

People's participation in Himalayan biodiversity conservation: A practical approach

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In the Himalaya, the existing attempts to conserve biodiversity are inadequate and therefore innovative changes in policies and programmes are called for so as to focus greater attention on people's participation. Harnessing people's creativity and energies through participatory programmes will go a long way in furthering the cause of conservation. Recognizing the importance of this approach, G. B. Pant Institute of Himalayan Environment and Development (Conservation of Biological Diversity Core Group) initiated a programme in 1995 focusing on school/college students and teachers. The programme envisages to involve and seek public support at different levels starting from the identification of area-specific issues to development and dissemination of conservation packages. The concept and achievements of the programme are detailed in the paper.

CONVENTION on Biological Diversity in conjunction with Agenda 21 explicitly recognizes the importance of people's participation in furthering the cause of conservation and utilization of biological diversity. In the Himalayan context, this activity assumes greater significance in view of the fragility of the mountain system and the richness of biodiversity it supports.

The Biodiversity Conservation programmes are pursued across the Indian Himalaya¹, but the initiatives are restricted to intensification of surveys, inventorization, strengthening the network of Protected Areas, conservation of threatened species and *ex situ* germplasm maintenance². People's involvement, however, is not adequately addressed.

Himalayan biodiversity offers richness, uniqueness and values, besides manifesting in itself rich and diverse tradition of resource use³⁻⁷. At the same time it is becoming increasingly clear that (i) natural stock of Himalayan bio-resources is depleting fast⁸, (ii) concern over preservation/maintenance of resources is rapidly declining among indigenous people^{9,10}; (iii) traditional conservation system is losing ground at a fast pace^{10,11}; (iv) notifying Protected Areas by the Government has not yielded the desired results¹² and (v) in general, the scientific prescriptions for sustainable resource use and preservation of resources have not as yet served the interests of the people¹³.

The overall scenario calls for innovative changes in

policies, programmes and above all in their implementation. In this context harnessing people's creativity and energy through a precisely defined and practically feasible participatory programme could prove one of the most promising initial steps.

People's participation in Himalayan Biodiversity Conservation, based on knowledge base of indigenous people and traditional systems of conservation, is a step in this direction started by the G.B. Pant Institute of Himalayan Environment and Development, Almora. It is proposed to document the traditional information and complement it with scientific inputs especially those generated by the Institute and place them before the target groups at national and international fora. Perhaps, this effort will help in the revival of local traditions of resource conservation which are considered far more efficient and practicable compared to the prescriptions promoted by centralized authorities¹⁴. The main objective of this programme is to ensure public participation in conservation. The programme envisages to involve and seek people's support at different levels, starting from the identification of area-specific biodiversity-related issues to development and dissemination of area-specific conservation packages.

Approach and programme features

Following a systematic needs assessment approach¹⁵, it was decided to: (i) determine and focus on area-specific issues of biodiversity and (ii) identify and involve specific stakeholder and target groups. Interaction through correspondence (in vernacular) and discussion with the

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people of diverse socio-economic background was the first step in this direction. As a result, biodiversity-related issues were identified as: (i) steady increase in demand accompanied by decline in resource availability, (ii) poor recognition of traditional knowledge base, (iii) resentment over government policies of protection and (iv) increased economic needs and non-availability of incentives.

In order to address the aforesaid issues, the following target groups were recognized based on their specific work area, choice and skill: (i) Resource group – rural inhabitants, people's representatives, NGOs, environmental activists and local officials, (ii) Management group – teachers, academics and scientists, (iii) Work force group – students.

Keeping in mind the identified target groups, a programme was developed focusing on the following work elements.

(a) Communication: The success of a participatory system requires an effective information exchange. Sharing information ensures feedback which is helpful in prioritizing focused issues.

(b) Training: Adequate training component is of paramount importance for awareness, enriching knowledge and sharing responsibilities. It involves the development of course material focusing on the importance of maintaining, factors responsible for depletion and the measures to protect local biodiversity. Teaching methods follow group discussion to promote participation. On-site training includes assessment, documentation, value addition of biodiversity components, methods of revegetating degraded lands, development of nurseries and propagation packages.

(c) Preservation models: Development of preservation models in school/college campuses and on community lands as demonstration plots ensures establishment of area-specific *ex situ* gene banks.

(d) Follow up: Public support and involvement is possible through efficient and coordinated follow up action. This is ensured by the inputs received from different target groups.

Based on these broad features of the programme (Figure 1), the Institute launched the first phase of this programme in the form of training workshops/discussion meetings and follow up of the initiated activities.

Programme initiation

Although the programme is envisaged to cover the entire Indian Himalaya, to start with, attention is focused on Kumaun (west Himalaya). On account of its remoteness, richness of biodiversity elements, diversity of ethnic groups and their traditional use patterns, District Pithoragarh has been identified as focal area for pilot activity (Figure 2).

In March 1995, a two-day training workshop 'People's Participation in Himalayan Biodiversity Conservation' was held at Government Inter College, Gangolihat. The audience, representing all the three target groups, was exposed to the subject matter featuring programme objectives through deliberations which included on-site training. This was followed by two similar workshops in other remote areas (i.e. Government Inter College Narayan Nagar – November 1995; and Lohaghat – November 1996). Participation in different target groups is summarized in Table 1.

Perception of different target groups was obtained through a standard questionnaire which provided feedback to improve upon the programme.

Participants' perception

The perception survey contained sections on: (i) participants attitude towards the activities and their perception about the objectives; (ii) participants evaluation of the programme (i.e. content of training material, scientific interactions and participatory approach, etc.); (iii) participants willingness to contribute in future. In addition, suggestions/reactions on various other aspects were obtained to improve upon the future activities.

Of the 200 questionnaires distributed (approximately one in two individuals of each target group), 183 (91.5%)

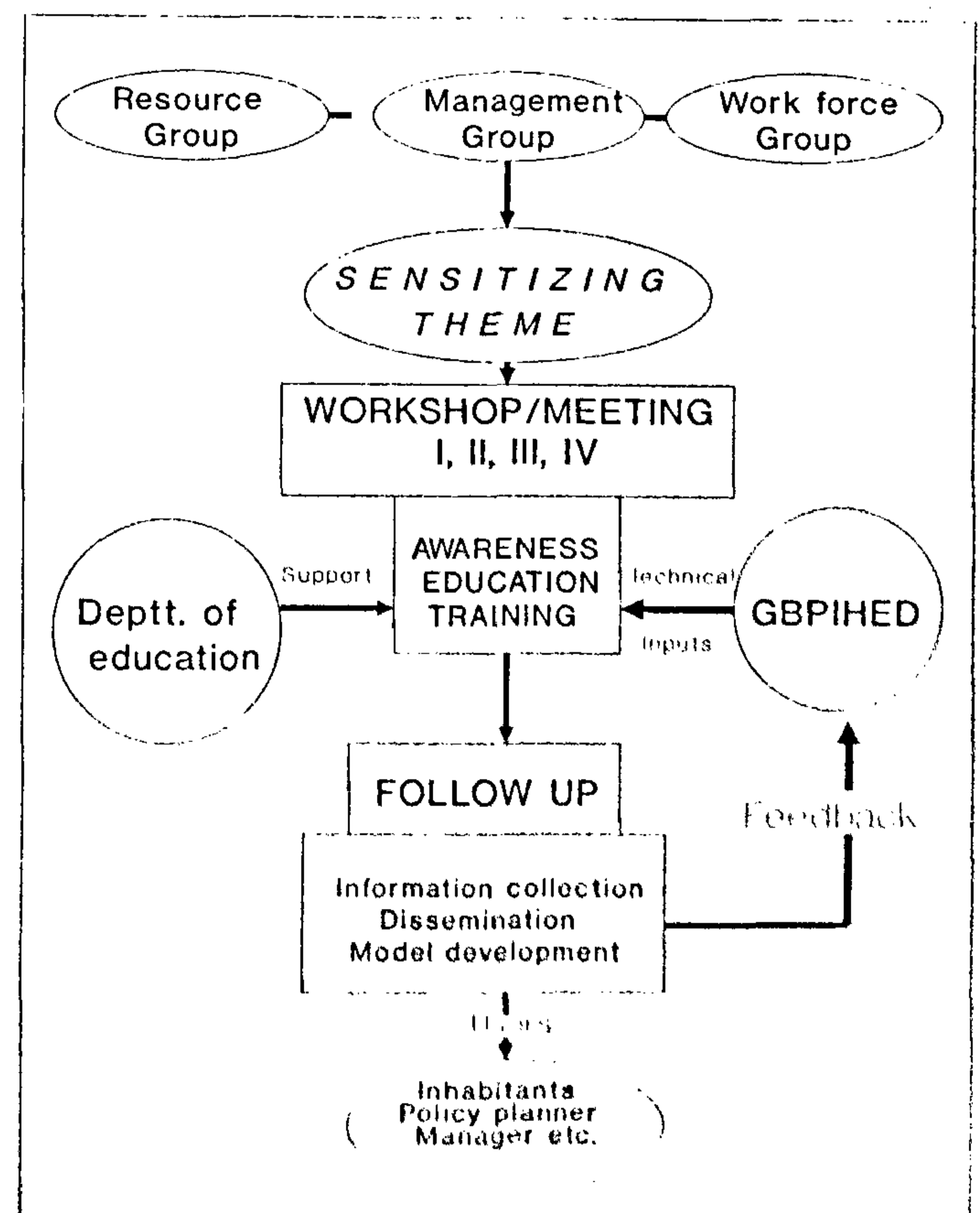


Figure 1. Approach and features of the programme.

responded (Table 2). In general, the responses indicated the following: (i) willingness to participate in future programmes; (ii) increasing the frequency of such activity; (iii) promoting the participation among under-privileged section of society, particularly the women folk.

Across the target groups, the responses do not vary significantly with regard to the general understanding of the subject and the programme objectives. This suggests that the programme objectives are in tune with those perceived by the target groups.

However, the responses regarding evaluation of programme activities ($X^2 = 95.696, df 2, p < 0.001$); and their willingness ($X^2 = 33.614, df 2, p < 0.001$) to participate in the programme differed significantly among target groups. This indicates that the responses are influenced by their background (social, economic and educational) and interest in subject matter. In view of the above, the response of each target group is discussed separately.

The respondents in Resource group relatively reflect negative attitude (35.6%) about the programme and considerable section (26.4%) of this group hesitated to express their willingness to participate in future. On the contrary, both Management and Work force group showed greater agreement and enthusiasm in the programme activities and future participation.

The response of the Resource group calls for introspection and possible review of programme activities.

Indifferent attitude of the resource group is, perhaps, a reflection of: (i) changing living conditions/lifestyle, (ii) distrust in some policy implementation projects/programmes and (iii) cynicism towards the people who monitor such projects. Moreover, a large section of population (particularly males) has become heavily dependent on cash flow. As such, their interest in developmental programme is largely restricted to the earnings in cash¹⁶. Since this programme does not provide direct cash incentives, it was expected that most of the participants of Resource group would show poor enthusiasm. At present the Government projects/programmes related to conservation and utilization of forest resources are facing indifferent attitude of the people particularly due to the prevailing structure of property rights. Uncertainty among the users with respect to future benefits from forests has resulted in increased disincentives for conservation⁹.

Considering this attitude, the active participation of Resource group will now be determined by the motivation

Table 1. Representation of workshop participants

Target group	Representatives	Institutions involved (No.)	Participants (No.)
Resource	Villagers	47	72
	NGOs	07	09
	Env. activists	03	03
	Total	57	84
Management	College teachers	21	41
	School teachers	32	49
	Total	53	90
Work force	College students	22	72
	School students	33	94
	Total	55	166

Table 2. Perception survey of participants

Content/ group	Responses		
	Positive	Negative	
Objective agreement			
GR1	40(88.9)	05(11.1)	$X^2 = 2.178, df 2, n.s.$
GR2	44(91.7)	04(08.3)	
GR3	86(95.6)	04(04.4)	
Programme evaluation			
GR1	29(64.4)	16(35.6)	$X^2 = 94.696, df 2, p < 0.001$
GR2	38(79.2)	10(20.8)	
GR3	71(78.9)	19(21.1)	
Future participation			
GR1	33(73.3)	12(26.7)	$X^2 = 33.614, df 2, p < 0.001$
GR2	46(95.8)	02(04.2)	
GR3	90(100)	00(00.0)	

GR1 = Resource group; GR2 = Management group; GR3 = Work force group.

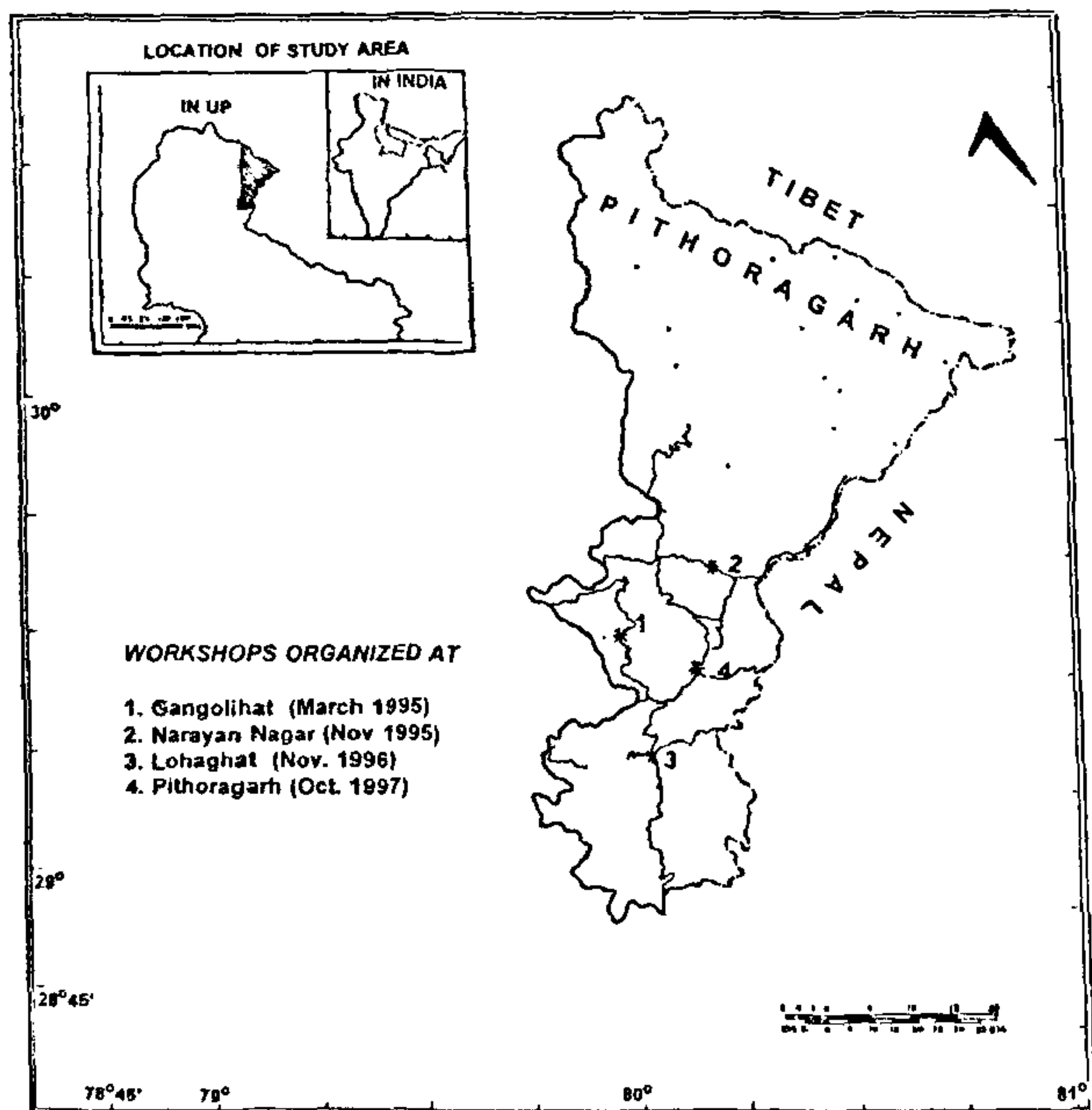


Figure 2. Location map of the focal area for pilot activity (District Pithoragarh).

content of the programme. In this context, our long-term effort will be to encourage them through indirect means. The approach could follow the sayings '*...Any plan which entails changes in the people's traditional lifestyle must be preceded by a fairly long term preparation on an educative sort. This requires introduction into the school curricula, non formal education, adult education and the communication media...*'¹⁶.

Considering the poor response of the Resource group and enthusiasm shown by the Management and the Work force group, appropriate changes were incorporated in the programme features for achieving results.

Action plan for future

The broad features of the envisaged Action Plan are detailed as under.

Integrating activities with educational systems

The initial step of re-orientation is to make the programme an integral part of educational system. In fact, conservation-oriented educational infrastructure are increasingly in demand in developing countries¹⁷. To achieve this, our attempt would be to disseminate conservation education at high school and college level and monitor the progress. This resembles, to some extent, with co-ordinated country-wide effort of the Indian Academy of Sciences to deploy student power for monitoring India's lifescape diversity¹⁸. At this juncture the programme requires intensive involvement to mobilize the identified target groups in the right direction. We consider both students and teachers as innovative, imaginative, creative and energetic. Our aim is to harness this available human resource in the right perspective of biodiversity conservation. Such an effort on environmental education with a focus on conservation has proved successful in Costa Rica – Children's Rain Forest¹⁹ and Brazil²⁰.

In our opinion, the best mobilization approach for Management and Work force group, as also perceived by others²¹, would be a combination of encouragement, coercion, and trust. Encouragement would include enrichment of knowledge, removing constraints and providing incentives²²; coercion – enforced participation – can be achieved through introduction of the subject in annual calendar of the school/college; and trust is simply to repose faith in the ability of participants. The Institute intends to fulfill the first (i.e. encouragement) and last (trust). The second (coercion) can be taken care of by authorities of the Department of Education at different levels starting from School Principal to Regional Directors or above.

A preparatory meeting (May 1996) of Institute scientists, Principals of schools/colleges of District Pithoragarh and Deputy Director Education, Kumaun was a step in

this direction. Participants showed concern about paucity of print material related to biodiversity conservation in schools. Non-availability of success stories on conservation also featured in the discussion. It was decided that selected organizations can be identified by the Institute and with the active support of school/college administration, subject matter can be introduced as a regular and compulsory activity in the annual calendar. The Institute will develop the curriculum plan and other course material. Progressively the activity can be spread over other organizations in a phased manner. As a follow up, the Institute has made an arrangement with the Principals of two colleges (i.e. G.I.C. Lohaghat and G.I.C. Narayan Nagar) for the year 1997–98. Arrangements are being made to involve some more schools/colleges. However, the final success of this arrangement would depend on the enthusiasm and active support of the identified institutions.

In view of the above, action plan focusing on educational institutions will include: (i) development of curriculum material and manuals on biodiversity conservation; (ii) involving identified students and teachers in listing and monitoring the status of bio-resources; (iii) utilizing their expertise for establishing area-specific conservation models.

Addressing problems of resource group

It is equally important to approach the Resource group by duly acknowledging and recognizing their problem. Our aim is to mobilize this group in a phased manner through awareness and encouragement. Since the participants of the Management and the Work force groups directly or indirectly belong to the Resource group, the proposed first step of action plan will help in producing conducive environment for motivation. This will be followed by aggressive awareness campaigns reflecting the intimate linkages between their well being and the health of bio-resources around them. In this context it is proposed to provide them practical options to augment their economy through effective utilization of bio-resources. Case studies of some success stories of value addition will be highlighted. For example, *Myrica esculenta* – a traditionally used wild edible fruit of this region, can also provide some economic incentives through marketing of fruits. Poor shelf-life of fruits and transportation problems discourage people's involvement. The processed products of the fruit (e.g. jam, jelly, syrup, etc.) however, enhances the economic potential several folds and provides greater shelf-life²³ of the product. Such efforts need to be popularized among the people for ensuring income generation and encouragement²¹ to preserve a resource. It is also envisaged to popularize the indirect and non-consumptive values of biodiversity.

Extension of programme activities

Extension of programme activities to other regions of the Himalaya will not only help in reaching more people but also in developing area-specific programme work elements based on the perception surveys and responses of different target groups. Initially it is proposed to extend the programme to Himachal Pradesh and Arunachal Pradesh.

1. Khoshoo, T. N., *G.B. Pant Memorial Lecture-II*, Himavikas Publ. GBPIHED, Almora, 1992.
2. Dhar, U. (ed.), *Himalayan Biodiversity: Conservation Strategies*, Gyanodaya Prakashan, Nainital, 1993.
3. Rau, M. A., in *Ecology and Biogeography in India* (ed. M. S. Mani), Dr W. Junk Publishers, the Hague, 1974, pp. 247–280.
4. Lal, J. S. (ed.), *The Himalaya: Aspects of Changes*, Oxford University Press, Delhi, 1981.
5. Mani, M. S., in *High Altitudes of the Himalaya* (eds Pangtey, Y. P. S. and Rawal, R. S.), Gyanodaya Prakashan, Nainital, 1994, pp. 1–10.
6. Singh, J. S. and Singh, S. P., *Forests of Himalaya*, Gyanodaya Prakashan, Nainital, 1992.
7. Dhar, U. (ed.), *Himalayan Biodiversity: Action Plan*, Gyanodaya Prakashan, Nainital, 1997.
8. Bawa, K. S., in *Himalayan Biodiversity: Conservation Strategies* (ed. Dhar, U.), Gyanodaya Prakashan, Nainital, 1993, pp. 529–538.
9. Somanathan, E., *Econ. Pol. Week*, 1991, **26**, 37–46.
10. Madhava Ashish, *Econ. Pol. Week*, 1993, **27**, 1793–1796.
11. Norberg-Hodge, H., *Ancient Futures – Learning from Ladakh*, Oxford Univ. Press, Delhi, 1991.
12. Rawat, G. S., Chundawat, R. S. and Sathyakumar, S., in *Conservation and Management of Biological Resources in Himalaya* (eds Ramakrishnan, P. S., Purohit, A. N., Saxena, K. G., Rao, K. S. and Maikhuri, R. K.), GBPIHED, Almora and Oxford IBH, New Delhi, 1996, pp. 67–84.
13. Gadgil, Madhav, Berkes, F. and Folke, C., *Ambio*, 1993, **22**, 151–156.
14. Gadgil, Madhav, *Ambio*, 1992, **21**, 266–270.
15. Jacobson, Susan, K., *Inter. Res. Geogr. Env. Edu.*, 1995, **4**, 125–133.
16. Madhava Ashish, *Econ. Pol. Week*, 1989, **24**, 937–941.
17. Jackobson, Susan, K., *Env. Manage.*, 1991, **15**, 143–150.
18. Gadgil, Madhav, *Curr. Sci.* 1996, **71**, 688–697.
19. Kinsman, S., *Conserv. Biol.*, 1991, **5**, 9–10.
20. Padua, S. P., *Env. Conserv.*, 1994, **21**, 145–151.
21. Ahlback, J., Arnold, *Ambio*, 1995, **24**, 304–310.
22. Gregersen, H., Draper, S. and Elz, D. (eds), *People and Trees: The Role of Social Forestry in Sustainable Development*, EDI seminar series, EDI of the World Bank, Washington DC, 1989.
23. Dhyani, P. P. and Dhar, U., *Myrica esculenta – Box myrtle (Kaifal)*, Himavikas occasional Publ. 3. GBPIHED, Almora, 1994.

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