

**Pastoral Politics: Shepherds, Bureaucrats and Conservation in the Western Himalaya.** Vasant K. Saberwal. Oxford University Press, YMCA Library Building, Jai Singh Road, New Delhi 110 001. 1999. 246 pp. Price: Rs 475.

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All over the world people primarily dependent on nature for a livelihood like pastoralists, shifting cultivators, etc. are losing their stake over natural resources. This book describes the conflict over resources between shepherds of Himachal Pradesh and the government.

The book considers three issues. Firstly, it questions the assumptions about development generally made by policy makers and bureaucrats. For example, it asks for a scientific basis for the argument that indigenous tenure systems are both inefficient and responsible for large-scale degradation. Secondly, it tries to verify the argument of environmental degradation due to grazing by shepherds of Himachal Pradesh based on studies in United States. Thirdly, it considers the ecological uncertainties associated with the process where several environmental factors play a role, e.g. impact of grazing on soils, water table, etc.

Thus, the framework of the book addresses globally debated issues. In the process, it has failed to address locally important issues, e.g. role of local institutions of shepherds, and diversification of occupation by new generation herders. Hence, the applicability of the study or local planning is greatly reduced. However, the study on pastoral communities in Himachal Pradesh has a number of merits. First of all, as the author has rightly pointed out, the pastoral nomads are politically a major society in Himachal Pradesh unlike other parts of the country. Hence, the policy makers have to give thought to the needs of pastorals. Secondly, pastoralism is a traditional occupation and so has its own resource management system existing even today. In rest of India, pastorals as well as tribals are in minority except Madhya Pradesh and north-eastern states. Hence, the abilities of such local people to manage their own resources are never considered and are discarded in the models of development. Lastly, pastoral nomads are rarely studied in India; and

without any knowledge about their requirements and problems, the livelihood practice is discouraged by policies of the government even in Himachal Pradesh.

The book is organized into ten chapters with an elaborate bibliography, index, footnotes and key to abbreviations used in the text. The first chapter briefs us about the forest department's notion about resource exhaustion due to pastoralism in the state which the author refers to as alarmist approach towards environment. It is also argued that origin of such alarmist approach is the result of a long-standing power struggle centered on control over forest lands between shepherds, forest department and revenue department since colonial times. To examine the alarmist approach, the following questions are raised – (a) Whether herd-size among shepherds has increased? (b) Whether grazing is unregulated? (c) What is the process by which alarmist rhetoric was started? (d) What are the actual causes of land degradation and what are the assumed reasons?

These questions are later discussed in chapters seven and eight based on a case study in Uhl valley which lies between Chota Bangahal and Dhauladhar ranges in Himachal Pradesh.

In the discussion on pastoralism the author blames the forest department for their inability to implement the policies of grazing for the continuation of local management system of shepherds. However, he never discusses the need of shepherds for continuing their own practices instead of following the forest department's policies.

Chapter 2 describes in detail the problem of access to forage. The pastorals migrate according to availability of pasture in the higher altitude alpine meadows in summer. During monsoon, they deal with cultivators and with village panchayats for village commons in the valleys for pasture. Property regimes and closer kinship are important in wealth of a shepherd. In recent years, labour to graze larger herds is becoming a crucial factor due to labour shortage. Chemical fertilizers are responsible for a change in herder-cultivator relationship since the dependence of cultivators on sheep manure has been reduced. For winter forage, herders are getting only food and fuel wood from the

cultivator; in return herders graze the animals without any financial returns but for the survival of the sheep and goats. These issues of forage access have become important in deciding the lifestyle of the new generation pastoralists.

Chapters 3 and 4 examine the tussle between the revenue department and forest department for control over forest resources. The study also shows the bargaining power as well as communication skills of herders to go to court against the policies and capacities of political lobbying to open the reserved forest areas for grazing even in 1994. Shepherds have also used several tricks to circumvent restrictions and taxes such as bribing forest guards, etc.

Chapters 5 and 6 try to understand the objectives of forestry in British India and the impact of various scientific studies historically. The study puts forth that the rationale of British forestry was basically to harvest and produce timber. The methodology and scientific basis followed in these forestry operations were based on studies of British scientists in early 20th century, which proposed ban on herding to produce more timber. But after 1920s the approach was based on studies done in United States proposing threats of land degradation, and desiccation of resources. This approach contributes more to the policies of reducing pastoralism as claimed by the author.

Chapters 7 and 8 present a case study to find the answers to the questions raised in the first chapter. The case study tries to evaluate the arguments of the state government responsible for the alarmist approach against pastoralism. The study shows that the rhetorical arguments of degradation were based on the reports of foresters prepared without considering geographic and seasonal distribution of human pressures for evaluating environmental degradation. Also, in a rare occasion, Chief Conservator of Forests accepted that exponentially increasing figures of livestock in the records of the department could be due to a major mistake in counting. The study also discusses present-day problems faced by herders for forage due to spread of *Lantana* spp., a bushy weed, encroachment on grazing lands and grazing rights for rehabilitation project affected by Bhakra-Nangal project, etc.

At the policy level, as a resultant effect of degradation rhetoric pastoral nomadism is considered as primitive to settled cultivation. Policy documents also refer to pastorals as lazy in comparison to intensive labour put by cultivators. This has resulted in schemes like 'land to landless' by using pastures ultimately affecting forage availability.

Chapter 9 discusses the theoretical framework of the analysis. It would have been better to have it before the case study of Uhl valley. The concluding chapter highlights the major conclusions from each chapter.

The arguments in the book are well supported by fieldwork and references. But at a few places statements seem illogical like the author contradicts the statement on lower herb diversity in alpine meadows of Bara Bangahal mountain range in Uhl valley of Himachal Pradesh made in a report in 1930s on the basis of the author's work in 1990s (pp. 152). Also repetition of geographical descriptions especially regarding terrain and environmental conditions of Siwalik Hills diverts attention from the context.

In summary, as part of a scientific exercise this is an excellent work on global rhetorics of environmental degradation. However, from the point of view of local issues the work may not have immediate applicability.

YOGESH GOKHALE

Centre for Ecological Sciences,  
Indian Institute of Science,  
Bangalore 560 012, India

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**Plant Tissue Culture and Biotechnology: Emerging Trends.** P. B. Kavi Kishor (ed.). Universities Press (India) Ltd., 3-5-819, Hyderguda, Hyderabad 500 029. 1999. 313 pp. Price: Rs 525.

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This book is a collection of fifty seminar papers presented during the symposium on 'Emerging Trends in Plant Tissue Culture and Molecular Biology' held at the Department of Genetics, Osmania

University, Hyderabad during 29-31 January 1991. It offers an overview of the present scenario in the field of plant cell/tissue culture and a few aspects of molecular biology are also included. A brief review of the historical progress of Indian plant tissue culture presented by H. Y. Mohan Ram in the first chapter introduces the subject and also highlights some important problems that are faced by commercial tissue culture. The second general article 'Research Trends in Genetic Modification of Crop Plants: An Overview', deals with genetic engineering and recombinant DNA technology of crops. Specific DNA technological applications such as antisense RNA, transwitch, transposon gene isolation and plastid transformation are vividly explained. Commercial ventures in the introduction of transgenic tomato and cotton as well as the genetically engineered oils such as stearate oils, high laurate oils and high erucic acid rapeseed have also been dealt with. However, scientific presentations on rDNA technology are lacking.

The third paper on 'Haploids from Wide Hybridization in Grass Genera, Progress and Perspectives' (N. C. Subrahmanyam) introduces the mechanism of chromosome elimination which can lead to haploidy. By deploying these novel haploids, one can examine interspecific/intergeneric chromosomal rearrangements and can easily construct a chromosome-based library by genomic subtractive cloning to facilitate gene mapping and tracking of transposable elements.

Tissue culture investigators often face the problem of rejuvenation in micropropagation. Practical guidelines are offered to them in the fourth paper. The authors (Leo D'Souza *et al.*) have discussed the possibility of rejuvenation of adult materials indicating morphological as well as biochemical markers of adult materials. The paper on 'Xylogenesis *in vitro*' (Krishnamoorthy *et al.*) makes an attempt to list the markers for xylogenesis. In fact, this should help the scientific investigator to identify organogenic calli from embryogenic calli even at very early stages of differentiation. In this connection, comparative study of the development of zygotic and somatic embryos of chickpea (*Cicer arietinum* L.) by Sagare *et al.* assumes importance.

This book contains five papers on the production of medicinally important secondary metabolites. Kuruvilla *et al.* have used three permeabilizing agents to enhance the secretion of azadirachtin of which triton X100 was found to give better yield. Besides *Agrobacterium rhizogenes*-mediated hairy root culture of *Plumbago indica* (S. Jaya and S. V. Ramakrishnan) shows rapid proliferation in the liquid medium. But enhancement is not very significant. Hairy root culture can be effectively employed as a tool for enhancing the production of secondary metabolites. The same authors have also done experiments to assess a suitable medium for the production of ajmaline from callus culture of *Catharanthus roseus* cv. *alba*. Another interesting paper on the study of different factors that affect *in vitro* production of artemisinin (K. Vishweshwara Rao and M. Lakshmi Narasu) offers new insights in the production of artemisinin, an anti-malarial agent. The investigators, using different media, varied nitrogen sources, precursors such as mevalonic acid, geraniol, linalool, methanol and camphor, and fungal elicitors, have come to the conclusion that incorporation of boron, casein hydrolysate and gibberelic acid enhanced artemisinin production by about 25%, 36.5% and 65%, respectively. H. Gokul and D. H. Tejavathi in their paper on '*In vitro* production of alkaloids in *Cissampelos pareira* L. (Menispermaceae)' have studied curine accumulation in the callus. They are of the opinion that ABA has considerable influence on the production of curine in relatively slow growing calli.

Reports on somaclonal variations are declining in recent times for various reasons. The study of Susan Eapen *et al.* on somaclonal variants in peanuts brings in new knowledge and offers hopes for using *in vitro* culture technique and screening of subsequent regeneration in the field, thereby rendering it possible to isolate agronomically important useful mutants in peanuts. Proceedings on micropropagation of commercially important plants such as *Eucalyptus* species, mango hybrid, papaya, cashew, vanilla and coffee are of great help to the tissue culture workers.

*Alpinia calcarata* Rosc. is an important rhizomatous Zingiberacean medicinal plant whose active principle compounds are alpinine and glabin.