Chapter 2

Objectives and Methodology
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Mankind has stepped into 21st century with various environmental problems which may lead to a major ecological crisis and endanger the existence of human life on earth. As all our development projects utilise natural resources in one form or another, thus disturbing our ecological system. With the change in policies, the Government is inviting private sector agencies to establish industries and invest more and more in India. On the same pattern the Government of Himachal Pradesh has also boosting up private sector for establishing various industries, hydel projects and so on, in the state. This has undoubtedly helped in improving the economy of the state. But at the same time it has also given rise to various problems, like urbanisation, environmental degradation, deforestation, leading to unsustainable development.

The life style and societal changes may have to be a part of the evolution toward sustainable development. On the practical plane this may need changes in attitudes, institutions, policies etc. In fact, it is high time we should realise the gravity of the situation and advocate strongly for educating the masses on the impact of industries on environment and ecology to arouse global ecological consciousness for the preservation of the life sustaining environment. There is an urgent need of creating public awareness and concern about environmental and related public issues. Apart from this, there is a great need to

study the public policy and execution mechanism for ensuring sustainable development.

Keeping in view the industrial impact, importance of policies, regulation framework as the instrument for the process of sustainable development, especially in hilly areas, a study of Solan district of Himachal Pradesh was conducted where the environment has been continuously deteriorating due to heavy industrialization, urbanization, population growth, haphazard process of development, etc. The present investigation has undertaken with following objectives.

Objectives of the study

- To study the impact of industries on environmental sustainability.
- To study the rural-urban interface in relation to socio-economic development as affected by the industries.
- To study the organisational structure involved in sustainable development.
- To examine the existing policies in relation to sustainable development.
- To suggest suitable measures for improving the role of administration in sustainable development.

Hypotheses

Major hypothesis:

Industrialisation, urbanization and population growth results in development and simultaneously causes un-sustainability.

Sub-hypotheses:

1. The execution mechanism of existing development policies is faulty and leads to non-sustainable development.
2. Environmental degradation is the most sensitive effect of modern developmental cash generating activities.

3. Development, if not sustainable may lead to fall in social values, rupturing of social cohesiveness and increased outside migration.

4. Local capacity building is the most neglected component which may lead to un-sustainability.

5. The satisfaction of on farm and local needs of the farmers can determine the extent of sustainability.

6. Administrative interventions neglect rural-urban linkages leading thereby to un-sustainability.

7. Community participation in policy planning and execution may increase the success rate of the developmental interventions.

**Research Methodology**

The study of rural-urban interface is a very complex and challenging in its nature. It particularly becomes most indispensable if assessment is to be carried out for sustainable developmental imperatives. The role of administration towards the achievement of sustainable development adds another dimension to this most needed and much desired study. The successful investigation, therefore, emphasised the adoption of a suitable research methodology which could not only provide insight into the inherited and traditionally strengthened rural and urban interfaces but also lead to the emergence of the most sensitive issues through which administrative set up and their activities can be readdressed.

Keeping this in mind, the Solan district of Himachal Pradesh was purposely selected as it is being recognised as industrial district of the state. The nature of the hypotheses formulated for understanding the
mechanism of rural-urban interfaces further needed the selection of such an area where industrialisation was emerging effecting thereby the surroundings and livelihood of people. For the purpose, a pilot survey was carried in the rural-urban areas of all the five development blocks of the district viz. Solan, Kunihar, Nalagarh, Kandaghat and Dharampur. Owing to the nature of the objectives of the present investigations, the Kunihar and the Solan Development Blocks were found to be most suitable. And, therefore, these blocks were the natural selection.

The heterogeneity of the likely respondents necessitated the selection of two distinctive industries so as to have cross-sectional view of the administrative and rural-urban interfaces. For the consistency of the results it was decided to select one industrial unit from the rural area and another from the urban area. The basic understanding behind this selection was the statistical principle of heterogeneity of the population as controlled through the selection of distinctive and different samples. Hence, Gujarat Ambuja Cement Limited (GACL), Darlaghat (Kunihar Block) and Himachal Futuristic Communication Limited (HFCL), Solan (Solan Block) were found suitable selections for the statistically efficient research findings, being located at distinctive rural (Darlaghat Panchayat) and urban (Solan Municipal Council) areas, respectively.

In Kunihar Development Block, the study was carried out in the vicinity of the GACL, Darlaghat, covering Nagar Panchayat, Arki from urban side and the Gram Panchayat, Darla (including some areas of Kashlog, Parnu, Giana and Mango Panchayats) from rural side.
While, in Solan Development Block the study was concentrated in the vicinity of the HFCL, Chambaghat, covering all wards of Municipal Committee area of Solan from urban side and the Gram Panchayat, Basal (including some areas of Dangri, Padag and Saproon Panchayats) from rural side.

It is worthwhile to mention here that while selecting the immediate surroundings of the study sights due attention was also paid to the directly affected population belonging to the nearby areas other than that of Darla and Basal. This could also help in deeper and thorough understanding of the objectives of the study. The sampling design is diagrammatically presented in Figure 2.1.

**Figure 2.1 : Sampling Design**

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[Diagram of sampling design including levels from Himachal Pradesh to Solan Development Block with Darla (Rural Area) and Arki (Urban area) on one side and Basal (Rural area) and Solan (Urban area) on the other side.]
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The study area was visited and observation regarding the effects of mining and cement plant at Darlaghat was assessed through visual observation at first instance. Visual observation comprised of silting problems, effects on vegetation, land erosion, deforestation, water resources, importance of locality, vehicular problems, socio-economic changes, etc. were made. The same method was applied to study the HFCL area at Chambaghat in Solan to observe the effects of the industry on the eco-system.

Preparation of Schedules and Questionnaires

A pilot survey of the study area was conducted with major focus on discussions with targeted respondents. It was also combined through some of the focus on group discussions with input from different age strata of people. Gender perspectives were carefully observed while understanding the complexity of the research problem. A thorough scrutiny of existing literature was also done to understand broadly the impact of developmental interventions in relation to administrative set up. The outcome of this survey and the existing literature consultation helped in preparation of schedules and questionnaires. These were pre-tested before final collection of data from sample respondents. The questions were so framed that most accurate, comprehensive, credible, reliable and legitimise information could be gathered. Due attention was also paid to maintain measurability of data input with due support to the subjectivity.

Apart from this the separate questionnaire was framed for gathering the views of local administrative officers with regard to any
change of the Govt. policy and programme and the industrial impact in relation to sustainable development of the society. Opinion on industrial impact was also assessed.

**Sample size**

Applying the technique of random sampling, three hundred forty four respondents comprising of farmers, educated, businessmen and professionals were interviewed from rural (168) and urban (176) areas. Brief detail of categories of the respondents is as under:

Farmers category : It included those who had the land holdings of atleast 1 ha or more.

Educated category : Under this category respondents were selected from such a family where maximum members were literate and having atleast one or more members with graduation or above qualifications. Opinions were taken from the highly educated member of the family so as to gather the distinctive data.

Businessmen category: It included those who run any type of business.

Professional category : In this category carpenters, blacksmiths, masons, cobblers, etc. were interviewed.

The location-wise composition of the sample size has been presented in the Table 2.1.
Table 2.1: Location-wise Sample Size.

<table>
<thead>
<tr>
<th>Category</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Darla</td>
<td>Basal</td>
<td>Arki</td>
</tr>
<tr>
<td>Farmers</td>
<td>32</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Educated</td>
<td>22</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>Businessmen</td>
<td>16</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>Professionals</td>
<td>14</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>84</td>
<td>88</td>
</tr>
</tbody>
</table>

Equal number of administrative heads of various government development and welfare departments from each Kunihar and Solan development blocks were interviewed and data were collected on different aspects. These included Deputy Commissioner, Superintendent of Police, Sub-Divisional Magistrate, Tehsildar, Chief Medical Officer, Block Medical Officer, Block Development Officer, District Public Relation Officer, Station House Officer (Police), Regional Manager (HRTC), General Manager (Industries), Superintending Engineer (PWD/Elect/IPH), Executive Engineer (PWD/Elect/IPH), SDO (Telephone), Principals (Education), Child Development Project Officer, Divisional Forest Officer, District Welfare Officer and Manager (Banks).

Table 2.2 Sample size of Administrators.

<table>
<thead>
<tr>
<th>Development Block</th>
<th>Kunihar</th>
<th>Solan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Administrative heads/officers interviewed (Respondents)</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
</tbody>
</table>

Collection of Data

Data was collected through personal interview method. Triangulation was also done to check cross-sectionally the reliability of data. Balanced weightage was also given to gender perspective.
whereby women were also encouraged to share their viewpoints. The collected data spreaded over four distinctive categories of farmers, educated, businessmen and professional. The selected areas were Darla, Basal, Ark and Solan. This primary data was supported through the secondary data collected from administrative offices. The different developmental departments visited and nature of collected data was as follows:

1. Department of Agriculture
   - Input-output data
   - Crop production data
   - Agriculture developmental schemes
   - Subsidies available on fertilizers, seeds, pesticides, etc.
   - Agricultural policy of the department
   - Human resource i.e. technical manpower engaged

2. Department of Horticulture
   - Fruit production data
   - Input-output data
   - Fruit developmental schemes
   - Subsidies available
   - Marketing of fruits
   - Support price
   - Horticulture policy of the department
   - Human resource engaged in the district

3. Department of Animal Husbandry
   - Livestock population
   - List of veterinary hospitals/dispensaries
   - Policy on animal husbandry
   - Provision of feed and medicines
   - Technical manpower involved

4. Department of Irrigation and Public Health
   - Irrigation schemes
• Drinking water facilities and schemes
• Policies of the department
• Technical manpower involved

5. Department of Forest Farming and Conservation
• Existing forest wealth
• Tree composition
• Fodder/pasture lands availability
• Local inhabitants accessibility to forest wealth including traditional rights
• State forest policies
• Existing schemes
• Manpower involved

• Health policy
• Existence and number of health dispensaries/hospitals
• Social welfare schemes
• Existing and proposed social welfare schemes
• Technical manpower involved in health, transport and social welfare departments
• Total road length
• Total metal/non-metalled roads
• Transportation policy

7. Office of Deputy Commissioner
• General developmental indices of the district
• Budgetary norms for developmental activities
• Existing and proposed developmental activities
• Nature and extent of development through Panchayati Raj Institutions
• Local governance policies

In addition to the above governmental offices, data was also collected from the Directorate of Economics and Statistics, Shimla, the
Directorate of Land Records, Shimla, the Directorate of Census Operations, Shimla, the State Council for Science, Technology and Environment, Shimla, the H.P. State Pollution and Environment Conservation Board, Shimla, office of the Town and Country Planner, Solan, office of the General Manager (Industries), HFCL, Solan and GACL, Darla. The detailed information on the social developmental package followed by the GACL was also collected.

**Analysis of Data**

The collected data was tabulated and analysed on the basis of differently designated broad categories of farmers, educated, businessmen and professionals. Simple tabular analysis was followed for analysis the data and to draw the inferences. Different explanatory variable used for effectively meeting the objectives of the study were:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Selected Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-economic</td>
<td>Family size, composition, literacy, sex ratio, type of house, availability of in-house amenities, household items, etc.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Cropping pattern, area under wheat, maize, rice, vegetable, pulses and other crops; land holdings, agricultural diseases, etc.</td>
</tr>
<tr>
<td>Animal husbandry</td>
<td>Diseases in animals, milk production, availability of veterinary hospitals, etc.</td>
</tr>
<tr>
<td>Forestry</td>
<td>Increase/Decrease of Forest area, quality of forest, grass, change in temperature, water-level, wildlife, etc.</td>
</tr>
<tr>
<td>Social welfare</td>
<td>Change in major social activities, visits to urban area, road development, development in education, health development etc.</td>
</tr>
</tbody>
</table>
Interpretation of Results

The results of simple tabular analysis were discussed in the light of the overall objectives of the research work. The explanatory variables responsible for the research findings had been diagnosed and discussed through the field assessment and the findings of focus group discussions. The findings of the study were supported through the similar type of studies conducted in other parts of the country. The hypothesis and sub-hypothesis laid in the study had also been decisively analysed in the light of research findings.