

Book Reviews

G.S. Bhalla and Gurmail Singh. *Indian Agriculture: Four Decades of Development*. New Delhi: Sage Publications. 2001. Pp. 300, Rs.450.

The book under review is an outcome of the study 'Recent Developments in Indian Agriculture — A District-Level Study.' It provides an in-depth and detailed account of agricultural growth, land and labour productivity at the all-India, state and district levels since the early 1960s. In a way, the book extends the pioneering work of district-level studies undertaken during the late 1970s and 1980s by Professor Bhalla, first with Y. K. Alagh, and then with D. S. Tyagi. The latter covered the period up to the early 1980s after which Indian agriculture witnessed very interesting changes. These include wider adoption and spread of new agricultural technology, technological gain in crops other than rice and wheat, diversification of crop pattern and broad-based growth. The studies that covered only the initial years of the green revolution have concluded that the new agricultural technology had favoured only a small region with assured irrigation while a large area of the country derived no benefit from this technology. This has also led to the conclusion that the green revolution in India has increased regional disparities. It is thus relevant to see whether, as time went on, new agricultural technology reached new areas or remained largely confined to the irrigated region. This is one of the issues that the volume has addressed adequately. Besides, the book analyses and compares the spatial pattern of changes in Indian agriculture during 1952–56 to 1970–73, 1970–73 to 1980–83 and 1980–83 to 1992–95 using region, state and district as the units.

State-level data for 44 crops and district-level data for 35 crops have been used to study the status and performance of the agriculture sector. The chosen districts cover 98 per cent of all-India area and 97 per cent of the output of 35 selected crops. Thus, the districts included in the study adequately cover the performance of 35 crops selected by the authors. The authors have not reported the proportion of gross cropped area of all the crops and value of output of the whole crop sector or agricultural sector covered by the selected crops. Incidentally, all fruits and vegetables except potatoes are not included in the list of the selected crops. This coverage adequately represents the crop sector in most of the districts, and exclusion of the remaining crops would not alter the results and conclusions of the study for such districts. However, in a few districts the area under selected (35) crops covers less than two-thirds of the gross cropped area (GCA) of these districts.

In terms of output, the list of 35 crops given in the book covers about 80 per cent of the value of the crop sector, at the country level in the early 1990s. When the output of the livestock sector and crops not included in the study are taken together, it adds up to close to 40 per cent of the output of the agriculture sector.

This exclusion can affect the results of the study. If the performance of the fruits and vegetables and livestock sector has a very high positive correlation with that of 35 crops included in the study, there would be no change in the spatial patterns of agricultural performance presented in the study. However, if in some districts the livestock sector or fruit sector have done or are doing better than the 35 crops, then the conclusions based on the 35 crops may not hold. Similarly, if the share of livestock in the total agricultural output differs across districts, it can alter the status of a district in some cases. This can at best be acknowledged as a limitation of the study arising from non-availability of data on livestock output at the district level.

Regional disparities in agricultural development and incomes have remained a serious concern of the policy makers. In the state-level analysis the authors found that the coefficient of variation in yield, measured by dividing the output of selected crops by their area, declined perceptibly during 1980–93 and further during 1992–95. This finding contrasts with certain other studies that found no decline in regional disparities in agricultural output per hectare. The reason for this difference could be in the measurement of output. The measure of yield employed by the authors uses output per hectare of gross cropped area, which discounts the productivity differences due to the variations in crop intensity. As the more productive states also have higher crop intensity compared with the less productive states, productivity estimates based on gross cropped area reduce the variation in productivity. This could explain why labour productivity shows an increase in regional disparities, whereas land productivity shows a decline.

Based on the productivity study of states, the authors conclude that the benefits of the green revolution are no longer confined to the northwestern region, but have spread far and wide to include rain-fed states. The only state that has not witnessed growth in labour productivity since the onset of the green revolution is Bihar.

The book provides a very rich analysis of district-wise agricultural performance. The variations in spatial patterns are beautifully depicted in maps. The authors have taken great pains to provide growth rates, and movements of districts across productivity and growth categories over time for each of the selected districts and by presenting several classifications of districts based on agricultural status and performance. Further, district-wise data on GCA and NSA and area and output of selected crops and input use, farm power and machinery are presented in the Annexure tables, and would be immensely benefit those researchers without easy access to such data.

Further, the book gives an authoritative account of performance, status and changes in India's crop sector during different phases following the onset of the green revolution at country, state and disaggregate district levels. It also

identifies factors underlying the performance of agriculture in different regions, discusses the implications of ongoing change and also proposes policies and strategies for the future development of India's agriculture. Though the study covers the period up to the early 1990s, it fully acknowledges forces like trade liberalisation, GATT and WTO, and discusses their likely implications for Indian agriculture, thereby confronting the reader with a scenario of profound changes to take place in the early twenty-first century. The study emphasises the role of technology as the main driving force since the early 1960s — it needs to be seen whether terms of trade, reforms, and WTO-induced trade liberalisation can sustain, if not improve, the achievements of technology.

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Werner Menski. *South Asians and the Dowry Problem*. New Delhi: Vistar Publications, 1999. Pp 262. Rs. 250 (paper).

The very title of the book stirs up scary violence perpetrated on South Asian women because of dowry, a social evil that continues to afflict South Asian societies. The book is a collection of papers presented by academicians and activists at the three International Dowry Conferences held in Harvard and London between 1995 and 1997. There are twelve chapters in the book with a preface by well-known international activist Himendra Thakur, who has also contributed a chapter for the book.

The preface, by Thakur, analyses the dowry problems in South Asia and justifies the need for an international forum to engage in contemporary discourse on this issue. In the penultimate chapter, Thakur presents a six-point programme for eradicating the practice of dowry and bride burning in India. Though practical, it leaves certain questions unanswered: who should do it and at what level?

The editor, Werner Menski, in the introductory chapter, analyses the concept of dowry and the self-contradictory feminist views surrounding this concept. In chapter three, Menski surveys the literature on dowry, identifies its various forms and highlights central elements of the dowry problem. Interestingly, Menski approaches the problem from a purely humanistic perspective, rather than from a gender or religious framework. The author brings out the need for integrating traditional indological scholarship with modern sociological research to identify the change in the perceptions of dowry transactions over time. In chapter six, the editor dwells on legal strategies to curb the practice. Here he explains how dowry is much more than a straightforward gender issue and why the modern legal system

cannot tackle the problem. He holds modern consumerist greed chiefly responsible for the dowry problem. In the concluding chapter, Menski calls for a new remedy-centred and action-focused research agenda on dowry problems. He advocates different approaches to yield deeper insights into the dowry phenomenon to tackle the issue of violence on women more directly.

In chapter two, Julia Leslie focuses on the scale of the dowry problem, its magnitude across India, the conflicts inherent in the dowry death cases and the limitations of the data, the perpetration of violence on women and the institutionalisation of vulnerability of women for this. In the final part of her analysis, while presenting four agendas for the international society against dowry and bride burning, she makes a strong plea for meting out equal treatment for sons and daughters in all walks of life in order to reduce the girl's dependency on dowry.

In chapter four, Bisraam Rambilass reveals the exceptional case of dowry non-existence among the present generation of Indian South Africans through his empirical study. He critically analyses the reasons for the non-existence of dowry among Indians in South Africa from a historical perspective.

Chapter five, by Bisaka Sen, analyses dowry within the existing economic theoretical framework and uses the human capital approach to explain the phenomenon. The author presents an economic model to explain Indian women's tolerance of even bad marriages. An interesting aspect of this model is the author's deeper perception of the complex social factors that determine the family's decisions to accumulate human capital differently for sons and daughters.

Chapter seven, by Manjaree Chowdhary, assesses the hurdles in the enforcement of legal measures against dowry crimes. The author identifies loopholes in the existing legal provisions, and explains how the attitude, procedural inadequacies and operation of enforcement agencies such as the police and the judiciary have led to poor implementation of anti-dowry provisions in India.

In chapter eight, Rohit Barot discusses the dowry phenomenon among the Gujaratis in Britain, more specifically among the Lohanas and the Patidars, commonly known as Patels. The author, while describing its oppressive features, tries to relate the dowry phenomenon to the hypergamy among these two communities. He reveals that despite the influence of social change on social institution like marriage, rules of endogamy continue to influence a vast number of marriages in South Asian communities.

In chapter nine, Jagbir Jhutti provides insights into the phenomenon of dowry among Sikhs in Britain through individual case portrayals. She reveals how various types of dowry and marriage-related expenses continue to soar among the British Sikhs and the key role played by mothers and daughters in promoting and maintaining the dowry system in the Sikh community. On the positive side, she notes that the phenomenon of dowry accumulation has in fact financially empowered

women, enhanced their individuality and legal awareness among the educated young women. The portrayal of cases, however, looks more like an account of gifts given voluntarily by the parents for their daughters rather than as dowry demanded by the grooms. The author finally concludes that neither migration nor education among the Sikhs has made an impact on the second and third generation of Sikhs in Britain.

In chapter ten, Usha Sood analyses the legal context of dowry in Britain. The author critically analyses the dowry laws in India and Britain, and observes that the English courts and judges are less informed in addressing the cultural void in law in dealing with dowry cases. Sood identifies the gap in the database relating to dowry abuse among the South Asian communities in Britain, and neatly summarises the legal position under English law.

Overall, the book makes interesting reading and is a useful source of literature for both academicians and activists. There are, however, some minor omissions like incomplete list of abbreviations (page 239) and language errors in a couple of articles.

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Sunil Misra (ed.). *Voluntary Action in Health and Population: The Dynamics of Social Transition*. New Delhi: Sage Publications. 1999. Rs.225.

At Independence, the health and family planning status of the majority of the population was abysmally low and a formal health delivery system scarcely existed. The Government tried to remedy the problem through diverse programmes and initiatives, most of which were conceived, planned and executed at the national level and often superimposed on the existing social structures, institutions and practices. Coercive methods, numerical target achievements, and rigid policy instruments made the programmes, particularly family planning, unsuccessful and unsustainable, what with growing aversion from the participants and stakeholders. The book under review stresses the need for voluntarism in health and family planning practices that are culture compatible and sensitive to the ground realities of the specific localities and through community-accepted change agents.

According to various case studies, the main reason for the low utilisation of health and family welfare measures is the complete reliance on the traditional system coupled with ignorance of and inaccessibility to the formal system. The traditional system, which is often superstitious and unscientific, survived because it is culturally compatible, has social and community sanction, and is based on locally available materials and means. Any attempt to break this by force would

meet with resistance from the people and therefore hinder the achievement of sustainability.

The volume under review outlines the necessity of the voluntary sector in the centrally planned economies where programmes are conceived at the macro level. The micro- level organisation and operation of NGOs is very effective in ascertaining, formulating and implementing policy measures on health and population problems compared with centrally planned formulations. The book argues for synthesising the activities of the government and of the voluntary sector to tackle the health problems of the country.

The introductory chapter discusses the various determinants in ensuring effective communication from the people and the various change agents, and is followed by seven theme areas. There are fourteen case studies on broad classifications like infant mortality; integrated health and development in rural areas; fertility, reproductive health and responsible sexual behaviour in urban slums; family planning and reproductive health in the organised sector, and involvement of indigenous resource persons to promote family planning. A description of the critical areas of action and a brief conclusion then follows.

The basic premise of the studies is the experience of numerous projects implemented by the Population Foundation over the years. It is realised that the projects are unsustainable unless they actually involve the people without changing their social ethos, perceived behaviours and area-specific ground realities. Hence, the project design is based on an understanding of the health status of the target population, ascertaining the felt need, prioritising the objectives, and evolving a methodology that is culturally compatible and locally acceptable. Community Health Volunteers will be the change agent and the involvement of community /social leadership can make the programme sustainable in the future. Women's/youth organisations can act as the catalytic agent in health and family planning measures and in building social infrastructure, and the NGOs the chief agent in implementing these programmes.

The first three projects were taken up in high-prone areas to study infant mortality and fertility with different topographical conditions representing divergent ethni-linguistic-cultural characteristics of the people living there. Community participation is based on direct material benefits, as evidenced by the fact that they welcomed the economic and developmental programmes but resisted preventive and promotional health care. The identification and training of traditional birth attendants to serve as local health functionaries in maternal and child health care was effective and gave them social recognition. The distinct approaches, namely, understanding of the core issues and targeting of the specific areas, integration of traditional knowledge with modern knowledge, and training of the traditional functionaries to interact with community leadership and the health workers proved

effective and hence vital for the success of the programmes.

The book advocates focussed action programmes with fewer components for effective co-ordination and time-bound results. The introduction of innovations in health behaviour would have better chances of success if they were integrated with programmes of social and economic development, which give direct and immediate material benefits to the people. Here the authors call for the participation of NGOs in organising these programmes.

The book has a section on fertility, reproductive health and responsible sexual behaviour in urban slums due to the peculiar conditions prevailing in those areas. The slum characteristics such as rural-urban migration, deteriorating environment, extramarital affairs and migrant labour force compound the problem. Certain innovative techniques such as peer communicators, adult literacy and vocational training, educating women members, and creating interest groups of adolescent girls were tried out with varying degrees of success.

Understanding of family planning and reproductive health behaviour among workers in the organised sector is crucial since most of them are young and are exposed to extramarital sex and sexually transmitted diseases. The experience with three projects showed that the management of the industries played an important role in implementing the programmes. The presence of a popular nodal agency makes the programme popular among the workers. In the case of remote and inaccessible geographical areas the study used practitioners of the Indian system of medicine as change agents to popularise the family planning measures. But lack of coordination and withdrawal of incentives detracted from the success of the programme.

The book also details certain critical factors involved in the formulation and effective implementation of health projects. These include adequate attention at the planning stage, identification of the problem in the context of the social setting, involvement of community-level volunteers, integrated approach and acceptance of family planning, and the need for documentation and data retrieval. The book concludes with a discussion of the role of NGOs in bringing about social change. The advantages of voluntary agencies in creating a favourable environment, a felt need for the programme, qualitative feedback on ground realities, coordination with the health functionaries, research base, training and serving are highlighted.

To facilitate comparison, the case studies are structured on the same lines but this has made some parts repetitive as the objectives, methodology, and role of change agents are almost the same for the projects. The book vehemently argues for a new approach to health and family planning through methods that are culturally compatible, implemented with local resources and persons, and with the sanction of the community, with emphasis on sustainability. The case studies demonstrate this quite convincingly. The book also makes a strong case for voluntarism in

effecting social changes in health and family welfare. But in the light of public outbursts in some parts of the country against certain voluntary agencies, this needs to be reconsidered.

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Biswamoy Pati (ed.). *Issues in Modern Indian History*. For Sumit Sarkar. Mumbai: Popular Prakashan. 2000. Rs.400.

Any expression of academic gratitude is heartening, particularly when expressed in an elegant *festschrift*. Prof. Sumit Sarkar, in whose honour *Issues in Modern Indian History* is brought out, is one of our finest historians. His *Swadeshi Movement in Bengal*, *Writing Social History or Modern India* are as well known to discerning students of modern Indian history as his strong ideological conviction and social commitment, which he has allowed an occasional intellectual review but not any hypothecation to the vagaries or frownings of the official custodians of history. His critique of the Bengal 'Renaissance', and the Gandhian nationalism, or his association with the *Subaltern Studies* show him as a historian ideologically anchored but insisting on exploratory freedom, while his stand against communalism has enrolled him in a long and as yet unfinished battle.

Issues in Modern Indian History offers an interesting menu of twelve articles, which have been introduced well, and in sober prose, by the editor. David Arnold's 'Disease, Resistance and India's Ecological Frontier, 1770–1947' is an attempt to revisit earlier interpretations of tribal resistance by focusing on forest ecology, taking up a much-ignored factor like malaria in tribal society and rebellion. The hyperendemicity of many forest/tribal areas was initially an insurance against outside intervention and control, but once the ecological frontier was breached there was no way the insurance could be sustained. Indrani Chatterjee and Sumit Guha have ferreted out, from the Maratha sources, the strange world of the slave-queen Virubai to critique the Euro-centric and male-centric notions of slavery, bringing in the crucial role of 'social capital' which could overrule the conventional inputs of power like wealth and heredity. There is an attempt, by Amar Farooqui, to question the imperialist refrain that the events of 1857 were a bolt from the blue and show that they were but a significant moment in a long struggle against the British. This he does by reconstructing the history of the Sindhia state and the policies and postures of Baiza Bai. The insurrectionary mood of and performance of a subaltern class of tribals is brought out in Hari Sen's 'The Bhil Rebellion of 1881,' which is reconstructed, as it often happens, from the narratives of the feudal *darbar* of Mewar and the Colonial British. In 'Sri Ramakrishna and the Middle Class Religion in late Nineteenth Century Bengal: Exploring Some New Paradigms of

Understanding', Amiya Sen takes up a problem which Partha Chatterjee and Sumit Sarkar had grappled with. He interrogates Mahendranath Gupta's *Ramakrishna Kathamritha* afresh to explore the making of the *bhadralok* counter-discourse as a reactive and manipulative strategy evolved in the face of the pervading colonial discourse.

Another interesting exercise in deconstructive analysis in the volume is that of P. K. Datta, who shows how U. N. Mukherji's *Hindus — A Dying Race*, published in 1909, had created an irresistible communal consciousness through the instrumentality of a colonial power-knowledge system like the census and the printed word. The portrayal of the Hindus as a dying race, threatened to be outnumbered and overwhelmed by the unrestrained reproductive powers and strategies of the Muslims, could become, as it has since become, both an alarmist reminder and a call for an aggressive and immediate agenda of self-defence. The dynamics of strikes and communal riots of Calcutta in the 1890s is examined by Subho Basu in the context of a complex and changing milieu of caste, religion, linguistic identities and as a fitful reaction against agencies of capitalism and colonialism. Biswamoy Pati's paper brings out the ironies of politics associated with the anti-feudal upsurge in the 'Dark Zones' of Orissa and the strategies of the Congress in appropriating it. Sanjoy Bhattacharya explores the character of colonial propaganda against the Indian National Congress during the Second World War and the way it boomeranged. Srimanjari's study of the Bengali literature of the same period brings out the pervading anger of the intelligentsia against fascism and the War as well as against the exploitative nexus among the feudal, capitalist and colonial agencies, though the anger was sought to be combated by a manufactured mood of optimism about the new dawn. I. Tirumali's 'Dora and Gadi: Manifestation of Landlord Domination in Telengana' reveals the ways in which landlordism and caste domination had operated with cruel efficiency in the Telengana region of Andhra, which was soon to be contested by the angry peasants. The last paper in the anthology appropriately deals with the conceptual shifts in the Leftist writings, underlining the fact that they have now become more broad-based, taking up such issues as culture, ethnicity, religion, gender, environment, and so on. Left writings, contrary to what these political antagonists have accused, have not been averse to debates within their ideological parameters nor afraid of extending the frontiers of their interest or concern. Call it heresy or freedom, they have not denied it to themselves.

Issues in Modern Indian History covers many areas and issues of interest to a student of history. Politics — feudal, colonial or nationalist — the world of the peasant, tribal, the worker and the landlord, the *bhadralok* attitude or the communal consciousness, ecological factors or ideological debates provide a rich mosaic of well-researched articles. These areas have, in fact, been surveyed on various

occasions with masterly attention by Prof. Sumit Sarkar himself, and in so doing he has always enriched them. That makes this collection of research papers all the more appropriate in the *festschrift*.

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Datta Ray, B., H. K. Mazhari, P. M. Passah and M. C. Pandey (eds.). *Population, Poverty and Environment in North-East India*. New Delhi: Concept Publishing Company. 2000.

Northeast India conjures up images of lush green forests, mountain peaks, rich and colourful cultural traditions and an overwhelming majority of communities living in perfect harmony with the sylvan ambience. It also brings into focus a region that has never apparently been considered part of mainstream India. This is on account of a variety of factors: politics, lack of understanding of the local needs and faulty perceptions about the dynamics of the diversity of living conditions, cultural traditions, need-based local economy and the like, among the national planners and policy-makers. Enmeshed by a number of countries, the region is a melting pot of different nationalities, cultures and traditions. The resulting brew is exotic, with a distinct charm of its own, as to merit a more significant role in the political landscape of the Indian sub-continent. It is also a sanctuary for increasing subversive and fissiparous activities, which too could be the result of phenomenal neglect and unjust exploitation of the locals by a succession of rulers. Having a special status under the constitutional scheme¹, the region presents an excellent opportunity for research on the life, psyche, economic conditions and overall environment of its people. Such efforts, which are few and far between, explain the reasons for the different attitudes and attributes of these people besides projecting their world view, in first person. It is also hoped that such efforts will yield viable solutions to ensure that the Northeast remains culturally, emotionally, politically and economically an indivisible part of India.

It is with these expectations that one approaches the volume under review, which is a collection of forty-two articles, developed out of a seminar² and edited by very distinguished personalities, who have been associated with the administration, social life and academic environment of the region. The sweep and reach of the themes addressed also are amazing. They include poverty, population, pollution, and tribal traditions and their travails. The articles are clustered around three major 'inter-linked' issues of concern in Northeast India, namely, demography, levels of poverty, and the physical and social environment of the region. The editors claim that the issues were considered against the backdrop of the 'degrading social situation' and to 'suggest remedies'.³ Unfortunately, what looks full of promise

ends up more as a collection of papers full of rambling thoughts. The connection between issues never gets established nor do the intended solutions get articulated anywhere. The book ultimately turns out to be little more than a compilation of statistical information.⁴ The information explosion, attempted through a glut of statistical tables, in a large majority of articles, do not get supported by cogent analysis. The observations turn out to be very inane and axiomatic.⁵ Some authors even allow the statistics to speak for themselves!⁶ The titles of over a dozen articles on problems of population growth mislead as they fail to create, through analysis, the nexus between ideas, themes and issues like population and environment⁷, internal migration, natural resources and social services.⁸

The articles dealing with environmental issues⁹ also leave one exasperated as they fail to connect or engage in a meaningful analysis of the issues.

The group of articles dealing with the problem of population are the most organized, analytical, and well researched.¹⁰ While these too provide a surfeit of statistical information, one can discern that a serious attempt has been made to put them in an analytical frame.

Hence, one would question the basic objectives of the seminar and what was sought to be achieved in bringing out a volume of this kind. If the editors desired to make available a mine of information, as it is, as basic reference material, shorn of any analysis, for a researcher to pick, dig deep and critically evaluate, they have more than achieved their purpose. Verily, an excellent opportunity of transforming the collective wisdom of forty-two scholars into a major definitive research effort in relation to Northeast India is lost. What looked promising at the beginning turns out to be a mere mirage!

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U. Sankar. *Economic Analysis of Environmental Problems in Tanneries and Textile Bleaching and Dyeing Units and Suggestions for Policy Action*. New Delhi: Allied Publishers. 2001. Pp. xxii+300, Rs. 660.

There has been growing evidence of the continuous discharge of untreated effluents on land and water bodies adversely affecting the quality of groundwater, agricultural lands and human health. In spite of stringent environmental regulations by the Central Pollution Control Board (CPCB) as well as the Supreme Court, the 'Red—Highly Polluting' industrial units very often fail to comply with the Environmental Protection Rules 1986. This is widely attributed to: a) the preponderance of small-scale units, which are highly dispersed and resource poor; b) high transaction costs in enforcing the environmental standards and laws; c) the

lack of technical know-how and high costs of establishing and operating effluent treatment plants (ETPs); and d) the concerns of the state governments that strict enforcement of the regulations would hurt individual industries, which help to reduce unemployment. These problems are compounded by the absence of a database adequately supplemented with empirical analysis at the micro level examining the production processes, input usages, outputs produced and effluents generated, resource position, technical capabilities, etc. of the individual industrial units.

Against this backdrop, the volume under review assumes significance as the outcome of a pioneering study of the environmental problems caused by the tanneries and textile bleaching and dyeing units in Tamil Nadu. These account for 50 per cent of the tanneries in India and a significant share of the production of textile garments and apparel. The book is divided into two parts, containing seven chapters each. The first part gives a comprehensive account of the tanneries in the Ranipet and Vaniyambadi regions in North Arcot District, while the second part deals with the textile bleaching and dyeing units in Tirupur and Karur regions in Tamil Nadu. The major aspects covered include: a) the evolution, structure, growth and present status of the Indian leather and cotton textile industries; b) a techno-economic survey of tanneries as well as bleaching and dyeing units; c) environmental impact of effluents on water quality, health and agricultural land; d) the availability and status of Common Effluent Treatment Plants (CETPs) as well as Individual Effluent Treatment Plants (IETPs). Important policy suggestions are also discussed in separate chapters at the end of each part.

The author is pessimistic about India's trade performance in leather and textile products in the post-reform era as it has constraints in organisation and management of production and exports. However, India could continue to have a comparative advantage in the production of leather and cotton textile products with the opening up of the economy as the replacement of the multifibre agreement by the Agreement on Textiles and Clothing (ATC) under the WTO rules envisages integration of the entire textile sector into the multilateral framework. This would give India greater access to global trade and increase its share of the global textile exports. India's share in global exports of leather and leather products is projected to increase from 4 per cent in 1995–98 to about 10 per cent by 2004–05, provided steps are taken to remove infrastructural bottlenecks and high transaction costs involved in production and exports as well as in implementation of stringent environmental regulations. Moreover, Indian exports have to be price competitive and cost effective amid stiff competition from China and South Asian countries.

India's share in the exports of finished leather and leather products has increased from 15 per cent in 1971–72 to 100 per cent in 1991–92. About 93 per cent of the tanneries functioning in India are small-scale units, of which Tamil Nadu

accounts for 52 per cent, West Bengal for 21 per cent and Uttar Pradesh for 14 per cent. Tamil Nadu accounted for 46 per cent of India's exports of leather and leather products, 75 per cent of the export value of footwear components and 72 per cent of the value of finished leather in 1996–97. This clearly brings out the importance of Tamil Nadu in the exports of leather and leather products, thus justifying the scope of the study.

The high concentration of tanneries in the SSI sector makes it difficult to determine the installed capacity of tanneries as there are variations in technical capabilities, processes and levels of tanning. While some tanners process leather up to the 'finished' stage either by vegetable tanning (VT) or chrome tanning (CT) using hides or skins as raw material, others process leather only up to the 'semi-finished' stage.

An analysis of the impact of tannery effluents on water quality, human health and cultivable land, based on a survey of 352 households, revealed that 88 per cent of the respondents reported increasing levels of hardness/ salinity of groundwater as well as bad taste, indicating poor groundwater quality. While loss of working days and income due to illness was widely reported, 44 per cent of the households had spent Rs.500–5,000 for treatment. A bivariate analysis of the relationship between household income as well as education and willingness to pay for drinking water indicated a high response among the lower income groups (below Rs.2,000 per month). Similarly, illiterate and less educated persons were ready to pay more, in total contrast to the well-educated and high-income groups.

The survey also brings out the perceptions of the households on the effect of effluents discharged by the bleaching and dyeing units on water quality, human health and cultivable land. While about 74 per cent of the 595 respondents reported stagnation or run-off of the effluents, 72 per cent reported mosquito menace, and 57 per cent reported well-water contamination and the spread of respiratory diseases. Decline in land productivity, owing to water pollution, and a consequent depression in land values was reported by almost 90 per cent of the land owners.

A detailed discussion on the technical, institutional and economic issues in the setting up of Common Effluent Treatment Plants (CETPs) concludes that the majority of the tanneries cannot establish their own Individual Effluent Treatment Plants (IETPs) owing to constraints such as small scale of operations and lack of land, finance or technical and managerial expertise. Hence, Common Effluent Treatment Plants (CETPs) have been set up as a co-operative venture on the principles of collective action to reduce transaction costs in pollution abatement at the individual unit level. However, with the growing environmental concerns of the public and the pressure of environmental regulations under the WTO directives, it is important to consider how best the individual units will tackle this problem and how far the CETPs would help to achieve the prescribed standards.

A drawback of the existing cost-sharing scheme attached to CETPs is that it provides no incentives to member units to minimise pollution. The author suggests a three-part tariff system with in-built incentive and penalty clauses, viz., i) capacity-based charge considering the maximum volume of effluent a unit discharges in a year; ii) user charge based on the actual volume of pollutants in the effluent; and iii) customer-related charge. These measures are necessary to induce the units to conserve and economise on water use, reducing the volume of effluent generated at the existing level of output. Based on unit-level information on the pollution load, markets may be developed with Tradable Permits Scheme (TPS), to minimise the aggregate costs of reducing pollution.

The book is an important addition to the growing literature on the environmental consequences of industrial development. Researchers concerned with micro-level studies on environmental impact assessment of industrial projects would benefit from its sound methodological framework. The book also offers ample scope for future research on various dimensions of the problem, such as the environmental effects of these units on various classes of the dependent workforce and the environmental safeguards and security measures offered to them. Another dimension is long-term perspective planning for streamlining the development of the industrial segment in the context of the growing process of globalisation with environmental regulations.

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Manikuntala Sen. *In Search of Freedom: An Unfinished Journey.* Calcutta: STREE. 2001. Pp.310, Rs.120.

Manikuntala Sen has that rare talent which has proved wonderfully apt in the realm of modern history. Ms. Sen has done her best to give an account of the facts that have proved very crucial to an understanding of the events in Indian history. This account, as historical document, is to be studied in the hope that the informed mind will be able to persuade them to balance with their vivacity.

It is an engrossing and revealing book by a woman who was conscious of having achieved much (though she never mentioned it in so many words) but who also believed that at a time when she should have been at the top, she had suffered envy, bad faith and calumny. As the book progresses, the control of the narrative from a woman of self-regard becomes increasingly clear. The task of describing a talented and busy life is not stymied by interest in plain truth like her insistence on joining the Communist party. Later, in retrospect, she remarks that she felt a kind of

stupidity which goes beyond political incorrectness when faced with questions whether she ever did anything right in her life especially in the context when her uncle expressed his dismay that if she was joining the Communist party then she remained a non-believer. She said she pondered deeply, not finding an answer to the question.

Exceptionally few historians appeared to have said that a history of struggles, constantly trying to provide a historical explanation of why its own version of events should be accepted as the true one, is bound to turn into a tedious act. Yet, Sen keeps us firmly on familiar grounds, regaling us with many anecdotes and reassuring us with simple chronologies. Her sketches of the ensuing history of struggle are a whirlwind tour in various stages, in which tradition, feeling and reason have succeeded as dominant modes of understanding of the phases of struggle.

Events are the product of complex causation, in which interacting human decisions play an important part. The historian's ambition may not be to produce a stylised or elegant account, but rather one that captures a persuasive verisimilitude, imbricated with the contingent circumstances of a particular time and people who lived through the experiences. Sen asks, 'why should there be a quarrel between God and Communism? Why do I still feel angry at the negative propaganda? Is it not possible to reveal Communism to people through its economics, the superiority of the new society under the leadership of workers, a new state with more equality and justice to the people, equal rights and opportunities, more dignity to every individual, the liberation of female power, all the values that this ideology upholds? Of course it is. What else have I done all through my life as a Communist? And then, later, have we not seen Kalighat pandas or priests who manage the temple and organise the worship being inducted into the Party even as they continued to be associated with the temple?'

If each historical event or circumstance has multiple causes, it is equally true that each then generates multiple consequences. The uniqueness of history lies in this dual condition, sometimes trivially, sometimes substantially. If changes in the status-quoist position are attempted there would be more wild and unpredictable consequences. This happened when 'with the help of the British government, Rammohan Roy and Ishwarchandra Vidyasagar became successful in getting laws passed against *sati* and for widow remarriage. In order to achieve even this degree of limited reform, Rammohan had had to quit the country and there was no end to the humiliation that Vidyasagar had to bear. Those same women for whom they had suffered social ignominy averted their faces from these laws created for their welfare. They were not yet prepared to accept these reforms. Eventually, after ignoring a fresh round of social opposition, Vidyasagar had to prepare for reform by educating women.'

Sen's important line of argument may predispose one in favour of her views which explore the alternative and counterfactuals at various junctures in the history of the struggle for independence. She enables herself to be both erudite and cogent in staking out the ground. She questions the putative viability of British rule, raising the issue of Partition. The fact that her analysis is presented in characteristically robust terms should not obscure the extent to which this work builds on the Party perspective. Though not a historian, still on history she had already queried the adequacy and reality of the two-nation theory, which celebrated the inexorable unfolding of a preordained assertion of independence from the imperialist oppressors. She could not accept the fact that her party too had agreed to Partition as she believed that it was not the right thing to do because it did not work out happily.

There may be another way of saying that the impact of events on a particular individual may be spectacular for the individual concerned, yet simultaneously a manifestation of a regularity of incidence is tediously predictable for the whole population. In retrospect, it seems clear to her that what she refers to as the New Cultural Movement had come with a new light as the Second World War was on and people were hunger-stricken. Prominent masters in art and culture became involved in raising funds for relief measures.

As far as peasant movements are concerned, one may realise from Sen's account of Tebhaga Andolan that there is still plenty of scope for research on these movements which may be captured substantially. Her account of organising women before and after the Partition, making a special mention of Manorama Basu, who ultimately became a Communist, is impressive. But that is not what is emphasised more. How Manorama, known as Mashima, with single-minded determination transformed herself from a child bride to a social worker, teacher, philanthropist and woman activist enhances our concern.

At a later stage one finds that for her, conflict and division of the party were absolutely shocking. Like a self-confessed sceptic, she writes in response to a comrade's comment that the party must break: 'I responded only once. Fine, go ahead and split it up, but count me out. I had come to build a party, not to break it up. I had joined the party because I cherished some ideals; if these were brushed aside, what else could I do? In the name of idea so much hatred was being spewed out; friends were preparing to stab each other in the back; if this was what we were expected to do, there was no place for me in the party.'

This is a lively account, moving easily between psychology and history, exposing people in tireless action. She humbly acknowledges that there must always be more in other facts and events that could not be included than there is in her writing. The painting of the eventful past (Shedin) comes alive and resonates with the present. Her feeling that she was perhaps politically incorrect is misplaced. For her the journey never ended. Manikuntala has walked her way sincerely and

successfully. It would now be continued by the new generation.

One last word about the translators. The absence of their names will greatly intrigue people. So sublime is the work that it does not read like a translation. The anonymity of the translators may be a sign of humility and may generate appreciation, yet to receive the appreciation they may as well surface.

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Henryk Skolimowski. *Dharma, Ecology and Wisdom in the Third Millennium*. New Delhi: Concept Publishing Company. 2000. Pp.127.

Henryk Skolimowski has tried to buttress the foundations of newly formed *Ecophilosophy* by drawing upon two age-old concepts, Dharma and Wisdom. As we understand so we act. The more luminous is our understanding of the subtle intricacies of reality, the higher beings we are. The present condition of humanity is forlorn as we live in polluted physical, mental, and spiritual environments—all as a result of the current structure of our consciousness, which is programmed to manipulation, to mechanistic thinking, to an instrumental treatment of people and nature. According to Skolimowski, the true work of ecology is healing all the three environments, physical, mental and spiritual, simultaneously.

Skolimowski echoes the ideas of ancient Dharma and Wisdom that all is divine; all things are connected and are parts of the same web of life. A wrong attitude contributes to degeneration of the web itself. The traditional concept of Karma—you reap as you sow—at the personal level is extended to the principle of *ecokarma*, making us collectively responsible for the condition of life and redemption of the same. The traditional concept of yoga—pursuit of harmony and balance between body and mind—is extended to *ecoyoga* to include harmony and balance with nature. The practice of *ecoyoga* begins with viewing the world as a sanctuary and practicing of reverence as a right mode of our being in the world. Exercising empathy—to be friends with the cosmos is a precondition for being a true friend of yours. Reverence for all emphasizes the importance of responsibility for one's own life, for the life of all including the future generations. The proper discharge of this responsibility empowers self and inspires others. This empowerment is to establish your inner peace, so that you are empowered to help others and future generations, to heal nature, without which inner peace will be incomplete. When ugly and polluted environments violate our senses, our soul is bruised, and it suffers. Thus we cannot tolerate ugliness around us without suffering some harm. This is how individual salvation is linked with the improvement of the conditions of others and the environment.

Ecological Dharma informs us that ecological reconstruction and working in harmony with nature can be restored only by right livelihood—not just for a select few but for all—which is essential both for the spiritual well-being of the individual and for sustainability of the local, national and global society and the planets.

Ecoyoga is thus a path of beauty and sanctity of our times. *Mahayoga* informs us that overall balance and harmony signifies not only balance between our bodies and minds and between our hearts and souls, but also balance with other beings in the world. Striving for justice to enable others to live and striving for harmony with nature is a necessary part of *Mahayoga*. *Mahayoga* reminds us that we are always a part of the web of life, and true compassion means the yoga of life, which embraces all. The chapter on yoga of empowerment helps us to understand how to retain balance and remain rooted in values without getting swayed by the idols of the market place—competition and advertisements. Imitation, visualisation, turning adversity into advantage, beholding positive ideas, and participation are suggested as positive strategies of empowerment.

In the chapter on the yoga of wisdom, Wisdom and Dharma are referred to as the state of the entire being rather than of the mind. Discernment, judgement, distance (non-attachment), compassion, holistic sense of the universe, hope, and courage are explicated as dimensions of wisdom. Being stupid, repeating mistakes, learning to defuse the fuses within, which make situations irritating, and preoccupation with trivia are mentioned as hurdles, while healing inner phobias, fears, anxieties, catharsis, forgiveness, and discipline are mentioned as aids to the attainment of the state of wisdom. *Ecophilosophy* outlines ecological cosmology (right beliefs, right thought, right speech) and distinctive ecological ethics (right conduct, right livelihood). A human being is no longer seen as a machinist who manipulates or is manipulated, but as a custodian and guardian of the planets. Everything in the universe is related. Hence, establishing and maintaining a harmonious and balanced relation (right relation) is considered important.

From this conception of the cosmos (and of the human being within it) follows an ethics of reverence, responsibility, frugality and justice. As the ecological crisis has brought about an enormous sea of new suffering, ecological cleansing becomes the vehicle of the cessation of this suffering. Consequently, reverence for life and our universe as a sanctuary emerges as the basic ecological value. From this follows responsibility as reverence in action. The third is frugality, conceived as grace without waste, as doing more with less, as treading gently on the earth, leading to discarding horrendously wasteful lifestyles in favour of elegantly frugal lifestyles, gentle and unharmed to nature and other beings. It is argued that a sustainable world and sustainable development cannot be a reality in the absence of sustainable lifestyles and values. Genuinely sustainable development should be

ecologically responsible, economically frugal, socially equitable and culturally sensitive or culture specific; hence the futility of uniform blueprints that do not recognize the plurality of local contexts.

The chapter on the key to happiness starts with the statement that happiness is not a fixed state of being, but a perpetual state of becoming. Great causes elevate us and make us transcend our egoistic self. Great causes pervade us with reverence and infuse us with dignity, which are necessary components of a worthy life. This enhances life and enlarges our being. Happiness is being at peace with oneself while the self is united with a larger order of things. The key to happiness is to lose your ego and ambition, and to acquire a vision and a mission.

This book is very timely and helps us reconcile our traditional notions of Dharma and Wisdom with contemporary universal problems. It also offers a right perspective by following which a genuinely sustainable world and sustainable development become achievable by embracing sustainable (right) values and sustainable (right) livelihoods.

Mention may be made here of thousands of men, women and children who are part of *Swadhyaya parivar*, inspired by Shri Pandurang Shastri Athavale, and strive to live close to this principle of reverential attitude towards self, others and the universe as God is immanent in all this. He said in his Templeton Prize address (1997), 'It is my experience that awareness of nearness of God and reverence for that power creates reverence for self, reverence for others, reverence for nature and reverence for the entire creation'. This reverential attitude, invoked in large numbers, is responsible for the motivation that brought about sustained collective action, resulting in the creation of impersonal wealth. Beginning in 1958, Athavale established dozens of programmes without any external assistance, solely by inspiring the participants to demonstrate their *bhakti*, or devotion, by engaging themselves in socially useful and environmentally harmonious activities like tree planting (recipients of the first Indira Priyadarshini Vrikshamitra Award for the exemplary work done in establishing the Vrikshamandir near Baroda); numerous water harvesting initiatives in Saurashtra, Gujarat; *Yogeswar Krishi* farms by volunteers from farming communities, and *Matsyagandha*—floating temples by fishermen.

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A. Vaidyanathan and P. R. Gopinathan Nair (eds.). *Elementary Education In Rural India: A Grassroots View*. New Delhi: Sage Publications. 2001. Pp.563. Rs.695 (Cloth).

Much has been written and said about the state of elementary education in India. Although the Constitution guarantees free, universal and compulsory education for all children aged between 5 and 14, all reports and data on education show that even after Independence, we have not achieved this goal. In some states, like Kerala, where the data show a high level of enrolment, it has come at the cost of quality. Disparities in gender, caste, and class persist as does the urban-rural divide. The upper castes and classes in urban areas enjoy the benefits of universalization, while the lower castes, who are also economically backward, have been marginalized. Females from the Scheduled Tribes occupy the lowest rung in this hierarchy. All this has been reconfirmed by a survey conducted during 1993–1997. The findings of the study reinforce the existing stereotypes and show that the vicious circle of poverty is continuing, albeit at a higher level. Though the data point to great improvements in the overall literacy rates at all levels, the disparities still exist.

The book, edited by A. Vaidyanathan and P. R. Gopinath Nair, presents the findings of eleven studies on participation in and performance of elementary education in nine major states of India. The studies are a result of a National Research Project on Social Strategies and Financing for Human Development in India. Studies are based on secondary data from the 1981 and 1991 Census, the National Sample Survey (NSS), and the National Council of Educational Research and Training (NCERT). In order to supplement the data, surveys were conducted in ninety-five villages across nine states using a questionnaire with a common set of questions. This questionnaire was used as a springboard from which qualitative information was gathered through interactions, interviews and group discussions. On the basis of the 1981 data, districts were grouped into high, medium, and low categories, according to the literacy levels in the villages. The 1991 data were used to record the decadal changes in the literacy rates, and districts were classified into low change, medium change and high change groups. Using these classifications as a base, districts in diametrically opposing categories were selected, and factors affecting enrolment and dropout in elementary education in these districts were studied. Only one study of Maharashtra and Madhya Pradesh, by Sarthi Acharya, is based entirely on secondary data from the census and NSS. The study by Manabi Majumdar is based on two of the best performing districts in Tamil Nadu and Rajasthan. All the other studies have selected villages from two different districts within the same state.

The studies look at both the demand and the supply side factors that

affect enrolment (entry) and dropout (exit) rates. The demand side factors are caste, economic status, parents' occupation, parents' educational attainment, dependency burden, rank of the child in the birth order, number of animals, distance from sources of food, fuel, fodder and drinking water, and physical and social access to school. The supply side factors are school infrastructure, curriculum, incentives offered, teachers' qualification and experience, and interactions between the stakeholders (teachers, management, students, parents, community). Multivariate regression analysis was used to study the relative significance of the factors on enrolment and dropout rates. Most of the studies have used the probit/logit models to study the influence of any of the explanatory variables on the dependent variable, keeping all others constant. The findings of the studies have been presented with an interesting blend of tables and qualitative information.

The findings of the study do not reveal anything new about the factors that have a positive and significant influence on the enrolment and dropout rates (caste, economic status, parents' education and occupation, size of landholding). The factors that negatively influence enrolment and dropout rates are physical access to school, number of animals, distance from sources of food, fuel, fodder and drinking water. On the supply side the school infrastructure, teachers' qualification and attitudes, and curriculum seem to have a strong influence on the retention rates. Non-enrolment was also due to social discrimination and high direct costs of education (even though education is supposed to be free), lack of secular institutions (Srivatsava), and impersonal organizational aspects of schools that ignore the special needs of minority groups (Rajyalaksmi and Jabbi, Thomas, Srivastava).

However, the studies offer new insights into the role of the missionaries, communities, (Thomas, Srivastava, Nambisan), and literacy missions (Sailabala Debi) in causing literacy rates to improve. Some states like Maharashtra, Kerala, and Himachal Pradesh have been able to combine quantitative increases with qualitative improvements (Majumdar). Thomas, on the other hand, feels that the expansion in Kerala has been at the cost of quality because the school system in Kerala has been 'churning out semi-literates like an overworked grinding mill' since promotions are 'policy determined rather than performance determined'. While distance from the school seems to be a major factor in most states, in the UP Himalayas (Anuradha Pande) great progress in literacy rates has been made despite settlements being small and isolated with poorly developed roads. This study also gives historical reasons for high literacy rates among both males and females.

Most of the studies place the onus of drop-out rates on teachers and their attitudes, while only the study of rural Rajasthan (Nambisan) lists the 'official obligations' of the teachers that hinder their performance. The New Education Policy of 1986 clearly states that there will be no single-teacher schools (Sailabala

Debi). Yet, this is clearly flouted in most of the districts covered. In some cases enrolment figures and number of teachers are exaggerated because financial aid depends on these figures. Contrary to popular belief that incentives will attract and retain students, Srivastava's study of rural Uttar Pradesh reveals that people also value education for its future benefits. The studies also belie the myth that education in government schools is free. Most of the studies show that uniforms, books, examination fees, and travel costs are higher than tuition fees. Teachers' salaries constitute 90–99 per cent of the school expenditures, leaving very little for teaching-learning materials, and maintenance of infrastructure. Owing to deficiencies in the school systems, people in Rajasthan rely on private tuitions to improve their performance. All this adds to the cost of education.

The authors have made some recommendations to improve the attractive and retentive qualities of education. Some suggest that the curriculum be made more relevant and sensitive to the specific needs of the minorities, that the school calendar and timings be made more convenient, sensitizing the teachers to the needs of the community, and being sensitive to the needs and alleviating the pressures on the teachers. The Bihar study highlights the importance of greater interaction among the teachers, students, parents, and peer groups. Some studies call for strict monitoring and evaluation and for legislative instruments that will make education meet the socialistic aspirations of all sections.

Even though much effort has gone into the publication of this book, the tables have received little attention. The reader is deluged with numerous tables and statistical analysis; Areacode in Kerala has been chosen because it had high literacy and a high rate of change, whereas the table (5.1) shows it as a low literacy-low change area. According to the study in Orissa, all the 62.5 per cent of the students aged 10–14 who had enrolled had dropped out (Table 11.11), and in one study the table shows that there were a few cases where children had been enrolled at the age of one, with no explanation as to how this happened. The study of Maharashtra presumes the readers have a thorough geographic knowledge of the state and all the districts in the different regions like Vidharba, Khandesh, Konkan, and Marathavad. A small note or table giving the districts belonging to these regions would have been welcome. On the whole, the book is an eye-opener for the people involved in making a change in the education scenario of India: the policy makers, the educators (teachers and management), the community (beneficiaries), and the NGOs (grassroots initiatives).

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Remote Sensing and Agricultural Statistics: Rationale, Scope and Aims, Proceedings of National Seminar (April 21-22, 1998), Supplement to *Indian Journal of Agricultural Economics*, Vol. 55, No. 2, April – June 2000, Pages 124.

The volume under review is an excellent collection of selected papers on the application of remote sensing techniques in agriculture. These papers were presented at a seminar jointly organised by Indian Society of Agricultural Economics and National Remote Sensing Agency. Such an effort is highly commendable in the light of the potential for providing unbiased and real-time data on land uses, cropping pattern, irrigation and crop conditions, and the widely shared concern about ensuring reliable and timely agricultural statistics. The principal aim of the seminar, to familiarise agricultural economists and statisticians with the applications of remote sensing to crop statistics and related agricultural activities, has been widely publicised by this supplement.

The foreword, by Dr A Vaidyanathan, highlights the importance of remote sensing techniques in generating agriculture-related data more accurately with less involvement of manpower. This is followed by a succession of analytical and informative papers by eminent economists and experts from ISRO, National Remote Sensing Agency, Directorate of Economics and Statistics, and Central Statistical Organisation.

Prof. Y. K. Alagh's six point programme for using satellite data to supplement traditional sources of agricultural statistics summarises the uses of remote sensing data in a way that makes it clear even to the layman. These data can substitute the traditional crop and season reports with a time lag of three to five years with timely data on land use statistics. The space data can be used for checking estimates of errors of crop area and yield statistics. Geographic mapping systems can be used for public sector projects such as watersheds. Farmers, who are a source of data, can also be recipients of technology and agro-economic data, which would be serviceable in agriculture in a globalising world. Remote sensing images can also be useful in building up new systems of man and machine working together in a restructured agricultural information system.

'Scientific Basis of Remote Sensing and Applications in Agriculture,' by Sridhar and Parihar, discusses the physical and statistical basis of remote sensing application in agriculture, and emphasises the principles underlying various agricultural applications such as crop identification area, yield estimation, and soil moisture. Gautham *et al.*, in their paper on 'Spatial Analysis of Land Use/Land Cover over India Using Satellite-Based Remote Sensing Techniques,' have presented the results of the data using these techniques. They have shown how the remote sensing technique can be used to collect up-to-date and accurate information of

land use and land cover at the district level and to monitor the changes periodically. The detailed methodology and the results of the reconciliation exercise on land use statistics generated by remote sensing and ground-based techniques is well documented by National Remote Sensing Agency.

Some of the broad agricultural areas wherein considerable progress has been made in the last few years in the country are: i) crop production forecasting, ii) land use/cover mapping, iii) mapping of wastelands, iv) soil mapping, v) drought monitoring, vi) monitoring of surface water bodies and vii) groundwater exploration. Improvement in the accuracy of remote sensing estimates is associated with technological development and use of high-resolution data. Manjunath, Panigrahy and Chakraborty elaborate all this in their paper on 'Crop Assessment Using Remote Sensing — Crop Acreage Estimation, Crop Condition and Yield Assessment. The CAPE project has provided training support for various government agencies in remote sensing analysis in agricultural applications. The paper highlights the use of remote sensing to get pre-harvest crop yield estimates and early crop condition assessments.

The paper by Sharma, Chaurasia and Mahey attempts to compare the wheat acreage and production estimate in Punjab using remote sensing technology and a cooperative approach. They opine that remote sensing technology, combined with other data inputs, can provide a reliable, timely, accurate and effective method for pre-harvest acreage and production estimation.

The scope, potential and limitations of using remote sensing applications in the agricultural statistical system are elaborately discussed by Rajiv Mehta. The potential of remote sensing techniques is realised in bridging the gaps in the data in the existing system and removing the impediments to decision-making and policy formulation.

In addition, the supplement contains papers on experience in the use of remote sensing for crop statistics (by Deka and Deb, and Rajiv Sharma *et al.*); application of remote sensing in agricultural statistics (by Narasimham and Chandra); and crop inventory using remotely sensed data (by Naval Gund and others).

To sum up, the supplement highlights the advantages and disadvantages of remote sensing technology, which has proved to be highly useful in the estimation of yield of major crops, land use, and surface water availability, groundwater table, etc. The final estimates of area and production emerging from the existing system can be refined through the use of remote sensing techniques. The advance estimates and forecasts are mortals: though they attempt to foretell the future, they die when the final figures are available. However, these forecasts have immense value in decision making and timely action on the policy front. The element of minimum human bias in this technique is very useful when the decisions based on these results influence policies connected with financial transactions such as drought

and calamity relief. The remote sensing technique helps in generating data with minimum errors, reducing the costs and avoiding data fudging.

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Notes

¹With a particular level of autonomy to the people conferred under the Sixth Schedule of the Constitution.

² The seminar was held in 1996 and was organized by North East India Council for Social Science Research, Shillong. *See Introduction*, at p.5.

³ *Ibid.*, also *see* the blurb.

⁴ As many as 107 statistical tables, most of which have been sourced from Government records, find a place in the book!

⁵ *See*, for example, the observation, 'If the population growth in these states is controlled then more than half of the problems can be solved,' and 'for sustainable development and in the interest of intergenerational equity, all the states will have to control population growth,' at p.48: also *see*, '... some findings are only preliminary in nature and further research is necessary at this stage'!, at p.79 and *see*, '.....control population to reduce population', at p.101.

⁶ *See*, for example, the statement, 'The evidence is loud and clear'!, at p.114.

⁷ Article entitled 'Growth of Population and Environmental Problems in the Urban Areas of North East India', pp.92–101.

⁸ In the article entitled 'Composition and Pattern of Internal Migration in Aurnachal Pradesh: A District Level Study', the author confesses the difficulty of establishing such a relationship, but still makes an attempt! (p.135).

⁹ As many as eight articles deal directly with the subject (article nos. 14, 30 and 37 to 42).

¹⁰ At least fifteen articles revolve around poverty (article nos 18 to 22, 24 to 29 and 32 to 35).