

knowledge is that of the Man and Biosphere Programme and UNESCO with the support of IHDP/DIVERSITAS and the Mac Arthur Foundation. The book under review is an attempt to synthesize the results/lessons learnt from this initiative.

The book deals with three case studies undertaken by different collaborating institutions covering the Western Ghats and the Himalayas – two of the globally recognized biodiversity hot-spots. The specific landscapes chosen for the studies include two protected areas, viz. Chinnar Wildlife Sanctuary in Kerala (Western Ghats) and the peripheral areas of the Nanda Devi Biosphere Reserve (Himalayas) and another intensely human-altered landscape in the Western Ghats, viz. Kodagu.

Kodagu is known for its biodiversity wealth. Nevertheless, intensive cultivation of coffee has been the single largest threat to the landscape's biodiversity. Coffee cultivation in Kodagu is an age-old practice. What is of concern is the current shift from cultivating shade-tolerant varieties to light-tolerant ones, and this is likely to have a greater bearing on the natural forests and biodiversity. Land tenure systems, since the Colonial period, which permit the planters to remove trees from their plantations, have contributed rather significantly to the loss of biodiversity in the landscape. Diversified agroforestry, including home gardening has been suggested as a future direction that the landscape development can adopt.

The situation in Chinnar is slightly different. It is largely to do with hill-tribes living within the sanctuary. The study has shown that the tribals are dependent on 140 species of plants for their livelihood. People living adjacent to the sanctuary have currently resorted to extracting lemon grass oil. While the cultivation of lemon grass has led to productive use of degraded lands, the extraction process itself is heavily dependent on locally available firewood. This has placed a lot of pressure on the forests in the landscape. One of the recommendations of the study is the adoption of agroforestry practices which enable better regeneration of locally available trees, so that the biomass requirement can be met sustainably.

In the buffer zone of the Nanda Devi Biosphere Reserve, the pastoral commu-

nities have heavily relied on their livestock. Grazing pressure has been severe due to the smaller extent of pasture made available since the Reserve was declared. While these pastoral communities have survived largely on a wool-based economy, they have also cultivated for their subsistence more than 30 species of food crops in a system of traditional agroforestry. Among other things, the study has suggested the improvement of livelihood of these communities through value-addition to agroforestry by encouraging the cultivation of medicinal plants.

In general, the outcome of the three studies points to the fact that for sustainable management of a landscape where human pressure is rather intense, diversified agroforestry could be one of the solutions. Such an inference can be heartening to planners and administrators of biodiversity.

However on the whole, unfortunately, the book lacks clarity since the rambling style of writing does not lead the reader to the crux of the issue. It carries with it a sixteen-page supplement titled, 'Executive Summary'. The scope of this summary is however not clear, since the same finds a place in the book itself. Further, the summary fails to synthesize the outputs of the three case studies.

The overall presentation of the case studies, which one would expect to be in-depth and analytical, is patchy, having adopted a list-mode (especially the Chinnar study) and sandwiched between two long essays written by the senior editor based on his vast past experience. Further, the three case studies are not balanced. While the case study of Kodagu is rather detailed, those of Nanda Devi and Chinnar have failed to adopt any logical flow in approach or presentation. The case study of Chinnar, in fact, seems to hang in time, without accounting for any historical events or processes that have contributed to the current state.

Also, some of the recommendations made for the sustainable development of these landscapes seem contradictory. For example, while it has been reported that potato growing has been singly responsible for loss of agrobiodiversity in Nanda Devi, value addition to potato by training the local communities in state-of-the-art post-harvest techniques is proposed. Similarly, in Chinnar it is recommended that trench digging be adopted as a forestry practice to encourage, amongst others,

the proliferation of *Prosopis juliflora*! In all three case studies, there is little said about the relevance of traditional ecological knowledge.

As a general remark, it is quite disappointing that the book is too full of spelling and syntax errors, including many wrong common and scientific names of species (e.g. Brown Deer *Ursus arctos*, a Himalayan animal, p. 19). Also, certain statements have been repeated verbatim throughout the book as that on the last paragraphs of pages 17 and 18, and then on page 177 – clearly results of careless editing. While P. S. Ramakrishnan, the senior editor, needs to be lauded for launching and co-ordinating this mega-initiative, a humble request from all users would be 'please let us have carefully edited publications, whatever they are'!

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Press Tools – Design and Construction.
Prakash H. Joshi. Wheeler Publishing, A Division of A.H. Wheeler & Co, Ltd, 411, Surya Kiran, 19, Kasturbha Gandhi Marg, New Delhi 110 001. 2000. Price: Rs 460.

Press tools like xerox machines produce multiple copies of originals onto thin sheets. Unlike copying planar images, press tools impart three-dimensional features onto thin sheets of metal, plastic, paper and even leather, rubber and cloth. Press tools are designed to pierce, bend, cut and shear thin sheets to form cups, cans, bowls, cowls, mugs, spoons, grills; doors, bumpers and hoods for cars; coins, medals, escutcheons, credit cards; mil-

lions of other implements, utensils and appliances; and, the *mightiest* of all – books and newspapers. The sheer volume of press trade in terms of people, land, money and materials is just not possible to estimate today. Just to give an example, Americans need more than a hundred billion cans for food and beverage every year¹. Similar astronomical figures also apply to millions of other domestic, automotive and electronic products made using press tools. Thus, press tools generate as much wealth as waste; and, therefore, recycling is a key part of press trade. Supplementing *recycling*, designers are also focusing more and more on handling thinner and thinner sheetfeed to produce smaller, lighter, cheaper and more compact products.

Handling petal-thin sheets calls for sophisticated and sensitive press tools to protect the products. Designing such tools demands a thorough appreciation of engineering science on the one hand and a competent selection of motors and controls on the other. In the context of press tools design, knowledge of engineering mechanics pertaining to plasticity, fracture and contact phenomena is essential. Regarding motors and controls, a basic appreciation of digital data acquisition to facilitate computer control of machine tools is desirable.

Traditional press toolmakers have arrived at this critical juncture not fully trained to blend their legendary artistic skills with the precision and control of contemporary science and technology. Lamentably, as a result, many small-time trades and crafts are gradually vanishing

from the scene and their place taken over by big-time global industries. It is somewhat ironical that press tools have played a key role in globalization through free press and free trade.

All said and done the number of books written by practitioners is steadily dwindling leading to an alarming dearth of *authentic* information about engineering practice. In this respect, the book under review is a welcome whiff of fresh air bringing out the aura and aroma of press trade. The author presents a panoramic view of the subject including materials, processes, manufacturing, planning, selection and existing standards along with an introduction to computer-aided design of press tools. The book covers a wide variety of operations performed by press tools beginning with cutting, bending, forming and drawing as four separate chapters (B–E). There is one chapter (F) on miscellaneous operations such as bulging, embossing, coining, etc.

The publishers of this book use a different tradition for indexing chapters (A, B, . . . , N); and, pages, figures, tables and examples are marked as A1, A2, etc. This style of indexing the contents is confusing and makes it difficult for the readers to access information quickly. It is perhaps appropriate to borrow a line from an essay on tradition by T. S. Eliot: ‘In English writing we seldom speak of tradition, though we occasionally apply its name in deploring its absence’. Hopefully, the publishers will restore tradition in the next edition of this book. The author may also find it of some value to compare the *ratio* of tonnage to weight of

different presses listed in the chapter on selection of presses. This tonnage to weight ratio serves as a useful design *index* to assess the design efficiency of commercially available presses. The author may also consider adding information about a few foreign machines with regard to their design index. It is also worth considering adding more material on forming – limit diagrams and processing maps to emphasize the interplay of mechanics and materials science in press working^{2–4}.

In summary, this book highlights the various dimensions in the design and construction of a variety of press tools from a practical viewpoint. I recommend this book for all *real* engineers either at school or at work, and for all managers of industries using press tools.

1. Hackworth, M. R. and Henshaw, J. M., *Eng. Frac. Mech.*, 2000, **65**, 525–539.
2. Walsh, R. A. (ed.), *Machining and Metalworking Handbook*, McGraw Hill, 1999, 2nd edn.
3. Kalpakjian, S., *Manufacturing Engineering and Technology*, Addison-Wesley, 1999, 3rd edn.
4. Prasad, Y. V. R. K. and Sasidhara, S. (eds), *Compendium of Processing Maps*, ASM, Materials Park, 1998.

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