CHAPTER- 5

MAJOR ENVIRONMENTAL ISSUES
AND CHARACTERISTICS OF EMERGING MOVEMENTS
IN KOLHAPUR DISTRICT: AN OUTLINE

INTRODUCTION:

As noted in the chapter on methodology, one of the objectives of the present study was to identify the issues taken up by the environmental groups and NGOs in Kolhapur district to protect the environment and to study the characteristics of environmental movements in Kolhapur district. Therefore, the present chapter is designed to highlight major environmental issues taken up by the environmental groups and NGOs in Kolhapur district on their agenda and to describe the characteristics of emerging environmental movements in Kolhapur district.

The present chapter is divided into three sub-sections; the first section enlists and highlights four major environmental issues in the Kolhapur district and indicates how these issues form important items on the agenda of environmental NGOs. The second sub-section presents some case studies of selected NGOs and the work done by them on major environmental issues. The third section attempts to highlight the important characteristics of emerging environmental movements in the Kolhapur district.

SECTION-I

Major Environmental Issues on the Agenda of Environmental NGOs/Groups: An Outline

It may be pointed out here that, in the third chapter itself we have listed almost all the issues taken up by different environmental NGOs/Groups in Kolhapur district. In the present chapter an attempt is made to highlight major environmental issues on which NGOs/Groups in the district have been working. The most prominent issues or major issues have been identified on the basis of certain criteria. The first is that almost all the environmental NGOs/Groups have dealt with some common issues. Secondly, these are the issues with regard to which NGOs/Groups have worked in collaborative manner. While working on these issues the networking and interconnectivity among NGOs is clearly visible. Third significant fact is that, the NGOs/Groups have been working on these issues with for a prolonged period of time
reflecting their continued concern about the issues and ecological salience of these issues. Lastly, on the one hand these issues are locally relevant but are also on the agenda of environmental movements elsewhere in India and even at the global level. The issues such as:

1] River Water Pollution,
2] Illegal Tree Cutting/Deforestation, and Endangered Wildlife/Biodiversity,
3] Environmental Consequences of Mining and
4] Conservation of Lakes, have been identified as major environmental issues in the Kolhapur district.

Let us look at the nature and extent of these issues and role of NGOs/Groups with regard to these issues in the local context.

1] Issue of River Water Pollution:

There may be hardly any river flowing through human settlements which is not affected due to pollution. It is widely known fact that river water pollution is an important issue in all the countries in the world. In our country we all know that, big rivers such as Ganga have been polluted. Almost all the rivers having cities and industrial establishments on their banks have been polluted in India. Rivers in Maharashtra are not exceptions. For example Krishna River is one of the major rivers in Maharashtra and it is polluted. The Panchaganga River in Kolhapur district is polluted to such extent that some experts are of the opinion that it is one of the ten most polluted rivers in entire India.

Panchaganga River Pollution:

The Panchaganga river pollution is one of the major environmental issues in Kolhapur district. “River Panchaganga originates in the Western Ghats which is a major tributary of river Krishna. It has five tributaries named as Bhogavati, Tulsi, Kumbhi, Kasari, and Dhamani. Kolhapur city is established on the bank of Perennial River Panchaganga. The River Panchaganga is called Life Line of Kolhapur city. It provides water to the entire city for drinking, domestic, irrigation and industrial purposes. River is connected by various streams from the city named as Jayanti nullah, Dudhali nullah, etc.” (KMC’s Environment Status Report 2008-2009: 9).
Causes of Panchaganga River Pollution:

Kolhapur Municipal Corporations’ Environmental Status Report (2008-2009: 54) indicates that, “The major reasons of pollution of Panchaganga river are six factories, tannery industries situated on the banks of the river and also the sewage of Kolhapur city”. Specifically, the Panchaganga River is getting polluted due to: 1] Mixing of untreated domestic sewage, 2] Disposal of industrial effluent, 3] Biomedical Sewage, 4] Agrochemicals used in the field, 5] Mixing of Crematorium ash, 6] Religious activities, 7] Other sources of pollutants such as waste water from Hotels, Restaurants, sewage from different hospitals, pathological laboratories etc.

Discharge of untreated domestic sewage:

The river is getting polluted due to discharge of large amount of sewage carried out by four major sewers in the city such as Jayanti nullah, Dudhali nullah, Line Bazaar nullah and Bapat Camp nullah. Since most of the sewage is untreated, it increases the organic load of the river water. The river water becomes highly polluted due to toxicants, bacterial contamination, plastic litters, solid waste, etc.

Kolhapur Municipal Corporations’ Environmental Status Report (2008-2009: 63-64) indicates that,

A Jayanti nullah is the main nullahs running through Kolhapur city. This nullah originates from Kalamba Lake and joins Panchaganga River……..Nullah is blocked near Dasara Chowk and water is pumped to STP at Kasaba Bawada. The average two days total sewage flow at this STP is 61 MLD. This is the largest catchment and accounts for more than 60% of the total sewage of the city.

Dudhali nullah flows from Sakoli corner. It contains many small drains and gutters……..It also collects sewage from Phulewadi, Lakshatirth, parts of Shivaji peth, Raviwar peth etc. The average of two days flow is 15.73 MLD.

The origin of Line bazaar nullah is from Kasaba Bawada. The sewage from the Kasaba Bawada flow through this nullah. The nullah joins the river just upstream of the intake well in the river Panchaganga which supplies water to Bawada Water Treatment Plant.

Bapat camp nullah is on the eastern side of the Kolhapur city. The sewage generated in this region flows to this nullah through small several nullahs……..A major branch of this nullah system called Kawla Naka carries the major part of the domestic sewage.

Except this some small nullahs present in the city are Dandgaiwadi, Panchaganga Picnic Spot, Juna Budhawar Talim, Sidhhartnagar, CPR, Rajhans Press, Behind New Palace, Raman Mala, Chhatrapati Colony, and Vikram Nagar which have significant effect on aquatic ecosystem. Most of these nullahs were in the form of streams which served as fresh water source
to the river Panchganga. But during last few years the streams are converted into sewers which have threatened the aquatic biodiversity.

**Disposal of industrial effluent:**

The industrial effluent coming from different small industrial units, foundries spray painting units in Udyamnagar and Tanneries from Jawahar Nagar alters the quality of river water. The ground water quality also changes due to the industrial effluent (KMC Environment Status Report 2008-2009: 72).

**Sewage from different hospitals, pathological laboratories:**

There are total 498 hospitals and dispensaries (governmental, semi governmental and private) and 31 pathological laboratories in Kolhapur city. Only one hospital i.e. Chhtrapati Pranilaraje Hospital is planning for STP whereas none of the hospitals in Kolhapur city treat its waste water. The untreated sewage about 1,00,000 liters per day mixes in to the river through nullahs which is highly dangerous to the revering ecosystem (Ibid).

**Effluent from other sources:**

There are about 49 servicing stations in the city which generates 49,000 liters of waste water. The quality of water alters due to oil and grease content, various petrochemicals colors, etc. The waste water coming from slaughter houses and fish markets are having high organic load which is directly discharged into the nearby sewer which finally ends into the river through nullahs. The sources like hotels, restaurants, hawkers, etc. also contribute for water pollution (Ibid).

The gravity/seriousness and the extent of Panchaganga river pollution can be gauged by looking at the very quantum of pollutants being discharged in the river. The relevant data are given below.

**Table No. 5.1**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sources of Panchaganga River Pollution</th>
<th>Quantity of Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drainage Waste from Kolhapur City</td>
<td>170 Million Liter daily</td>
</tr>
<tr>
<td>2</td>
<td>Drainage waste from Factory</td>
<td>19 Million Liter daily</td>
</tr>
<tr>
<td>3</td>
<td>Hotels</td>
<td>18 Million Liter daily</td>
</tr>
<tr>
<td>4</td>
<td>Hospitals</td>
<td>9 Lakh 50 thousand Liter daily</td>
</tr>
<tr>
<td>5</td>
<td>Crematorium ash</td>
<td>400 Tone per year</td>
</tr>
</tbody>
</table>

(Source: Daily Sakal, 16th January 2011, Local Supplement, Kolhapur Today, p. 1)
The Discharge of Pollutants from Ichalkaranji City and 174 Villages:

It is not only Kolhapur City, but Ichalkaranji city and all the 174 villages on the bank of Panchaganga River are discharging their domestic effluent into Panchaganga River without any treatment and the drainage water of 39 villages is directly mixing in Panchaganga River (Daily Sakal, 4th May 2012, p. 3). Let us look at some more data.

Table 5.2

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Places at which Panchagangs River gets Polluted</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pryag Chikhli to Narsobachiwadi [237 Places]</td>
<td>Nirmalya, (527.93) Tones</td>
</tr>
<tr>
<td>3</td>
<td>Pryag Chikhli to Narsobachiwadi [179 Places]</td>
<td>Ash (492) Tone Per Year</td>
</tr>
</tbody>
</table>

(Source: Daily Sakal, 20th January 2012, Local Supplement Kolhapur Today, p. 1)

All the nallas passing through Ichalkaranji city carrying domestic and industrial waste water finally meets to Panchaganga River…..The industries in Ichalkaranji also contribute to pollution load due to accidental discharges /negligence, non-availability of full-fledged treatment facility etc. (Maharashtra Pollution Control Board’s Report: 91-92). Besides villages on the bank of river also polluting the Panchaganga river. The following data are indicative of the extent of water pollution of the Panchaganga River.

Table 5.3

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sources Panchaganga River Pollution</th>
<th>Quantity of Drainage Water</th>
<th>Places and Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Domestic Water Drainage Water</td>
<td>160.5 Million Ltr Daily</td>
<td>Kolhapur, Ichalkaranji City and 174 Villages</td>
</tr>
<tr>
<td>2</td>
<td>Industrial Water Drainage Water</td>
<td>15.8 Million Ltr Daily</td>
<td>Kolhapur, Ichalkaranji City and Lather work 3 Million Ltr</td>
</tr>
<tr>
<td>3</td>
<td>Toilet and Hospitals</td>
<td>2 Lakh 45 Thousand Ltr Daily</td>
<td>54 Government and 1008 Private Hospitals</td>
</tr>
<tr>
<td>4</td>
<td>Commercial Pollution</td>
<td>22 Lakh Ltr daily Drainage Water</td>
<td>An abattoir/slaughter-house 4600 Kg waste</td>
</tr>
<tr>
<td>5</td>
<td>Poisonous Factors</td>
<td>43 thousand Ltr Drainage water Daily</td>
<td>Washing cloths, animals and oil less things</td>
</tr>
</tbody>
</table>

(Source: Daily Sakal, 20 January 2012, Kolhapur Today, p. 1)
The environmental activists such as Madhukar Bachulkar, Uday Gaikawad and others have time and again highlighted the seriousness of the problem of river pollution (Bachulkar, Madhukar, Daily Sakal, 25th June 2012: 6; Gaikawad, Uday 2009: 158-166). The researchers have also pointed out some of the major causes of Panchaganga river as noted above (Ambekar J. B. 1999: 35-39; Patil, R. B. 2009: 11-17; 19-30; 45-52).

Impact of Panchaganga River Pollution:

Kolhapur is subjected to recurring outbreaks of water borne diseases and epidemics like, hepatitis and gastrointestinal diseases. Due to pollution, general public is adversely affected with the serious diseases for the last 20 years. The pollution of Panchganga River due to disposal of untreated municipal sewage from Kolhapur city and riverside villages is a very serious issue and burning problem till date in Kolhapur district.

Ambekar, J. B. (1999: 35-39) has pointed out that, there is a correlation between water pollution and epidemics in India in general and Kolhapur city in western Maharashtra in particular. He observes that, “despite the developments in modern medicine the disease and health situation has not improved proportionately. This is mainly on account of increasing environmental pollution and degradation of various kinds (Ibid: 35). On the basis of statistical data he has pointed out that, “in 1991, recorded Jaundice cases were 953; in 1992, Cholera cases were maximum i.e.2073; in 1994, Gastro enteritis cases were 1439; and Gastro-enteritis resulted in maximum number of deaths (i.e. 39) during the 10 years period [1987 to 1996] as compared to Cholera (20), Diarrhea (14) and Jaundice (12) (Ibid: 37-39).

The data published in the form of news items are indicative of the adverse impact of pollution:

1) In year 1989 two pregnant ladies were died due to the infection of Jaundice (Daily Sakal, 16th January 2011, Local Supplement, Kolhapur Today, p. 1).

2) Due to the waste water of Bhogavati Sugar Factory thousands of fishes were died in Panchganga River (Daily Sakal, 9th March 2012, Local Supplement, Kolhapur Today, p. 1).

3) Due to the polluted water thousands of fishes have died and the peoples life has came in danger which are going to the river water for drinking namely Terwad,
Herwad, Shirdhone, Takawade, Abdullat, Shiradwad, Nandni, Dharangutti etc. Due to the drainage water there is decrease in soil level in 600 acre agriculture land area (Daily Sakal, 19\textsuperscript{th} January 2012, p. 5).

4] Due to the mixture of polluted water in Panchganga River there is increase in various diseases like skin diseases, problem of asthma and decreasing oxygen in water. Due to the polluted water the diseases like Gastro infection starts in the following areas, Survenagar, Salokhenagar, Kalamba area etc. in Kolhapur city (Daily Pudhari, 24\textsuperscript{th} March 2009, \textit{Local Supplement, Aple Kolhapur}, p. 1).

The data obtained from the health department of Zilla Parishad, Kolhapur, presented in the table 5.4 shows the number of Jaundice patients in the rural areas of Kolhapur district for the period from 14 May 2012 to 30 June 2012.

**Table 5.4**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Taluka</th>
<th>Total Villages</th>
<th>Jaundice Patients</th>
<th>Out of Pregnant Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>1</td>
<td>Karveer</td>
<td>129</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>2</td>
<td>Kagal</td>
<td>84</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>Panhala</td>
<td>130</td>
<td>25</td>
<td>87</td>
</tr>
<tr>
<td>4</td>
<td>Shahuwadi</td>
<td>136</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Hatkanagale</td>
<td>62</td>
<td>60</td>
<td>165</td>
</tr>
<tr>
<td>6</td>
<td>Shirol</td>
<td>52</td>
<td>118</td>
<td>234</td>
</tr>
<tr>
<td>7</td>
<td>Radhanagari</td>
<td>118</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Bhudargad</td>
<td>117</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Gaganbawada</td>
<td>39</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Gadchinglaj</td>
<td>90</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>Ajara</td>
<td>100</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>Chandgad</td>
<td>157</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1214</strong></td>
<td><strong>245</strong></td>
<td><strong>596</strong></td>
<td><strong>841</strong></td>
</tr>
</tbody>
</table>

(Source: Health Department, Zilla Parishad, Kolhapur: 30 June, 2012).

As Jaundice is mainly caused due to the polluted water, the data presented in the table 5.4 clearly indicate that, pollution of potable water is the problem that exists in the rural areas of entire Kolhapur district and majority of the jaundice patients are
found in villages located in Hatkanagale and Shirol talukas many of which could be due to the pollution of Panchaganga river water pollution.

Due to recent outbreak of Jaundice in Ichalkaraji (14th May 2012 onwards), there were as many as 4,771 victims in Ichalkaraji city and 12 cases of death due to this epidemic; and number of total victims in the Kolhapur district was 5,439 (News item in daily Lokmat, supplement Hello Kolhapur p.1, dated 29th June 2012).

**Role of Environmental NGOs/Groups:**

The seriousness of the issue of Panchaganga River can be understood from the facts and figures noted above. It needs to be underscored here that, many of the environmental NGOs/Groups have played a key role in creating awareness about water pollution its causes and have also suggested remedial measures to arrest the problem of Panchaganga river pollution.

The issue of Panchaganga river pollution is on the agenda of NGOs/Groups in Kolhapur district. They have undertaken many awareness generation programmes, action programmes and agitational activities on this issue since 1989. In every year during summer season, the NGOs/Groups and Citizens of Kolhapur have organised morchas, arranged agitations against inactiveness of Office of the Maharashtra Pollution Control. The NGOs/Groups which have undertaken activities on the pollution of Panchaganga river include: Vidnyan Prabodhini, Nisarg Mitra, Development Research Awareness and Action Institute [DEVRAAI], Green Guards, Enviro-Legal Forum, Gardens Club, Hutatma Park Paryawarna Premi Manch, Janswasthya Dakshata Sammittee, Nature Lovers, Prakruti Prayog Parivar, Save Kolhapur Citizens Committee and Teak Nature Club.

It also needs to be noted here that, local media, both print (daily Pudhari, Sakal, Lokmat, Tarun Bharat and others) and electronic (‘B’ News, a local cable channel), have given wide publicity to the news items and articles written on the issue of Panchaganga river pollution. A special mention must be made of efforts of Sakal newspaper.

1] The daily Sakal had published a series of articles during 16th February 2009 to 02nd March 2009 entitled “Panchganga Ki Pradushanganga” for creating awareness among people and civic administrative body about the seriousness of the problem and suggesting quick action for arresting the problem of pollution of Panchaganga River.
2] Daily Sakal had also organized *Jaldindi* on 23\textsuperscript{rd} and 24\textsuperscript{th} April 2011 for studying the problem of Panchaganga river pollution. This *Jaldindi* was started from village Piral, Radhanagari taluka and ended at Narsobachiwadi (Daily Sakal, 23\textsuperscript{rd} and 24\textsuperscript{th} April 2011, *Local Supplement, Kolhapur Today*, p.1).

3] Due to this *Jaldindi*, factors responsible for river pollution have been identified (Daily Sakal, 1\textsuperscript{st} May 2011, *Local Supplement, Kolhapur Today*, p. 4).

4] The campaign titled “Chala Panchganga Vachvuya” was also organized by Sakal and during this campaign; various activities such as S.M.S., Street play, Poster Exhibition, *Shahiri*, Documentary Film, distribution of Pamphlets etc. were carried out (Daily Sakal, 9\textsuperscript{th} April, 2011, *Local Supplement, Kolhapur Today*, p. 1).

The issue of Panchaganga river pollution is still a burning issue due to recent outbreak of epidemic Jaundice in Ichalkaranji. The Chief Minister of Maharashtra has declared that, for removing pollution of Pachganga river include in National River Conservation Scheme and in this regard 500 crore Rupees have been sanctioned removing pollution of Panchganga river (Daily Sakal, 20 June, 2012, *Local Supplement, Kolhapur Today*, p.1).
Panchganga River Pollution Photographs
2] Illegal Tree Cutting/Deforestation and Endangered Wildlife/Biodiversity:

Introduction:

Forests are an important natural resource of India. Forests play an important role in providing raw materials to industries and generating income and employment. They also play a vital role in enhancing the quality of environment by influencing the ecological balance and life support system. Nowadays forest wealth is dwindling due to overgrazing, over exploitation, encroachments, unsustainable practices, projects in the forest areas, withdrawal of forest products, including fuel wood, timber etc.

The area known as Western Ghats is a well-known hotspot of biodiversity. “The Western Ghats constitute range of hills which were once covered with extensive forest all along the length from the Gujarat to the southern part of Kerala. The Northern Western Ghats extend across the three states of Gujarat, Maharashtra and Goa which is also a region that includes several unique ecosystems and harbours a large number of threatened and endemic species. It also includes areas with rich cultural heritage sites” (Bharucha, Erach et. al. 2010: 1).

The Western Ghats in Maharashtra, “also known as the ‘Sahyadari’ mountain range, are rich and unique for their local floral and faunal diversity. The hills range runs between 15°60’ to 20°45’ N latitude and 72°60’ to74°40’ E longitude, covering about 58,400 sq km of area from 62 taluka’s in 11 districts namely Thane, Raigad, Ratnagiri, Sindhudurg, Nashik, Dhule, Ahmednagar, Pune, Satara, Sangli and Kolhapur. In terms of percentage to the total Western Ghats Region, Maharashtra accounts for 38% of the total taluka’s and 36.4% of the total area” (Kurne, Amruta and Samant Jay 2009: 2).

Kolhapur district is located in the hotspot area of Western Ghats which has a prosperous biodiversity. Radhanagari Wildlife Sanctuary is important for to endemic and medicinal plants. In this context Padalkar and Gatade (2011) pointed out:

It also contains 425 species of plants. The main species in this sanctuary are Jamun, Mango, Anjani, Hirda, Surungi, Ain, Kinjal, Biba, Hana, Behada, Unbar, Assana, Kumbha, Kumkum, Kadipata, Tamalpatri, Shembisal, Amsul, Honey, Neem, Kaju, Khair, Karvand, Narkya (Amruta), The Shrubs like Bhoma, Shendri, Janagli, Limbu, Pendri and Karvi are the common species in sanctuary. Sanctuary contains 47 species of Mammals, 59 species of reptiles, 264 species of birds and 66 species of butterflies (Padalkar, V.V. and Gatade D. G., 2011: 2).
Forests of Kolhapur District are rich in wildlife. Radhanagari Sanctuary is famous for gaur. The main wildlife species found here are “tiger, leopard, jungle cat, leopard cat, wild dog, fox, sloth bear, gaur, sambar, barking deer, mouse deer, langur, porcupine and bonnet macaque. Tiger are reported in many areas including Tilari catchment and Radhanagari Sanctuary but their sightings area low. Leopards are also reported to be found occasionally” (Kulkarni, Jayant, et. al 2008: 5-6).

As per the news item published in daily Pudhari, Forest department has organized wild census survey in Dajipur Forest area during 2nd May 2012 to 9th May 2012. In this census they are found the following wild animals in Dajipur Forest such as: Tiger, Shekaru, Sambhar, Bhekar, Wild Dogs, Peacock, fox, sloth bear, Gaur etc (Daily Pudhari 25th June 2012, supplement My Kolhapur, p. 1).

The following table 5.5 shows the total forest area in Kolhapur district.

Table 5.5

<table>
<thead>
<tr>
<th>Division</th>
<th>Total Forest Area</th>
<th>% of total forest area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. No</td>
<td>Reserved Forest</td>
<td>Protected Forest</td>
</tr>
<tr>
<td>1</td>
<td>Revenue Department</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>Forest Department</td>
<td>940.14</td>
</tr>
<tr>
<td>3</td>
<td>Maharashtra Van Vikas Mandal</td>
<td>----</td>
</tr>
<tr>
<td>4</td>
<td>Private Forests under Forest Department</td>
<td>----</td>
</tr>
</tbody>
</table>

Total: 941.14 332.60 118.93 1392.68 17.98

(Source: Kolhapur District Socio-Economic Review 2010: 49)
The table 5.6 shows the classification of forests in Kolhapur district.

**Table 5.6**

**Classification of Forests in Kolhapur District**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Division</th>
<th>Total Forest Area</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dense Forest</td>
<td>Moderate Dense Forest</td>
</tr>
<tr>
<td>1</td>
<td>Revenue Department</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>Forest Department</td>
<td>80.20</td>
<td>761.96</td>
</tr>
<tr>
<td>3</td>
<td>Maharashtra Van Vikas Mandal</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>Private Forests under Forest Department</td>
<td>---</td>
<td>21.16</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80.20</td>
<td>783.12</td>
</tr>
</tbody>
</table>

(Source: Kolhapur District Socio-Economic Abstract 2010: 49)

Yadav, S. R. and Sardesai M. M. (2002) have described the vegetation of the Kolhapur district. The authors have noted the following four major types of vegetation:

a] **Tropical Semi evergreen forests:** These forests are occurring in patches along the upper elevations of the Ghats, above 500 meters altitude in main range of Sahyadri. These forests are found in the Western Ghats of the Kolhapur district viz., Amba, Barki, Dajipur, Gaganbavada, Patgaon, Tillari and Udegiri.

b] **Tropical moist deciduous forests:** These forests are spread in Ajara, Malakapur, Radhanagari, Gargoti and Gadlinglaj region.

c] **Tropical dry deciduous forests:** Dry deciduous forests are found in the eastern part of the Kolhapur district. They are distributed in Panhala, eastern part of Bhudargad, Lakudwadi, Nesari and Kagal.

d] **Open scrub jungles:** These are found in Kagal, Karveer and Hatkanangale tahsils of the Kolhapur district. They are represented at Bahubali, Babu Jamal, Narande and Ramling. The vegetation is composed of shrubby and thorny species with few small trees (Yadav and Sardesai 2002: 9).

**Impact/Threats of Human Interventions on Forest and Biodiversity:**

Due to increasing human and developmental activities, forests have been severely fragmented and at many places degraded, causing threat of local extinction to
many wild species of plant and animals. There are many threats to the environment and wildlife in Kolhapur district. Bharucha, Erach et.al. (2010) noted that:

Western Ghats are being rapidly degraded due to various land use changes that have occurred in the recent past. Apart from the traditional impacts from farming, grazing and fire there are newer changes in land use that are leading to biodiversity losses. This includes deforestation due to mining, roads, dams townships and industrialization. Changing existing wilderness areas into intensive agriculture, urbanization and industry in Maharashtra, Gujarat and Goa has altered the natural ecological attributes over the last several decades. This has not spared the Western Ghats where dams, roads and other economic development programs have led to new forms of land use (Bharucha, Erach et. al. 2010: 2).

The depletion of forest cover has adversely affected the “habitats of wildlife; both the primary feeders or prey species and the secondary feeders or predators. Some species have already become extinct and others are on the endangered-species list. The existence of diversity is an indication of the ecological vitality of the environment……Most international wildlife authorities are of the opinion that the continued existence of wildlife in all its forms is essential. Diversity constitutes a possible indicator of the vitality of the environment and ensures the ultimate benefit of humankind” (Har, Govind 1989: 429-430).

**Man-Animal Conflicts in Kolhapur District:**

Interactions between people and wildlife have been that of combination of mutual dependence, respect, fear, exploitation and antagonism. People have hunted animals for food and pleasure and also used them for domestic work and at the same time assigning them religious and conservation value in their cultures. But when people and wildlife come face to face for sharing the resources such as food or water, the animals become a problem known and are included in the category man-animal conflict (Kulkarni, Jayant, et. al 2008: 1).

The decrease in forestland has resulted in loss of habitat of wild animals have started to migrate from forest to surrounding areas. Forests areas are sources of many rivers and perennial water resources. Man makes use of these waters. The water in perennial resources in forest area flows for short period. These sources also used by people surrounding area near forest. The water in Radhanagari Wildlife Sanctuary is used for the domestic and agriculture purposes by the people from villages Olawan, Digaj, Shelap, Madrewadi etc. and other villages. So animals in the forest migrate
from forest towards villages for drinking water also (Gaikwad and Munishwar 2009: 352).

**Man-Elephant Conflict:**

Deforestation, habitat loss and increasing human population have been the major factors responsible for human and elephant conflict (Kulkarni, Jayant, et. al 2008: 98).

Elephants entered from Karnataka border in Kolhapur District in 2004. Kolhapur’s first experience with elephants was when a group of 7 to 8 elephants came to Hosur Village. They left the next day but one woman died due to an encounter with an elephant. After that elephants came again in February 2005 and stayed till May 2005. They were active in forests of Chandgad Range. They came again in November 2005 and remained in the area till May 2006. In July 2006, a lone subadult tusker entered Chandgad Taluka at Mhalunge-Kolik and went right up to Radhanagari Sanctuary via Azra Taluka over a period of 8 to 10 days. It died after two months, at Radhanagari Sanctuary, reportedly from respiratory infection. In 2006 elephants extended their range to Gadninglaj Taluka and entered Hukkeri Taluka of Karnataka (Ibid: 2).

In Kolhapur District elephants have stayed mainly in Chandgad and Gadhinglaj Talukas. In Chandgad they have mainly resided in the dense forest block around Kalanandigad Hill. From Chandgad they have gone to Gadhinglaj using the route Kamewadi, Nesri, Batkanangle, Teginhal, Masewadi, Naukud, Channekuppi to Hukkeri District of Karnataka Boundary (Ibid: iv).

Between years 2002 to 2006, total area affected by elephant depredation is 108 ha in Kolhapur district. Chandgad Taluka is more severely affected talukas. In 22 villages are affected in Chandgad taluka. (Ibid: iii)

In Kolhapur district of the ten human death cases, due to encounter with elephants. Totally six elephants deaths have occurred in the Kolhapur district between year 2004 to 2008. The following table 5.7 shows that elephants deaths in Kolhapur district.
Table 5.7
Elephants Deaths in Kolhapur District

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Date</th>
<th>Division</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22/2/2006</td>
<td>Kolhapur</td>
<td>Four elephants (3 adult females and 1 male calf) died of electrocution at Jelugade Village in Chandgad Taluka</td>
</tr>
<tr>
<td>2</td>
<td>13/6/2006</td>
<td>Kolhapur</td>
<td>One male elephant died at Pharale in Radhanagari Sanctuary reportedly because of pneumonia</td>
</tr>
<tr>
<td>3</td>
<td>2/6/2008</td>
<td>Kolhapur</td>
<td>One adult male elephant died by falling into a well at Patne Village in Chandgad Taluka</td>
</tr>
</tbody>
</table>

(Source: Kulkarni, Jayant, et. al 2008: 48)

Man-Gaur and Peacock Conflict:

As per the news item published in daily Pudhari, the illegal tree cutting and bauxite mining are the major reasons for the destruction of natural habitats. Therefore wild animals such as Gaur and peacock are entering into human habitats and they are attacking the people. In the year 2011, 2 human death cases occurred and 9 persons were injured on the one hand, while some wild animals were injured and some were dead due to the human attacks on wild animals (Daily Pudhari 25th June 2012, supplement My Kolhapur, p. 1).

Roads and Bauxite Mining Activities:

The constantly ongoing human interventions in the form of developmental activities such as construction of new roads, widening of old roads and mining activities in forest areas lead to many ecologically destructive consequences. Many roads pass through forest areas in Kolhapur district. There are many old Ghats, which connect the Kokan to Kolhapur such as Amba Ghat, Karul Ghat, Bhuibavada Ghat, Fhonda Ghat etc. Though there are many Ghats the construction of new Ghats such as Hanumanta Ghat near Patgaon, Anuskara Ghat near Barki is underway. Bauxite mines are mainly situated in the ranges of Western Ghat having dense forest. The plateaus, which are situated in these dense forests, are the main source of the bauxite......These plateaus are breeding and resting places for many wild animals and they play an important role in ecology. Nowadays mining activities are carried out on these plateaus, which threaten the wildlife in the area (Gaikwad and Munishwar 2009: 351-352)
Some parts of Radhanagari Wildlife Sanctuary are rich in bauxite ore and many plateaus with high quality bauxite have been mined. The mining company wants more areas to be opened for mining which is a major threat to this fragile ecosystem. (Bharucha, Erach et. al., 2010: 38).

Corridors are the patches of the forest, which connect the two dense forest areas. The animal uses corridors as a path of migration. “In Kolhapur district there are some important corridors such as Amba forest and Udagir forest connecting the Chandoli National Park to the forest of Barki, so these corridors are important place. These corridors have some threats such as dams, mines, roads etc. There are many roads connecting Kokan to Kolhapur from forest area. Many villages like Radhanagari, Amba, Dajipur, Hasane, are situated in forest aras dams like Radhanagari, Chandoli, Kalamawadi, Patgaon all these are obstacles to the corridors” (Gaikwad and Munishwar 2009: 353)

**Illegal Tree Cutting and Hunting:**

Hunting is another important threat to the wildlife. “Many people kill wild boar or Sambhar on the occasion of Holi. Deforestation and illegal tree cutting is another threat to the environment. People in forest area cultivate crops like Nachana, Wari by cutting the forest and uses the land for agriculture purposes. People also burn grassland areas under the belief that next year grass will grow in larger quantity. Grassland fire is a big problem to the animals like reptiles, small bird species, and many other small animals”(Gaikwad and Munishwar 2009: 351-353). As per the news item published in daily Pudhari, In Dazipur Forest area illegal cutting and smuggling of medicinal forest plant known as “Narkya”, “Chandan” (the Sandal tree) is the major environmental problem in Kolhapur district (Daily Pudhari 25th June 2012, supplement My Kolhapur, p. 2).

As per the news item published in daily Sakal, UNESCO’s ‘World Heritage Convention has declared the list of world heritage places. In this list are included 39 places situated in Western Ghat Region. This list includes Radhanagari Wildlife Sanctuary located in Radhanagari tehsil Kolhapur district of Maharashtra (Daily Sakal, 3rd July 2012, Kolhapur Today, p. 1).
Role of Environmental NGOs/Groups:

The issues of illegal tree cutting, deforestation, endangered wildlife and biodiversity are on the agenda of NGOs/Groups in Kolhapur district. They have undertaken many awareness generation programmes, action programmes and agitational activities on these issues.

A] Murgud City Nisarg Mitra Mandal, Murgud: is mainly working in the field of forest/tree protection. It has organized several programmes such as collection of seeds of various plant species, development of nursery, Ariel sowing of seeds in hill areas, donation of plants, plantation of trees. Distribute of more than 1 lack plants, support to Western Ghat Bachao Andolan. It celebrates Rakhi Pournima by tying Rakhis to trees every year. It also celebrates wildlife week, Vanmahotsav and Vrukshadin every year. In last 12 years, this organization has distributed more than one lakh fifteen thousand plants of different types of trees free of charge to people and institutions. The president and activists of this organization have received several awards and they have been felicitated for their work in the field of tree protection. The volunteers of this organization have worked for treatment of wounded birds and animals. The president and activists of this organization have received several awards and they have been felicitated for their work in the field of tree protection and conservation and protection of snakes. The volunteers of Murgud Mahila Nisarg Mandal, Murgud, Nisarg Mitra Mandal, Admapur and Shindewadi, has actively participated in this organizations programmes.

B] Friends Nature Club, Radhanagari: has been working since 1991 in the field of environmental protection and conservation in Radhanagari Sanctuary. It has taken active part in public hearing sessions, in organization of Ayurved Parishad at Dajipur and distributes medicinal plants. This organization has conduct tree plantation activities in Radhanagari taluka. It has helped Government officers by providing information about as witness party in legal case relating to illegal cutting of trees and smuggling of rare plant species. This organization has taken active part in Western Ghat Sanrakshan Sammittee [SESA]. It has worked for creating awareness about forest fire. It has helped Government officers by providing information about illegal killing of wild animals, as witness party in legal case relating to illegal transport of bauxite material, illegal cutting of trees and smuggling of rare plant species. It has
also worked for proper rehabilitation of families from 29 villages affected due to Radhanagari Wildlife Sanctuary. It has helped citizens attacked by wild animals in Sanctuary and helped farmers in getting help for the damage done by wild animals to their agricultural yields.

C] NISARG [Nature Interpretation Social Awareness and Research Group], Kolhapur: The organization believes that, because of human activities, the balance of nature is getting disturbed and due to peoples’ apathetic attitude towards nature, we are loosing the rich natural heritage. The name of the organization itself indicates its main agenda. It works for protection of biodiversity by sensitizing people and thorough creating awareness about the biodiversity. Its aim is to make people aware about the consequences of their actions that lead to environmental destruction. It also aims to conduct research about the causes of loss of biodiversity in order to suggest the remedies to redress the problems. The organization believes only in peaceful, non-confrontationist ways and means to attain its objectives. It has organized programmes such as slide shows, nature tours, two days tours for students, teachers’ training workshops, exhibition of photographs on biodiversity in Western Ghats, awareness programmes on issues such as eco-friendly life style, population growth and environment, festivals and pollution, waste management, save electricity, snake as a friend of man. It has organized competitions such as essay competitions, poster completions, drawing competition and elocution completion on different environment themes. The organization publishes literature on environmental issues; it also brings out its quarterly mouth piece named ‘Nisarg’. It has undertaken studies on various issues relating to biodiversity.

D] Nature Lovers, Kolhapur: This organization has working against illegal cutting of trees, implementing Vruksha Dattak Yojana. It has undertaken tree plantation programme on Jotiba Hill site and had organized awareness programmes for prohibiting illegal tree cutting in the vicinity of Radhanagari Dam. The volunteers of this organization have undertaking birds watching programme.

E] Hianyakeshi Paryawaran Mandal, Gadhinglaj: This organization has celebrates wildlife protection week by organizing awareness generation programmes organizing lectures of experts and competitions for protection of snakes.
F] Nisarg Mitra Mandal, Haldi: The volunteers of this organization have done actual work of catching snakes in residential areas and leaving them to their natural habitats.

G] Nature Conservation Group [NCG], Kolhapur: is working in the protection and conservation of animals and birds. This organization has conduct research in birds, butterflies in Kolhapur district.

H] Gardens Club, Kolhapur: This organization is organizing competitions for development of Gardens, organization of flower competitions, flower decoration competitions, organization of workshops for bottle gardening, tray landscaping, organizing lectures, slide shows, imparting training to Garden workers, work for conservation of rare species of trees, awareness generation through the publication of mouthpiece of organization “Roget”, regarding greening the earth, importance of flowers, vegetables, house gardens and organic farming through house gardens.

I] Gardens Group of Gadchinglaj: This organization has undertaken various programmes such as tree plantation, under tree adoption programme the organization donates one year old trees to students, citizens and institutions in the Gadchinglaj and adjoining villages and motivates them to plant and takecare such trees. The organization has undertaken beautiful and green Gadchinglaj plan in 2009. The organization is organizing exhibitions of different flowers and plant species, Garden competitions, workshops, lectures, slide shows, nature tours and has undertake organic manure project. This organization has organized Vrukshadindi in Gadchinglaj city for tree protection and conservation.

The other NGOs/Groups which have played an important role on the issue of illegal tree cutting, deforestation and wildlife protection include: Vidnyan Prabodhini, Nisarg Mitra, Green Guards, Devraai, Vasundhara Nisarg Mandal, Kini (The description of role of these NGOs has been given in the Case studies).

It also needs to be noted here that, local media, both print (daily Pudhari, Sakal, Lokmat, Tarun Bharat and others) and electronic (‘B’ News, a local cable channel), have given wide publicity to the news items and articles written on the issue of illegal tree cutting/deforestation, wildlife and biodiversity (for example, daily Sakal 2nd July 2012: 1,9; 3rd July 2012, p. 1, Local Supplement, Kolhapur Today, p. 1; 6th June 2012, p. 3, Local Supplement, Kolhapur Today, p. 1; 4th June 2012, Local
Endangered Wildlife/ Biodiversity Photographs
3] Environmental Consequences of Mining:

Introduction:

The Western Ghats in Maharashtra are known for “bauxite deposits which are patchy and restricted to the plateaus at an altitude of around 1000 MSL. Bauxite mines from south Kolhapur district for some time are supplying ore to aluminium factory in neighbouring Belgaum district. The bauxite deposits are usually located at the surface on plateaus and around thick natural vegetation on slopes and the road access to these mines is through dense forest tracts. The mining activity is totally destructive as it is open cast type mining by completely removing the above ground vegetation on mine sites and dumping of the over burden waste on top of vegetation on the slopes” (Kurne, Amruta and Samant Jay 2009: 18)

Bauxite reserve in the Maharashtra state is of the order of 102.88 million tonnes which is approximately 3.38% of the country’s reserve. Important bauxite deposits are located in Kolhapur, Kolaba, Ratnagiri, and Satara districts……In Kolhapur the bauxite is blanket type deposit, in other areas it is pockety and lensoid type……In Kolhapur district the bauxite deposits are confined to the plateau tops at about 1000 m - 1100 m Elevation, forming parts of Western Ghats. The deposits are confined to the western part of the district.

Kasarsada - Nagartswadi Group: Kasarsada deposit is located at Chandgad Tehsil and is situated 9 km SSE of Nagartswadi. The thickness of bauxite ranges from 3 m – 9 m (average 4.9 m). The thickness of over burden is 3 m......A major part of the deposit is under leasehold of M/s. INDAL. The total reserve in the area is 4.97 million tonnes.

Dhangarwadi - Penhela Group: A cluster of deposits namely Dhangarwadi, Girgaon, Rangewadi are situated close to Kolhapur - Ratnagiri Highway. The deposits lie on a plateau, 10 km in length and 1.6 km in width. The plateau is highly dissected. The thickness of profile varies from 0.9 m to 14 m with an average thickness of 3.5 m. A major part of the deposit is without overburden. Over 5962 hecters of the deposit is leased out to BALCO. GSI estimated a reserve of the order of 16.10 million tonnes.

Udgiri: The deposit is about 1 km NW of Udgiri (17°05' - 17°08'; 73°48' - 73°55'). Here bauxite forms a saucer shaped continuous body of variable thickness below the laterite overburden. The deposit comprises 4 plateaus with average thickness of bauxite of 5 m. The deposit is the leasehold of BALCO. (Cited from, Geological Survey of India, Detailed Information on Bauxite in India, downloaded from, http://www.portal.gsi.gov.in/gsiDoc/pub/DID_Bauxite_WM.pdf).

The deposits are located on the plateau tops and offer some difficulty in transporting the ore. It can be brought to the foot-hills by gravity or alternatively by a system of aerial ropeways for haulage could be arranged to reach the ore to the main high-way of the district such as Phonda Ghat road, Gargotti road and Ajra-Amboli
Ghat road, all of which are within 5 miles from the deposits. Although there appears to be no serious difficulty for transporting the ore, the charges may be rather high. But with improved transport facilities and cheap power being made available the commercial exploitation of the bauxite deposits in Kolhapur should become possible (Kolhapur District Gazetteer 1961).

The Radhanagari Wildlife Sanctuary is situated on the border of Kolhapur and Sindhudurg districts. “The Protected Areas harbours several sacred groves inside the Sanctuary which are traditionally protected by local people. Thus large stands of virgin forest still exist here. This sanctuary houses the major irrigation projects in the Kolhapur district. Besides some parts of sanctuary are rich in bauxite ore and many plateaus with high quality bauxite have been mined. The mining company wants more areas to be opened for mining which is a major threat to this fragile ecosystem”. (Bharucha, Erach et. al., 2010: 38).

**Impact of Mining:**

The industrial use of raw material from mined areas within the Western Ghats is a serious factor influencing biodiversity in this region. Mined areas create large gaps which are left as blanks covered in weedy growth. While mitigation is expected to rehabilitate and restore these areas this is generally carried out inadequately. Most abandoned mined areas are left for years and are covered by exotic weedy growth that can support only the generalist species of fauna. The mined blanks thus lead to severe impediments for many species to move between patches of forest. In Maharashtra, the major impacts among the Protected Areas surrounds are due to stone quarrying in the Ecologically Sensitive Areas. There are also impacts due to bauxite and other mining operations. A major problem that constantly recurs is due to the major mining potential at Radhanagari Wild Life Sanctuary. This is a serious concern as there is a constant pressure to open this area to mining (Bharucha, Erach et. al. 2010: 45).

Mining has initially resulted in short term damages by destroying the forest and long term damage of breaking the close network of complex ecological services provided by the forest. Though, mining is carried out on so called ‘barren plateaus’, a characteristic feature of the Western Ghats in Maharashtra, without considering their ecological significance of sustaining totally unique biotic community, cause colossal damage to standing forest. Roads leading to mined areas pass through natural forest breaking the contiguity of closed canopy and introducing gaps as observed in Udgiri
forest. Further it allows easy access to forest interiors allowing extraction of fuel wood and illegal timber cutting besides wildlife poaching along the way. The terrain being highly hilly it cannot support roads required for heavy mining transport and in the past such road making has initiated landslides and soil erosion and siltation of streams (Ibid: 18-19).

1] The most significant impact of a mining project is its effects on water quality and availability of water resources within the project area. Key questions are whether surface and groundwater supplies will remain fit for human consumption, and whether the quality of surface waters in the project area will remain adequate to support native aquatic life and terrestrial wildlife.

2] Mining operations mobilize large amounts of material, and waste piles containing small size particles are easily dispersed by the wind.

3] Mining affects the environment and associated biota through the removal of vegetation and topsoil, the displacement of fauna, the release of pollutants, and the generation of noise.


**Role of Environmental NGOs/Groups:**

The issues relating to Bauxite mining are on the agenda of NGOs/Groups in Kolhapur district. They have undertaken many awareness generation programmes, action programmes and agitational activities on this issue.

**A] Nisarg Mitra, Kolhapur:** The most successful agitation undertaken by the Nisarg Mitra, Kolhapur was that of the stand taken by it against mining at Idarganj Plateau located at the heart of Radhanagari Sanctuary on the basis of possible loss of biodiversity and extinction of rare plant species found only in this region (The description of role of this NGOs has been given in the case studies).

**B] Green Guards, Kolhapur:** This organization has prepared three reports.

2] Report on ‘Florastic Analysis of Radhanagari Wildlife Sanctuary’ and
All these three reports have been submitted to Bombay Environment Action Group (BEAG) as a supporting document to the petition filed by Bombay Environment Action Group in Bombay High Court against ‘INDAL’ company’s illegal mining activities inside the Radhanagari Wildlife Sanctuary. Now the Bombay Environment Action Group had obtained stay order for illegal mining and mining at ‘Idargnaj’ had stopped. These three reports were very useful against INDAL in the High Court. This is the very important work of the Green Guards.

C] Friends Nature Club, Radhanagari: This organization has taken active part in establishment of ‘Idarganj Bachao Action Committee’ and worked on advisory committee constituted for Radhanagari Wildlife Sanctuary. It has opposed bauxite mining project in Radhanagari Sanctuary on ecological grounds. It has helped Government officers by providing information about illegal mining, as witness party in legal case relating to illegal transport of bauxite material.

D) Nisarg Mitra Mandal, Shindewadi: This organization has opposed bauxite mining projects at Vasnoli, Durgamanwad, and Naveli on ecological grounds.
Mining Photographs
4] Conservation of Lakes:

It is widely known fact that lake water pollution is an important issue in all the countries in the world. Lakes in Kolhapur district are exhibiting varying degrees of environmental degradation caused by enrichments, eutrophication from domestic and industrial effluents and siltation. Human settlements and public effluent sources are the chief factors for degradation of lakes. Kolhapur was known as ‘City of Lakes’. It had about 24 major and minor lakes in and around the city. Especially the pollution of Rankala and some other lakes is the local environmental issue in Kolhapur city.

About Rankala Lake:

Rankala was a stone quarry. Stone from Rankala quarry was used for building Mahalakhshmi temple. Earthquake occurred in 9th century and quarry started filling with water. In 1883 dam and outlet was build at Rankala. Prior to building of Kalamba Lake, Rankala was used for providing water to the city. In spite of certain restrictions for using water from Rankala for activities like bathing, washing of cloths and animals, still these activities are continued. (KMC, Environment Status Report 2008-2009: 9)

Rankala Lake is the largest and oldest manmade water body in Kolhapur city covering 107 ha. area. It was constructed on an old stone quarry during 1877 -1883. Rankala is not only a water body, it is also part of history, tradition, culture, environ and aesthetic of Kolhapur. It is a major attraction for local residents, artists and the outside tourist visitors. Rankala is also used for fishing purpose.

Rankala is adjoined by a marshy place called as Partala. Along with this Partala, Rankala plays important role as breeding as well as roosting site for variety of birds, reptiles, fishes. About 90 floral species, 30 bird species, 20 fish species and 16 reptile species are recorded. Rankala is environmentally important and it is acting like lungs of city. Provision of Dhunyachi chavi is made at the downstream of lake to avoid the pollution occurring due to bathing, washing cloths and vessels. Water is made available at Dhunyachi chavi from Rankala Lake by gravity. Rankala also irrigates area of about 80 hectares.
Problem of Rankala Lake Water Pollution and Attempts at its Conservation by the Civic Administration:

The data published in the form of news items are indicative of the nature of Rankala Lake pollution. As per the information available, since 21\textsuperscript{st} February 1987, the problem of \textit{Jalparni} at Rankala Lake is in focus. The first complaint in this regard was given on 22\textsuperscript{nd} February 1987 (Daily Sakal, 12 December 2009 \textit{Local Supplement, Kolhapur Today}, p.1).

On 5\textsuperscript{th} June 1988, people had started removing dregs. The Kolhapur Municipal Corporation had implemented programme of removing \textit{Jalparni} from 13\textsuperscript{th} May 1994 till 29 May 1994. On 4\textsuperscript{th} Feb. 1996, citizens also participated in an agitation that demanded removal of Jalparni from the lake. In the years 2005, 2008 and 2012 due to the spread of Jalparni that covered most of the surface of Rankala, citizens themselves had organized Jalparni Removal programme (Daily Sakal, 5\textsuperscript{th} January 2009 p. 3; 5th January 2009 Kolhapur Today p. 1). The high growth of Jalparni in Rankala has been observed in the years 1988, 1994, 1996, 2009 and 2012 ((Daily Sakal, 2\textsuperscript{nd} January 2009, \textit{Local Supplement, Kolhapur Today}, p. 1; 7\textsuperscript{th} April 2012, \textit{Local Supplement, Kolhapur Today}, p. 6).

The growth of Jalparni (a kind of weed- is one source of pollution of Rankala Lake. The other important cause of water pollution in Rankala is inflow of waste water and drainage water into the lake Rankala. Two major streams - Salokhe Nagar waste water stream and Saneguruji waste water stream- were feeding sewage to the lake from southern side. Also the cattle washing and cloth washing activity, etc. were responsible for increase in nutrient level in the lake water and ultimately for eutrophication.

The areas such as \textit{Puikhadi, Kalamba, I.T.I. area, Timber Market area are the watershed areas of Rankala Lake. From these four places there is direct mixture of drainage water in R ankala Lake. There is direct mixture of about 12 Million Liter drainage water in the Rankala Lake (Daily Sakal, 2\textsuperscript{nd} January 2009, \textit{Local Supplement, Kolhapur Today}, p. 1). Besides, there was a problem of encroachment in Partala area of the lake. Due to these problems and seriousness of the issue of Rankala water pollution, local environmental NGOs and groups have had organized agitations/Andolans on number of occasions. In response to these agitations the authorities of Kolhapur Municipal Corporation had prepared a plan for conservation of Rankala Lake and demanded grant from Government of Maharashtra. Out of the sanctioned grant of Rs. 8.65 crores, some works to avoid water pollution were
undertaken by the Kolhapur Municipal Corporation. The table given below shows the items and amount spent by the KMC towards Rankala Lake conservation.

**Table 5.8**

**Conservation of Rankala: Works and Expenditure**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Work</th>
<th>Rupees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drainage Water Processing Plant</td>
<td>3 Crore 50 Lakh</td>
</tr>
<tr>
<td>2</td>
<td>Removing dreg</td>
<td>48 Lakh</td>
</tr>
<tr>
<td>3</td>
<td>Removing <em>Jalparni</em></td>
<td>62 Lakh 70 thousand</td>
</tr>
<tr>
<td>4</td>
<td>Construction protection wall, wire wall</td>
<td>84 lakh</td>
</tr>
<tr>
<td>5</td>
<td>Construction of ‘Ganesh Kund’</td>
<td>8 lakh</td>
</tr>
<tr>
<td>6</td>
<td>Birds conservation</td>
<td>30 lakh</td>
</tr>
<tr>
<td>7</td>
<td>Development of I land</td>
<td>16 lakh</td>
</tr>
<tr>
<td>8</td>
<td>Bio-treatment of drainage water</td>
<td>1 Crore 88 lakh</td>
</tr>
</tbody>
</table>

(Source: Daily Sakal, 3rd January 2009, Local Supplement, Kolhapur Today, p. 1)

As per the news item published in daily Sakal, during the period of ten years (1998-99 to 2007-08) a huge amount of Rs. 3, 26, 89, 518 was spent on only making Rankala attractive/decorative, however as compared to this only Rs. 21.52 Lakhs were spent for insulating the lake from mixing the waste water into it (Source: Daily Sakal, 8th January 2009: 1).

The following programmes has implemented by Kolhapur Municipal Corporation for arresting pollution problem at Rankala Lake.

In the year 2009, Kolhapur Municipal Corporation had spent 10,000 liter diesel for removing Jalparni and about 3,000 dumpers Jalparni was removed (Daily Sakal, 3 April 2009, Local Supplement, Kolhapur Today, p. 1). In Year 2012, about 6,000 thousand dumpers Jalparni was removed from Rankala lake and Rankala becomes almost Jalparni free. This achievement is due to the efforts taken by KMC and irrigation department ((Daily Sakal, 7 April 2012, Local Supplement, Kolhapur Today, p. 6).

However, there was continuous pressure for undertaking such activities for conservation of Rankala Lake from the nature lovers, some civic-conscious citizens of Kolhapur, NGOs and Environmental groups in Kolhapur.
Role of Environmental NGOs/Groups:

The issue of conservation of Lake especially Rankala Lake are on the agenda of NGOs/Groups in Kolhapur district. They have undertaken many awareness generation programmes, action programmes and agitational activities on these issues.

Role of Rankala Sawarakshan Va Sawardhan Andolan:

There is a fairly consistent movement for Rankala conservation in Kolhapur. The beginning of Rankala Bachao movement could be traced back to 1985 when some of the social workers made a public appeal to remove the mud and restore the stones of fencing wall of Rankala Lake. Later, Rankala Sanrakshan and Sanvardhan Andolan emerged in 1987. The social workers and environmental activists belonging to different organizations have been frequently organizing demonstrations and activities aimed at saving Rankala from pollution and other commercial activities.

Rankala Bachao Andolan has a history of around 27 years since it began in 1985. It has received considerable mass support and no individual or organization claims to be the leader of this movement. It is a joint venture by all the activists belonging to various environmental organizations in this city. The activists in the movement have restored fencing stones of the lake and attempted to remove Jalparni from the lake by organizing Shramdan. Due to the pressure generated by Rankala Bachao Andolan, the local civil administrative machinery is forced to undertake measures for protection and conservation of Rankala Lake. The Kolhapur Municipal Corporation had to undertake a plan to divert waste water flowing into Rankala; it also did fencing work at the western side of lake for preventing washing of vehicles and animals by using water in Rankala. The activists in the movement also opposed to install statues of eminent personalities at lake site, opposed to start mini train project and to make commercial use of Rankala, have offered suggestions for developing Rankala as natural Garden. The political leaders, ministers and state Government had to take note of Rankala Bachao Andolan and eventually made available the amount required to protect and develop Rankala. Due to continuous efforts of activists, now people of Kolhapur are avoiding to use Rankala Lake for immersion of Ganesha idols and Nirmalya.

The environmental activists of different NGOs, nature loving citizens of Kolhapur, school, college and University students have participated in the activities undertaken or initiated by Rankala Bachao Andolan. Since 1988, number of joint

Rankala Lake Pollution Photographs
SECTION- II

Case Study-1: WORK OF “VIDNYAN PRABODHINI”

“Vidnyan Prabodhini” is an informal group working in Kolhapur city (Maharashtra, India). It came into being in the year 1982. It derived its inspiration from “Kerala Shastra Sahitya Parishad and Rationalist Association of India. In the beginning, Professor Gajanan Joshi, Agalgaonkar, Uday Kulkarni, and Uday Gaikwad formed an informal committee to inculcate scientific temper and thereby remove superstitions among the people. Latter on, Suresh Shipurkar and Nihal Shipurkar of Bharti Mudranalay Kolhapur, joined the committee as active members. Thus, Vidnyan Prabodhini came into being by the efforts of enlightened citizens of Kolhapur city who mostly belonged to academic field” (Tarodi, L. R. 2004: 112).

Being an informal group, “Vidnyan Prabodhini” has no formal hierarchical structure with designated office bearers, no paid employees, no formal written constitution, no own office building etc. As per the information available, it is a group of fifty one members (forty three male and eight female). They all have informal contacts and remain in touch with each other by using telephonic communication. The group conducts six or seven meetings in a year and these meetings are conducted in either in activists’ home or public places like school-college hall or gardens. This group is closely connected with many other Non-Governmental Organizations (NGOs) working at local, district, state and national level. It is a part of environmental movement in this sense.

Objectives and Broad Areas of Work:

Vidnyan Prabodhini works with a definite vision. As the name suggests, Vidnyan Prabodhini is working for promoting scientific outlook among the masses in general. Its general objective is to enable people to develop scientific temper and apply such a scientific outlook to problems in all the fields of human life. Therefore, it is working in broad areas such as education, environment, health, arts and culture, women’s empowerment, non-renewable energy and sustainable development.

“Vidnyan Prabodhini has concentrated its attention primarily on the removal of superstitions in devdasi system, dowry, drinking, rituals connected with marriage and festivals, sacrifice of animals on festival days, and contagious diseases which are the result of lack of community and personal hygiene. In addition to this, people are
also made aware of the exploitative practices of impostors and tricksters. At present, it is also guiding people regarding new agricultural practices and the issues concerning environment. VP’s motto is to free the people’s mind from traditional attitudes and values and inculcate in them modern values like rationalism and scientific temper so that they benefit from the process of development. In other words, the main aim is to bring about change in the mental make-up of the people so that development could be speedy and uniform in the society as a whole” (Tarodi, L. R., 2004: 112-113).

Vidnyan Prabodhini’s Work in the field of Environmental Protection:

“Vidnyan Prabodhini” is one of the most active groups in the Kolhapur city and widely known outside the district due to its work and activities. Though, the contribution of Vidnyan Prabodhini in various fields of its work is important, its work in the field of environmental conservation is of crucial significance and therefore an attempt is made below to present Vidnyan Prabodhini’s work as a case. For purpose of convenience of presentation, the work of Vidnyan Prabodhini is analyzed in the context of issues taken up by it. The following account of the work done by the Vidnyan Prabodhini is based on the information given by the key activists of this organization.

The Issues taken up by Vidnyan Prabodhini:

Since its inception, Vidnyan Prabodhini is continuously working in the field of environmental protection and conservation. It has worked on many specific issues. These issues include: Water pollution (Panchaganga River and Rankala, Kalamba, Ramanmala and other lakes in the Kolhapur city), Drainage Water, Pure drinking water (use of water), Pollution due to Industries (Sugar Factories and Other Industries), Issues relating to Mining (eg. Bauxite mining), Problem of Waste (solid-waste, bio-medical waste), Open Spaces and Grounds, Pollution at the time of festivals and ceremonies (noise pollution, Nirmalya and pollution in Lakes and River due to immersion of Ganesh idols), Tree Cutting (road development projects), Wildlife conservation issue (protection of wild animals and birds), Issue relating to Flood, Disaster Management and Red Zone, etc. The Vidnyan Prabodhini has undertaken various activities relating to the issues noted above.
Work with regard to Panchaganga River Pollution:

Vidyan Prabodhini is continuously working from the year 1989 on the issue of pollution of Panchaganga River. In the year 1989, death of two women occurred due to jaundice. It became a serious issue and the activists of Vidyan Prabodhini started thinking about the causes of pollution of Panchaganga River. The activists of Vidyan Prabodhini - namely Abhijit Patil, Uday Gaikwad, Raju Raut and Uday Kulkarni to name a few - realized that the excessive use of chemical fertilizers and pesticides and mixing of these pollutants in river water, waste water from sugar factories and M.I.D.C., washing vehicles, animals and clothes, waste and drainage water from urban and rural areas mixing in the river, pollution at the time of festivals and ceremonies etc. these were the important causes of Panchaganga River pollution. After careful observation of these causes, Vidyan Prabodhini had prepared a documentary film on the issue of pollution of Panchaganga River and its causes in the year 1992, and this documentary film was shown to the people of Kolhapur through local channel in Kolhapur city. On number of occasions, activists of Vidyan Prabodhini had attracted attention of the authorities of Kolhapur Municipal Corporation (KMC) and had appealed them to take appropriate action in this regard. Such appeals did not yield much success.

In year 1996, the documentary film on Panchaganga pollution was shown in the auditorium of Kolhapur Municipal Corporation. For addressing the issue of water pollution huge amount was necessary. It was often pointed out that Municipal Corporation on its own was not in a position to spend the required amount and that the political leaders should take initiative and do something in this regard. Meanwhile, in July 1996, Senior citizen Shri Dhanajirao Jadhav and others had filed a public litigation case against the Kolhapur Municipal Corporation (KMC). In support of this case, Vidyan Prabodhini’s documentary film and other evidence was submitted to the court.

In December 1997, the court gave its verdict in which orders were given to KMC to take certain actions such as making provision of drinking water from Kalamawadi dam by direct pipeline within a period of 6-7 years, completion of underground drainage work within a period of 5-6 years, and installing waste water and solid waste treatment plants within a period of 3-4 years. The success in the form of court verdict goes to activists of VP. However, till 2000, nothing desirable as per
the court order was done by the Kolhapur Municipal Corporation with regard to Panchaganga river pollution. In view of this, the environmental activists of VP approached the authorities of Maharashtra Pollution Control Board (MPCB) and demanded action against KMC water under the provision of Water (Prevention and Control of Pollution) Act, 1974. For pressing the issue, Vidnyan Prabodhini’s activists and others interested started agitations on this issue in the form of submitting requests to various authorities, blocking of roads, demonstrations, *gheraos*, forcefully making officers to drink polluted water etc. Due to such pressure tactics, Pollution Control Board had to an action against KMC as per the Art. 33 of Water (Prevention and Control of Pollution) Act, 1974, and as a result the electricity supply of Main Administrative Building of KMC was disconnected on 22 November 2000. This step of PCB might be the first of case in the entire country wherein the action against the local Self Government was taken for controlling water pollution.

On this issue the chief minister and energy minister of Maharashtra were mediated and for removing pollution of Panchaganga River they declared the package of Rs. 50 lakh and this was the success of Panchaganga River pollution movement. Vidnyan Prabodhini has given active support to the villages affected by the movements of Panchaganga River pollution.

The activists of Vidnyan Prabodhini have constantly worked on the issue of the Panchaganga river pollution is clear from the following activities:

1] The Chief Minister and other ministers were requested to look into the pollution issue and to do the needful. Consequently the emergency fund worth of Rs. 50 Lakhs was given to Kolhapur Municipal Corporation. Out of this fund pipeline work from Dudhali to Jayanti Nala and some other works were completed. Even after this work, the pollution issue still remained unaddressed.

2] The Panchaganga river pollution is not only adversely affecting the provision of drinking water to citizens of Kolhapur city but it is also making it difficult for many villages situated on the banks of this river. The people from these villages have also started agitating and the activists VP have given support to these agitations.

3] Vidnyan Prabodhini participated in the agitations started by 16 organizations against the decision of construction of Jetty for proper emersion of big Ganesh idols [having height of 21 feet] as this was seen by organizations as a move towards encouraging pollution of Panchaganga River with government aid. Due to such
agitations, the organizations succeeded in diverting amount of Rs. 35 lakhs for conservation of Rankala Lake and the decision to construct Jetty was cancelled.

4] As per the information given by the VP, there were as many as 108 incidences of various types of organized efforts undertaken by environmental organizations in Kolhapur such as agitations and representations on the issue of Panchaganga River and still the problem remained unresolved.

5] The Kolhapur Press Club and Vidnyan Prabodhini jointly demanded to include Panchaganga River under scheme of making Krishna river pollution free.

6] Due to pressure generated by agitations by environmental NGOs including Vidnyan Prabodhini, Maharashtra Pollution Control Board had filed criminal cases against sugar factories and warned and penalized Kolhapur Municipal Corporation for taking appropriate measures to make Panchaganga pollution free. In February 2006, MPCB had to come out with White Paper on Panchaganga River Pollution.

7] Representatives of constantly active local organizations working for pollution free Panchaganga River, namely Shri Dilip Pawar and Shri Uday Gaikawad (of Vidnyan Prabodhini) have been included as members of Steering Committee as per the guidelines given in the Court Order. These NGO representatives have given many useful suggestions and recommendations for making Panchaganga pollution-free.

8] As a result of continuous agitations of active local environmental organizations working for pollution-free Panchaganga river among which VP is one prominent organization, the issue of Panchaganga River has come on the agenda of political parties and local media – both print and electronic - have given wide publicity to this issue. The people in Kolhapur city and all the villages on the banks of the river have now recognized the importance of this issue and people have become vocal on this issue.

9] The activists of Vidnyan Prabodhini have played a key role in the form of a pressure group relying on provisions under existing legal provisions and making available the supportive evidence to the movement on the issue of river pollution. The suggestion to install water treatment plant on waste water of CPR hospital was also given by the activist of VP. Panchaganga River may lead to outbreak of epidemic and can trigger and spread the diseases. Therefore, the issue needs to be tackled as disaster management issue.

10] On number of occasions, along with other activists the activists of Vidnyan Prabodhini have very clearly pointed out that how various sugar factories and other
industries [Raja ram Sugar factory, Bhogawati Sugar factory, Kumbhi- Kasari Sugar factory, Kolhapur Sugar Mill, distillery of Bhogawati and Kolhapur Sugar Mill. Vhatkar Tanning Industry, Star Oxichem Private Limited at Chipri village located in Kolhapur district etc.] are responsible for water pollution in Panchaganganga river and have taken leading role in exposing them and filing criminal cases against such factories/industries and encouraging others to remain active.

11] Activists of Vidnyan Prabodhini have undertaken number of activities for creating awareness about water pollution, its causes, suggesting remedial measures and creating water literacy in general. They have arranged public lectures of experts, organized poster exhibitions, and written many articles in newspapers.

Conservation of Lakes in the Kolhapur City:

Kolhapur was famous as a city of Lakes. It was having 24 minor and major lakes such as Rankala Lake, Kalamba Lake, Ramanmala Lake, Kotitirth tank, New Palace tank, Rajaram tank, Hanuman tank, Lakshithal tank, etc. But in recent few decades owing to the reasons such as construction and developmental activities, lakes are being destroyed and today only few of them are remaining. They are also on the way of getting deteriorated due to pollution and encroachment and may get converted into a pieces of land. Therefore active environmental groups/organizations are attracting attention of the Kolhapur Municipal Corporation and citizens for conservation of lakes in the city. Vidnyan Prabodhini is one of the active groups among these organizations. The work of Vidnyan Prabodhini in this connection is briefly mentioned below.

Since 1988, numbers of joint activities have been undertaken by various environmental NGOs especially for protection and conservation of Rankala and other lakes in the city. The activists have been making an appeal to people and prohibiting them from performing ritual of immersion of Ganesh idols and Nirmalya in the Rankala lake. The activists of Vidnyan Prabodhini have participated in almost all such agitations from the beginning of such activities. In 1991, Vidnyan Prabodhini had made an appeal to nearly 150 Ganesh Mandals in Kolhapur city, to cut short or reduce excess expenditure at the time of Ganesh festival. They are also requesting youth organizations not to install Ganesh idols of 21 feet height, to reduce noise pollution, not to use fire crackers etc. for avoiding pollution of various types during Ganesh festival.
In order to stop people from performing ritual of immersion of Ganesh idols and Nirmalya in the Rankala and other lakes in the city, the activists of Vidnyan Prabodhini, keep big water vessels close to lakes and request people to perform the immersion ritual in the Vessels and keep Nirmalya outside water. Activists of other organizations, college and University students also participate in this activity almost every. Due to such constant awareness generation programmes at the time of Ganesh festival every year, people have started co-operating with the environmental activists and they now donate Ganesh idols to the activists for their proper immersion at appropriate place. In order to avoid water pollution, activists also appeal people to use Ganesh idols made from Shadu clay and coloured with natural colours instead of using PoP made Ganesh idols with artificial synthetic colours which cause water pollution.

The Kalamba Lake was built in 1873 to provide clean water to Kolhapur city. It covers about 63.13 hectares of area. Kalamba has potential to sustain the biodiversity. It attracts many migratory birds. It is also used for fishing. People around the vicinity use water of the lake for irrigation. People collect and sale the lotus from Kalamba. To prevent the pollution of the lake, the area upstream of the lake is declared as non development zone. (KMC, Environment Status Report 2008-2009: 9-10). The reserved area of Kalamba Lake was in the process of becoming residential area due to the interest of builders. Vidnyan Prabodhini had insisted that this area be reserved only for birds should not be used for residential purpose. Vidnyan Prabodhini had attracted attention of the Chief Minister, Environment Minister and Secretary of Maharashtra Government towards this issue. Thus, the activists of Vidnyan Prabodhini, along with other environmental activists are trying to protect Rankala and other lakes from polluting and trying to conserve the biodiversity existing in the vicinity of these water bodies.

Protection of Trees and Wildlife Conservation:

Vidnyan Prabodhini has been active in creating awareness regarding tree plantation and conservation of trees. Its activists have actively participated in tree plantation programme implemented by Kolhapur Municipal Corporation and District Administration. Vidnyan Prabodhini has successfully implemented the programme of tree plantation at Rankala Lake and Panhala Fort. The activists of Vidnyan Prabodhini along with others interested did participate in agitations against illegal tree cutting for
road development in different locations in city such as trade center, Laxmipuri, Dabolkar corner, Menon Island, Kawala Naka, Main Rajaram Highschool, Temblai Railway Site, D.Y.S.P. office and Kolhapur- Panhala road.

In the year 1983, the activists of Vidnyan Prabodhini’s had participated in ‘Pakshi Mitra Sammelan’ at Panhala. In the year 1989, Vidnyan Prabodhini had opposed the construction of monastery at Dazipur Sanctuary. Due to the monastery and road construction, wildlife in Dajipur Sanctuary was adversely affected. The different species of wild animals died Vidnyan Prabodhini had demanded for legal action on officers who were responsible for this. Apart from this, the activists of Vidnyan Prabodhini had pressurized the concerned authorities to take action with respect to persons responsible for loss of wildlife such as illegal animal sellers, illegal hunting, snake hunting and also worked for providing treatment to wounded animals and birds and leaving them in their natural habitats. Vidnyan Prabodhini has been creating awareness regarding snakes and arranging demonstrations. For protection of forest and biodiversity, Vidnyan Prabodhini has opposed illegal bauxite mining in collaboration with Nisarg Mitra organization, Kolhapur.

**Work on Other Issues and Advocacy:**

The Vidnyan Prabodhini has taken up various issues on behalf of citizens and for protection and promotion interests of the masses. For instance, in 1996, there was spread of Jaundice in Kolhapur city. The activities of Vidnyan Prabodhini carried out survey and they found that there were around 670 patients affected due to Jaundice. This organization demanded immediate attention from concerned authorities in this regard.

Vidnyan Prabodhini has pointed that there is no action in Kolhapur city regarding solid waste pollution. Vidnyan Prabodhini has given active cooperation to the people of urban area were started there agitation regarding of solid waste.

The activists of Vidnyan Prabodhini observed that there was no provision of proper disposal of bio-medical waste (human body tissues, used bandages, disposable syringes and needles, blood bags etc.). They found that bio-medical waste was openly thrown. Activists took the photographs and shown it to the officers of Kolhapur Municipal Corporation. Due to this intervention, quick action for processing bio-medical waste was taken by Kolhapur Municipal Corporation this resulted in starting a project by Das Enterprises in June 2000.
Vidnyan Prabodhini has been organizing environmental awareness generation activities (Lectures, poster exhibitions, rallies, demonstrations, film shows, and celebrating different days such as the Earth Day etc) on different issues such as save energy, pollution, wildlife conservation, protection of trees and biodiversity.

Vidnyan Prabodhini has worked on many other environmental issues, and in a way, these issues could be seen closely related with rights and welfare of citizens such as Earthquake Disaster Management, Flood Disaster and Red Zone area in Kolhapur City, Protecting open spaces, gardens and grounds in city area from possible commercial encroachments. Activists of Vidnyan Prabodhini have also opposed to water pipeline project from Goa to Hyderabad, opposed for Nav- Mahabaleshwar Project, opposed to digging of mud at river sides

Twenty four organizations working in Kolhapur city came together to give a serious thought to local environmental problems, document their causes, suggest remedial measures and plan for environment friendly Kolhapur. The activists of Vidnyan Prabodhini took active and leading role in bringing out a document titled “Environmental Manifesto of Kolhapur Citizens” in which systematic diagnosis and nature of local environmental problems such as Panchaganga pollution, problem of safe drinking water, solid waste, flora and fauna, biodiversity, noise, air and water pollution, road transport, grounds and open spaces, protection of historical places/buildings and disaster management etc have been documented and systematically dealt with. This manifesto was published on environment day 5th June 2007. This attempt is perhaps the first of its kind in the history of environmental movement in Maharashtra.

Networking with Other Organizations:

The activists of Vidnyan Prabodhini have informal contacts with other social organizations working in Kolhapur city, in adjoining districts and some of those working at the State and National level. They remain in contacts with famous personalities such as Medha Patkar, Dr. Rajendra Singh, Sunderlal Bahuguna, Dr. Vijay Paranjpe, Adv. Datta, Kusum Karnik, Dr. Shivram Karnath, Dr. Govarikar, Dr. Chittle, Dr. Asad Rehmani etc.

The activists of Vidnyan Prabodhini have participated in National Alliance of Peoples Movement [NAPM] and have given active support to Narmada Bachao Andolan since 1985. Its activists have actively participated in various activities of
Narmada Andolan such as Harsud rally, Manibelli, Nimad, Baroda Satyagraha, Jal Samadhi announcement, demonstration at Mumbai Mantralya, Narmada Yatra, and demonstration in front of World Bank representatives. For giving support for Narmada Andolan, the activists of this group have organized discussions, lectures and slide shows. The activist of Vidnyan Prabodhini Shri Uday Kulkarni has written a series of articles titled ‘Narmadayan’ in daily newspaper. The key activists of Vidnyan Prabodhini’s have actively participated in National level workshops organized by Vasundhara Pani Parishad, Western Ghat Conservation, Sahyadri Ecological Sensitive Area and World Wildlife Fund.

**Concluding Observations:**

Vidnyan Prabodhini has extensively worked in promoting scientific approach to all social issues including environmental protection. The key activists and volunteers of this group not only work for pushing their own agenda but also inspire and encourage others interested to form their own organizations and to work for environmental protection. The key activists also provide guidance and moral support to other environmental groups/NGOs and researchers working in the field of environmental protection and conservation.

The activists of this group have conducted studies on various issues and participated in regional, National, International workshops, seminars and conferences and have presented research papers. It has been working effectively as advocacy group and contributing in various ways for the protection and conservation of environment. The style of functioning of activists of Vidnyan Prabodhini consists of resorting to innovative, attention catching, non-conventional, confrontationist techniques. The key activists of the Vidnyan Prabodhini have told that their organization and its activists get inspiration from well known organizations in the field of environmental protection and conservation such as Green Peace, Jal Biradari (Pune), Bombay Natural History Society (BNHS), Prayas (Pune), National Alliance of Peoples Movement (NAPM), etc.

The case study of Vidnyan Prabodhini revealed that, environmental groups/NGOs can play effective role in creating environmental awareness and protection and conservation of environment. Vidnyan Prabodhini has undertaken many environmental awareness generation programmes, action programmes and agitation/movement activities.
Vidnyan Prabodhini has adopted several ways and means for environmental protection and conservation. Vidnyan Prabodhini has conducted meetings for pollution issue, disaster management and preparation of environmental manifesto of Kolhapur citizens, organize people and visits various government offices for launching written complaints, Conducts follow up activities for water, air, noise and land pollution, Organizing morchas, questioning government officers on environmental issues, Filling court cases for tree cutting, commercial projects and Panchaganga River pollution, Writing and publishing articles on environmental issues in local news papers and research journal and making use of press for propaganda.
VIDNYAN PRABODHINI: PHOTOGRAPHS
Case Study-2: WORK OF “NISARG MITRA”

‘Nisarg Mitra’ has been established in the year 1982. “The roots of emergence of Nisarg Mitra organization can be traced back to the work of Shri Suresh Shipurkar who took initiative in bringing together some nature loving individuals (such as Dr. Athale Subhash, Prof. Mahajan Shri. D., Dr. Karande Vijay, Prof. Jay Samant, Shri Shirgaonkar Avinash, Pushpa Berde etc.) for organizing Nature Tour for the study of wild animals, birds, plants and for protection of clean environment. In those days issues relating to the Nature and environmental protection were not much discussed issues in the civil life of Kolhapur city. Later in 1982, Shri Suresh Shipurkar and Dr. Athale Subhash took initiative and established ‘Nisargmitra’, the first registered organization in Kolhapur, with the co-operation from the likeminded nature lovers in the city. For some years, members of ‘Nisargmitra’ were regularly meeting on every Wednesday at the Avinash Shirgaonkar’s house (Tara Tiles). Nisargmitra initially organized conference of bird lovers, conducted some Nature Study Tours and started programmes relating to awareness generation about protection and conservation of nature. With the co-operation of Dr. Pushpa Berde, the members of this organization also purchased twenty acres of land near Amba village and planted various species of trees. This plantation has now become a small forest area. Later on earlier members of this organization were unable to devote required time to carry forward the work of Nisargmitra due to their growing age and other commitments. After realization of this, Shri Shipurkar invited Shri Anil Chougule and Dr. Madhukar Bachulkar, made and appeal and proposed that Dr. Madhukar Bachulkar should accept the responsibility of working as President of Nisargmitra and Shri Anil Chougule as Secretary. Both of them accepted this responsibility and started working for it” (Salunkhe S. A., 2010: 4-5).

Nisarg Mitra is a registered Non Governmental Organization working in the state of Maharashtra. It has its office with adequate furniture in Shahupuri area in Kolhapur city. Its executive body consists of five members. Besides it has a cadre of one hundred sixty members (Hundred and twenty male and forty female members). In Nisarg Mitra there are no paid employees nor the office bearers or volunteers/activists get honorarium for their work. The organization has its written constitution. The office bearers of the Nisarg Mitra told that their organization and its volunteers get
inspiration from well known personalities in the field such as Sunderlal Bahuguna, Medha Patkar, Rajendra Singh and Bitu Shehgal.

**Objectives and Major Areas of Work:**

The objectives of Nisarg Mitra include: 1] Protection and Conservation of Nature, Wildlife and Birds. 2] To create environmental awareness among masses. 3] To provide information about the nature and wildlife to the students enrolled in educational institutions. 4] To create awareness about environmental protection among students. 5] To conduct in-depth study relating to the wildlife in Kolhapur district. 6] To undertake surveys regarding animal life in sanctuaries. 7] To exchange views with other similar organizations in India and abroad.

Nisarg Mitra works mainly in the broad field of environmental protection and conservation and for this it focuses on the broad issues such as science education, development of organic farming, non-conventional energy, and pollution from the vantage point of sustainable development.

**Nisarg Mitra’s Work in the field of Environmental Protection:**

For purpose of convenience of presentation, the work of Nisarg Mitra is analyzed in the context of issues taken up by it, various types of activities undertaken and implemented, ways and means adopted by this organization and significance of role played by the Nisarg Mitra. The following account of the work done by the Nisarg Mitra is based on the information given by the key activists of this organization.

**The issues taken up by Nisarg Mitra:**

Since its inception, Nisarg Mitra is continuously working in the field of environmental protection and conservation. It has worked on many specific issues. These issues include: awareness generation and prevention of water pollution, opposition to use plastic carry bags, awareness generation and prohibition of vehicular pollution, opposition to tree cutting, and forest protection of wildlife and conservation of biodiversity, opposition to bauxite mining, opposition to road development project due to its environmental impact, promotion of use of appropriate technology and organic farming, disaster management, promotion of environmental education, creating environmental awareness by celebration of environment days, and
conservation of traditional ecological knowledge systems. Nisarg Mitra has carried out many activities on the issues noted above.

**Opposition to Bauxite Mining in Forest Areas of Radhanagari:**

One of the most prominent issues that the Nisarg Mitra has addressed is that of Bauxite mining and its negative impact on environment in terms of loss of forest, wildlife and biodiversity.

It has been noted that (Salunkhe, S. A 2010: 11-12) “the most successful agitation undertaken by the Nisargmitra was that of the stand taken by it against mining at Idarganj Plateau located at the heart of Radhanagari Sanctuary on the basis of possible loss of biodiversity and extinction of rare plant species found only in this region. The State Government had given on lease the land admeasuring 888 Ha. on Idarganj plateau in Radhanagari Sanctuary to a mining company. The company had initiated all the preparations to start mining activities and the actual mining work was about to start. The President of Nisargmitra being subject expert and experienced researcher in the field of Botany, he had conducted scientific study of biodiversity in the region. In 1998-99, with the active support of Bombay Environment Action Group, Mumbai, he took initiative in filing a case/ an appeal in the court against the mining at Idarganj plateau and submitted scientific arguments in the court. In the context of mining at Idarganj, his arguments laid emphasis on possible irreparable loss of biodiversity, extinction of rare species of plants and the overall threat to the ecosystem of Radhanagari forest area as a whole which is livelihood support system of people and wildlife in this region. The court was convinced about the possible negative environmental effects of mining. Finally, the court gave verdict against the mining company and mining activity stopped.

In similar vein, the Nisargmitra had launched complaints regarding illegal cutting of trees in forests in this area to the authorities in the Ministry of Environment and Forests and as a result the Central Empowerment Committee had recently visited to this area to observe the condition of forests and wildlife”.

In case of tree cutting for implementation of road development project, the organization got success in getting stay order from the court and the road project could restart only after plantation of required number of trees. The ‘Nisarg Mitra’ is also extending intellectual and moral support to NGOs in Satara district for helping
them to stop upcoming Nav Mahabaleshwar project due to its possible negative environmental impact.

Nisarg Mitra has writing letters to the mining authorities in the context of environmental consequences of mining, opposing establishment of developmental projects at the places where such projects are likely to result in environmental destruction. Nisarg Mitra had prepared a report on the negative environmental impact of mining on the environment and submitted the same to the court. They had gone to the court of law against violation of environmental laws and rules in case of developmental projects such as bauxite mining projects.

**Opposition to Road Development project owing to environmental degradation:**

Nisarg Mitra, alongwith support of other organizations, had gone to the court of law against violation of environmental laws and rules in case of road development projects in local area, tree cutting for implementation of road development project, the organization has succeeded in getting stay order from the court and the project could restart only after plantation of required number of trees.

**Environmental Awareness Generation Work:**

Nisarg Mitra has been celebrating various days such as environmental day, the earth day, forest day, national science month, Vanmahotsav, Maharashtra Vriksha din, wildlife week in this regard organization has conducts various programmes for creation of environmental awareness on these occasions such as organize lectures, slide shows, poster exhibition, nature competitions and nature games etc.

Nisarg Mitra has works of awareness generation for prevention of pollution at the time of all the important festivals such as Nagpanchmi, Dasara, Dipawali, Holi, Rangpanchami, Ganesh festival (provide *Shado Clay*) etc and appeal people to celebrate festivals in eco-friendly ways. In 8th March 2012, Holi festival organization has provided natural colors in Balkalyan Sankul, Kolhapur. At the time of Ganesh festival organization has appeal to people to make use of clay idols, and donate plaster of paris idols and Nirmalya at Rankala Lake and Panchganga River.
Snake Protection Campaign:

Nisarg Mitra and other environmental NGOs have jointly started ‘Snake Protection Campaign’ in this regard 19th July 2012 to 22nd July 2012. The organization has conducted various programmes for the creation of environmental awareness such as poster exhibition, documentary films, lectures, and seminars, etc. (Daily Sakal, 18th July 2012, Kolhapur Today, p. 7).

Water Pollution:

Nisarg Mitra has been creating environmental awareness regarding water pollution in local Panchganga River, Rankala, and other lakes in Kolhapur city. The activists of Nisarg Mitra are persuading people to worship Ganesh idols prepared from Shadu Clay and natural colors instead of using idols of plaster of paris. For the prevention of water pollution and health hazards, they are making available the Ganesh idols prepared from Shadu Clay and natural colors and are providing these idols to those who demand such idols. The volunteers of Nisarg Mitra have participated in all agitations for the protection of local Rankala Lake and Panchganga River, jointly organized by various environmental groups in Kolhapur city. Nisarg Mitra has prepared CDs on the issue of rational use of water.

The activists of this organization are preparing posters on environmental themes, insisting for strict implementation of environmental laws and rules, sending request letters and complaints with the office of the Maharashtra Pollution Control Board, insisting upon the industrial plants to have their own pollution control machinery through persuasion of the issue with the Maharashtra Pollution Control Board. Nisarg Mitra has undertaken awareness generation work for clean and pure water supply and rational use of water resources. Nisarg Mitra has undertaken many action programmes in schools/colleges and rural and urban areas for creating awareness about the evil effects of water pollution on human life.

Opposition to use Plastic Carry bags and Vehicular Pollution:

Nisarg Mitra has been making propaganda regarding the ban on use of plastic carry bags and distribution of cloth bags to people. Nisarg Mitra has been writing letters to Road Transport Officers regarding effective control of vehicular pollution.
Adoption of Schools for environmental education:

Nisarg Mitra has adopts one school every year and forms eco-club of 60 students and the activities and awareness programmes are organized throughout the year. The students are also taken out for nature tours. Nisarg Mitra has organized various awareness generation programmes, lectures, slide shows competitions and nature games in other educational institutions.

Tree Plantation and Development of Nursery:

Nisarg Mitra has undertaken Tree plantation programme, development of nurseries of variety of tree species, collection of seeds of rare species of plants and their plantation, implementation of unique tree adoption programme. Nisarg Mitra has arranging tours of citizens to acquaint them with the medicinal and other varieties of trees for conservation of biodiversity. The ‘Nisarg Mitra’ has launched agitation to stop illegal cutting /exploitation of medicinal plants and their smuggling for commercial purposes (for instance the agitation launched by Nisarg Mitra against illegal cutting and smuggling of medicinal forest plant known as “Narkya” which is believed to be important ingredient in the medicine prepared on the treatment of cancer; botanical term for Narkya is Nothapodypes nimmoniana). Nisarg Mitra had launched complaints regarding illegal cutting of trees in forests in Idarganj Plateau located at the heart of Radhanagari Sanctuary area to the authorities in the Ministry of Environment and Forests and as a result the Central Empowerment Committee had recently visited to this area to observe the condition of forests and wildlife.

Nisarg Mitra has planted trees of local variety at Amba village on its member’s land. In collaboration with social forestry department, the Nisarg Mitra distributes various species of trees at concessional rate to citizens for their plantation. In year 2012 the secretary of this organization Mr. Anil Chougule has observed the 253 Sacred Groves (Devraai) in Kolhapur district. These sacred groves found rare plant species and medicinal plants.

Promoting Appropriate technology and Organic farming:

Nisarg Mitra has been arranging demonstration programmes for the use of appropriate technology in the field of energy and organic farming, conducting nature health training camps.
Promotion of Traditional Ecological Knowledge:

Nisarg Mitra’s work in this area has been brought out by Salunkhe and Bachulkar (2011) It has been pointed out that, due to the process of industrialization, urbanization and modern schooling, children and youths in both cities and rural areas are increasingly being alienated from gaining first hand observational knowledge about local ecosystems. They are being separated from being in the company of their elder family members who possess traditional knowledge about local ecosystem including the knowledge about wild plants and their use. Therefore, the very possibility of transmission of traditional knowledge systems from old generation to young generation has been blocked. In view of this, conscious and concerted efforts must be made to conserve and promote such traditional knowledge systems pertaining to the wild vegetables.

Realizing this, Nisargmitra has recently undertaken a unique activity aimed at identification and documentation of wild vegetables found in the Kolhapur district. As a part of the celebration of international biodiversity year, on 15th August 2010, Nisargmitra organized a competition of cooked wild vegetables along with description of recipes, simultaneously at two places; Kolhapur city and Nesari village located in Gadhinglaj Taluka of Kolhapur. In Nesari village, the competition was organized in collaboration with local Srujan Anand Group. The news item relating to the competition published in the local newspapers made it clear that, participants can come with more than one cooked wild vegetable and they should bring with them the sample of plant and parts of the plants used as vegetable. Again, the participants were instructed that they should not come with the vegetables sold in the market.

The Nisargmitra’s appeal yielded encouraging response from women at both the places. As many as 34 women competitors participated in the event held at Kolhapur whereas 17 women took part in the competition held at Nesari village. Together they had brought with them as many as 74 different items of cooked vegetables. They had also carried with them the sample of wild vegetable plants and parts of such plants used for preparing vegetable dishes. The examiners were asked to taste the vegetables and give ranks to the participants. Along with women participants, their family members and some visitors were also present at the venue of the competition. All the participants were given certificate of appreciation for participating in the event. Besides, for all the women participants Nisargmitra
organized free of charge One-Day Forest Tour and provided information regarding
various plants, animal species, biodiversity and made clear the importance of
conservation of biodiversity.

It is important to note that, all the women who participated in the competition
of cooked wild vegetables were having rural background. The participants from
Kolhapur, though currently live in city, had spent their pre-marital life in the villages.
Again, the women participants belonged to the relatively old age. Thus, the old
women having rural background were mainly the carriers of traditional knowledge
with regard to the identification of wild plant species and their use as vegetables.

The purpose of Nisargmitra behind organization of competition of cooked
wild vegetables was to create a database of such vegetables. The Nisargmitra
collected samples of different plants from the participants. The activists also collected
information from the women participants about the local names of the plants and
part/parts of the plants being used as vegetables. With the help of experts in the field
of botany, Nisarg mitra identified the botanical names of the plants and their families.
The Nisargmitra has decided to create database of the wild vegetable plants for the
entire Kolhapur district by conducting competitions of cooked wild vegetables in the
years to come. Again, the office bearers are in touch with some of the experts in the
Agricultural Universities for development of agronomic practices in order to develop
natural farms of wild vegetables without using chemical fertilizers and pesticides.
Similar work with regard to conservation of Vanrais is also undertaken by the
activists of this organization.

Advocacy Work and Networking with Other Organizations:

Nisarg Mitra has participating in Public Hearing Meetings relating to
development projects and putting forth own viewpoints and objections with regard to
the possible environmental implications. For survival needs of local people and for
preventing possible environmental destruction the organization has made
representations in public hearing meetings and raged their objections against various
developmental projects. The activist have also resorted to making use of provisions
under right to information act for getting relevant information on environmental
issues and encouraged people to make use of RTI.

The volunteers and key activists of Nisarg Mitra are associated with various
committees such as Kolhapur Municipal Corporation’s Vruksha Pradhikaran
committee, disaster management committee, cleanliness campaign committee, advisory committee of forest department, biodiversity committee. The organization has actively participated in preparation of Kolhapur Citizens Manifesto ‘Nandi Paryawaran Samrudhichi’.

The executive members and volunteers of Nisarg Mitra are in touch with and pursuing matters relating to environmental issues not only with Governmental agencies at the local and State level, but also with the agencies at the National and international level. As a vibrant organization, for strict implementation of environmental laws and rules Nisarg Mitra is sending request letters and complaints with the office of the Pollution Control Board, insisting upon the industrial plants to have their own pollution control machinery through persuasion of the issue with the PCB. Along with other environmental groups in this region, Nisarg Mitra has also taken positive stand in support of “Sahyadri Tiger Project” in this region and the area includes Chandoli, Koyana and Radhanagari forest areas. Similarly, along with some others, Nisarg Mitra has participated in the preparation of joint proposal for declaring Sahyadri forest area as “Eco-sensitive Area”. In this regard, the organizations are in touch with officials at the national level. At the international level, attempts are being made to conserve the biodiversity hotspots in the world. One proposal has been submitted to the UNESCO (World Heritage Committee) for declaring Western Ghats Areas (including areas of Radhanagari Wildlife Sanctuary, Chandoli National Park, Koyana Wildlife Sanctuary and Kas Plateau (Areas of Kolhapur, Sangli and Satara Districts in Maharashtra) as “Natural World Heritage”. Nisarg Mitra has also taken active part in preparing this proposal and its submission. Thus, Nisarg Mitra is trying to take up the locally relevant environmental issues with an eye on the events taking place at the national and global level.

**Concluding Observations:**

The Nisarg Mitra is playing an important role in the field of protection and conservation of environment. Nisarg Mitra does not work in isolation. It is a part of larger environmental movement in this region. It is connected with other informal environmental groups and NGOs. Nisarg Mitra invites representatives of other environmental organizations to participate in many programmes undertaken by it and its representatives also participate in the programmes/activities/agitations undertaken by other organizations.
It is working as a model organization in the field of environmental protection for other organizations in Kolhapur and adjoining districts such as Sangli and Satara. It has encouraging and motivating other organizations and groups. Many of its activities can be taken up by other interested organizations for development to be sustainable. The Nisarg Mitra is also extending intellectual and moral support to NGOs in Satara district for helping them to stop upcoming Nav-Mahabaleshwar project on environmental grounds. It is providing active support to strengthen environmental movement in south western Maharashtra.

The office bearers and activists organize public meetings, lectures of eminent environmentalists and activists, Poster Exhibitions, Slide Shows, Film Shows, Demonstrations of different types, Cycle Rallies, Street Plays, Distribution of Pamphlets, Writing Articles in local newspapers, Celebrating environmental day, the Earth Day, Forest Day, Maharashtra Vruksh Din, National science month, Wildlife protection week, Vanmahostav, organizing environmental Games and Arranging Competitions of different types. As told by the office bearers, initially peoples’ response was not much encouraging but due to frequent and continuous programmes now the organization has gained recognition and now peoples’ response is quite encouraging.

Nisarg Mitra has adopted various strategies while working in the field of environment. The Nisarg Mitra organization conducts public meetings, implements environmental education and awareness generation programmes in educational institutions, organizes people and visits various government offices for launching written complaints, conducts follow-up activities, registers protests by organizing morchas, uses provisions under RTI act for getting relevant information on environmental issues, organizes salient morchas, morchas with slogans, sit-ins, questioning government/municipal officers on environmental issues, writing and publishing articles on environmental issues in local newspapers and research journals, making use of press for propaganda, advocating on behalf of local people before the visiting teams of experts constituted by government and International agencies and fighting legal battles for the environmental cause. The office bearers and activists of Nisarg Mitra not only work for pushing their own agenda but also inspire and encourage others interested to form organizations and to work for environmental protection. The president and secretary also provide guidance and moral support to other environmental groups and organizations.
The office bearers have also participated in and encouraged research scholars for conducting research on environmental issues. The organization is also collecting relevant literature on environmental issues. The office bearers and activists have also undertaken and participated in confrontationist/agitational activities for the protection of local environment and ecosystem.
Case Study - 3: WORK OF “GREEN GAURDS”

‘Green Guards’ is a Non-Governmental Organization (N.G.O.) established on 6th October 1991 and registered on 28th October 1993. There are 85 member activists in this organization. It is voluntary organization and there are no paid employees nor the office bearers or volunteers/activist get honorarium. The organization has its own written constitution. The office bearers of the Green Guards told that their organization and its volunteers get inspiration from well known National organization Bombay Natural History Society [B.N.H.S.], Mumbai working in the field of environment. Green Guard is also a registered member of World Wildlife Funds, Nature Clubs of India movement.

Objectives and Major Areas of Work:

The objectives of Green Guards include: 1) To study wildlife in Kolhapur district [study of snakes, frogs, geckos (Herpetofauna) preparation of check list of birds, butterflies of Radhanagari Wildlife Sanctuary and Chandoli National Park, Preparation of Florastic and Faunastic analysis in wildlife sanctuaries] 2) To protect and conserve nature, 3) To create awareness among people about nature through programs like slide shows, film shows lectures, poster exhibitions, street shows, nature camps, nature courses, nature games etc., 4) To impart environment education, 5) To prepare resource material for environmental education, 6) To participate in Wildlife census in sanctuaries (i.e. Radhanagari Wildlife Sanctuary and Chandoli National Park), 7) To arrange nature camps, nature education courses, study trips etc, 8) To protest against INDAL’s proposed bauxite mine at ‘Idarganj’ inside the Radhanagari Wildlife Sanctuary, 10) To undertake plantation of important plant species, 11) To strengthen library of Nature books.

The working area of Green Guards is mainly Kolhapur District, especially Radhanagari wildlife Sanctuary, Chandoli National Park, Reserve Forests (Barki, Amba, Padsali etc.) and Sacred Groves. Green Guards is working in the field of nature conservation, environmental awareness and conducting studies pertaining to the broad area of wildlife conservation.
Green Guards’ Work in the field of Environmental Education and Protection:

For purpose of convenience of presentation, the work of Green Guards analyzed in the context of major issues taken up by it, various types of activities undertaken and implemented, ways and means adopted by this group and significance of role played by the Green Guards. The following account of the work done by the Green Guards is based on the information given by the key activists of this organization.

The Issues taken up by Green Guards:

Since its inception, Green Guards is continuously working in the field of environmental protection and conservation. It has worked on many specific issues. These issues include: Wildlife/Wildlife Sanctuaries and National Parks (wild animals, research, sowed seed of various plants, wildlife photographs, census, celebration of wildlife weak, nature tours, high quality environmental posters for nature education), Animal rescue (various venomous and non-venomous snakes), Birds and Butterflies (Birds, Butterflies, research, protection and conservation), Tree Plantation, (‘Gharodari Vruksha Ropen’, Go Green Campaign), opposition to Mining (survey, prepared reports), Nature Education (preparation of nature game material, adopt schools, prepare slides, film shows, conduct nature courses etc), Forests (research), production of Nature Games Material (for environmental education), Environmental Research (impact of mining projects, documentary film, published books) Sacred Groves.

Work Relating to Wildlife/Sanctuaries and National Parks:

In every year during Dipawali and summer vacations, Green Guards have organized nature camps of 5 to 10 days duration at various sanctuaries like Dandeli, Melghat, Tadoba, Nagzira, Molem etc. and short term camps at Radhanagari Wildlife Sanctuary, Chandoli National Park and Koyana Wildlife Sanctuary, Sagreshwar Wildlife Sanctuary, etc. of 1 to 3 day duration throughout the year.

The volunteers/key activists of this organization have a good collection of hundreds of wild life photographs. Wildlife division of Kolhapur is setting Nature Interpretation canters at Radhanagari and Chandoli Wildlife Sanctuaries. For these nature interpretation canters the District Forest Officer, wildlife, Kolhapur has..
selected 84 wildlife photographs organizations from Green Guards. The activists of this organization have laminated these photographs and supplied them to the forest department. (Photographs of: 50 species of butterflies, 16 species of snakes, 2 butterfly life cycles, 10 landscapes, 2 LED boards etc.)

Every year Green Guards celebrates wildlife-week [1 to 7 October], and for this the volunteers/key activists arrange slide shows, lectures, nature games and nature trails in Radhanagari wildlife sanctuary, Chandoli National Park and Sagreshwar Wildlife Sanctuary. Green Guards has arranged 6 poster exhibitions of 2 to 6 days in famous halls in Kolhapur city during Wild life week celebrations. The volunteers/key activists have participated in wildlife management plans in Radhanagari Wildlife Sanctuary and Chandoli National Park such as grass planting, plantation of various plants etc. In Year 1997-1998 the volunteers/key activists of this organization have cleaned and expanded 3 perennial water holes in Radhanagari Wildlife Sanctuary.

For last ten years the volunteers/key activists of the Green Guards are participating in wildlife census at Radhanagari Wildlife Sanctuary and Chandoli National Park. During the years 1996, 1997 and 1998, activists of Green Guards have sowed seeds of various plants in Sagreshwar Wildlife Sanctuary - a man-made sanctuary- and the activists claim that the results of work done by them are very good.

**Animal Rescue:**

The members of Green Guards actively participate in animal rescue operation especially various venomous and non-venomous snakes in urban and sub-urban areas in and around Kolhapur. Since last ten years Green Guards claims that it has rescued more than 500 snakes and released them in their natural habitats. It has also worked for creation of awareness about snakes and other wild animals among the members of society.

**Birds and Butterflies:**

Green Guards has prepared Checklist of Birds of Kolhapur city based upon their 14 years’ observation, which includes 238 species of birds. In 1995-1996 they held an Anti poaching campaign in Kalamba town which was very fruitful. Local people and their members have actually stopped poaching of water birds in Kalamba Lake many times. Since 2000, the key activists of this organization are regularly
doing the work of monitoring of migratory water birds visiting Kalamba Lake. Green Guards has also prepared Checklist of Butterflies of Kolhapur (84, species).

**Tree Plantation:**

During rainy season of the years 1998, 1999, 2000, 2005 and 2006, the activists of Green Guards have planted more than 20,000 plants of 20 different places in sub-urban areas in Kolhapur City with the help of Social Forest Department Kolhapur through Green Guards project “Gharodari Vriksha Ropan” under “Go-Green” Campaign.

**Opposition to Mining on Ecological Grounds:**

Green Guards have prepared three reports. 1] Survey of ‘Indal Mining Sites’ at Nangartaswadi and Kasar Sada. 2] Report on ‘Florastic Analysis of Radhanagari Wildlife Sanctuary’ and 3] Report on ‘Faunastic analysis of Radhanagari Wildlife Sanctuary’. All these three reports have been submitted to Bombay Environment Action Group (BEAG) as a supporting document to the petition filed by Bombay Environment Action Group in Bombay High Court against ‘INDAL’ company’s illegal mining activities inside the Radhanagari Wildlife Sanctuary. The Bombay Environment Action Group had obtained stay order for illegal mining and mining at ‘Idarganj’ had stopped. These three reports were very useful against INDAL in the High Court. This is the very important work of the Green Guards.

**Work in the field of Nature-Education:**

The Green guard has played an important role in the field of nature education. For this, the organization has developed or designed courses/ prepared information folders/ prepared slides and nature game material, organized lectures and developed a library.

**A] Courses:**

Green Guards have arranged ‘Nature education courses’ of 10 days duration each (in the years 1996, 1997, 2000, 2005 and 2006). These courses were approved by Shivaji University, Kolhapur. Green Gaurds conducted courses for forest officials and post graduate students and armature students. The following are the courses designed by this organization. 1] ‘Basic course in Ornithology’ (Scientific Study of Birds): Dr. Girish Jathar in collaboration

B] Information Folders Prepared by Green Guards:


C] Green Guards’ Nature Interpretation Centers:

Green Guards have set up Nature Interpretation Centers at Radhanagari Wildlife Sanctuary, Chandoli National Park, Sagreshwar Wildlife Sanctuary, Koyana Wildlife Sanctuary, and Amba Reserve Forest. The organization has developed 12.5 Acre land at Karanjfen village near Kasari River, taluka Shahuwadi for Nature Interpretation Centre.

D] Slides Prepared by Green Guards:

The activists of Green Guards have prepared many slides on their own such as; 1] Snakes: 256 slides, 2] Butterflies: 220 slides, 3] Biodiversity: 1000 slides, 4] Birds: 186 slides. These slides are very useful in environment education.

E] Preparation of Material for Nature Games:

Memory, 8] Survival of fittest. These games are very useful in environment education.

**F] Organization of Lectures:**

The activists of Green Guards have arranged more than 100 lectures, slide shows & film shows in schools, colleges and community halls in Kolhapur City. Every year Green Guards has adopted a school for environment education (Two hour per week). They have prepared 230 posters of birds, snakes, butterflies, plants, flowers, wild animals etc. for awareness generation about birds, snakes, butterflies, plants, flowers and wild animals.

**G] Green Guards’ Book Library:**

Green Guards’ book library contains more than 130 nature books. Green Guards’ members are subscribers of Sanctuary Asia, Horn bill of Bombay Natural History Society, World Wildlife Fund, Quarterly, Down to Earth, and Newsletter for Birdwatchers.

**Research Work Done by Green Guards:**

The office bearers/key activists of the Green Guards are also involved in environmental research. They have studied various environmental issues such as: ‘Study of birds and butterflies’ at Panhala Hills, ‘Study of Birds, Butterflies and Wild animals’ at Idarganj plateau and surrounding forests in Radhanagari Wildlife Sanctuary, ‘Faunastic Analysis’ of Chandoli National Park, ‘Faunastic Study’ of Amba reserve forests an important wildlife corridor, A documentary film on Amba reserve forest – “Glimpses of Amba”, A documentary film on Kalamba Lake - “Birds of Kalamba”. In Year 2005 Green Guards published a book on Environment Education “Nisarg Vedh” and in Year 2006 they have published revised edition of this book.

**Important Achievements of Green Guards:**

1] Finding of ‘Olive forest Snake’ on Idarganj Plateau in Radhanagari Wildlife Sanctuary was the first record of the species for the sanctuary.

2] Finding of ‘Eryx Whitekari Snake’ on Idarganj Plateau in Radhanagari Wildlife Sanctuary was the first record of the species for the sanctuary.
Finding of Prasad gecko in Bat dwelling cave on Idarganj Plateau in Radhanagari Wildlife Sanctuary was the first record of the species for the sanctuary.


First ever record of Malayan Heron in Radhanagari Wildlife Sanctuary.

Malbar Gliding Frog first authentic record in Kolhapur district and first ever northern most record in Western Ghats

Record of Koyana Toad in Barki a new location of its kind

Viviparity in Gegeneophis sheshcheri a caecilian found in Barki area of Kolhapur district, it is the first report of viviparity in Asian Amphibians and Indo-seychellean caecilids. Geographies is the only caecilian genus known to include oviparous and viviparous species and G. Sechachri is the smallest known viviparous caecilian

Striped Necked Mongoose: This amazing mammal was recorded on film by Green Guards members at Amba Reserve forest and it is the first ever record of this animal in Maharashtra.

Concluding Observations:

The Green Guards is playing an important role in the field of wild life conservation in terms of imparting education, involvement in wildlife management and research relating to wildlife. It is a part of larger environmental movement in Kolhapur district. It is connected/ networked with other informal environmental groups and registered and non-registered NGOs. Green Guards invites representatives of other environmental organizations to participate in many programmes undertaken by it and its representatives also participate in the programmes/activities/agitations undertaken by other organizations.
GREEN GAURDS: PHOTOGRAPHS
Case Study-4: WORK OF “DEVRAAI”

Development Research, Awareness and Action Institute, DEVRAAI [As per popular understanding, the word Devraai means sacred Groves or mini forest land of god preserved/conserved and guarded due to influence of traditional belief systems.], has been established in the year 1997. Devraai is a registered trust working in the state of Maharashtra. This organization is established by highly educated and experienced people. It has its office with adequate furniture in R. K. Nagar area in Kolhapur city. Devraai’s office building [in fact it is a residential bungalow of its founder member] is a totally ‘zero waste’ building, which is visited by representatives of other organizations, activists and ordinary citizens. Its executive body consists of three members. Besides, it has a cadre of eleven members (five male and six female members). In Devraai, there are no permanent paid employees. The organization has its own written constitution. The office bearers of the Devraai told that their organization and its volunteers get inspiration from well known institutions in the field of environment such as: Center for Environment Education (CEE) and Center for Science and Environment (CSE).

Objectives and Major Areas of Work:

The Major objectives of Devraai stated in its constitution include: 1] To work at National and State level in the field of environment, health, weaker sections, folk education. 2] To implement programmes aimed at environmental awareness, protection and sustainable development with the participation of youth and women such. 3] To guide voluntary organizations in the field of environmental protection and with their collaboration undertake action programmes. 4] To promote rational and judicious use of natural resources for progress and social justice. 5] To co-operate with the like-minded people and voluntary organizations. 6] To maintain environmental balance with the help of participation of people. 7] To work for development of women and children 8] To create awareness about public health and to educate people.

Devraai works in many fields of development interventions such as health, weaker sections, development of women and children; however, one of its major field is environmental protection and conservation. Devraai works in the field of environmental protection, research on the environment field and sustainable development and for this it focuses on organic farming, science, education, non-
conventional energy and pollution from the vantage point of sustainable development. Though, the contribution of Devraai in various fields of its work is important, its work in the field of environmental conservation is of crucial significance and therefore an attempt is made below to present Devraai’s work as a case.

**DEVRAAI’s: Work in the field of Environmental Protection:**

For purpose of convenience of presentation, the work of Devraai is analyzed in the context of issues taken up by it, various types of activities undertaken and implemented, ways and means adopted by this group and significance of role played by the Devraai. The following account of the work done by the Devraai is based on the information given by the key activists of this organization.

**The Issues taken up by DEVRAAI:**

Since its inception, Devraai is continuously working in the field of environmental protection and conservation. It has worked on many specific issues. These issues include: Awareness generation about the negative impact of Plastic Carry Bags, Energy, Management of Water Solid Waste and its re-use, study of Forest, wildlife and Birds and and creating awareness about environmental issues and problems in collaboration with other similar organizations.

**Plastic Carry Bags:**

In the year 1997, Devraai had organized campaign relating to ban on plastic carry bags and for promotion of use of cloth bags in Kolhapur, they have sold thousands of cloth bags at minimum price of just Rs. 2 and Rs. 5 only. Devraai has organized lectures and practical on the problem of plastic carry bags per bag depending on its size.

**Energy:**

Since 2001, Devraai has conducted around 400 workshops for women and youth for ‘Saving Energy’ with the cooperation of Ministry of Petroleum, New Delhi. Devraai has organized poster competitions on ‘Energy Conservation’ for the college students of Kolhapur, Sangli and Satara districts, with the cooperation of Ministry of Petroleum, New Delhi in 2009. It has distributed pamphlets on the subject of electricity consumption
Water:

Devraai is taking efforts for spreading message ‘Save Every Drop of Water’, with the help of ninety color posters and information posters. It has distributed eight thousand pamphlets on the theme of ‘Save Every Drop of Water’, impact of water pollution, electricity consumption and waste management etc. Devraai has organized lectures and practicals on water pollution and water literacy. It has published book entitled ‘Water Problems: Cleanliness and Conservation’, a publication sponsored by Gokul Dairy and it was released by the president of Vanraai, Pune, Shri. Mohan Dharia.

Problem of Waste:

Devraai has organized one day workshop and exhibition on domestic waste management, lectures and practicals on Solid Waste Management. In 2004, Devraai had organized one day workshop on ‘Water and Waste Management’ for teachers of Ratnagiri district at Khare Dhere College, Guhagar. It has organized workshop and practicals for slum dwellers on ‘Waste Management: Need of Time’. It has conducted one day workshop for urban women on use of Bio-Disposal and waste management in 2001. Since last four years, Devraai has been producing Gandul Khat. It has distributed pamphlets on the subject of waste management.

Opposition to Tree Cutting, Plantation and Conservation:

Since 1984, Devraai has actively participated in campaigns for saving Vanraais and protection of Rankala Lake. It has opposed attempts at cutting trees for road development project in Kolhapur city.

Awareness generation about Pollution at the time of Public Festivals and Ceremonies:

In the year 2008, Devraai has given guidance to ‘Tarun Mandal’s’ for avoiding pollution at the time of Ganesh Festival. Devraai has actively participated at the time of Ganesh idols immersion day for collection of donated idols and Nirmalya.

Wild Animals and Birds:

Devraai has conducted survey regarding bird and wildlife. It has conducted study of ‘Conflict of Man and Wild-Animal’ at Western Ghat.
Other Notable Environmental Programmes and Activities Undertaken by DEVRAAI:

In year 1987, Devraai was the member of planning and management body of save Western Ghat Movement. The trustees of Devraai have actively participated in programme for creating awareness among students and teachers regarding environmental protection. Devraai has organized workshops in South Western Maharashtra for various categories of people: Housewives, Social Activists, Political Leaders, Voluntary Organizations, Officers of Government and Non-Government, Teachers etc. Devraai has organized Discussions, camps, study tours, practicals and demonstrations in collaboration with voluntary organizations, educational institutions, and Government departments. Devraai has conducted various competitions for students; Essay Writing, Poetry and Poster Exhibition with the help of grants received from Ministry of Environment, Government of India, Center for Environment Education (CEE). These activities were relating to environmental awareness generation, issues such as water, energy, women and child development, health education, solid waste management etc.

Research Work of DEVRAAI:

Devraai has participated in research projects sponsored by the international agencies such as, WWF (India), India and Canada Environment Facilities (ICEF). It has conducted research on socio-economic study of Khajan area of Maharashtra, sponsored by Ministry of Environment and Forest, Government of India. Study of effects on environment due to tourism at Sindhudurg district, Study of effects on environment due to mining at Western Ghat, Research on forest degradation at Western Ghat, Submitted study report to central Government regarding Sahyadri Environment Sensitive Area (SESA), Participation in ‘Sahyadri Ecology Forum in 2009, Research and participation in survey of ‘Warna River Region for SOPPECOM (2010), Research and social survey on hazardous effects occurring on environment. In 2005, Devraai has done evaluation of ‘Nirmal Gram Award’ with department of Environment Science, Shivaji University, Kolhapur, and 87 villages of Raigad, Ratnagiri, Sindhudurg and Kolhapur districts, Publication of environment journal of Subak graphics entitled ‘Margeshwari’.
Counseling Work of DEVRAAI:

The members of Devraai are involved in counseling work with regard to issues such as environment, wildlife, nature tours, waste management, water conservation, environment oriented housing, urban development and sustainable development. Devraai trustees are guiding to college teachers who are teaching subject of environment. From 8th March 2007, Devraai has started counseling centers for understanding the changing systems of family and their problems.

Concluding Observations:

The Devraai is playing an important role in the field of protection and conservation of environment through awareness generation programmes and activities, research programmes and counseling work. Devraai has organized many awareness generation activities such as seminars, workshops, camps, demonstrations, competitions and exhibitions on different themes relating to environmental protection. It is working as an agency of environmental education for children, youth, women, slum dwellers and students in educational institutions.

Devraai is working as a model organization in the field of environmental protection for other organizations in Kolhapur and adjoining districts. It is providing active support to strengthen environmental movements in Maharashtra. Thus, Devraai has been doing an impressive work in the field of environmental protection not only through its own activities but also by encouraging and motivating other organizations, groups and is influencing agencies of National and Global level. The trustees of this organization have played a key role in development of other NGOs such as: Maharashtra Pakshi Mitra Sanghatana (1981), Nisarg Mitra (1982) and Regional unit of WWF (1987). Devraai has its own library which includes 3000 books, journal, articles, maps etc.

It has conducted research studies, completed several research projects funded by National and International agencies and published literature on different environmental themes. Devraai is connected with many other Governmental and Non-Governmental organizations and has undertaken collaborative activities. Devraai is having advisory committee consisting of experts in the field of environment and social fields and providing counseling services to other organizations and the institution is working as advocacy group.
Devraai has various strategies adopted for environmental protection and conservation by Devraai. This organization organize morchas with slogans, Registering protest, organizing awareness generation by writing newspaper articles and making use of media on environmental issues. All the trustees and volunteers of the organization are engaged in creating environmental awareness and awareness about social problems.
Case Study -5: WORK OF “VASUNDHARA NISARG MANDAL”

“Vasundhara Nisarg Mandal” is located at Kini village, in Kolhapur district. It was established in the year 2005. Due to flood of Warna River on 26th July 2005, there was a loss of agriculture and dead bodies of animals were floating in the stream of flood water which made some of the youths of Kini village to seriously think about the natural disasters in particular and environmental issues in general told Shri. Pramod Mali, who took initiative in establishing this organization, other important motivating and inspiring source for the emergence of this organization was a local high school teacher, Shri. B. D. Malgunde. Under the guidance of Malgunde B. D. the youths in this village had established and registered this organization under the umbrella organization World Wildlife Fund (WWF), Kolhapur branch.

However, due to some reasons, the Kolhapur branch of WWF had stopped working in 2009 and with this the association of Vasundhara Nisarg Mandal with WWF was discontinued. Yet, the activists of succeeded in maintaining the work of Vasundhara Nisarg Mandal as a non registered Non- Governmental Organization in the Kini village, taluka Hatkanangale, Kolhapur district. The office of the organization is in its president’s residence. Its executive body consists of twelve members besides a cadre of forty one ordinary members (27 male members and 14 female members). There are no paid employees nor the office bearers or volunteers/activists not honorarium/payment etc. It is purely and voluntary organization of youths in the village. The activists of the Vasundhara Nisarg Mandal get inspiration and guidance from local key activist Prin. Dr. Madhukar Bachulkar, the president of Nisarg Mitra organization located at Kolhapur city.

Objectives and Major Areas of Work:

The main objectives of Vasundhara Nisarg Mandal are to create awareness about the environmental issues and problems among the villagers and highschool and college students. It also aims at protection of Wildlife and particularly snakes. The dream of this organization is to develop Kini village as “environmentally rich village”. Vasundhara Nisarg Mandal works mainly for environmental protection and conservation; its activists focus on organic farming, science- education, promotion and use of non-conventional energy and reduction from pollution from the vantage point of sustainable development. An attempt is made below to present Vasundhara Nisarg Mandal’s work as a case.
Vasundhara Nisarg Mandal’s Work in the field of Environmental Protection:

For purpose of convenience of presentation, the work of Vasundhara Nisarg Mandal is analyzed in the context of issues taken up by it, various types of activities undertaken and implemented, ways and means adopted by this organization and significance of role played by the Vasundhara Nisarg Mandal. The following account of the work done by the Vasundhara Nisarg Mandal is based on the information given by the key activists of this organization.

The Issues taken up by Vasundhara Nisarg Mandal:

Since its inception, Vasundhara Nisarg Mandal is continuously working in the field of environmental protection and conservation. It has worked on many specific issues. These issues include awareness generation about Water Pollution, Land Pollution, Wild Animals and Birds. It undertakes various programmes such as tree Plantation. The Vasundhara Nisarg Mandal has organized and carried out many activities relating to the issues noted above.

Water Pollution and Conservation:

Vasundhara Nisarg Mandal has been doing constructive work for conservation of water resources and awareness generation regarding water pollution. Activists insist upon rational use of water resources, create awareness about evil effects of water pollution on human life and work for putting ban on deep boar well digging. At the beginning of rainy season, the activists help and motivate to prohibit mosquito breeding at waterlogged/swampy places by use of ‘Gappi’ fishes. They are creating awareness and promoting drip irrigation among farmers, explaining farmers about impact of excessive use of water, effects of chemical fertilizers and positive effects of bio-fertilizers.

Land Pollution:

The activists of this organization are creating awareness generation work among farmers about preserving health of the land and to prevent land degradation occurring due to indiscriminate use of water and chemical fertilizers. They are promoting use of organic manure so as to sustain fertility of the cultivable land. The
activists also suggest farmers to adopt organic farming and to make judicious use of water.

**Protection and Conservation of Wild Animals and Birds:**

Vasundhara Nisarg Mandal is creating awareness among school children and villagers about the importance of wild animals and birds in the eco system. For this they are organizing various experts’ lectures, slide shows and staging drama shows etc. The volunteers of this organization are working on various issues such as treatment of wounded birds and animals and sending them back to their natural habitats. Due to the awareness created by activists of this organization, villagers never kill snakes.

**Tree Plantation and Conservation:**

To make environment resource rich, Vasundhara Nisarg Mandal is undertaking tree plantation. They give emphasis on conservation of rare plant species, plantation of medical plants and plantation local variety of trees. This organization has planted variety of rare species of trees such as *Hirda*, *Biba*, *Vad*, *Chinch*, and *Arjun* on road sides in entire Kini village. Due to this basic work of the Vasundhara Nisarg Mandal the village *Grampanchat* is preparing for participation in eco-friendly village scheme/competition of the Maharashtra State government. In the year 2010, Vasundhara Nisarg Mandal had planted 2000 trees and distributed 1000 plants to the villagers. As a result of work done by this organization in the field of environmental conservation and protection, the Secretary of Rural Development, Government of Maharashtra has adopted Kini Village as eco-village on 15th August 2010.

**Awareness generation work at the time of Festivals and Ceremonies:**

At the time of Ganesh festival, activists of Vasundhara Nisarg Mandal make appeal to villagers to use Ganesh idols prepared from ‘Shado’ Clay. They explain people about polluting effects of using Ganesh idols prepared with Plaster of Paris (PoP) and decorated by using synthetic colours. At the end of Ganesh festival every year, the activists of Vasundhara Nisarg Mandal are collecting Gahesh idols and Nirmalya instead of allowing them to be immersed in fresh water bodies in and around Kini village. They have been using the collected Nirmalya for creating bio fertilizer and it is being used for tree plantation in and around village by this
organization. It can be said that the activists are educating people to keep water bodies 
pure and safe for consumption.

At the time of Dipawali festival, activists of Vasundhara Nisarg Mandal 
motivate to villagers to celebrate eco-dipawali, dipawali without firecrackers. The 
children are encouraged to save expenditure on fire crackers and the money saved is 
used for three days environmental trip to the Kalamawadi dam and Radhanagari 
Wildlife Sanctuary, Dazipur.

**Awareness Programmes for School Children:**

Vasundhara Nisarg Mandal is creating awareness among school children 
through the concept of ‘Nature my Friend’. They are organizing tours and camps for 
students and villagers, at places such as Radhanagari Wildlife Sanctuary, Chandoli 
National Park and Birds Lake at Mayani every year.

**Concluding Observations:**

Vasundhara Nisarg Mandal, Kini, is a non registered Non- Governmental 
Organization working in the field of environmental protection. Its activists are 
working at the village level on the issues such as water pollution, proper use of water 
and land, protection and conservation of animals and birds, tree plantation, creating 
awareness about pollution and its effects.

The Vasundhara Nisarg Mandal does not work in isolation. It is connected and 
networked with other environmental groups and registered and non- registered Non- 
Governmental Organizations. Vasundhara Nisarg Mandal invites representatives of 
other environmental organizations to participate in many programmes undertaken by 
it and its representatives also participates in the programmes, activities, agitations 
undertaken by other organizations. This organization conducts public meetings for 
environmental awareness and conservation; organize nature camps and tours, 
competitions, staging drama shows, writing articles on environmental issues in local 
news papers etc.
VASUNDHARA NISARG MANDAL: PHOTOGRAPHS
SECTION- III

Characteristics of Emerging Environmental Movements in Kolhapur District:

On the basis data and analysis presented in the third and fourth chapters in the present thesis, broad features of the emerging environmental movements in Kolhapur district have been presented below. As discussed earlier, in response to the environmental degradation in Kolhapur district in various forms and increasingly felt need to address these issues, environmental NGOs and Groups have emerged in Kolhapur district especially after 1980s.

1] Emerging Environmental Movements in Kolhapur District:

On the bases of issues taken up by an overwhelming majority of the NGOs and Groups, four movements could be identified:

1) Rankala Bachao Andolan,
2) Movement against Panchganga River Pollution,
3) Movement against Bauxite Mining, and
4) Movement against Illegal Tree Cutting, Deforestation and Endangered Wildlife and Bio-diversity.

Let us now look at some of the salient features of these movements.

1] Common Objective:

The different environmental NGOs/Groups in the Kolhapur district have been working at ten different villages, cities/towns and they are located in six Talukas, however, all these NGOs and groups have common objective of environmental protection towards which their activities are aimed at.

2] Interconnectivity among the NGOs and Groups:

The defining element of the emerging movements is the interconnectivity among these NGOs/Groups. The data clearly revealed that many a times the organizations come together to address the common issue at the local level.

3] Continuity in pursuing the Objectives:

The different environmental NGOs/Groups in the Kolhapur district have been continuously undertaking programmes and activities directed at environmental protection.
4] Organizational Features of NGOs/Groups:
Some of the salient features of the environmental NGOs/Groups in the Kolhapur district are as under:
i) The more concentration of NGOs/Groups was found in urban locations.
ii) These NGOs/Groups are not professional organizations and they are mainly voluntary organizations.
iii) Most of the environmental NGOs/Groups were having small size (having up to 50 total members),
iv) Non-Registered Non-Governmental Organizations (NGOs) were in majority.
v) The executive bodies of these organizations were manned by the highly educated and well informed civil society members hailed from middle class.

5] Social Background of Activists in Environmental of NGOs/Groups:
   i) Most of the environmental activists/volunteers were belonging to middle age.
   ii) Male activists were numerically preponderant.
   iii) Most of the environmental activists were belonging to Maratha and other higher castes and were mainly Hindus.
   iv) Most of the environmental activists come from the ‘middle class’ urban background.
   v) Most of the environmental activists were drown from highly educated strata of the society.
   vi) Some environmental activists had a degree or a diploma in the field of environmental science to their credit. Therefore, a section of environmental activists possesses requisite scientific knowledge relating to the environment field. This could be seen as a positive sign of the environmental movement in Kolhapur district

6] Issues taken up by NGOs/Groups:
The environmental movements in Kolhapur district mainly focus on local environmental issues and problems. The main environmental issues addressed by the NGOs/Groups include: 1] River Pollution, 2] Conservation of Lakes, 3] Illegal Tree Cutting/ Deforestation and Endangered Wildlife and Biodiversity and 4] Environmental Consequences of Mining. These issues are locally relevant but are
also on the agenda of environmental movements elsewhere in India and even at the global level. Some other issues are:
Pollution Due to Sugar Factories and Other Industries, Over use of Plastic, Vehicles Pollution, Environmental Problems induced by Developmental Projects, Over Use of Chemical Fertilizers and Pesticides, Problem of Waste [Solid and Bio-Medical Waste], Illegal Hunting, Loss of Natural Habitats, Land Degradation, Saline Land, Sand, Problem of Bio-Medical Waste, Problem of Pure Drinking Water, Illegal Smuggling of Narkya and Flood and degradation of Western Ghats etc. The NGOS/Groups have undertaken many awareness generation programmes, action programmes and agitational activities on these issues.

7] Ways and Means adopted by the NGOs/Groups:
The ways and means adopted by the NGOs/groups for the purpose of environmental protection and conservation consist of all possible conventional peaceful means [which include organizing public meetings, awareness generation by writing newspaper articles, making use of media on environmental issues and filing written complaints], action oriented confrontationist/agitation activities [which include registering protest by agitations, organizing morchas with slogans, staging demonstrations, organizing sit in programmes, questioning government officers on duty and closing government offices], innovative militant actions challenging violation of laws and making appeal on moral ground [which include using RTI, filing court cases].

8] Ideological Orientations:
Though some of the environmental activists were seen to be more influenced by ideological elements associated with Gandhism and Appropriate Technology, there were some others with mixed ideological elements found in their thinking about environment.

9] Impact of Environmental Movements in Kolhapur District:
Environmental groups/NGOs in Kolhapur district have attempted to play effective role in creating environmental awareness. They have undertaken many environmental awareness generation programmes, action programmes and agitation/movement activities for environmental protection and conservation.
Major Achievements of the Environmental Movements in Kolhapur District:

The following can be said to be the major achievements of the environmental movements in Kolhapur district:

1) Environmental Manifesto of Kolhapur Citizens ‘Nandi Paryawaran Samrudhichi’:

The activists of twenty four NGOs/Groups working in Kolhapur city came together and took active and leading role in bringing out a document titled “Environmental Manifesto of Kolhapur Citizens” in which systematic diagnosis and nature of local environmental problems such as Panchaganga pollution, problem of safe drinking water, solid waste, flora and fauna, biodiversity, noise, air and water pollution, road transport, grounds and open spaces, protection of historical places/buildings and disaster management etc have been documented and systematically dealt with. This attempt is perhaps the first of its kind in the history of environmental movement in Maharashtra. This is one of the unique achievement of the emerging environmental movements in Kolhapur district.

2) White Paper on Panchganga River Pollution:

Due to pressure generated by agitations by environmental NGOs/Groups, Maharashtra Pollution Control Board had filed criminal cases against sugar factories and warned and penalized Kolhapur Municipal Corporation for taking appropriate measures to make Panchaganga pollution free. In February 2006, MPCB had to come out with White Paper on Panchaganga River Pollution. This is the important achievement of the emerging environmental movement in Kolhapur district.

3) Issue of Panchganga River Pollution has come on the agenda of Local Media:

As a result of continuous agitations of active local environmental NGOs/Groups working for pollution-free-Panchaganga river, the issue of Panchaganga River has come on the agenda local media. Both print and electronic media have given wide publicity to the environmental issues from time to time. The people in Kolhapur city and all the villages on the banks of the river have now recognized the importance of this issue and people have become vocal on this issue.
This is another important achievement of the emerging environmental movements in Kolhapur district.

4) Inclusion of Panchganga River under National River Conservation Scheme:
   As a result of continuous agitations of active local environmental NGOs/Groups working for pollution-free-Panchaganga river, coupled with the recent outbreak of epidemic of Jaundice in Ichalkaranji, the Hon. Chief Minister of Maharashtra has declared that, for adequately addressing the issue of pollution of Pachganga river, it is included in the National River Conservation Scheme and in this regard 450 crore Rupees have been sanctioned. This is the unique achievement of the emerging environmental movement in Kolhapur district.

5) Documentary Film:
   Vidnyan Prabodhini had prepared a documentary film on the issue of pollution of Panchaganga River and its causes in the year 1992. This documentary film was shown to the people of Kolhapur through local television channel in Kolhapur city. In support of public litigation case against the KMC, this documentary film was submitted to the court.

6) Ban on Dolby System:
   Due to the awareness generation/agitations on the issue of noise pollution and steps taken by Civil Administration and police Department in year 2009 the emersion of Ganesh idols was done without Dolby Sound System.

7) Donation of Ganesh Idols and Nirmalya:
   Due to the continuous work of the local NGOs/Groups, people are now willingly donating Ganesha idols and Nirmalya for their appropriate management/care at later stage and are willingly celebrating pollution-free Ganesha festival.

8) Constructions of Jetty for proper emersion of big Ganesh Idols:
   The agitations started by 16 local NGOs/Groups in Kolhapur city against the decision of construction of Jetty for proper emersion of big Ganesh idols [having height of 21 feet] as this was seen by organizations as a move towards encouraging pollution of Panchaganga River with government aid. Due to such agitations, the
organizations succeeded in diverting amount of Rs. 35 lakhs for conservation of R ankala Lake and the decision to construct Jetty was cancelled.

9) Ban on Mining Activity at Idarganj:
   Due to the efforts of the NGOs at local level and with collaborative attempts with organization at Mumbai, a case was filed against mining at Idarganj. The court was convinced about the possible negative environmental effects of mining. Finally, the court gave verdict against the mining company and mining activity stopped.

10) Plantation of Required Number of Trees:
   NGOs/Groups had gone to the court of law against violation of environmental laws [tree cutting for implementation of road development project]. The organizations had succeeded in getting stay order from the court and the project could restart only after plantation of required number of trees.

11) Inclusion of Radhanagari Wildlife Sanctuary in World Heritage Convention:
   UNESCO’s ‘World Heritage Convention has declared the list of world heritage places. In this list are included 39 places situated in Western Ghat Region. This list includes Radhanagari Wildlife Sanctuary located in Radhanagari tehsil Kolhapur district of Maharashtra. The NGOs/ Groups had created favourable opinion in this regard.
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