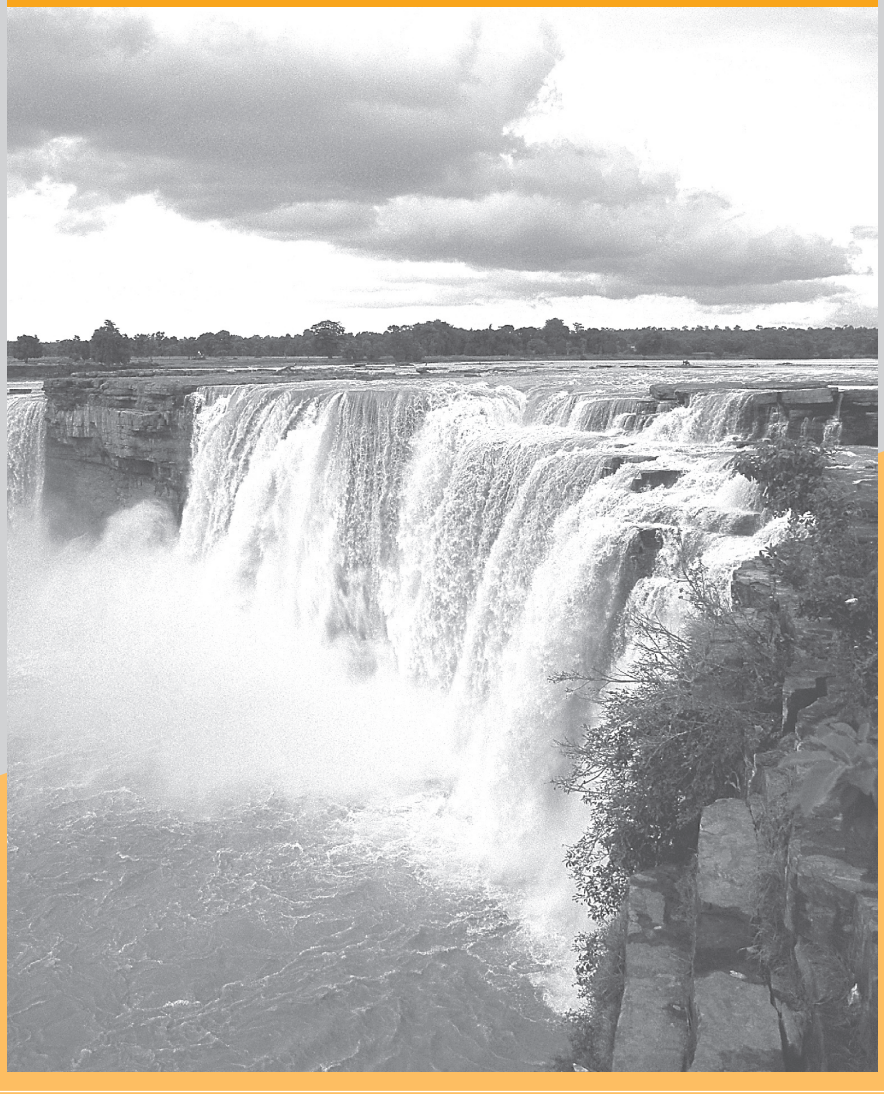
CHAPTER 1



Natural Resources: Water, Forests and Land

Natural Resources: Water, Forests and Land

Abundantly endowed by nature, Chhattisgarh is a land blessed with a pleasant climate as well as a priceless heritage that has sustained and nourished its people through the ages. The State has rich resources including land, forests and water. These abundant resources are of high quality and are spread across the State, allowing an exceptional degree of access and availability.

In return, the people and communities have treated the gifts of nature with reverence. They have evolved a way of life unique to this verdant land, a way that seeks to protect this legacy for future generations. Pivotal to life and livelihood are the trinity of water *(jal),* forests *(jangal)* and land *(jameen)*. Each of these is important, but they are also dependent on each other – and on the people. Water nourishes the forests and the land. The forests are repositories of diversity and natural wealth. From the land comes food and security, each year. For centuries, people have built their traditions, consumption, habitat patterns and livelihoods around these resources. Celebrated in song and folklore, deified and venerated, the people know and understand the importance of these resources.

These themes aroused passions and a great deal of discussion. The intensity and fervour were inversely proportional to the distance from the resources. The District and Village *Jan Rapats* present a variety of generic as well as specific submissions with respect to these natural resources with differing language. The Village Reports tend to be more specific and their tenor more impassioned. They speak of natural resources as a chronicle of existence, of survival, and of life itself.

The District Reports express issues and relationships related to natural resources as a corollary to life and livelihood. Their definitions and content reflect a more controlled livelihood pattern and a larger economic dimension, one that extends beyond the immediate space of a village, a settlement or a city. Even so, in all the Reports it is amply clear that the relationship between the people and natural resources transcends the confines of modern market and employment approaches. These relationships

From the people

Water, forest and land are man's primary needs. Without these, life is not possible.

Village Report, Ghotiya village, Koylibeda block, Uttar Bastar Kanker

While the world is still exploring and searching, our tribal community stands at the end of this search, having already travelled that distance.

District Report, Dakshin Bastar Dantewada

From the people

There are at least 23 Minor Forest Produce (MFP) and another 32 types of roots and herbs that people collect from the forests. After agriculture, forests are the largest source of income. More than 60 percent of the villagers regard forest produce and labour in forest related work as their main sources of income. The absence of irrigation means that people are unable to sow a *kharif* crop. This increases dependence on forest produce for additional income. Almost 70 percent of the annual income comes from MFPs like *aavla, bahera, harra, dhavala, kusum, mahua* leaf and medicinal plants.

District Report, Korba

are immediate yet dynamic, and are a part of a complex web in which culture, societal values, environment, health, knowledge, and lifestyles are intertwined.

Table 1.1 **Availability of natural resources**
(Percentage of Village Reports selected for analysis[1])

Region	Water	Forests	Land for common purposes
Northern region	42	77.5	57
Central plains	33	39	48
Southern region	57.46	79.1	64.93
State	44.2	65.2	56.6

Source: *Jan Rapats* Part – III

There are differences too in perception, based on topography, location and region. In the plains of Chhattisgarh, land and water are seen as the primary resources. For the people of the hill tracts in the north and the south of the State, water and the forests are the critical resources, seen as the key to survival, sustenance and advancement. The availability of water resources is better in the north and the south of the State. Similarly forests and common property resources such as land are also more plentiful in these regions as evidenced from Table 1.1. In either case, the relationship with natural resources is direct and immediate, the difference being the degree of dependence on one or the other. The exceptions to this are few, and are in the context of the tertiary sector, or in urbanised environs. The Reports, in particular the Village *Jan Rapats,* have enumerated and quantified their natural resources, and elaborated the dependence of the village on these resources. They have identified issues related not only to access and control, quality, exploitation and conservation, but to the technical and legal dimensions as well.

From the people

In the last 10 years, there have been many changes in the rainfall pattern. The number of rainy days has been steadily decreasing. Rainfall has become irregular and scattered. As a result, people are not able to use water as per their requirements and needs. For example, in agriculture, every task like sowing and preparing the land for the next crop must be done at the correct time. For this availability of water and irrigation facilities are essential. Rainfall affects the level of water in rivers, lakes, tube-wells, wells and *nallahs*. In un-irrigated areas, the level of water declines and this affects the *nistaari*[2] and drinking water needs of the people and of animals.

District Report, Janjgir-Champa

[1] A total of 2869 village *Jan Rapats* were selected from 146 blocks, in the 16 districts for the perception analysis. An initial reading of village *Jan Rapats* helped in developing a matrix to analyse the perception of the people. Common ideas from the Village Reports were identified and classified into different categories, on a qualitative scale.

[2] *Nistaari* refers to usufruct rights granted to communities dependent on forests and other resources, at prices below the market price or free of charge.

From the people

Dantewada gets a lot of rain because of its heavy forest cover. As a result many streams, waterfalls and *nallahs* come down from the hills. People have always used this water for *nistaar* and drinking water purposes.

District Report, Dakshin Bastar Dantewada

Earlier groundwater was tapped through wells. Canals were usually seasonal. Some areas were dependent on neighbouring villages for water. Most villages had a problem with drinking water.

District Report, Durg

This chapter examines the three main resources – water, forests and land – separately and discusses some of the significant issues raised in the *Jan Rapats.* It then discusses the relationship between women and natural resources and the critical issue of common property and its management. This is followed by suggestions for intervention and concluding remarks.

Water

Chhattisgarh abounds in water bodies – rivers and streams, lakes and tanks[3] (*dabrees*). It also receives, in normal years, rainfall adequate to replenish water resources, and to meet the needs of the people. The annual average rainfall varies between 1200 mm to 1400 mm. Despite the abundance of water, people have learnt to conserve water, and use it judiciously and equitably, through systems and practices that have evolved over hundreds of years. A combination of wisdom, intuition and experience enables the people to tide over situations of adversity – the preceding years of drought and poor monsoon provide an excellent example of how the people survive difficult times.

The recent drought-like conditions (in 2000 and 2002, the average annual rainfall was less than 1000 mm) and the resulting hardship find recurring mention. The Reports refer not just to the impact on agriculture and the consequent need for more irrigation. The *Jan Rapats* speak of declining water tables and of biotic pressure on the forests, the natural reservoirs of water and moisture. The need to ensure clean drinking water to all is cited as urgent. Looking ahead, many refer to the need to ensure that ground water is used wisely and sustainably, and that the forests are protected.

Control and management of local water bodies are vested in the tiered system of *Panchayats*. The *Gram Panchayats*, *Janpad Panchayats* and *Zila Panchayats* are authorised to manage and lease out water bodies. This has enabled public participation in their use and management, and in ensuring the rights of user groups – fishermen, cultivators and other users. At the same time, it has brought about visible changes in the perceptions of this resource. Building on age-old traditions of community management, equity and shared responsibility, the *Panchayats* have become effective instruments of dispute resolution.

Water resources of Chhattisgarh

The State of Chhattisgarh forms part of the extended river basin of four major rivers – the Mahanadi, Godavari, Narmada and the Ganga. The combined river length flowing through the State is 1,885 kilometres. These rivers provide a large network of surface water and support the

[3] Tanks are used by the village communities for domestic use and for irrigating small patches of land. Some village ponds are also used for fisheries.

primary sources of irrigation in the State. There are also smaller rivers and tributaries, seasonal *nallahs* and natural springs.

It is estimated that surface water available for use is 41,720 million cubic metres (mcm). The State has three major, 30 medium and 2,017 minor irrigation projects maintained by the Water Resources Department. Small tanks are maintained by the *Panchayats*.

Ground water is an unregulated resource, one that land users have freedom to harness. It is relatively under-utilised, and there is scope for increasing ground water based irrigation. According to the Central Ground Water Board, the ground water available for use in the State in 1995 was over 8,000 mcm per year, and the ground water exploitation could be significantly enhanced. In most districts, less than 10 percent of the potential is currently being utilised.

Sources of water

Traditionally, water from open wells and tanks has been utilised for domestic and drinking purposes, while canal and river water has been used for irrigation.

Long-established irrigation systems provide for the diversion of water from small rivers, *nallahs*, seasonal streams, and ancient water tanks. Small water storage tanks (*dabrees*) constructed in cultivated fields store rainwater for irrigation. These are supplemented by animal power operated water drawl systems. Traditional methods are suitable for small, compact areas but are inadequate to meet the needs of large scale, assured irrigation. Since they are substantially dependent on rainfall, they tend to be most efficient during the monsoon and shortly thereafter, and are ideally suited for single crop based agriculture. The Village Reports show that the availability of water for drinking and household needs is best in the southern region. There is a shortage of drinking water in the central plains region, although irrigation is more prevalent in this region. (See Table 1.2 for details)

Table 1.2 **Adequate availability of water**
(Percentage of Village Reports selected for perception analysis)

Region	Drinking water	Water for household needs	Irrigation
Northern region	42	57	19.6
Central plains	26	28	36
Southern region	56	62	16.7
State	41.3	49.0	24.1

Source: *Jan Rapats* Part – III

Most water bodies at the village level are managed by traditional and community based systems. Over the years these have begun to break down in the face of social and economic change and due to the emergence of alternate structures of authority.

Water bodies and structures that were created or regenerated under Government programmes have not been very successful in aligning or integrating themselves with community based systems. One reason for this is that the State has not recognised or supported the traditional systems while taking over and exercising its provisioning authority. Unfortunately, there is little to indicate that alternate forms of community based and community owned systems of managing water bodies are replacing the traditional systems.

There is a need to evolve new systems that support the efficient management of modern irrigation structures. These should involve communities and users in their operations, and provide a blend of old and new ways that combines the best of both.

Drinking water

In the past, drinking water was obtained from wells, natural springs, streams, rivers, tanks and lakes. In the plains, where drinking water has been generally insufficient, wells, tanks and small rivers have been the main sources. In hilly and undulating regions, springs, rivulets and wells provide drinking water.

Most households in rural areas now rely on hand pumps for their supply of drinking water. Despite their increasing density, there are still places where hand pumps are not available or functioning.[4] In these locations drinking water is sourced from tube wells or even rivers. Piped and tap water is still not common. The *Jan Rapats* confirm the improved availability of drinking water and acknowledge the improved quality and access. They state that many more hamlets and households now have direct access to drinking water.

Hand pumps are sometimes non functional. This may be due to irregular or poor maintenance or due to the drying up of water sources. This is more common in remote habitations and small hamlets, particularly in hilly terrains. In such settlements, other water sources such as natural springs or streams are then used.

While the perception of water quality varies considerably, most Village *Jan Rapats* indicate that water from hand pumps is usually clean

From the people

Most *paras* (areas) in the villages of Dakshin Bastar Dantewada have drinking water facilities. Either they have hand pumps or they have piped water provided by the *Nal Jal Yojana*. People no longer have to walk long distances to get drinking water. The water level was earlier at 5-8 metres. Despite water recharging efforts, water harvesting and construction of *dabrees*, the level has fallen to 14 - 16 metres. Along with people's participation, Government's assistance is needed for water conservation.

District Report, Dakshin Bastar Dantewada

Today, we have stopped using the traditional sources of water. These are used only for irrigation purposes. Drinking water is now available from hand pumps and private or Government wells.

Bodra village, Aarang block, Raipur

Now there are tube wells and hand pumps in every village. However the maintenance of the sources and their surrounding areas is not done and hence clean drinking water is not available.

District Report, Janjgir Champa

Most villages today are self-reliant for drinking water. They have hand pumps. The problem arises when they are not working or when the water level falls.

District Report, Durg

The water table has fallen due to the mining activity carried out in the district. The hand pumps in the hilly regions have also been unsuccessful. The low level of water is causing concern. Most sources of water in the district are rain-fed.

District Report, Korea

[4] Hand pumps have been dug in almost every habitation, and the absence of hand pumps is either due to technical reasons such as unsuitable terrain, or the non-availability of suitable places for boring.

Box 1.1

Drinking water in village habitations

Of the 54,818 habitations in the State 49,167 have adequate sources of drinking water, with an average supply of more than 40 litres per person, per day. In the last two years, 29,233 new hand pumps have been installed. In addition, 176 rural spot source water supply schemes and 220 new rural piped water supply schemes have been commissioned.

A little over 10 percent (5,651 habitations) of the total habitations get less than the stipulated amount of water. Kabirdham, Jashpur, Rajnandgaon and Bilaspur districts have the largest number of habitations with inadequate water sources.

Department of Public Health Engineering, Government of Chhattisgarh

and suitable for domestic use. They have also commented positively on the practice of adding chlorine to drinking water. In some villages especially those located in the mining and industrial belt, the issue of water pollution due to industrial waste is of concern.

Irrigation

Cropping intensities in the State are low, since agriculture continues to be largely dependent on the monsoon, and most cultivators still practise single-crop agriculture.

Box 1.2

Irrigation coverage

In 1999-2000, 22 percent of the net sown area was irrigated, and the net irrigated area was 10.8 lakh hectares. The overall irrigation intensity in the State was 117, with the highest intensity recorded in Janjgir-Champa, Dhamtari, Durg and Korea districts.

Canals accounted for three-fourths (76 percent) of all irrigation. Tube wells provided 13.4 percent of irrigation, while tanks and ponds accounted for only 5.6 percent of the irrigated area.

There are regional variations in irrigation coverage. The plains are better provided for (30 percent coverage), while the coverage in the hill areas is much lower (5 percent). In the Bastar plateau, irrigation coverage is only 1.2 percent.

Department of Water Resources, Government of Chhattisgarh

The *Jan Rapats* speak of efforts made by Government, *Panchayats* and individuals to increase irrigation coverage end effectiveness. Most of the Governmental effort has gone into surface water exploitation, and there is a perception that groundwater needs to be systematically harnessed, with the support of the Government. Small and marginal farmers, with low ability to invest the capital needed, are particularly in need of support.

There are private tube wells in some villages but these usually belong to well-off farmers. Electric and diesel operated pumps are used to

From the people

Earlier *talaabs* and *dabrees* were used for irrigation and for agricultural purposes. Today there are big *talaabs*, rivers, *nallahs* and lift irrigation systems. Grants for tube wells on private land and the Hasdev-Bango project have resulted in 1.1 lakh hectares being irrigated for the *kharif* crop. In addition, 2.7 lakh hectares are being irrigated by rivers, *nallahs*, tube wells, wells and pumps and lift irrigation.

District Report, Janjgir-Champa

Table 1.3 **Sources of irrigation and their use**

Sources of irrigation (percentage of villages)					Use of sources for irrigation (percentage of total)			
Sources	Northern region	Central plains	Southern region	Total	Northern region	Central plains	Southern region	Total use of source
Tube wells	4.3	15.7	1.1	21.2	74.4	73.3	91	74.5
Dug wells	26.8	22.4	5.4	54.7	59.4	64.8	71	62.8
Springs	0.3	0.4	0.4	1	67.8	61.3	75	68.1
Tanks	4.4	7.6	1.5	13.6	49.2	65.7	72	61
Other	0.6	0.9	0.2	1.7	67	44.6	71	55.7
Region	39.7	51	9.3	100	60.1	67.4	74	65.1

Source: *Jan Rapats*, Part I data of villages

draw water from canals and rivers where the fields are appropriately situated.

The last few years have seen a significant increase in the irrigation infrastructure of the State, in irrigation schemes as well as in the investment in irrigation such as energised pumps.

Wells (dug) are a major source of irrigation in the State. The villages have reported the number and type of sources available within the village. Of the sources of irrigation, mentioned in Part 1 of the Village Reports, 54.7 percent of the villages have listed wells. Thus wells constitute the most common source of irrigation. Tubewells are present in 21.2 percent of the villages. Tanks are another source of irrigation and have been reported in 13.6 percent of villages. The major difficulty lies in utilising these resources for irrigation. The overall usage of sources like tubewells, dugwells, springs and tanks amounts to 65.1 percent. Tube wells are the most popular, and 74.5 percent of the total installed tube wells are functional and in use.

Data relating to sources like canals and rivers shows that about 45 percent of the habitations

Table 1.4 **Use of rivers and canals for irrigation**
(percentage of total habitations)

	Northern region	Central plains	Southern region	Total
Canals	22.6	54.8	75.5	45.1
Rivers	46.7	57.7	64.5	53.3

Source: *Jan Rapats* Part I data of villages

in Chhattisgarh have access to canal-based irrigation. The overall dependence on rivers for irrigation purposes is 53.3 percent. Both canals and rivers are an important source of irrigation in the south, while in the north and central areas, other sources are also important.

Table 1.5 **Region-wise distribution of sources of irrigation**
(percentage of total)

Sources	Northern region	Central plains	Southern region	Total
Tube wells	20.4	74.3	5.4	100.0
Dugwells	49.1	41.0	9.9	100.0
Springs	30.6	34.6	34.8	100.0
Tanks	32.7	56.1	11.2	100.0
Other	38.0	52.3	9.7	100.0
State	39.7	51.0	9.3	100.0

Source: *Jan Rapats*, Part I data of villages

The distribution of the other sources of irrigation (apart from rivers and canals) shows a distinct concentration of these sources in the central plains (see Table 1.5). Three out of four tube wells are installed in the central plains of Chhattisgarh. Springs are more common in the southern region than in the other two regions. Tanks are concentrated in the central plains (56.1 percent), while in the southern region, tanks are relatively less common and only 11 percent of the total tanks are located here, reflecting the high dependence on rivers and canals.

With the increase in private ownership of irrigation infrastructure, community management systems of water for irrigation purposes have reduced. These are however extremely important for small and marginal farmers, who cannot afford to establish their own irrigation facilities.

Community tanks are usually multi-purpose providing users' water for purposes other than just irrigation. They provide water for domestic use and often function as fisheries as well. When community water bodies, tanks and *dabrees*, are governed under common property regimes there is better and more equitable use of water.

Problems associated with water

A number of problems and issues have been highlighted in the reports, ranging from the contamination of ground water sources as a result of mining, chemical fertilizers and industrial activity to the declining water table. Some of these problems are listed in Table 1.6.

Forests

The people of Chhattisgarh have a symbiotic relationship with forests. There is religious reverence and a grateful recognition of nature's benevolence. There is also an appreciation and understanding of the impact of the environment on the lives of the people. With its vast forest

Box 1.3

Irrigation initiatives undertaken by the State

A major programme has been taken up to motivate cultivators to set apart marginal plots under their ownership for construction of tanks (*dabrees*). These help in moisture retention, meet domestic needs, prevent soil erosion and provide water to fields. The construction of *dabrees*, (using public funds) also provides wage employment under drought relief operations.

Khet Ganga Yojana

This initiative seeks to provide irrigation to the rain-shadow areas of the State. It aims at tapping ground water potential and riparian run-off through tube-wells and lift irrigation. To safeguard against the excessive exploitation of groundwater, it is mandatory to maintain a minimum distance of 300 metres between two tube wells.

Assistance (subsidy) ranges from Rs 10,000 to Rs 18,000 for drilling and Rs 10,000 to Rs 25,000 for installation and energizing pump sets. Failed tube wells are usually compensated for. Subsidy reimbursements for farmers from the Scheduled Castes and Tribes have a higher ceiling of Rs 45,000.

Gaon Ganga Yojana

This scheme aims to create at least one source of water in every village/habitation. This will be achieved through conservation of existing sources of water through community initiated maintenance and renewal with the involvement of the *Panchayat*. It also seeks to develop new sources of water through sustainable exploration of ground water potential and prevent waste and run-off through appropriate community level interventions.

Department of Water Resources, Government of Chhattisgarh

Table 1.6 **Problems associated with the management of water**

Water pollution due to economic activities	The Korea District Report refers to the contamination of groundwater due to mining activities. In Bilaspur, a paper mill is cited in the Report has been held responsible for toxins in the water. Many Village Reports also refer to water pollution due to the use of chemical fertilisers.
Improper maintenance of drinking water sources and disrepair	A recurring theme in the reports has been the irregular and unsatisfactory maintenance of hand pumps. Several reports have indicated that the Government appointed mechanics do not respond to complaints and that little local expertise is available to repair hand pumps.
Declining water table	While most parts of the State have good availability of ground water, there has been a decline in the water table. Digma village of Block Ambikapur of Surguja district, reports that in earlier times, their forefathers had to dig to a depth of 25 to 30 feet (4 to 5 *porish*[5]) to reach water but now they have to dig up to 60 to 70 feet (8 to 10 *porish*). Similar reports have come from other villages, especially in the hill regions, from villages where ground water is being used for irrigation and from villages where industry and mining compete for limited water resources.

Source: District Reports

cover[6] (135,224 square kilometres, 44 percent of the State's area), the State's economy[7], culture, tradition and livelihood are inextricably linked to the forests.

The forests of the State are of two major types: tropical moist deciduous and tropical dry deciduous. Most of the dense forests are concentrated in the northern (Surguja, Korea, Jashpur and Korba districts) and the southern regions of the State (Bastar, Kanker and Dantewada districts). These areas also have large tribal populations. The plains of the central region of the State have much less forest cover. In this region, the dependence on agriculture and therefore on land as a source of livelihood is much higher.

The *Jan Rapats* have documented the benefits from the forests, extensively. The forests provide food for the people and for their

From the people

The forest is the very basis of our lives. We exist because the forest exists. Thus, we strive to protect the forest, at any cost.

Our traditions and rituals are closely linked to our forests and trees. We believe that our forests are sacred because our gods and goddesses reside there. The *saja*, the *mahua*, the *semal*, the mango, the *karanji*, the *banyan*, the *pipal*, the *salfi* trees are symbols of good fortune and prosperity. The number of *salfi* trees in a house is an indicator of the wealth and prosperity of the household. The drink that is made from its fruit is an integral part of our culture. If the drinks of *salfi*, *chind* and *mahua* are not offered in ceremonies of birth, death and marriage, the ceremonies are considered incomplete. People revere trees just as they revere their parents and their deities.

District Report
Dakshin Bastar Dantewada

[5] '*Porish*' literary means man. In Chhattisgarh, the height of a person is used as a measure and one *porish* would typically be between five to six feet.
[6] The State has the second largest area under forests, in the country after Assam. It is famous for its *sal* forests, which account for 40.56 percent of the forest cover. Teak forests account for 9.42 percent of the forests in the State, and are concentrated largely in the western and southern parts of the State. Mixed forests and bamboo account for the remainder.
[7] There are 10,000 thousand forest product based industrial units in Chhattisgarh of which 306 are registered manufacturing units. These small-scale industrial units include sawmills, household furniture manufacturing units, *beedi* industries and *kosa* silk units.

Table 1.7 **Direct and indirect benefits from forests**

Direct benefits	Indirect benefits
• Food items such as fruits, roots and shoots directly available from trees, and animal products such as honey and meat • Raw material for the production of soap, oil and liquor • *Nistaar*[8] items such as fuel wood, fodder and timber • Medicinal plants and herbs such as *safed musli, brahmi* and *ashwagandha* • MFPs for the market such as *tendu patta*, *sal seeds, gum, lac* and *wax* • Minor minerals and water.	• Soil conservation • Rainfall • Climate control • Biodiversity conservation

Source: Village *Jan Rapats*

animals, raw materials for household based industry, firewood, medicinal plants and minor forest produce like *tendu patta* (tendu leaves) and *lac*. The Reports have also acknowledged that forests hold the key to the climatic conditions and bio diversity conservation in the area.

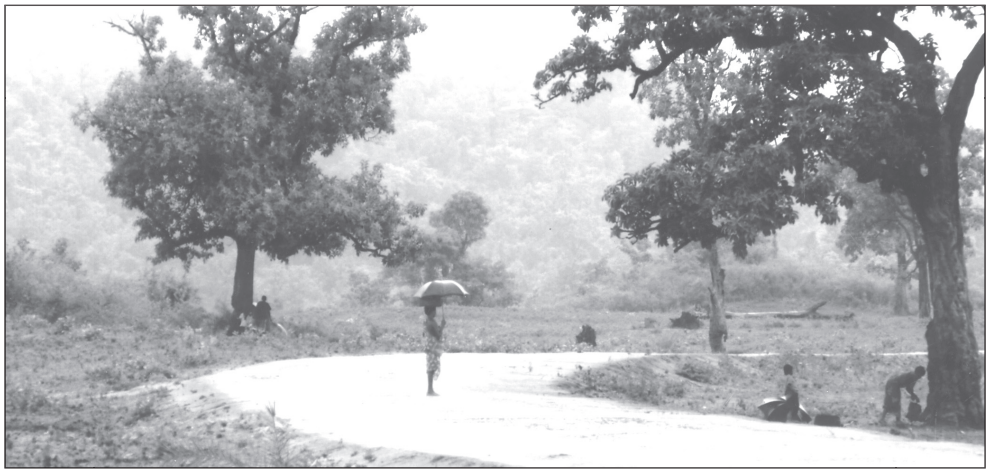
Dependence on forests

The culture of the people of Chhattisgarh is linked to the forests and the people share an intense emotional bond with the '*jangal*'. This is especially true of forest based and tribal communities. Major festivals, religious practices, social events, traditional customs

Table 1.8 **Use of forest resources for different purposes**
(percentage of Village Reports selected for perception analysis)

Region	Furniture	Firewood	Herbs and medicines	Minor forest produce	Livelihood	Income
Northern region	22.4	60.7	23.3	50.4	62	27
Central plains	9	12.5	7.5	39	41	12
Southern region	31.8	61.9	39.5	60.1	63	20
State	21.1	45.0	23.4	49.8	55.3	19.7

Source: *Jan Rapats* Part – III



[8] *Nistaar* refers to usufruct rights of communities dependent on forests and other resources, at prices below the market price and sometimes even free of charge.

of child birth, totems and the systems of indigenous medicine and nutrition are based on forest produce. The forests provide employment, forest produce, food for self-consumption and *nistaari* rights.

The data from the Village Reports (Table 1.5) shows that the dependence on the forests for livelihood, firewood, herbs and medicines and minor forest produce is highest in the southern region and marginally lower in the northern region. It is the least in the central plains area. However more villages depend on forest as a source of income in the north than in the south.

Fuel wood

In rural areas non-commercial fuel wood and animal waste continue to be the main source of energy. Women are the main collectors of this resource, which is used for cooking and household activities. Women often have to traverse a large area in search of fuel wood. In the plains, where the forests may be far away, women depend on energy from animal waste.

Like cow dung, fuel wood has to be bought from the *nistaar*[9] depots and this means an additional financial burden on poor households. The ownership of forests lies with the State. The Forest Department extends the privilege of extraction of forest products to the people within the stipulations of forest policies. These include the provision of *nistaari* rights to forest dependent communities.

- There are 797 *nistaar* depots in the State. Each family is eligible to get bamboo for domestic use at a subsidised rate from these depots.

From the people

There is no forest near our village. We face many problems in getting fuel wood and wood for construction. Some people have plants and trees on their private land. They use this for fuel and construction. Prior to forests being nationalised, we could go to the forests further away and get fuel wood, timber, fruits, *harra*, *bahera*, *gum*, etc. Now we have to go to the depot for fuel wood and timber.

Women of Kothar Village, Kabirdham block, Kabirdham

In Borla block of Kabirdham, people get fuel wood and fodder for their animals, fruits and flowers, *tendu patta, mahua, aavla, harra*, *bahera*, and other roots and herbs from the forest. People from the forests near Thakurtola, Minminiya, Baijalpur and Chapri villages, also procure bamboo from the forest. People from the villages of Boda and around make brooms (*jhadus*) with material from the forest.

District Report, Kabirdham

- Forest dependent communities are entitled to access forests for grazing, limited by the carrying capacity of forests. They may collect (free of cost), dry and fallen fuel wood and fodder. Medicinal plants may also be collected (by non-destructive means) for sale.

- The *Basod* community is eligible to get 1,500 bamboos per family, per year, (subject to availability of bamboo) at subsidised rates, for bamboo-based income generating activities.

- Forest dependent communities are free to collect *tendu patta*, *sal* seed, *harra* and *gum* and sell this to notified outlets

[9] *Nistaar* depots refer to depots where stocks of forest produce are kept for distribution to the people. *Nistaari* is the system by which communities dependent on forests and other resources are granted user rights.

of Chhattisgarh Minor Forest Produce Cooperative Federation at pre-determined rates. Registered collectors of *tendu patta* are eligible for bonus and group insurance facilities.

Fodder

Most households in the State own livestock. Animals are used to till the land and they also provide energy. They are an investment and a valuable asset, especially in times of adversity like drought, or in an emergency. Most villages have common grazing and pasture lands for animals. In the plains, paddy straw is used as fodder for cattle. In the forested belts, animals too depend on the forest for fodder.

The most important issue related to fodder which has been elaborated in the *Jan Rapats,* is the degeneration and shrinking of grazing and pasture lands. Another issue is that of encroachment. Common lands are most susceptible to encroachments. This has directly affected the quantity of fodder available for the cattle.

Over the years the availability of fuel wood and fodder from the forests has declined, measured in terms of availability as well as access. The factors responsible are sporadic clearing of forests and growing biotic pressure. Adding to the complexity of the situation is the fact that the traditional systems of people managing and self-governing common lands have been eroded.

Minor forest produce

Forest produce is categorised in two main categories: a) major forest produce (mainly wood or timber) and b) minor forest produce. Ownership of the major forest produce is with the Government. People and communities may extract minor forest produce (MFP) for consumption or sale under certain conditions.

Chhattisgarh accounts for about 20 percent of the total production of *tendu patta* in the country. Other major MFPs of the State include *mahua* flowers and seeds, *harra, bahera, mehul* leaves, tamarind, *lac*, *gum* and *katha*. These are mainly used to make brews, toys, disposable leaf plates, etc. Tamarind and *katha* are used in food items.

Table 1.9 **Products available from the forests**

District Report, Uttar Bastar Kanker	Fuel wood, timber, MFPs *(jamun, harra, bamboo, mahua flower and seed, tendu patta, lac, aavla, bahera, gond, madras, tikhur, ghaas, mile, aam guthli, dhaura, beeja palash, haldu, saja, sheshum, bel, ram dataun, mahul patta*, etc) and other medicinal plants *(bhui neem, kali hari, dev kanda, van pyaaz, chidchida, van haldi, charauta, peng beej, dudhi beej, hadsighadi, amaltaas, stavar, patalkumhada, kevti, safed musli, kali musli)* are collected from the forest.
District Report, Korea	There are thick forests in Korea district. Other than timber and fuel wood, various kinds of forest produce are found in these forests. The forest dwellers collect MFPs like *mahua* fruit and flower, *harra, bahera, aavla, chaar, chiraunji, mahul patta, tendu patta, sal beej,* and other types of herbs and roots. The collection of forest produce is a major source of income for the people. These MFPs are the basis of many small and home industries.
District Report, Korba	Many medicinal plants grow in the forests and are regularly used in various treatments. These include *chiraita, safed musli, kali musli, satavar, adusa, lat jeera, vaybirang, jungli pyaaz, hadjod* and *dhava*.

Source: District Reports

In Chhattisgarh, the ownership of all minor forest produce in forest areas is now vested with tribal communities through Primary Cooperative Societies of actual collectors and *Gram Van Samitis*. This has become possible through the provisions of the *Panchayats* Extension to Scheduled Areas Act (PESA), 1996. The collection of specified nationalised produce is done by the Societies and primary processing is also done by the Societies. The proceeds from the sale of MFP are transferred to the Societies. While elected representatives manage these Societies, the Forest Department continues to exercise control by holding key positions in the management.

The Village and District *Jan Rapats* have provided a comprehensive list and inventory of products acquired from the forest. The forest produce collected is sold at approved collection centres. These include *sal* seeds, *tendu* leaves, *harra*, *bahera*, *mahua*, *char*, *tendu* and *imli*, which are sold at pre-determined rates.[10]

In addition to the Joint Forest Management (JFM) programme, initiatives have been taken by the State Government to develop an efficient and people friendly system to manage minor forest produce as well as its marketing.

Recently, some efforts have been made to involve people in the marketing of major forest produce as well. Under the State sponsored scheme of Public Private Partnership (PPP), proceeds from the timber stock and bamboo in degraded areas, is made over to Gram Van *Samitis* (GVS). GVSs have been encouraged to enter into buy-back arrangements with private industry and the Federation of *Gram* and *Van Suraksha Samitis* fix the selling rates. In degraded forest areas, where the Government spends on greening, 30 percent of the final harvest and all the intermediate yields (from thinning) go to the GVSs. In well-stocked forests, 15 percent of the proceeds from the final harvest are distributed to Forest Protection Committees (*Van Suraksha Samitis*).

From the people

Traditional knowledge and our culture prevent us from felling trees. Trees are where the gods reside.

District Report, Raigarh

The Forest Department estimates that about 2,00,000 tribal families are associated with the forest based economic activities of the department. This number is expected to go up, as all economically significant minor forest produce, including medicinal plants, are brought under the PPP arrangement. However, caution will need to be exercised to ensure that the PPP programme does not become a means for enabling industry to gain access to forest resources.

Forest management

Forest management in the state is being carried out both in the traditional ways and according to the policies of the Forest Department.

The traditional regime

Traditional management systems have certain time-tested, practical and effective ways of managing as well as utilising natural resources. The *Sarna*[11] (sacred groves) system, common in the northern districts of the State is an excellent example of sustainable management. The cutting of trees in these sacred groves is

[10] For details regarding the different kinds of forest produce and the rates at which these are sold, see Appendix.
[11] A *sarna* is a place where some trees are planted (usually starts with five trees) and the cutting of these trees is prohibited. The people take care of the trees and worship them. Every young couple begins life with such a plantation and then cares for it through out their lives.

prohibited. Sanctified by belief and practice, this system has been an important factor in conserving the green cover of the State.

The official regime

The Forest Department of the State manages the State's forest wealth in accordance with prescribed policies and guidelines. The Joint Forest Management (JFM) system encourages people's participation in managing forest resources. Members of JFM committees receive usufruct[12] rights, a portion of the revenue from the felling of timber and from intermediate thinning. They are also eligible for employment under afforestation and other programmes carried out by the Forest Department. The Forest Development Agency and the Chhattisgarh State Minor Forest Produce Co-operative Federation are involved in the management and development of forests and nationalised MFPs. The Village *Jan Rapats* have suggested solutions for managing and maintaining forests. While these suggestions are quite varied, they do reflect a sense of disquiet at the denuding forest resources and the helplessness that people feel in the circumstances.

Other issues related to forests

Other forest-related issues include the depletion of forests, their legal status and control.

Depletion of forests

A common concern cited in many reports is the degradation and depletion of forests. The causes, according to the Village Reports, are the increasing biotic pressure on forests from the increase in human and animal population. Significantly, many Village Reports state that distancing people from the management of forests has also been a contributory factor. According to them, since people have been alienated from utilising forest produce, they have become less concerned about conserving the forests. The people say unequivocally that they want to participate in preserving their forests. They also feel that unless they are fully involved in the work of protection, forests will continue to get degraded.

The legal and institutional framework

The State Forest Policy guides the legal and institutional arrangement, based on the guidelines of the National Forest Policy, 1988, provided by the Central Government. Along

From the people

Water, forests and land are inseparable. We cannot imagine one without the others. Our lifestyle is more dependent on forests than on agriculture. Our life is wretched without the forests, as we are dependent on them for flowers and fruits, for wood, for leaves, for ropes and for fuel.

We want to stop the illegal clearing of forests so that the environment remains balanced and so that adequate and regular rainfall takes place. We can then get the benefits from the forests for a long time. The importance of forests in our lives has to be conveyed to every person in the village so that the forests can be saved from destruction.

We will carry out afforestation and will put a stop to illegal felling. The Government should provide information about medicinal plants and trees, so that people can appreciate the importance of forests better.

Village Report, Jhunjhrakasa village, Nagri block, Dhamtari

[12] Usufruct refers to user rights for domestic and own use- such as water for the family and for domestic animals, wood for firewood and house construction etc.

with this, the provisions of Scheduled V areas in the Constitution of India and the Provisions of the *Panchayats* (Extension to the Scheduled Areas) Act, 1996 (PESA) also determine the legal situation.

The State Forest Policy asserts that the management of the forests should be such that forests are converted from an Open Access Resource to community controlled, prioritised, protected and managed resources through Joint Forest Management (JFM), People's Protected Areas (PPAs) and other such measures. The Government, through its Forest Policy, has made an attempt to recognise the ownership and relationship of the forest dwelling communities, especially the tribals. The Policy states, "…For sustainable forest development, livelihood security and bio-cultural diversity conservation, People's Protected Areas (PPAs) should be established. This paradigm shift of adaptive management can reconcile the dichotomy of threat perception arising out of conservation-development orthodoxy by taking into account human sensitivities, socio-cultural norms, beliefs and systems borne out of history, culture and traditions."

From the tenor and content of the *Jan Rapats,* it is however apparent that the people and communities feel a sense of deprivation and alienation as well as a loss of access to their valued and valuable resource – the forests. The forest laws and its regulatory regime has divided the people from the forests and led to a realignment of the age-old relationship.

Village *Jan Rapats* repeatedly affirm that preserving and using the forests in a sustainable manner, was, and should be a way of life for the people. The forest laws and their implementation has resulted in the alienation of the people from their resources, and turned

Box 1.4

The extension of PESA to Chhattisgarh

The Constitution provides for special provisions for administration and control of Scheduled Areas. The provisions of the *Panchayats* Extension to Scheduled Areas (PESA) Act, 1996, give special powers to the *Gram Sabhas* in Scheduled Areas especially in the management of natural resources. Areas with pockets of substantial Scheduled Tribe populations living within the dominance of non-tribal communities have been categorised in the Constitution as Scheduled V Areas. Of the 16 districts in Chhattisgarh, seven districts (Surguja, Korea, Jashpur, Kanker, Bastar, Dakshin Bastar Dantewada and Korba) are categorised as Scheduled V Area districts and six (Bilaspur, Durg, Rajnandgaon, Raipur, Raigarh and Dhamtari) are partial Scheduled V Area districts.

The objective of PESA is to enable tribal communities to safeguard their traditional rights over natural resources. The Act emphasises the rights and ownership of people's institutions and respects tradition in the control and management of resources. It clearly states that, 'A State legislation on the *Panchayats* that may be made shall be in consonance with the customary law, social and religious practices and traditional management practices of community resources'. Further it states that 'A village shall ordinarily consist of a habitation or a group of habitations or hamlet or a group of hamlets comprising a community and managing its affairs in accordance with traditions and customs.'

Some of the powers vested with the *Gram Sabha* in Schedule V Areas include:

- The ownership of minor forest produce.
- The power to prevent alienation of land in the Scheduled Areas and to take appropriate action to restore any unlawfully alienated land of a Scheduled Tribe.
- The power to exercise control over institutions and functionaries in all social sectors.
- Exercise control over local plans and the resources for such plans including tribal sub-plans.

them into mere 'users' of the forests. Most people feel that the real control and therefore, the responsibility for the forests, now lies with the Government. They no longer feel a sense of ownership.

Control, ownership and power equations

Forests are a controlled natural resource. This control impacts substantially on the lives of people who depend on forests.

- For communities and households dependent on forests and for others for whom the forests sustain and supplement their livelihoods, accessing forest resources means contact with the Forest Department, the regulatory arm of the State. The unvarying threat of a powerful institution, with legal and physical resources to control this interface makes people, especially tribal communities, feel vulnerable and uncomfortable.

From the people

Due to decreasing forests, forest-based livelihoods of the people are declining. Earlier almost half of the population was dependent on the forest. Fodder, fuel and timber are no longer available from the forest. The cutting of trees has not been in proportion to their planting. This is the main reason for depletion. Plantation should be done and the Forest Protection *Samitis* should be given recognition and rights. To prevent cutting of the forests, the Government should provide people with cooking gas and kerosene.

District Report, Janjgir Champa

The discovery of iron ore in the forests in Bailadila has led to their destruction by the National Mining Board. Many plant varieties are dying out. Encroachment, illegal felling and mining have depleted the forests. One third of the forest area in Dantewada is degraded. Use of forests for *nistaar* has aggravated the problem. It is necessary to educate the forest dwellers and protect the forests with the participation of the people. For this we will have to strengthen the economic situation of those living in and near the forests by encouraging forest based industries.

District Report, Dakshin Bastar Dantewada

Now the villagers take turns to protect the forest. They have formed groups of four persons, two people from two families to protect the forests. The administration has also posted its own guards to protect the forests. It has made strong arrangements to manage the forests and has made various laws and rules in this regard. But the guards cannot take care of the interior areas. It is the people at the village level who are helping to protect the forests.

Bhatapara Village Report, Raipur

In Borla, people feel that the cutting of forests should be stopped and that they should not be deprived of the advantages and benefits of the forests. The residents of village Sarai, complain that fuel wood and selling of *jhaads* is now under reservation.

District Report, Kabirdham

The *jangal* is our friend and companion. We get many things from it such as *tendu*, *mahua*, *laathan* …… wood for making our houses and to keep us warm during winter ….. our friendship is such that no one loses in it (neither we nor the forests). The Government is cutting down trees to make sleepers at a fast pace and thousands of truckloads of wood have already been taken away.

Tikarkhurd Village Report, Gorela block, Bilaspur

- Communities that have lived with the forests, managed and conserved them for generations now find that the space for participating in forest management is dependent on the benevolence of the regulatory regime. They find this difficult to comprehend. The conservation effort is no longer natural but programme driven. People from all the villages state that the experience with officials and the mechanisms for interface are neither adequate, nor conducive to the common goals of society and State.

From the people

To make forest land available for agriculture, forests were cut away. While the cultivable land increased, rain has decreased, because forests have been destroyed. For irrigation, many *nalkoops* are being dug. The water table is falling. The water in wells and lakes is drying up. The productivity of the land is also falling as chemical fertilisers are being used.

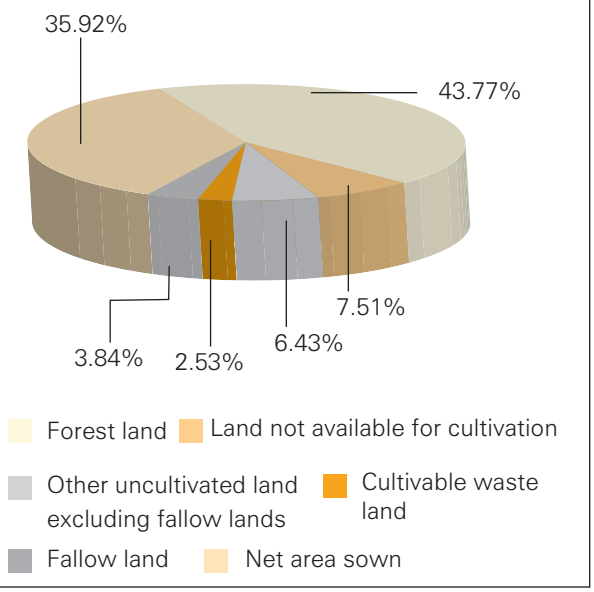
Paleva village, Charama block, Uttar Bastar Kanker

The issue of forest management involves a series of complex relationships between the stakeholders of the forests, the revenue department, the *Panchayats* and people. Regulations are perceived as being arbitrarily used by the Forest Department. This, combined with the restrictions imposed by the Government, causes friction between the people and the administration. The critical balance between resource use and the issue of rights and people's ownership, and therefore responsibility of these resources especially in relation to forests, is an idea that the Forest Department is still coming to terms with. It is imperative for the State to define a role for itself vis-à-vis forests and the people who depend on them, in order to be able to stop forest depletion and encourage afforestation. This will help to re-establish the vital balance in the forests of Chhattisgarh owned and managed for centuries by its people.

Land

The land area of Chhattisgarh is about 1.35 lakh square kilometres. About 36 percent of the area is cultivated, and another 44 percent is under forests (forest land and revenue forests). Of the total land area in the State, 4,828 thousand hectares are sown, and the net sown area [13] per head is 0.24 hectares. The gross sown area[14] is 5,327 thousand hectares[15]. The highest percentage of land

Figure 1.1 **Land use classification**



[13] Net sown area refers to the total area sown; area sown more than once is counted once.
[14] Gross sown area refers to the sum total of areas covered by individual crops; areas sown with crops more than once during the year are counted as separate areas for each crop.
[15] Source: Statistical Pocket Book of Chhattisgarh; Directorate of Economics and Statistics, Chhattisgarh - 2001

under agriculture is in Durg, Janjgir-Champa, Mahasamund (all above 50 percent), followed by Raigarh, Bilaspur, Kabirdham, Rajnandgaon and Raipur (all above 40 percent). The lowest percentage of net sown area to total area, is in Korea (18.7 percent), followed by Dakshin Bastar Dantewada (19 percent) and Bastar (21 percent).

Soil types

Chhattisgarh has at least five different types of soil. In the districts of Bilaspur, Surguja, Durg, Raipur and Bastar red and yellow loamy soil is dominant. Both are low in nitrogen and humus content. A major part of paddy production comes from this region. In the hill ranges, the soil is sandy loam, which is also suitable for paddy. Laterite soil is good for cereal crops, while the black soil is best suited to cotton, wheat and gram[16].

In the *Jan Rapats*, land has been categorised according to the traditional classification. This varies from district to district. The choice of the type of seeds, the crops that are sown and the technology that is used depends on this classification. It is a choice that has been tested and tried over generations and ensures some productivity irrespective of the quality of the land.

In many villages, the quality of land is not suitable for agriculture. While the undulating terrain and rocky surface is a constraint, the setting up of coal mines and coal related industries in districts like Korea, have meant that both land and water have been contaminated by pollutants such as fly ash. Many Village Reports have highlighted the fact that indiscriminate use of chemical fertilisers has affected land quality and led to a decline in productivity.

From the people

Durg has four kinds of soil – *Bhatta*, *Dorsa, Matasi, Kanhai*. In southern Durg, the soil is largely *Bhatta* and *Matasi*. These soil types have a lot of granite and shaello. The northern area has *Kanhai* soil. The productivity of this is higher than that of other soil types.

In Dakshin Bastar Dantewada, the land is classified according to its physical features: The Bairamgarh *pathari* area has *Marhan*, *Tikra, Mal* and *Gabhar* types of land. Other types of soil, include *Kankrili*, *Ritili*, red yellow soil, sandy *Dumat* and *Chikni dumat*. The soil here is less productive and the water retention capacity is low. Farmers are now using various techniques to improve productivity.

In Darhora village, Pratappur block, Surguja district, agricultural land is categorised into three categories based on productivity. The driest land is called *Dand*, which is land that does not have any irrigation. This is the most unproductive land and is suitable only for cultivation during the monsoon. *Chanwar* land is a middle level land and is suitable for paddy and crops that require well drained soil. The most productive land is called *Bahera*, which is usually low-lying land, located near the source of irrigation and is suitable for paddy.

Village and District Reports, Durg, Dantewada and Surguja

Mining in Chhattisgarh

Chhattisgarh is rich in mineral resources. Vast reserves of coal, iron ore and bauxite are found here, along with limestone and dolomite. This is the only State in the country where tin ore is found. Diamonds and semi precious stones like corundum, quartz and garnet are also mined here. While mining provides employment to some people and substantial revenue to the

[16] For a detailed description of soil types and respective suitability of crops see Table 3 in Appendix.

State, the industry has an adverse impact on the environment in some districts.

Pollution is one of the major impacts of mining, according to the *Jan Rapats.* This results in a number of problems ranging from declining productivity to contamination of drinking water.

- Village *Jan Rapats* mention that mining activities have affected the productivity of land and quality of water. District reports such as that of Korea have mentioned that the coal dust from coal handling plants covers the agricultural fields and affects the yield adversely.

- Pollution of the water that drains into reservoirs and rivers is another major problem. Several villages depend on surface water for domestic purposes, *nistaari* and irrigation. Polluted water has adversely affected both health and crops.

- Some reports have pointed out that illnesses related to breathing and respiration, falling levels of immunity, weakness and ill health are all outcomes of pollution. In some cases, people have been forced to migrate due the adverse impact of pollution on their health.

- Forest degradation due to mining activities has also been detailed in the *Jan Rapats.*

Land distribution and fragmentation

Land ownership and distribution are other important issues. The land distribution pattern is skewed, by the presence of a number of large farmers, due to *benami*[17] land records and old *malgujars* (landlords who were earlier responsible for collecting rent on behalf of the State), who continue to operate in the central

From the people

The dust from the coalmines in the district spreads to the villages and the fields. This affects the productivity of the land as well as the health of the people.

District Report, Korea

In Daundi block, the red water that comes from the mines has reduced the productivity of the land.

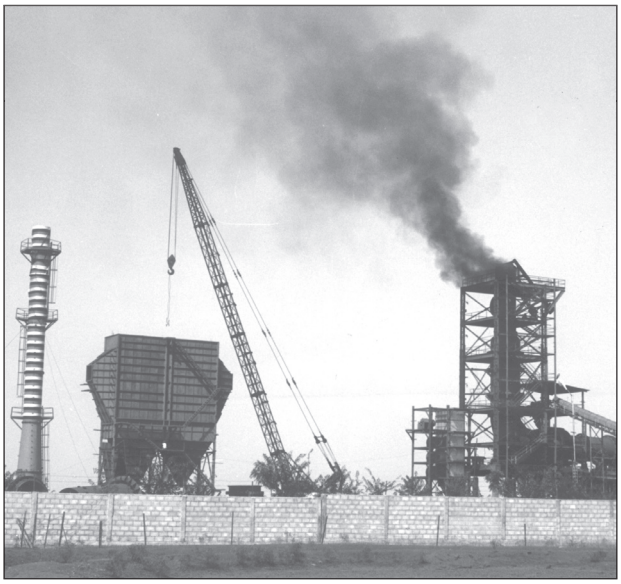
District Report, Durg

Most families in the village work as agricultural labourers for the farmers during the agricultural season and in the factories of IBP and NTPC during the rest of the year. NTPC has constructed a large fly ash dam, in the north of the village at an altitude. The ash particles are carried down by the wind and pollute the village.

Dhanras village, Katghora block, Korba

People suffer from respiratory diseases because of ash in the atmosphere. Tuberculosis is also quite common.

District Report, Korba



[17] *Benami* refers to the practice where the land records are maintained in fictitious or incorrect names.

belt of the State. Increasing population and subdivision of holdings has led to tiny and unviable plots of land for small and marginal farmers.

Land – an eroding resource

Soil degradation and soil erosion are increasing problems, leading to a decline in agricultural productivity. The *Jan Rapats* have noted this, and the following reasons have been cited:

- Pollution due to mining activities in the vicinity of agricultural fields and excessive use of chemical fertilisers.
- High cropping intensity without allowing the land to replenish the nutrient content and aerating the soil.
- Absence of good forest or vegetative cover, which leads to more soil erosion. The lack of good vegetative cover has also reduced dry leaves and twigs that fall on the land and which add to the productivity of the land.

Land records

Two issues find frequent mention in the *Jan Rapats* – a) the problem of information on land records, and b) errors in the records.

From the people

Every village has various types of land – Government land, private land, *aabadi* (inhabited) land and pasture land. Pasture lands are for fodder for cattle. Compared to the past, there is now more soil erosion. To prevent this, there is a need for afforestation and the construction of small check dams. Earlier the presence of *jungles* would prevent soil erosion.

Matpahad Village Report, Pathalgaon block, Jashpur

Access to land records is not easy and the role of field level revenue officials is not always that of a facilitator. In many cases the records do not reflect actual ownership, especially in the case of larger landholdings. Another problem is that a large number of forest dwellers do not have clear land titles. Many of them have officially been categorised as 'encroachers' on forestland, although they were there long before the State declared their land as State forests.

Encroachments and displacements

The issue of encroachments has been regularly cited in the *Jan Rapats*. While encroachments are present in almost all categories of land (private, State owned, open access and common lands), common

From the people

Encroachment exists on land meant for roads and pasture lands for animals. This leads to a lack of space for the animals, as well as shortage of pasture and fodder for them.

District Report, Durg

For personal gain we will not encroach on land. The revenue department should periodically check on encroachments on community land, roads and pasture lands. This will help curb illegal encroachments.

Portenga village, Jashpurnagar block, Jashpur

In 1988, the Pachpedi dam was built on the land of Parasda, Uganiya and Devri villages. The dam was a good thing, but the compensation for it hasn't been received till today. The Government needs to ensure that every poor farmer who lost his land in the building of this dam should get his money. Due to the construction of this dam, many farmers, including tribal and marginalised families, have become landless.

Devri Village, Gunderdehi Block, Durg

lands have suffered the most, especially pasture and grazing lands. This has affected the quantity of fodder available for the cattle, especially for the landless, small and marginal farmers who depend on grazing and pasture land for feeding their cattle (they are unable to produce enough crop residues to feed their cattle). Grazing is prohibited in forest areas and the continuously degrading forest cover does not provide enough fodder to feed their cattle, for the whole year.

The Village and District Reports express serious concerns over encroachment. The political and power dynamics of these encroachments are such that people believe strong State intervention is essential for stopping and removing encroachment. There have been instances of families being displaced for the construction of dams, factories and industrial projects, and have not been fully rehabilitated.

Women and Natural Resources

Women are the principal stakeholders in natural resources, since they use these resources in the home and for the market. They are the custodians and keepers of the rich cultural traditions of Chhattisgarh. The usage, maintenance and management of natural resources are issues closest to their hearts. Any change in Government policy impacts them. Lack of drinking water means they have to walk longer distances to fetch water, or manage with less water. Each day women have to travel longer distances to collect the same amounts of *tendu* or *mahua.* Thus, reduced access to the jungle or a decline in its produce means an additional burden on the time, energy and finances of women.

Despite this women remain outside the management system. Their legitimate right to participate in natural resource management exists largely in documents and programme manuals.

The *Jan Rapats* have mentioned the role of women in natural resources, but with a few exceptions the Reports have been unable to identify the centrality of women to the issue of natural resources. While provisions have been constituted for their involvement, women remain at the periphery of natural resource management, despite being primary stakeholders.

From the people

The major occupation for the people of the village is agricultural labour. Almost all the people in the village are landless and work in the fields of the *malgujaar* whose name is *Dani*. In the past all the villagers worked on his fields and were paid in kind at the wage rate of three *Paili* (local measure of paddy or *kodu*). Apart from this no other source of livelihood is available. The administration should bring the land owned by *Dani* under the Land Ceiling Act and redistribute it to the villagers. We know that 300 acres of land has been declared as ceiling surplus but the land has not yet been distributed.

Gotatola village, Mohala block, Rajnandgaon

From the people

Land records are maintained on paper. There is also *nistaari* land, which is allotted for specific purposes - graveyards, *sarnas, akhadas, khalihaan, khel ka maidan.*

Basod discussion, Sagibhavan village, Kasbil block, Jashpur

In a particular village, in block Sonhat, the residents claim that during the last *bandobast*, there were problems in the land records. Somebody's land was shown as someone else's land. This has happened in other villages also. Land records are not available easily or on time.

District Report, Korea

From the people

Women are involved in cutting and collection of fuel wood from the forests. In the more forested blocks of Borla and Pandariya, they are involved in activities of collection of forest produce like *tendu patta*, and in the processing of forest produce (brewing *mahua*, making *jhadus*), and the collection of medicinal and other plants.

District Report, Kabirdham

The management of natural resources lies in the hands of Government departments and some People's *Samitis*. People accept that women can play a very important role in the management of natural resources in the use of drinking water, women can check any wastage. They can also ensure that tube wells and hand pumps are managed well. Since they are involved in the collection of *tendu patta* leaves, they play a significant role in collection of MFPs. They contribute to agriculture and land development by doing *nidai aur gudai* (weeding and raking) of land.

District Report, Korea

The data from the Village Reports has shown that women in 68.3 percent of the villages are engaged in non timber forest produce (NTFP) collection. Women are employed as agricultural labour in 63.7 percent of the villages. In trading, however their role is extremely limited. Less than one in five of the Village Reports (16 percent) have listed women as being engaged in any trading activity. Only 5.1 percent of Village Reports have said that women play no role in the economic activity of the village or have no role in the management of resources.

The culture and orientation of State Departments and market negotiation instruments that affect natural resources – the *patwari*, the land markets, PHED staff, water markets, the hand pump mechanic, the forest guard, the forest officers, the timber depot management, the JFM dynamics – are all such that women find it difficult to interact with them.

Every natural resource initiative should factor in the role played by women. Institutions and their staff should be gender sensitive and ensure that women are involved in the management and care of natural resources. The rights of women as the primary stakeholders in the interface between people and natural resources should be recognized.

Common Property and Management

The management of natural resources and ownership have emerged as major issues in the *Jan Rapats*. The reports have pointed out that communities are protectors of these resources

Table 1.10 **Women and natural resources**
(percentage of Village Reports selected for perception analysis)

Region	Work in Agriculture	Collection of NTFP	Participation in trading	No Role
Northern region	73.8	80.3	21	3
Central plains	49.2	53.3	9	8
Southern region	68	71.2	18	4.2
State	63.7	68.3	16.0	5.1

Source: *Jan Rapat*s Part III

and not exploiters, in contrast to the generally held opinion in administrative circles.

Current policies, rules and regulations regarding natural resources hinder the locals from managing these resources according to their traditional practices. These policies and laws are framed to protect natural resources from depletion. Lack of transparency, lack of information about the laws regarding these resources, about rules and regulations regarding their management as well as their complexity and frequent changes in policies add to the dilemma of the villagers. *Panchayats* have been ignored and have been excluded from the management of the resources.

The *Jan Rapats* have suggested that changes be made in the system to make it more people friendly and sensitive to their concerns. Providing the people with a real sense of ownership will be helpful in replenishing these resources. The *Jan Rapats* have spoken of both common property resources and open access resources. There is no categorical distinction made between the two, and one has converted itself to the other over a period of time, resulting in the degradation of resources and an erosion of the system that managed it.

The reason for this is not necessarily the non-feasibility of common property resources as a concept but that the institutional arrangements and decision making regimes are not sustainable. Ownership of the resource itself is often ambiguous and sometimes, it is controlled by an entity external to the village community. Being multiple shared resources, common property resources must have well defined ownership rights and operational rules to be effective and equitable, both economically and socially, to their users. The older systems of community managed resources were to a large extent based on such parameters but these have now faded out.

From the people

In our village we have 1,391 acres of cultivable land. The inhabited land is 100 acres. The pasture land is within the forest. *Nistaari* land is 10 acres. Cremation ground takes up six acres. Forest land is four acres. Other land is seven acres. The land of the village is looked after by the land owners. The village also has unused land which we want to use for a PHC, a veterinary centre, a school and a dairy farm.

Lohari Village, Marwahi block, Bilaspur

The *Jan Rapats* have unambiguously stated that while development of open access[18] resources is a necessity and that State intervention in these areas can actually help in the revitalising of such resources, management of common property should eventually remain with the community and its institutions.

If community rights and authority over the same are clarified and people take over its management by framing rules for regulating use and access, the same open access resource would become a common property resource under community management. The ownership of these resources by centralised, absolute power structures, especially in the case of forests, also have a history - of tension, corruption, conflict, non transparency and the swift isolation of people from these resources. Most State endeavours have enabled a transfer of ownership of resources to the State and its

[18] Open access land is a common pool resource, which is not being managed by the community or an institution and is therefore referred to as 'open access' land. It usually belongs to the Government.

perceived agents. This has reduced both the access and the special bond that people shared with resources and converted an equitable system into an exploitative relationship.

The traditional systems face a challenge in that the primary stakeholder, which was the village community, has to take a secondary position to the State and thereby subscribe to norms dictated by the State, rather than those agreed jointly upon by co-users of resources.

The people are therefore unable to adequately utilise the resources and the State is unable to fully optimise these. There is a mutual mistrust between the institutions of the household/ community/ village and the State, in spite of common goals of sustainable livelihood for all people and the need to optimally utilise renewable natural resources. There is an urgent need for control and natural resource managing regimes to get closer to institutions of the household/ village and community, and be directed by the same set of goals and objectives. If interactions between the community and the State are translated into collaborative relationships and partnerships, the results will be more tangible and sustained.

From the people

A committee should be constituted for the protection of natural resources like water, forests and land. To maintain the balance of environment, more trees should be planted. If one tree is cut, ten should be planted.

Parasda village, Akaltara block, Janjgir-Champa District Report

Suggestions for Intervention

Many suggestions have been put forward in the *Jan Rapats*. These have been broadly categorised to indicate the general direction of thought in the Village and District Reports. It must be emphasised that these broad categories only demonstrate some of the more common suggestions. It is imperative that the suggestions made in the Village *Jan Rapats* find recognition and reflection in negotiations between villages, *Panchayats*, administrative conglomerations of people and the Government and agencies involved in development.

The State Report is an attempt to put the specific and focused suggestions of people into a broader frame, to give direction for policy and programme preferences and should in no way interfere, change or modify the priorities and suggestions in the Village *Jan Rapats*. What this implies is that it is unacceptable to move from the whole to the part. The village *Jan Rapats* have put forward certain suggestions and

Table 1.11 **Management of natural resources**
(percentage of Village Reports selected for perception analysis)

Region	Participation of *Panchayat* in management	Participation of CBOs[19] in management	Management by rules and law	Protection of natural resources	Management by adopting traditional ways of managing resources
Northern region	23.3	25.2	22.4	38	21.1
Central plains	18	15	33.6	29	19.4
Southern region	5	11.5	44	47	33.2
State	15.4	17.2	22.1	38.0	24.6

Source: *Jan Rapats* Part- III

priorities, which are specific to their context and these, must be acted upon, regardless of what happens at the State level.

A large number of Village Reports (38 percent) have stated that protecting or securing the natural resources should be the first priority. About a fourth of the Village Reports have suggested using traditional ways of management. Rules and laws as a system of management is suggested by 22 percent of the Village Reports and 15.4 percent state that participation by the *Panchayats* in the management of natural resources will be desirable.

It is necessary to recognise that women form a large and primary section of forest users and collectors of natural resources. The sizeable use of natural resources for home consumption and its economic relevance as forest produce make women integral and primary stakeholders in collection and gathering. The District and Village Reports have tended to undermine this fact and have not emphasized the vital role that perhaps only women can play in the conservation and protection of natural resources. The State acts in a similar manner. Although adequate provisions have been made in the policy framework for involvement of women in management of forests through reservations, their participation has actually been more formal than real. In any attempt to increase people's real participation in management of natural resources, adequate and actual involvement of women must be ensured, especially in decision-making.

The suggestions emanating from the *Jan Rapats* are listed under three broad heads – water, forests and land.

Water

Irrigation is a major concern and the requirement for increased irrigation has been stated in all the Village and District *Jan Rapats*. Village after village has expressed the need for irrigation. Nearly half the Village Reports (46 percent) have listed the low level of water as a key concern. Falling level of water and its management has been listed as the most common problem, after the issue of tree felling. (See Table 1.12 for details).

The people have suggested ways to increase irrigation, identifying sources of water as well as ways to store and harvest water. They are eager to extend their help and labour for such activities. Stop dams, check dams, small canals have found mention in the Reports as possible water conservation mechanisms. In order to effectively utilise these structures, support for lift irrigation schemes will be required.

The suggestions and the need for developing water conservation structures are not restricted to irrigation alone.

Table 1.12 **Key concerns in natural resource management**
(percentage of Village Reports selected for perception analysis)

Region	Low water level	Soil erosion	Cutting of wood	Strict rules and regulations	Damage by cattle	No problem
Northern region	43.9	19.6	37.2	34.2	34	28.9
Central plains	41.2	31.2	41.3	44	31.8	11
Southern region	53	29	65.6	39	22.7	31
State	46.0	26.6	48.0	39.1	29.5	23.6

Source: *Jan Rapats* Part III

From the people

Extension of irrigation facilities, digging new ponds and better maintenance of canals is needed. If such works are sanctioned, the villagers are willing to contribute their support and labour. These will allow them to grow multiple crops, as opposed to the single crop that they grow at present.

District Report, Korea

Improvement is needed in irrigation facilities, to decrease the dependence on rain and increase productivity and make double and triple cropping possible. There should also be construction of ponds and tanks to store rain water and use it for fisheries and irrigation.

District Report, Surguja

The villagers feel that for increased rain and water harvesting, it is important that Government and non-government land be used for plantation and the development of pasture lands. For this the villagers will need saplings of multi-purpose trees from the forest department. Land which has been illegally encroached upon should be freed and developed as pasture land for cattle. The boundaries of the *talaabs* and the fields should also be used for tree plantation so as to improve rainfall.

District Report, Janjgir-Champa

In Aarang block, people have suggested that a stop dam can be constructed on the Todhgaon Kolhan *nallah* and this can be used for irrigation. In Kasdol block, the people of Chikli village have suggested a dam on the Tendu Dhari *nallah*.

District Report, Raipur

- The multiple advantages of water harvesting, which can be used for domestic purposes, for *nistaari*, for fisheries and for ground water recharging have been recognised by the people. Many reports have identified sites, which can be used for water conservation, by constructing check dams and for watershed development. They have also identified small rivers and tanks that can be utilised.

- The drought situation in the last few years has directed the attention of people to group based action for water conservation. The people have a rich tradition of water conservation and community water management systems, so it is not difficult for people to come together and develop equitable and sustainable systems to manage water. Efforts should be made to document such systems and wherever possible, traditional systems should be used for community water management.

Forests

Regarding forest produce and the interface with forest managers in collecting and using forest produce, the *Jan Rapats* have many suggestions that span legal, administrative, inter - personal and technical dimensions. Some of these suggestions are:

- Planting prominent fuel wood and fodder species on *bunds* of agricultural fields, pasture lands, fallow land and community owned land.

- Freeing encroached land and using it for fuel wood plantation and as grazing land.

- Planting trees in forests, to replace those that have been cut down for fuel wood, so as to maintain the sustainability of forests.

- Ensuring people's participation and control in the management of forests. This is important to maintain the sustainability of forests and to provide opportunities for sustainable livelihoods to forest dependent villages and communities.

Land

The Village Reports have certain concrete suggestions with regard to land and its utilisation. These are:

- Wasteland and barren lands should be better utilised. They can be used as common property resources, or can be used for social forestry projects or as grazing land.
- Training and know-how should be given to people to enable them to manage barren and un-utilised lands better and put such land to more productive use.
- Fallow, open access and common lands should be used in various ways that can benefit the village community as a whole.

Conclusions

As the *Jan Rapats* explore the issue of natural resources, they reflect a distinct tone of concern. They call for a reflection and re-examination of the role of the State in regulating and managing natural resources. It is evident that the new State stands at a critical juncture. The last fifty years has seen the consequences of natural resource management essentially by the State. There are innumerable examples, from across India, which point to the fact that whenever and wherever people have been involved in managing natural resources in their context and their organisations, these have been successful. This experience must guide Chhattisgarh in the future.

An issue which directly affects people's lives and to a large extent dictates their very existence, requires a complete understanding of the natural systems, their inter linkages and the relationships that govern them. An understanding of the natural diversities, which manifest them selves spatially and over time, is critical to the evolution of a development path, which is holistic and sustainable.

The lives and livelihoods of the people in the State are intrinsically linked to water, forests and land. Therefore, there is an existing, almost institutional interaction between people and their environment. Initially, there were strong systems of community ownership and local self-regulating mechanisms, based on mutual participation and democratic decision making which helped in the conservation of these common lands. The last hundred years or so has weakened this relationship by distancing people from these resources. Today, it is apparent that these systems have broken down, or are unable to operate for a variety of reasons, leading to exploitation and over use of resources.

The encouraging aspect is that these institutions can be revived and reconstructed,

From the people

People in most villages of Pandariya block want illegal encroachers on Government land to be removed and suggest some plantation on that land, which will give them fuel wood and wood for construction. The *khali* (unused) land should be given to the poor for cultivation.

District Report, Kabirdham

Encroached land should be freed from encroachment and developed as pasture land or used for plantation to increase resources.

District Report, Janjgir-Champa

Increasing encroachments are leading to reduction in fallow and *nistaari* lands. We should increase the irrigated land and prohibit surface digging on pasture lands and *nistaar* land. Unused *(khali)* land should be converted to playgrounds and pasture lands, barren land should be used for cultivation or to plant forests.

District Report, Mahasamund

with clearly detailed goals and objectives and can form the basis of a vibrant and sustainable conservation mechanism. A re-iteration by the State of its commitment to its people and their well being, accompanied by the provision of a set of facilitating factors (and the withdrawal to a sustainable regulatory and conflict resolution role) can lead to people regaining their synergetic relationship with water, forests and land.

The diversity in the social fabric and milieu of the villages does not allow for broad and centralised decision making processes. Instead, these have already led to infringements of the umbilical relationship that existed between people and their resources. The State's enthusiasm and mandate to preserve natural resources by engineering largely sanitised, static, non-interactive, natural environments is not sustainable.

An alternate participatory paradigm that is people-owned and people-oriented is essential, if these resources are to be optimised. The people have to look upon these resources as their own and not as something, which is removed from them. In fact, the singular most important characteristic of the Water, Forests and Land chapter of the *Jan Rapats*, that sets it apart from the other chapters, is the over-riding fervour that people display to come together, to conserve, build and maximise these natural resources.

It is apparent from the *Jan Rapats* that the logical and most suitable role for all stakeholders, is to harness a partnership-oriented and people-owned system, which will make natural resource management sustainable. This will include the State as a partner in the decision-making processes, reducing its current administrative intrusion but achieving its purpose to preserve and optimally utilise natural resources. Such a synergy would make natural resource ownership and conservation far more effective and equitable by virtue of being plural, local, context-specific and partnership-based.

If the State envisages such a role for itself, especially in the management of forests, people will also have to affect a matching change. They will have to overcome their hostility to State led conservation and assume responsibility for the natural resources, which they have come to regard as belonging to the State, their interaction (especially in the last few decades) being limited to user groups. In addition to ensuring adequate and quality forest cover, the State has the added responsibility to make certain that acts like the Forest Conservation Act and critical constitutional and legal provisions such as those for Scheduled V Areas, *Panchayati Raj* legislation and PESA, are followed both in letter and spirit. The Provisions of the Constitution, Acts, Rules and Regulations and the interpretation of the laws that guarantee people's rights over natural resources as well as the support of democratic institutions should be strengthened. Democratic bodies already exist in the form of people's elected institutions – the *Panchayats*. If capacities at this level are built up, these institutions have the potential to play an instrumental role as custodians and co-managers of natural resource regimes. This transition will necessarily need to be strategically planned and long term in nature.