



# Exploring the Scope of Indigenous Knowledge Protection within the Legal Regime for Forest and Wildlife in India\*

Research Project on Protection of Indigenous Knowledge of Biodiversity Briefing Paper 6, October 2005

**Santanu Sabhapandit**

## Part I: Introduction

Indigenous knowledge (IK) generally means the knowledge of the adivasi people about the natural resources. Most commonly available example would be the use of plants or products thereof in treating disease. We come across many usages in our daily life that are based on knowledge that comes from years of observation and experience. They form part of our life and we hardly think in terms of protecting them as a valuable property. With the scientific and technological advances the importance of IK for our day-to-day activities has surely reduced. We easily opt for a readymade drug than searching plants or roots of trees. However IK plays a far more important role than we generally tend to think. For example,

- There are communities for whom the nearby forest is the only source of livelihood and knowledge about the surrounding natural resources the only means of survival. Their dependency on natural resources makes IK an inalienable part of their lives.
- In a more commercial perspective, IK in many cases provides the basis for modern research and contributes substantially towards reduction in search cost.

In recent times IK has garnered a lot of attention, mainly because of two reasons. The advent of bio-piracy has led to the recognition of IK as a resource and discussions about possible ways of protecting it. Also, there is increasing recognition of the fact that IK makes considerable contribution to conservation and sustainable development. While the need to guard against bio-piracy cannot be overemphasised, the unique

linkages of IK with natural resources and adivasi livelihood calls for a protective system that is supportive of those linkages and suitable to the local conditions.

In our quest for a system to protect IK in the interest of the local communities and our national interest, this paper attempts to see whether our existing national laws provide enough scope for the rural and tribal community to have control over their surrounding natural resources and allows IK to exist and develop. The focus of this paper would be to examine whether existing legal provisions in the country as well as Policies give due recognition to the importance of availability of natural resources to the holders of IK. For this purpose, the paper makes a legal analysis of the Indian Forest Act, 1927, The Forest Conservation Act, 1980, and The Wild Life Protection Act, 1972. Since the primary subjects of these Acts are forest and wildlife and not IK, the objective will be to see if they provide the holders of IK access to the natural resources, which is extremely necessary for the existence and development of IK. There can be two ways by which these Acts can protect, or contribute towards protection of IK –

- a) By providing protection to the natural resources.
- b) By ensuring access to the natural resources by the holders of IK.

## Part II: Forest Laws

### i. The evolution of Forest laws in India

There is little record of forests being regulated by codes before the advent of the British. However, Vedic literature does indicate that

\* This briefing paper is authored for Gene Campaign by Santanu Sabhapandit, Research Associate, Centre for Global Agreements, Legislation and Trade, The Energy and Resources Institute (TERI), India.

forests were held in high esteem. Certain trees were considered as celestial. Inscriptions of 'Pipal' and 'Babul' were found in seals and pottery recovered from the Indus valley. Kautilya's Arthshastra also suggest a systematic management of forests. There were also provisions of punishment for felling of trees. By degrees, forest management was conditioned by the need for the promotion of forest based industries or craft, exploitation of forest wealth in making household articles and defence purposes.<sup>1</sup> The Mughal period was characterised by a continuous destruction of forests for timber and clearance for cultivation.<sup>2</sup>

By the middle of the 19th century, the depletion of forests emerged as a serious issue. The British Govt. was forced to recognise that forests in India were not inexhaustible. Accordingly, various officers were deputed from time to time to report on forest areas and all of them emphasised the need for conservation and improvement.

In 1856, Lord Dalhousie emphasised the need for definite forest policy. However, the instantaneous reason for this emphasis can also be attributed to the fact that adequate supplies of timber was required for the great extension of railway lines that were being undertaken.<sup>3</sup> There was also a great demand for Indian Teak.

In 1865, the first Indian Forest Act was passed. It was amended in 1878, when a comprehensive Law, the Indian Forest Act VII, came into force. The provisions of the Act established a virtual state monopoly over the forests in a legal sense on one hand, and attempted to establish, on the other, that the customary use of forests by the villagers was not a 'right' but a 'privilege' that could be withdrawn at will.

In the period upto 1980s there were two major policy statements purporting to give direction to the role of the government in relation to the alternate functions performed by forests. They were the policy statements of 1894 and 1952. In practice, it was the Forest Act of 1927 that guided governmental actions for much of the period.

Assertion of central control and emphasis on the role of forests as providers of timber and industrial raw materials is the common thread running through these major statements of policy. There is a view that, the 1894 policy, even though came from a colonial government was more sensitive towards local interests. The role of forests as essential on climatic and ecological grounds was realised and the

significance of local user's was also pointed out. Notably it was provided that no restriction should be placed upon local demands, merely in order to increase state revenue. On the other hand, in the National Forest Policy 1952, it was made clear that local priorities and interests and claim of communities around forest areas should be subservient to the larger national interests. Forests were viewed as national asset<sup>4</sup>. In 1976, through the 42nd Constitutional Amendment 'forest' was transferred as a subject in the State list (7th Schedule of the Constitution) to the Concurrent list. It thus re-emphasised the role of Central Govt. in the management of forests. In view of the continuing forest depletion, in 1980, the Forest Conservation Act was enacted. It also emphasised Central Govt.'s involvement in deciding land use. Community interests found emphasis only through the introduction of the National Forest Policy 1988.

## ii. The Indian Forest Act, 1927

The stated assumption for the introduction of forest laws and policy was that the local communities were incapable of scientific management, and that only a trained, centrally organised cadre of officers could properly manage forests. However, such laws also ensured commercial exploitation of the vast natural resources that India possessed and eliminated the local community from having any control over the resources. It was prompted by the great demand of forest produce for industrial use in Britain.

The Forest Act of 1927 (IFA, now onwards) was enacted to consolidate the existing Law relating to Forests, the transit of forest produce and duty liveable on timber and other forest produce. The Act as it stands today, does not provide any definition of "Forest". For the purpose of the Forest Conservation Act, 1980, (FCA) the Supreme Court in TN Godavarman Thirumulkpad Vs. Union of India<sup>5</sup> has expressed the opinion that 'forest' must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise for the purpose of the FCA. The term 'forest land' will not only include 'forest' as understood in the dictionary sense, as also any area recorded as forest in the government record irrespective of ownership.

The Act provides for various protection measures for forestland. In general it follows the approach of restricting people's access to the forest. Thus, Sec.3 empowers the State Govt. to constitute any forestland or wasteland which

1 P LeelaKrishnan "Environmental Law in India" p7

2 Rangachari CS and Mukherjee SD "Old roots New shoots" Winrock International Foundation

3 Smythries EA "India's Forest Wealth" India of Today Vol. VI Oxford University Press

4 Chopra "Forest and other sectors:critical role of Government policy" EPW 1995

5 AIR1997 SC 1228

is the property of Govt., or over which the Govt. has proprietary rights, or to the whole or any part of the forest produce of which the Govt. is entitled, as a Reserved Forest. Sec.4 provides the procedure for declaration of a Reserve Forest. It requires the State Govt. to issue a notification declaring its decision to constitute a Reserve Forest and specifying as nearly as possible the situation and limits of such land.

Sec.5 lays down that once a notification under Sec.4 has been issued, no right can be acquired in or over the land comprised in such notification, except by succession or under a grant or contract in writing made by or on behalf of the Govt. The Section further prohibits any fresh clearings for cultivation or for any other purpose unless in accordance with such rules as may be made by the state Govt. in this behalf.

The combined effect of sections 6, 7, 8 and 9 is that if one fails to bring to the notice of the Forest Settlement officer (FSO) any right and corresponding claim over the specified area, his right shall extinguish. In other words the burden of proving his right lies on the claimant unless such right is already in Govt. record. The IFA anticipates 3 types of claims in forests proposed to be reserved. Firstly, a forest dweller might lay claim of ownership of land. Secondly, right to pasture and forest produce. And thirdly, right with respect to shifting cultivation. Notably, FSO has no power to confer any right on the forest dweller, which has not been satisfactorily established. But he is bound to express fully to the Govt., his opinion and advice as to any practice which, though not satisfactorily proved to be an existing right, he may think is advisable to sanction as a right or a concession in the interest of the people. It is upto the Govt. then to decide whether such non-established rights or concessions may be granted in the interest of the people or not. What is left unaddressed is the fact that while community rights or customary rights are themselves difficult to prove in the prevailing judicial system, even the scope provided to the FSO would remain ineffective if it is left to the whims of the officer.

From the point of view of protection of IK the most important question that such a provision can pose is - what are the rights over the natural resources that the holders of IK possess. A community might have been using, rather, living on the forest. But unless they have legally recognised rights over the forest they cannot assert them. It is unlikely that tribal or forest dwellers will find the names of their ancestors on any written documents, which may be used to establish rights to the land, even if they have occupied the forest for

centuries. Should any person currently using forest land or forest products be given rights over the forest? Should the granting of right be limited to communal rights of Schedule Tribes recognised under the Fifth and Sixth Schedule of the Constitution as distinct communities? Should rights be based on reference to historical documents? How feasible would that be for a community that is oblivious of the modern education and legal systems? The Act does not provide any answer to such questions. The only practice that has been recognised by the Act is the practice of shifting cultivation. However State Govt. can prohibit such practice<sup>6</sup>, as no right is given to the community to carry on such practice. What perhaps needs recognition is the interdependence of between community and natural resources. It is an issue of life and livelihood and not some discreet individual activities.

During all the stages of inquiry, the FSO is required to give notice to all the affected parties. This is in line with the principles of natural justice. The Supreme Court in "Harish Chandra Vs. Land Acquisition Officer" (AIR 1961 SC 1500) has held that though FSO adjudicating claims under the Act is not a court, yet the principle, which is really of a fair play and is applicable to all tribunals performing judicial or quasi-judicial functions, must also apply to him.

The effect of declaration Reserve Forest is such that even unauthorised entry to the area becomes an offence punishable with imprisonment<sup>7</sup>. Thus, in the absence of specific rights to access, declaration of Reserve Forest completely blocks access to the natural resources.

Sec.28 lays down that the State Govt. may assign to any village community the rights of Govt. to or over any land which has been constituted a reserve forest. Such forests are called village forests. The State Govt. may make rules for regulating the management of village forests. It can prescribe the conditions under which the community to which any such assignment is made may be provided with timber or other forest produce or pasture, and their duties for the protection and improvement of such forest. However the Act does not say anything about the factors that the State Govt. will take into account before assigning a reserve forest to the village community. But such an assignment can provide an opportunity for IK holders to access natural resources.

Apart from Reserve Forest the State Govt. can also declare a forest land or waste land over which it has proprietary rights, as Protected Forest. Sec.29(3) mandates inquiry and recording of the nature and extent of the rights of Govt. and of private persons in or over the forest land, before

6 the practice of shifting cultivation shall, in all cases, be deemed a privilege subject to control, restriction and abolition by the State Govt; Mohd. Siddiq v. State AIR 1968 All 396

7 sec.26(1)(d)

Various categories of forests provided by the Indian Forest Act		
Category	Purpose <sup>8</sup>	Representation of community interests
Reserved Forest	It may be constituted by the state govt. on any forestland or wasteland which is the property of the govt. or on which the govt. has proprietary rights. In Reserved forests most uses by local people are prohibited, unless specifically allowed by a forest officer in the course of settlement.	Dependent upon the acceptance or non-acceptance by the FSO. He can recommend continuation of a right if he is satisfied about its existence even though not legally proved.
Protected forest	State govt. may constitute any land other than reserved forests as protected forests over which the govt. has proprietary rights. In Protected forests the govt. retains the power to issue rules regarding the use of such forests, but in the absence of such rules, most practices are allowed. Among other powers, state can reserve specific tree species in Protected forests.	Whether community interests will be taken into account and if yes, how, is not clear.
Village Forest	The state govt. may assign to any village community the rights of the govt. to or over any land, which has been constituted a reserve forest. The state govt. may also make rules for regulating the management of such forests.	Can provide ample scope for the continuation of man-natural resource relationship.

declaring an area as protected forest. As mentioned above, here also, the lack of well defined policy for providing access to the natural resources can create obstacles for the IK holders in practicing their knowledge. Section 32 empowers the State Govt. to make rules for granting licence to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use.

### iii. The Forest (Conservation) Act, 1980:

This Act does not in anyway effect those provisions of the Indian Forest Act that relate to access of natural resources by the holders of IK. However Sec.2 of the Act lays down that no State Govt. can except with the prior approval of the Central Govt. make an order that any reserved forest or any portion thereof, shall cease to be reserve. One very important aspect of the Forest Protection Act got highlighted in the Supreme Court Order in the case “T N Godavarman Thirumulkpad Vs. Union of India” AIR 1997 SC 1228. The Supreme Court is of the opinion that the Forest conservation Act, 1980 was enacted with a view to check further deforestation which ultimately results in ecological imbalance; and therefore, the provisions made therein for the conservation of forests and for matters connected therewith, must apply to all forest irrespective of the nature

of ownership or classification thereof. The court said that the word ‘forest’ must be understood according to its dictionary meaning. The term ‘forest land’, occurring in Sec.2 of the Act will not only include ‘forest’ as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership. Thus, according to this meaning, any kind of non-forest activity in any forest will require prior approval of the Central Govt.

## Part III: Wildlife Laws

### i. Wild Life (Protection) Act, 1972

The preamble of the Act says that the Act provides for the protection of wild animals, birds and plants and for matters connected therewith or incidental thereto. It is interesting to note that the Act is not limited only to ‘animals’, and includes plants as well. Also the scope of the Act extends to matters that are connected or incidental to the basic objective of protection of wildlife.

Section 2(37) of the Act defines Wild Life to include any animal, bees, butterflies, crustacea, fish and moths: and aquatic or land vegetation which form part of any habitat. From this definition it can inferred that the Act views wildlife as forming part of a habitat and aims at protection in situ.

Chapter IIIA of the WLPA 1972 introduced by the 1991 amendment Act, with a view to protecting specified plants clearly indicates that members of Scheduled Tribes can freely pick, collect or possess, in the district he resides, any specified plant or part or derivative thereof for his bona fide personal use. Thus the introduction of this particular section does not effect the activities of the Scheduled Tribes dependent upon forests. However if seen from the perspective of protection of IK, there may arise certain questions like-

1. Why it is only the Scheduled Tribes whose interaction with the forest land is kept in tact? There might be other people who are not Scheduled Tribes but dependant upon the forest.
2. The holders of IK, for example a vaid in a village practicing herbal medicines, need not be a Schedule Tribe. It is necessary that he is not prohibited from collecting and experimenting upon wild herbs, if his knowledge base is to be protected from extinction due to non use.
3. Further, how to define 'personal use' in the context of a vaid , whose livelihood is to cure people from various diseases?

The protective measures provided by the Act also follows a similar approach as the IFA, i.e protection from the people. The Act provides for the creation of Sanctuaries and National Parks wherein access by people are severely restricted. The declaration of a sanctuary or national park is such that no person can destroy, exploit or remove any wildlife, including forest produce without the permission from the Chief Wildlife Warden (CWW). The CWW can grant such a permit only when the State govt. is satisfied that such act is necessary for the improvement and better management of wildlife.

A Sanctuary can be established under section 18, 26A, 38(1) and 66(3). For an area of land or water, around India's coast to be notified a sanctuary under sec. 26A, there are 3 conditions to be fulfilled:

Firstly, notification under sec.18, declaring the intention and the boundaries of a particular area that is required to a sanctuary. The area should be of adequate ecological, faunal, floral, geomor-phological, natural or zoological significance, for the purpose of protecting, propagating or developing wild life or its environment.

Secondly, the period of 2 months after proclamation made by the collector for preferring claim and with regard to people's rights must elapse, and

Thirdly, all the claims made in relation to any land must be disposed of by the state govt.

After these 3 conditions are fulfilled, the state govt. is required to issue a notification specifying the limits of the area that would finally be notified as a sanctuary. In case of reserved forests and territorial waters, this notification can be directly issued.

A National Park can be established under sections 35, 38(2) and 66(3). For an area to be declared under sec.35, an intention is declared by notification for an area, which is of ecological, faunal, floral and geomorphological importance. This area may be an existing sanctuary too.

A National Park is notified under the following 3 conditions:

Firstly, when the period of preferring claims has elapsed.

Secondly, when all claims in relation to any land in the area intended to be a national park is disposed of by the state govt.

Thirdly, when all rights in respect of land, which is proposed to be included in the national park are vested in the govt.

After these conditions are fulfilled, the state govt. shall issue a notification specifying the limits of the area that is being declared as a National Park. From the stated criteria for declaration of sanctuary or national park it is difficult to address a question like why a particular area is declared as National Park and not as a sanctuary?

The process of settlement of rights in declaring Sanctuary/National Park can be explained as below –

Stage I: Intention notification declaring intention and limits of such area.

Stage II: Determination of rights- under sec.19, the Collector or any officer authorized by the state govt. is required to determine the existence, nature and existence of right of any person who may be a claimant in the process of settlement. Sec.20 specifically bars the accrual of any rights after the intention notification. The determination of rights under the section is quite comprehensive as it includes the rights of any person. This could mean that such person may not only be those who live within and around the protected area but also those outside it.

Stage III: Proclamation notification under Sec.21. The Collector or any officer so authorized by the state govt. is required to issue a proclamation notification under sec.21. Such proclamation is required to be published in regional language in every town or village or in the neighborhood of

the area specifying the boundaries of such a proposed protected area. Under the said notification any claim under sec.19 is required to be submitted within 2 months from the date of such proclamation.

Stage IV: Inquiry - sec.22 describes the process of inquiry by the collector or his authorized officer. The inquiry includes the claims under sec.21 as well as claims under sec.19 which may exist as per the collector but not claimed. The inquiry is to be done “expeditiously” though no time limit is given. The primary basis of the claims under this section are records of the govt. and evidence of any person acquainted with the same.

Stage V: Acquisition - under sec.24, the Collector is empowered to pass an order which may admit or reject a claim in whole or part. If such a claim is admitted wholly or partly, then such land may either be excluded from the limits of the protected area or acquired by the state. Such acquisition may either be under an agreement between the right holder and the govt. or where such right holder has agreed to surrender his right to the govt. in lieu of compensation, as per Land Acquisition Act, 1894.

In case of sanctuaries, the Collector has been given special powers under sec.24(2)© to allow any right over any land in

Chief Wildlife Warden (CWW) of the state. This special power is the most significant provision that distinguishes sanctuaries from national parks. However, it is pertinent to note that no guideline or grounds have been enumerated for acceptance or rejection of such claim. Further, the role of the CWW is unclear in case of allowance of any right in a sanctuary. The Act is silent on the question as to whether his views are binding or not.

Stage VI: Final notification - A sanctuary or national park may be finally notified under section 26A or 35(4), only after period of claim has elapsed and all other claims have been disposed off (or vested in the govt., in case of National park).

Thus it can be said that in case National parks the restrictions are stricter than in the case of Sanctuary. Because, in case of National Park, all the rights are vested with the government. There is no scope for continuation of any traditional right over such land.

As far effects arising from declaration of sanctuary and National parks are concerned there has been a prolonged debate over the issue of alienation of people from the forests, as also taking away their livelihood. Such debate is not confined only to the wild life Act, but covers the whole perception behind the policy that forest and wildlife is to be

<b>Various categories of protected areas provided by The Wildlife Protection Act</b>		
Category	Purpose	Representation of community interests
Sanctuary	An area can be declared as a sanctuary if it is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance, for the purpose of protecting, propagating or developing wild life or its environment.	Before declaration all rights are disposed of by the Collector by either accepting or rejecting. The Collector has the capacity to recommend certain rights to be continued if he is satisfied about their existence. But the state government takes the decision in that regard.
National Park	Same as that of sanctuary	All rights vest in the government. No scope for continuing any rights.
Conservation Reserve	Area adjacent to national park or sanctuary or linking two protected areas can be declared as conservation reserve for protecting landscapes, seascapes, flora, fauna and their habitat.	There is provision for community consultation. There is also representation from the Village Panchayat in the Management Committee.
Community Reserve	Where the community or an individual has volunteered to conserve wild life and its habitat, the state govt. may declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.	Can provide ample scope for legal recognition and exercise of the community rights. However, the definition limits it only to private and community land.

protected from the people. For the purpose of this paper rather than going deep into the debate, it can be said that the falsehood of such a notion has been accepted by the Govt. in present policy statements. Thus, the preamble of the Wild Life (Protection) Act, 2002 recognises the growing alienation of the local communities from wild life conservation programmes as having an effect on increased wild life crimes and mismanagement. It is one of the objectives of the Act to provide for participatory management of the buffers around the National Parks and Sanctuaries. Section 36C of the Act introduces 'Community Reserves'. According to the section the State Govt. may where the community or an individual has volunteered to conserve wild life and its habitat, declare any private or community land not comprised within a National Park, Sanctuary or a Conservation Reserve, as Community Reserve, for protecting fauna, flora and Traditional or Cultural conservation values and practices. This is a welcome step towards legal recognition of people's efforts at conservation. However, as per the definition provided for Community Reserve, it is confined only to Private or Community land. There may be communities traditionally involved in conservation, though the land concerned might belong to the Government. In such cases, those communities will not be able to derive benefits from this new provision, nor extend the benefits to the biodiversity they are conserving. Further, there is no definition of community land.

There are some other provisions in the Act of 2002, which can be termed as supportive of the close link between community and natural resources. Under sec.36A the Act provides for constitution of "Conservation Reserves". For such constitution the nature of the land should be such that it is adjacent to national park or sanctuary and link one protected area with another. The objective is to protect landscapes, seascapes, flora and fauna and their habitats. Notably, the Act requires consultation with local communities in declaration of Conservation Reserve. Also, in the Management Committee for the Conservation Forest there is provision for including member from the Village Panchayat and NGOs. Though it is a positive step, yet actual representation from the village community can not be said to be ensured. While in one hand the management committee is only an advisory committee, on the other, representation is sought through elected members from the Panchayat. The success of the Panchayati system is itself under a great deal of debate and there has been opinion that elected members often do not represent all sections of society, particularly the disadvantaged.

The same concern is also relevant to the Community Reserve Management Committees. It also consists of members nominated by the Village Panchayat and where there is no such Panchayat, nominated by the Gramsabha.

However, unlike the management committee for Conservation Reserve, this Committee has authoritative powers to manage the reserve. It is competent to prepare and implement management plans for the reserve and can take steps for the protection of wildlife and habitat.

However, it must be mentioned here that though on paper there has been a change in perspective of looking into conservation, actual legislative efforts are yet to follow. Moreover, there is a need to integrate the various efforts to conserve the biodiversity. Protection of IK has to be given its due recognition as one of the objectives and must be included in policy as well as legislation.

#### Part IV: Conclusion

The legislation as they stand today gives little scope for the community's knowledge to be reflected in the conservation process. Even though in recent policy statements<sup>8</sup> there is recognition of the need to provide legal identity and protection to the community and individual rights over natural resources, at the legislative level the old approach towards natural resource protection seems to continue. However, if policy statements are any indication, there is a clear shift in the approach towards conservation from that of alienation and restriction to more and more emphasis on participatory management. In the context of forest protection as compared to the IFA recent policy statements have given recognition to the need to include people's livelihood requirements as a part of the conservation process. The Adivasi people living in and around the forests are not to be seen as a threat to conservation, but their knowledge about the natural resources and their conservation could actually contribute significantly towards conservation. A similar change in approach is also seen in the field wildlife conservation. The amendment Act of 2002 provides a number of scopes to include people views and knowledge in the conservation process. However there are two drawbacks in the present legal regime:

1. The lack of co-ordination between policy and legislation. Though the policy statements indicate intentions to undo historical injustice done to the community, they are not backed by adequate legal enabling. As a result the policy statement remains to be popular rhetoric.
2. From the context of protection of IK, the subject matter is yet to gain priority as a means to protection of biodiversity. The need to re-establish the interaction of community with the natural resources can again be emphasised through recognition the importance of IK in biodiversity conservation.

Apart from legally recognising community's rights, the scope

of integrating IK into developmental planning is needs to be explored. The conservation and livelihood linkages of IK should be further identified and further developed. This kind of policy intervention will provide even greater impetus to the protection and development of IK.

### References

1. Divan S. and A. Rosencranz, 2001, Environmental Law and Policy in India – Cases, Materials and Statutes, Oxford University Press, New Delhi
2. Upadhyay S. and V. Upadhyay, 2002, Handbook on Environmental Law (Volume III)- Environment Protection, Land and Energy Laws, LexisNexis, New Delhi
3. Gadgil, M. and R. Guha, 1997, This Fissured Land: An Ecological History of India. Oxford University Press, New Delhi
4. C. Singh, 1986, Common Property and Common Poverty.



### GENE CAMPAIGN

J-235/A, Lane W-15C, Sainik Farms, Khanpur, New Delhi - 110 062

Phone : +91-11-29556248 Fax : +91-11-29555961

E-mail : [genecamp@vsnl.com](mailto:genecamp@vsnl.com)

Website : [www.genecampaign.org](http://www.genecampaign.org)