activity and urbanization on both the physical and social environment. A detailed analysis has been put forth to identify the nature of human impact which has been brought about by anthropogenic activities.

Case studies of Asansol city and Raniganj have been placed in the Ninth chapter.

Door to door survey and personal interaction with the residents have aided in unfolding of the problems and the status of economic and social well-being. Favouring of more mining activity and industrialization inspite of inconvenience due to these activities have come to light.

Mitigating measures and suggestive plans which can aid in ameliorating the deterioration inflicted by mining and industrial activities along with rapid urbanization have been mentioned in the tenth chapter.

The last chapter is devoted to the critical appreciation and identification of various lacunae in the plans and policies undertaken by the government as well as by the mining and industrial authorities. This chapter also deals with summary of the total work along with concluding remarks.
11.2 CRITICAL APPRECIATION OF POLICIES AND THE ROLE OF LOCAL ADMINISTRATIVE BODIES

The government policies regarding mining and industrial region are often contradictory, with some actively promoting and others seeking to arrest the environmental degradation. Often it is found that poor people are most vulnerable to environmental degradation associated with increasing shortages of natural resources and contamination of those resources. As a result, this section is exposed to unhygienic living condition and poor health lacking the provision of basic amenities like treated water, shelter and food.

11.2.1 Critical Appreciation of Environmental Policies

As per the norm of Ministry of Environment and Forest (MOEF), Government of India, it is obligatory on the part of any industry, new or old, to prepare an Environmental Management Plan (EMP) and to get it sanctioned. Certain preliminary studies in this regard has to be made. These are done in four stages.

1) Description of existing (pre-mining) environmental setting in core and buffer zone of 10 km radius.
2) Identification and prediction of potential impacts due to the project.
3) Evaluation of significant impacts.
4) Mitigation measures to minimise the detrimental effects of negative impacts.

As far as socio-economic aspects are concerned, the study assumes importance in the wake of “social desirability” question of all economic ventures. Such an idea in India is still in its adolescence although probably the people of the grass root level should have been utmost looked after in a welfare state like India.

In mining and industrial areas some adverse effects of these activities which can be enumerated are growing urbanization, destruction and damage to predominantly agricultural and pasture land, hence their affordability to sustain population. This destruction is manifold and in multiple
ways – there is loss of arable land, loss of nutrient contents, loss of water holding capacity, lowering of ground water tables etc.

In migration and increased population pressure on land, boom-town effects, polarization, spread and backwash impacts, changes in economy and economic base of area, hence associated changes in employment, income, resource base of area and other related aspects take place. Change in landuses bring about changes in urban forms along with changes in societal systems, moral and ethical values as well as socio-political structure.

Planners thus, are required to deal with all these macro level changes with caution of not missing the inherent micro-details of the various aspects.

Conventional thinking about controlling industrial pollution says that plants in countries with weak environmental regulation are likely to treat the environment as a free input and make no effort to control emissions, while plants in countries with stronger regulation are likely to comply with regulatory standards.

The various environmental protection Acts like **National Forest Policy 1988, The Water Act of 1974, The Air Act 1981**, have been formulated by the government permissible limits set by Bureau of Indian Standards regarding discharges and emissions in the water and air respectively to arrest the problem of pollution. But, the environmental agencies are plagued by a host of problems which have been listed below.

- **Information** – Monitoring is often so poor that compliance is difficult to assess. When collected, data on factory emissions are often held by separate agencies with different responsibilities. Information on abatement costs is rarely available.
- **Bureaucracy** – Agencies responsible for monitoring air and water quality rarely talk with each other or with those responsible for monitoring emissions.
- **Human and technical resources** – Agencies generally have little capacity for assessing the benefits of alternative programmes and using the results to establish priorities for allocating scarce resources. Few trained inspectors are available.
The Pollution Control Board office lack requisite manpower to monitor this entire belt.

- **Political Support** – Serious enforcement often meets political resistance. Under these conditions it is hard to implement pollution control. It would be pointless indeed, counter productive to advocate pollution charges that guarantee failure and risk discrediting these potentially powerful regulatory tools. Near term policy problems are more pressing and should be addressed first:
  - Identification of a target group of serious polluters that environmental agencies can regulate effectively with existing resources.
  - Mobilization of political and community support for action.
  - Development of an integrated information system with good quality control.
  - Establishment of ambient air quality targets for air and watersheds and link them to pollution reduction measures that are applied to the target polluters.

- The Pollution Control Board (PCB) in West Bengal has no laboratory of their own to get the samples tested at regular interval. After collection of samples these are sent to various agencies for report. Provision of a testing laboratory with proper infrastructural support should be created immediately.

- Though the Pollution Control Board has classified industries as Red, Orange and Green categories depending on their proximity and distance from the threshold limit, weak monitoring has belied the whole purpose of such categorization.

### 11.2.2 Critical Appreciation of the Policy on Subsidence and Mine Fire

The magnitude of the problem of subsidence in Asansol subdivision due to unbridled exploitation of coal in the past and compounded by further injudicious growth of habitation over unsafe areas is a matter of serious consideration.
11.2.2.1 Various Committees

The danger of subsidence of surface land over mine workings standing on small stocks vis-à-vis danger to habitation have attracted the attention of the authorities concerned, technical organizations and institutions from time to time, the first Subsidence Committee was formed in 1922 followed by another in 1937. In 1957, Barakar Subsidence Committee submitted a report on the danger of subsidence of NH2 and Barakar town. In 1964 Director, Central Mining Research Institute (CMRI) submitted a report entitled “Report on the Study of Coal Fires, Subsidence and Problems relating to Mining Problems”. In 1977, Gugnani Committee and in 1986 Prasad Committee examined the status of unsafe areas and indicated steps to minimise subsidences. In 1990, a High Powered Committee named as Apex Monitoring Committee was constituted by Coal India Ltd. (CIL) and Government of West Bengal to suggest measures of stabilization of unstable areas of Raniganj Coalfield.

Actions for remedial measures like stabilization, evacuation of population as the case may be, on a few isolated cases had been taken but no large scale action was taken in the past. Wherever subsidence or pot holdings have occurred concerned authorities have taken measures in a limited way on humanitarian ground like giving alternative temporary accommodation to the affected population, repair of houses, blanketting the areas and stabilization by dry or hydraulic stowing inapproachable areas.

11.2.2.2 Hydraulic Stowing

In this process sand is unloaded on a vat and water is discharged from the pump mixed with the sand. The sand slurry mixture goes down the stowing borehole by gravity and emerges at the bottom of the stowing borehole through a concentric pipe in the form of air bubbles and carries the sand particles mainly towards rise side workings. Ultimately air is released to the atmosphere through air release holes drilled in the rise side workings. This method has been adopted in Arun Talkies, Kamarbazar and in the villages of Haripur, Fatehpur and Borachak.
The Prime Minister of India had a meeting on Subsidence and Fire in Raniganj and Jharia Coalfields on 04.12.1996. He constituted a committee under the Chairmanship of Secretary (Coal) and representatives of the Central and State Governments, Directorate General of Mines Safety (DGMS), representatives of the Planning Commission etc. to look into the problems of subsidence and fire in Raniganj of West Bengal and Jharia of the adjoining state of Jharkhand. Directorate General of Mines Safety (DGMS) has very recently assessed 171 locations.

11.2.2.3 Strategies

It has been estimated that 1,48,052 persons were residing over unstable areas. To deal with the problem, three possible strategies have been is outlined.

1) Strategy of Total Resettlement of Affected Population.
2) Strategy of Total Stabilization of the Habitated Unstable Areas.
3) Part Resettlement and Part Stabilization.

The financial implication of these strategies have been made. Out of the 24 locations selected for stabilization 14 locations fall within the limit of municipal towns of Raniganj and Jamuria and the rest within the jurisdiction of Asansol City.

11.2.2.4 Updated Master Plan

In 1999 a Master Plan was prepared by Central Mine Planning and Design Institute (CMPDI) Asansol, for Raniganj Coalfield area. An updated Master Plan was formulated in 2003 based on this Master Plan. This plan indicated:

- Rehabilitation of colliery employees residing in endangered areas will be done by respective mining concerns like ECL or BCCL. However, land would be provided by the state.
- In case of non-employees entire rehabilitation work has to be done by the concerned State Government.
• It has been decided that Asansol Durgapur Development Authority will take up rehabilitation on behalf of State Government.

A provision of Rs. 160 crores has already been made from the Tenth Plan through budgetary allocation under Environmental Measures and Subsidence Control (EMSC) for funding various activities envisaged in this Updated Master Plan.

According to the Updated Master Plan, 2003 satellite townships in non-coal bearing areas to accommodate ECL’s employees has been identified by CMPDIL. Till date work is in progress to rehabilitate unstable locations like Samdih, Kenda, etc.

**Strategy for Dealing with Surface Fires**

The fire is being dealt with by dozing, levelling, blanketting and afforestation. According to the Updated Master Plan, 2003 magnitude of the problem of subsidence and fire in Raniganj Coalfield within the leasehold of Eastern Coalfield Ltd. has been realized and it is extremely necessary to implement the remedial measures. It may be difficult to pay heed to all the emotions of affected population. However, an amicable solution to this respect is necessary before implementation could be made effective.

**11.2.3 Critical Appreciation of Freight Equalization Policy**

Transport of coal and steel was subsidized by the government of India. Price of coal at the pit mouth of Raniganj was equal to the price of these two materials at Mumbai or Chennai. In the process locational advantage of coal and steel was lost. For no other raw materials and commodities such subsidy on transport was available. Consequently industries flourished in Maharashtra, Gujarat belt and in other areas located far from coal and steel belt. Entrepreneurs were not interested to invest in coal and steel producing belt of Eastern and Central India. Gradually, the existing industries of this region of India became sick during the plan periods. (Basu, 2000)
Thus the old coal and steel based industries in this belt could no longer compete with new industries that came up elsewhere in the country. The tardy growth of employment as well as sickness of the industries in this area may be said to be partly the result of this irrational policy followed by the Central Government.

11.2.4 Critical Appreciation of Poverty Alleviation Measures

Over the years, a wide variety of anti-poverty programmes have been attempted by the local self government. The intuitive appeal of initiating such programmes is based on seemingly small transfers (compared to the amount of rupees spent by the government) required to lift thousands of people out of poverty. Poverty alleviation programmes invariably loose their effectiveness due to leakages i.e. transfer of benefit to the people who are not poor. Very objective of such programme is thus belied. The poor can be identified by indicators such as income, purchasing power, asset holdings, literacy rate, nutrition level, status of children and health. Alleviation programme often fail to reach them in these vital areas of life.

11.2.4.1 Public Distribution System

Public Distribution System (PDS) which make no effort at restricting subsidies to the poor are fairly inefficient in that only a small fraction of the programme outlay actually goes to the poor. Poverty alleviation programmes based on employment seem to be rather effective; non-poor people do not come forward to accept the low-wage jobs that these programmes offer, and once a person escapes poverty he would voluntarily make exit out of the programme. Hence employment programmes are self-targetting and self-liquidating. For example, in the Employment Guarantee Schemes (EGS), almost 90 percent of the participants are poor. The wage employment programmes seem to be more effective at targeting the poor than Integrated Rural Development Programme (IRDP) under which productive assets (such as buffalo) are given to the poor.
11.2.4.2 Women and Children

For women and children, nutrition based programmes, which have both short and long-term benefits, are very important. This project aims at improving the health status of pre-school children, as well as pregnant and nursing mothers.

Old age income and health security, especially for the poor, remains an area to be tackled effectively. The National Social Action Plan includes pensions for the elderly people below the poverty line along with free food grains.

11.2.4.3 Non-Governmental Organization

Programmes run by non-government organizations (NGOs), like the Self Employed Women’s Association (SEWA), have been more successful in terms of use of credit repayment and empowerment of women, although their scale of operation is not large (India Development Report, 1999-2000). Asansol Subdivision is in need of such NGOs, for the upliftment. In the recent past a NGO named DISHA is working efficiently in this belt. They have specially laid emphasis on the redlight areas of Lachhipur and Sitarampur. But, their activity is limited due to scarcity of financial resource and volunteers.

11.2.4.4 Long and Short-term Strategy

The best poverty-alleviation strategy for the long run is that of fostering high rates of economic growth. However, short term interventions have a useful role to play. These would involve a combination of self-targetting wage employment programmes like the Employment Generation Scheme (EGS) and women and children’s schemes run with the assistance of NGOs which include nutrition, health and micro-credit. Finally, education and training initiatives, which would enable the poor to improve their job skills, can be highly effective means of poverty alleviation.
11.2.5 Critical Appreciation of the role of Local Self Governments

In January 1964 the West Bengal Government had set up the Asansol Planning Organization and entrusted it with the task of preparing a Comprehensive Development Plan for the Asansol Planning Area. The accelerated industrialization in the subdivision, especially after independence, brought in its wake problems of scattered and unplanned urbanization. Even where isolated attempts at township planning were made the cumulative effect has been to create a complex of unintegrated and uncoordinated, planned as well as unplanned, urban development (Sivaramkrishnan, 1969). The picture of fragmented urban growth, wide disparity in standards and services and facilities thus emerged.

The picture has not changed much since then. At present Asansol sub-division is a composite of a corporation at Asansol, with the highest form of urban local self government along with municipalities at Raniganj, Kulti and Jamuria.

11.2.5.1 Urban Amenities

But the provision of minimum basic urban amenities like adequate supply of potable water, proper sanitation for the entire urban population is only but a wishful thinking. Asansol Corporation has taken initiative to augment the existing source of Kalyaneswari Water Works.

Government of West Bengal has sanctioned Rs. 49.5 crores for augmentation of another 10 MGD of water at Kalyaneswari so as to provide drinking water to the increasing population. Besides this the existing source at Kalajharia will be augmented by sinking additional River Bed Tube well.

Raniganj municipality has made arrangement for additional water through additional water supply scheme at Narainkuri. Jamuria and Kulti have schemes for harnessing water from the rivers Barakar and Ajoy. According to the Raniganj Municipality Report 2000 – 2004, 86.2% of the urban population in West Bengal are provided with this amenity. Therefore, it will be a long and painful waiting period for the inhabitants till the schemes are materialized.
The prevalence of open air defecation and service privy in the 21\textsuperscript{st} century is an astonishing revelation. It is evident that system of provision of low cost sanitation by the government has failed to reap desired result. In an effort to abolish the system of service privy, the night soil removers have been officially disbanded from their offices by the local self governments. Inspite of this step, service privy system still exists. This may be due to the reluctance and lack of consciousness and aversion to change existing system among a particular section of the urban dwellers. The administration can adopt coercive measures against those who employ the night soil removers personally.

The local self governments have implemented the government schemes for upliftment of the poor and the needy like Family Benefit Schemes, Swarna Jayanti Swa Rojgar Yojana (SJSRY), Reproductive Child Health (RCH), Family Welfare and Nutrition Awareness and National Old Age Pension Schemes.

11.2.5.2 Rural Basic Facilities

Rural self governments have been unable to provide basic amenities like sanitation, adequate potable water, solid waste collection and disposal to the residents. The schemes of low cost sanitation has not been effectively implemented as is evident from the prevalence of widespread open air defecation.

11.2.5.3 Level of Development

Thus, it may be said that the local self governments have been unable to provide the city dwellers with adequate urban amenities and minimum basic facilities in the rural areas. A section of the population is living in deprivation and abject poverty with unhygienic condition in the slums and squatters of this belt in spite of the implementation of poverty alleviation measures and other developmental works. Therefore, the desired level of development has not been attained in both urban and rural areas. Therefore, it is justified to state that urban centres have attained the status only because of escalating population figures, with little or no betterment of the liveability of urban areas.
11.2.6 Critical Appreciation of the Role of Asansol-Durgapur Development Authority (ADDA)

The Asansol Durgapur Development Authority (ADDA) which came into being in 1980 is shouldering the responsibility of carrying out the major portion of the developmental works like:

1. Construction of new roads like recently constructed link road between NH2 and Damodar river bank.
2. Development of industrial zone at Kannyapur in Asansol.
3. Erection of new housing estate at Kalyanpur and Dhadka.
4. Development of the rehabilitation sites for subsidence and fire affected localities of Samdih, Kenda, Bangal Para, Harishpur, etc. Development of new satellite townships are being contemplated at Lalganj, Krishnagar, Manderboni and Lachipur to house the affected population.
5. Setting up of new township called Sristinagar at Asansol through a joint venture of ADDA and Bengal Sristi Company.
6. Slum development in Huchukpara in Chelidanga in Asansol at the behest of ADDA.
7. ADDA has also carried out several socio-economic surveys and has created a useful inventory of data and information which aids in planning and formulation of policies.
8. ADDA along with the local self governments of Asansol and Raniganj has planned to set up a solid waste treatment plant near Bansra in Raniganj.

In spite of all these schemes, plans and policies, desirable level of development has not been achieved. As there exists a wide gap between formulation of policies, adoption of plans and their effective implementation.

11.2.6.1 Paucity of Finance

Kalyanpur and Dhadka housing estate still lacks good communication where manufacturing units are being set up outside the
industrial zone. Despite the existence of Government Act for Restriction of construction in the Subsidence prone areas, residential and commercial buildings are being constructed unhindered in those unstable localities like Raniganj, Barakar etc. Moreover, non-availability of funds has also imposed a limitation on the smooth functioning of Asansol Durgapur Development Authority. There are some projects as well as issues which needs to be materialized or requires due attention like the setting up of solid waste treatment plant or the truck terminal near the by-pass road in Asansol. But, paucity of fund and shortage of manpower have proved to be major impediments regarding implementation of the plans.

11.2.6.2 Coal Resource Blocked

Moreover, allocation of residential land beside industrial zone at Mangalpur in Raniganj may be said to be a blunder on the part of the planners. The residential site is lying vacant as people have become apprehensive of the harmful emissions of the grossly polluting sponge iron factories located at Mangalpur. Development of townships in Kalyanpur in Asansol, residential sites in Mangalpur in Raniganj have blocked valuable coal reserve lying underneath these areas, as there is ample non-coal bearing land where such residential sites could have been developed.

So, lack of vision and adequate knowledge about the resource base on the part of planners may be said to have contributed towards formulation and implementation of such a plan. Consequently, the nation has lost valuable coal reserve which would have accrued a sizeable amount of revenue.

11.3 INSTITUTIONAL FACILITIES

Mining and Industrial activities have influenced the life style of the inhabitants of this area. It had generated direct employment potential of a large number of skilled and unskilled workers. With the passage of time, the inhabitants and local administrative bodies have become habituated and to an extent dependent on the facilities provided by the industrial and mining concerns. The provision of amenities is the part of social obligations which are
to be borne by such large concerns as has been made mandatory by the Government.

11.3.1 Mining Concern

Eastern Coalfield Ltd., with its huge manpower is not only the biggest source of public sector employment for the population characterized by different occupations, inherent socio-economic status and career mobilities but also provides a favourable climate of socio-economic development of the region. The common feeling and aspirations, emotion and motivation of the people residing in the operating zone of Eastern Coalfields' mines revolve around the activities of this concern making enduring influence on the social dynamics of the apparently different communities having similar and dissimilar customs, usages and cultural heritage. Social responsibility is manifested by its emphasis on welfare activities for its workers and population at large in this belt.

This concern has been contributing towards extending the amenities like –

1) Drinking water supply,
2) Development of village roads,
3) Development of community centres,
4) Street lighting,
5) Health care,
6) Eye operation camps,
7) Self employment schemes,
8) Primary education,
9) Construction of bus stand,
10) Sinking of wells and re-excavation of village tanks,
11) Co-operative credit societies to dissociate a particular section of the employees from the clutches of the money-lenders,
12) In addition to these, according to the National Coal Wage Agreement – VI. The employees are provided with
   • Underground allowance,
   • Vehicle allowance,
   • City compensatory allowance,
   • Leave travel concession and long leave travel concession,
• Allowance for travelling over steep gradient.

*Along with these, quarters with free electricity and water are provided for its employees.*

### 11.3.2 INDUSTRIAL HOUSES

Indian Iron and Steel Company (IISCO) Ltd. provide the following amenities to its employees.

- Residential quarters.
- Electricity at a subsidized rate.
- Well treated drinking water.
- Well maintained drainage, sewerage and roads.
- Free medical facilities even after retirement.
- Have set up educational institutes.
- Leave and travel allowance for holidaying in home towns or for sight seeing for employees and their families.

In this context it may be mentioned that the electricity, construction and maintenance of roads are extended to private residential areas within 5 km of the industry. Medical facilities are also extended to non-employees but it is payable. Chittaranjan Locomotive Works, Burn Standard Wagons and Hindustan Cables Ltd. provide similar amenities to their employees and their respective surrounding areas.

### 11.4 CONCLUSION

It may justly be remarked that mining and industrial activities have proved to be a boon as well as a bane for the residents of Asansol subdivisions. It has proved to be a boon as these concerns have generated employment as well as revenue through cess and royalty thus contributing to the national as well as state exchequer. The increased number of registration of vehicles has also been an important source of revenue for the government. Welfare Services, extended to its employees as well as to the surrounding areas, have proved to be beneficial for the inhabitants of this belt.
It is a bane because deterioration of physical and social environment has taken place. According to D. Biswas (2000) Suspended Particulate Matter has risen 6 fold during the last 50 years in the Raniganj coal belt due to mining and industrial activities.

Along with the physical environment social environment has also been injured. The four different indicators of social environment like population, incidences of reported cases in hospitals, incidences of criminal activities and number of vehicles has been taken as a tool of measurement of degradation of social environment for Asansol subdivision as a whole.

In order to give an insight into the nature of relations between these four indicators with each other, an inter-correlation matrix between the four indicators has been worked out (Table No. 11.4).

**Table No. 11.4**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Incidences &amp; Reported Cases in Hospitals</th>
<th>Incidences of Criminal Activities</th>
<th>Number of Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>0</td>
<td>0.9676</td>
<td>0.9071</td>
</tr>
<tr>
<td>Disease</td>
<td>0.9676</td>
<td>0</td>
<td>0.9423</td>
</tr>
<tr>
<td>Crime</td>
<td>0.9071</td>
<td>0.9423</td>
<td>0</td>
</tr>
<tr>
<td>Vehicles</td>
<td>0.9522</td>
<td>0.9983</td>
<td>0.9483</td>
</tr>
</tbody>
</table>

From the table it is apparent that with the increase of population from 1961 to 2001, the number of hospital cases of air, water and vector borne as well as respiratory ailments have increased ($r = 0.9676$). Crime figures have also recorded a rise with rise in the number of inhabitants ($r = 0.9071$). Similarly, increase in population has led to escalation in the number of vehicles ($r = 0.9522$).

Increased incidences of disease has led to spurt in nefarious activities ($r = 0.9423$). The underprivileged and poverty stricken people of slums and squatters often resort to delinquent acts to secure their minimum needs and medical expenses.
Rise in the number of vehicles has resulted into enhancement of vehicular pollution which has escalated the incidences of respiratory tract infection ($r = 0.9983$).

The activities of the delinquents, anti-socials, mafias and criminals have necessitated increased use of vehicles. Illegal trafficking of coal requires trucks and pay-loaders for quick transportation. So, rise in the number of crimes may have contributed to the increase in the number of vehicles ($r = 0.9483$).

Thus, from the foregoing analysis it is evident that the social environment has deteriorated over the years in Asansol Subdivision.

At this juncture it is necessary to adopt certain measures which may pave the way for a clean and healthy physical and social environment for the residents of Asansol Subdivision.

**Measures that may be taken:**


(2) Urban development, health and environment are housed in three different departments at the present state of governance. Government officials an technical professionals in these 3 fields should begin sharing information. Urban planning departments should take health and environmental concerns into urban development process as one of the highest priorities in planning urban development.

(3) Development of an environmental management and action plan to address the problems of health and ecological risk from ambient air pollution, contaminated drinking water and lack of sanitation in urban municipal areas is also required. Ecological risk of Damodar riverine system and mining areas needs to be addressed with priority.
(4) Relocation of industries of Asansol Subdivision according to the pollution levels (Red, Orange and Green categories) into separate industrial zones. This will lead to good environmental governance which may actually foster higher productivity and economic growth.

(5) Setting up of new large scale organized sector manufacturing units would be a good step towards generation of employment. During the stop gap period, setting up of small and medium sectors would be a good way to rejuvenate the pace of industrialization, cluster development, finance, technology, operating environment and the implementation of the Micro, Small and Medium Enterprises Development (MSED) Act 2006 are all important for healthy growth in this segment.

(6) Whole hearted effort from all fronts should be put forth to break the ‘Iron Triangle’ formed by the mafia, unscrupulous bureaucrats or executives and politicians in order to put an end to unauthorized mining and trafficking of coal, iron scrap and blast furnace slag. These illegal practices are robbing the Government exchequer off revenue. Life of the innocent miners and inhabitants are endangered by ever increasing activities of this nexus. Politicization of criminal activities or criminalization of politics has effectively contributed towards formation of this nexus.

(7) The mining concerns can initiate steps to extract underground coal gas which will prove to be a gainful venture for the coal companies in the near future.

(8) Strategies for pollution control in transport such as efficiency improvements and alternative fuel technologies especially electric vehicles (Ramanathan, 2000) can be usefully integrated with public transport and land use.
The recent gloom which has set in the Asansol belt due to sickness of mining and industrial sectors can be offset to a certain extent if the Rs. 10,000 crore steel plant project of Bhusan Steel & Strips Ltd. (BSSL), comes up in Salanpur.

Therefore, the need of the hour is to dispel the economic stagnation, pervading the society in Asansol belt. It can be achieved through effective implementation of existing plans and policies and formulation of meaningful policies in the near future. Efficient administration, dedicated politicians concomitant with vigilant inhabitants will pave the way towards development and progress. Thus Asansol Subdivision would reach its apex and once again, regain its former glory.

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