

BOOK REVIEWS

31 December 1998, the Minister of Environment and Forests, Government of India, formally released a document 'Implementation of Article 6 of the Convention on Biological Diversity in India: National Report'. This report summarizes the efforts taken by both government and non-government institutions in the country for the effective implementation of CBD. And as the National Report states, the Ministry of Environment and Forests is working with other institutions in bringing out Status Reports on biodiversity for the different states in the country. One such initiative is the report on Jammu and Kashmir.

The report on the biodiversity of Jammu and Kashmir is a timely publication. It highlights major aspects of the State's history, people, topography, vegetation and species against the backdrop of various kinds of impacts due to social and economic development. It also discusses the legal support systems available both in the country and in the State with the help of which biological resources are being conserved and sustainably used. The report brings out the different issues relating to the conservation of biodiversity in the State. While this publication can be of considerable use in managing and monitoring biodiversity within the State, it suffers major shortcomings.

The report is apparently the result of a rather routine exercise, wherein only available information about the natural resources and biological wealth of a given geographical area was compiled. Consequently what has been included are some of the most prominent elements of biodiversity, highlighting the protected areas, especially wetlands of importance, and vertebrates (wildlife). Although the report provides a comprehensive discussion of flora, including land races of crop plants, components of biodiversity that are critical at higher elevations and in cold regions, including lichens, bryophytes and a variety of fungi, have not been touched upon.

There are several mistakes throughout the report in the spelling of scientific names. There seem to be a number of factual errors too. In Table 3.2 the number of species of birds and amphibians in India is given as 1175 and 181, respectively. These are certainly not the generally accepted figures. Confusion arises while going through Annexure 6—inven-

tory of insects, where on page 189–190, scorpions (families Buthidae and Chaerilidae) and spiders (Araneidae and Gnaphosidae) find a place between lepidopteran and hymenopteran insects.

Some effort has been made in trying to analyse the nature of faunal assemblages within the State. Nevertheless the analyses are not quite right. For example, in discussing birds it is stated that families including Rostratulidae, Ibisoridae and Upupidae are represented by only one or two species, while others such as Muscipidae are more speciose within the State. This is not quite relevant biologically speaking, since the families Ibisoridae and Upupidae are monotypic. In other words, each of these families contains only one species. Family Rostratulidae is represented throughout the Old World by a single species. The other species in the family is found in the New World tropics. While these errors probably do not affect conservation planning significantly, they can still misguide lay readers to conclude that there is something really different about the faunal biodiversity of the State.

What this report lacks is a discussion of the unique biogeography of the State. Jammu and Kashmir sustains biodiversity elements of varied origin—temperate, subtropical, montane and tropical. Over the millenia, migratory species have evolved unique patterns of movement within the State. A mere listing of birds, as provided in the report, does not highlight this since many of the listed species are widespread throughout the country. If instead it clearly emerged from the report that within India some of these birds breed only in and around the State, the discussion would have been more relevant to conservation.

The State's long history of human migration and its shifting mosaic of human altered landscapes (for example, the famous floating islands in the lakes) have contributed immensely to the patterns of biodiversity distribution within its boundaries. Although the report touches upon these critical aspects briefly, it does not bring out their significance within the context of conservation and sustainable use clearly.

Technical errors in the report are only a small part of its shortcomings. The major weakness is that it fails to provide a synthesis of the different issues highlighted in the discussion. It also does not

present the details in a clear form that guides policy makers into specific actions.

Biodiversity profiles of any area are the most basic tools in conservation planning. When such profiles are prepared, care has to be taken in validating the information provided and in selecting the style of presentation, so that it is appealing to policy makers. Unfortunately, when reports are prepared, these considerations are often overlooked under constraints of time, finance and availability of trained manpower. The scientific community in India should now make a concerted effort to overcome these shortcomings.

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Annual Review of Nutrition 1998. McCormick, D. B., Bier, D. M. and Goodridge, A. G. (eds). Annual Reviews Inc., 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Price: Individuals, US\$ 65; Institutions, US\$ 130. Vol. 18. 485 pp.

This review is a compilation of present knowledge, the recent trends and advances in nutrition. It contains 18 articles covering diverse aspects of nutrients and their disposition in human and other species. Major emphasis is given to nutrient–gene interactions. The experts have identified the gaps in the existing knowledge and opened new avenues for future research. The book projects areas for multidisciplinary approach by involving nutrition scientists, biochemists, molecular biologists and epidemiologists which is the need of the hour.

The prefatory chapter 'Personal reflections on a galvanizing trial' by O'Dell takes us through an exciting era of trace element research, particularly the role of zinc in the nutrition of animals and humans.

This book has devoted five chapters to the latest developments in the area of

nutrients modulating the pathogenesis of viral diseases, genetic disorders of nutrients and cancer. The use of knock out mice for understanding these interactions makes the chapters interesting and informative.

Beck and Levander deal with the understanding of outbreaks of viral diseases and the role of nutritional deficiency. The coxsackievirus infection which produces cardiotoxic effect is a good example of diet induced oxidative stress. The deficiency of Se and vitamin E on the phenotypic alteration in the virulence characteristics of this virus is well documented. The role of environmental factors especially dietary factors and life style are considered to be very important in the etiopathogenesis of osteoporosis (Wood and Fleet) and prostate cancer (Clinton and Giovannucci). Current scientific evidence does not provide a role for genetics in the causation of osteoporosis or specific nutrient interventions for the prevention of prostate cancer. The importance of a balanced diet, functional foods on the one hand and food inadequacy on the other need to be examined.

The interdependence of key organs and the expression of genes of glucose metabolism with reference to NIDDM are well illustrated by Bosch *et al.* The use of *Saccharomyces cerevisiae*, a model system to understand the genetic disease of metal ion transport in humans is an overview by Eide. Besides metal specific transport system, factors such as transcriptional and post-transcriptional regulation of metal uptake system and cytoplasmic chaperon proteins are important regulators.

There are two topics closely related to vitamin A nutriture. Castenmiller and West discuss the bioavailability and conversion of carotenoids. The hepatic enzyme involved in the hydrolysis of retinyl esters to retinol is reviewed by Harrison. The dose related factors, 'the Slamenghi factors' have been implicated in the conversion of β -carotene from a mixed meal. There is no agreement on the retinyl ester hydrolase activities reported. Different methodologies used for the evaluation of the enzyme activities have been suggested as the reasons for the discrepancies. In spite of all these research findings, controversies still exist.

There are two chapters on carnitine metabolism. Rebouche and Seim reviewed

the metabolism of carnitine in microorganisms and in mammals and showed that the dietary intake modulates the efficiency of re-absorption of carnitine by the kidney. Kerner and Hoppel discussed the known genetic disorders of cellular carnitine transport and the enzymes of the mitochondrial carnitine dependent fatty acid entry pathway. The implications of this in strict vegetarians (poor source of carnitine) is a subject of interest.

An excellent review on 'Redefining body composition: nutrients, hormones, and genes in meat production' by Wray-Cahen *et al.*, provides the latest understanding of livestock growth and development through genetic engineering. The emphasis is on the identification of tissue-specific factors for controlling livestock growth that will lead to the production of good quality meat. Better understanding of nutrition and physiology helps in the selection of appropriate genes for genetic engineering technologies and to create designer cattle.

The highly specialized chapter on 'Cyclic AMP signalling and gene regulation' by Daniel *et al.*, provides an in-depth account of the components of the cAMP signalling pathway and the transcription factors. The complex molecular mechanisms of the signal transduction through various responsive element binding proteins have been the major focus of this review. The organization of different transcripts of genes coding for cAMP response element binding protein (CREB) is given diagrammatically and is very helpful to the reader.

There are two very interesting collections of reviews of research that have posed a formidable question as to why there is such variation in response to dietary manipulations. Bruce *et al.*, very elegantly brought out the recent discoveries that led to the relationship between cholesteryl ester transfer protein and reverse cholesterol transport (RCT) and atherogenesis. A major break-through has been the discovery of the scavenger receptor BI which mediates the selective uptake of HDL cholesteryl ester in the liver. The interplay of insulin and glucagon during fasting and re-feeding through the stimulation of *FAS* gene by hormone specific responsive elements is reviewed by Sul and Wang. Further elucidation of the mechanisms and factors that can modulate enzymes can form the basis for the therapy of atherosclerosis.

This volume also includes a variety of other interesting topics. The newly discovered redox co-factor for some of the oxidases related to pyrroloquinoline (PPQ), its physiological functions and usefulness as a biocatalyst is covered by McIntire. The nutritional significance of vitamin glycosides has been dealt by Gregory III. The 'Dietary fructans' by Roberfroid and Delzenne is an account of the non-digestible oligosaccharides as one of the most fascinating functional food ingredients. They have interesting technological properties in food product development. The existence of nitrogen recycling through the gut lumen in non-ruminant mammals including man is discussed by Fuller and Reeds. The identities of endogenous nitrogen source and the significance of this process in the overall nitrogen economy of the body have been described. It is expected to have implications for the quantification of the bioavailability of dietary protein.

This book makes excellent reading. It is recommended for senior students of nutritional biochemistry and is an excellent reference book for nutrition scientists. Although the emphasis is on nutrition, molecular biologists will also find the book useful. The book offers ample scope for the application of methodologies in basic and molecular sciences in the areas of health-related issues of humans.

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Fieldwork: A Geologist's Memoir of the Kalahari. Christopher Scholz, Princeton University Press, 41, William Street, Princeton, NJ 08540, USA. 1997. Price: US\$ 24.95. 190 pp.

Geoscience is a field-oriented branch of science and its practitioners are often exposed to unique and varied experiences. However, the geoscientists as a class generally shy away from writing down their field experiences even though many of them are well qualified to do so. Some