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## **Book Reviews**

*Target 3 Billion - PURA: Innovative Solutions Towards Sustainable Development*, by A.P.J. Abdul Kalam and Srijan Pal Singh, Penguin Books Ltd., New Delhi, 2011. Pp. xix + 298. Rs. 299.00.

In this book written jointly with Srijan Pal Singh, the former President of India A.P.J. Abdul Kalam seeks to evolve a sustainable development system of PURA – Provision of Urban Amenities in Rural Areas – by harnessing the potential energies of the rural masses. PURA is an amalgam of technologies, and people – their traditional skills, and entrepreneurial spirit aimed at achieving sustainable development which is financially viable, and socially equitable and eco-friendly.

This is not a learned discourse on development models or development theory. In a way, President Kalam takes us on a conducted pilgrimage of development across the country concretely demonstrating how development is triggered in a myriad of ways it may be the development of irrigation in a desert, or improving crop yields in a backward state, or promoting dairying-centred rural development. President Kalam gives us insights into how these success stories were triggered: the leadership at the grass roots may have come from a religious institution or a NRI-donor. But the result is rural resurgence. In fact the State and Central Governments, and the Planning Commission must study these success stories of micro enterprises so that they can replicate such enterprises in similarly situated circumstances: Rural resurgence does not mean merely establishment of spectacularly big projects: or, applying a generic formula for agricultural development. It means facilitating blooming of thousands of flowers with the help of leadership at the ground level. These micro enterprises may not accelerate agricultural growth in the immediate run: but they promote broad-based decentralised growth which can effectively tackle hunger and poverty.

Let us begin with irrigation in a desert Pokhran is a place deep in the Western Indian deserts of Thar. After conducting the nuclear test, President Kalam was returning and on the way stopped at Bhadariya a small place in the middle of the Thar Desert. Here the ashram of Baba Sri Bhadariya Maharaja has done wonders for the community. Years ago this place was very poor and people were addicted to many types of intoxicants including liquor. There was a plethora of problems of poverty, hunger, health care and malnutrition. Water was very scarce. With the cooperation and support of villagers, the ashram executed a mission of greening the area and planted lakhs of trees. Tube-wells were dug up and agriculture was initiated, with special steps taken to conserve water. The villagers started providing fodder to the Ashram's cows which numbered about 1000. These are discarded cows and the Ashram has developed a special method of treating such stray cows and they have become productive. The Ashram offers free milk and butter to the needy. The

Ashram provides knowledge on naturopathy and herbal medicines to the rural community and for treatment of cattle. Thus Bhadariya and the surrounding some 70 villages have become resurgent.

Thus literally a desert has been transformed into, figuratively speaking, a land flowing with milk. Visitors like President Kalam are served a large glass of milk. A small dedicated band of workers have been able to promote, using local and traditional knowledge, water management, cattle rearing, fodder management, and so on.

Take the case of Bihar, a relatively backward state. An experiment carried out by the Technology Information Forecasting and Assessment Council (TIFAC) demonstrated that the yield of paddy could be increased from 2 tonnes per hectare to 5.8 tonnes and that of wheat from 0.9 tonnes per hectare to 2.6 tonnes. Addressing the Bihar Assembly in March 2006 President Kalam requested them to adopt this system – oriented approach in all the 38 districts of Bihar so that the state could triple its paddy and wheat crops.

Dr. M.R. Raju, a well-known nuclear scientist working in America has set up a Mahatma Gandhi Memorial Medical Trust in his native village Pada Amiram in Andhra. Within a decade this has brought about a great change in the lives of the people they have focused on uplifting the children in the age group of 3 to 5 years. This has brought down the drop-out rate of children in schools from 70 per cent to less than 30 per cent.

In the area of dairying, we generally read about the success story of Anand. Here we have an account of Warana in Kolhapur district these cover a sugar factory, banking and retail services. The Warana Milk Corporate has about 20,000 milk producers. The cooperative has brought about all-round development of the area.

President Kalam's total dedication to rural development has been demonstrated in another case-while he was President, he invited 6000 farmers from all over the country to Rashtrapati Bhavan on March 23, 2007. All these farmers were shown Herbal Garden which includes Jatropha, the diesel producing plant, the Spiritual Garden and the Nutrition Garden. The farmers were shown organic farming and Bio-diversity Park and the commercial aspects of various plants and herbs were spelt out to them by experts from leading agricultural universities. This is perhaps a rare case of President playing role of an extension Agency! How we wish that other leaders not only political, but also religious, and intellectual leaders should show the same degree of involvement in development. That is the best method of promoting a resurgent India!

As it is, innovative and progressive farming practices have been adopted by farmers. The National Innovation Foundation (NIF) has compiled data and information on these practices. Areas where the rainfall is poor or where the land remains flooded for long periods of time, mountain regions and forest areas are the most suitable for organic food farming. The NIF has reported over 240 combinations of herbal pesticides being used in different parts of the country. There are many cost-

effective solutions found by farmers. For instance, planting lady's fingers (bhindi) as a border crop prevents cotton crops being attacked by pests, which are, instead, attracted to the flowers of the lady's fingers and the cotton crop grows well. "This is an important zero-cost solution since 40 per cent of the pesticides in use in this country are for protecting cotton crops" says President Kalam. "I have come across the successful production of organic paddy in many parts of the country. In one of the districts, 2400 farmers joined together to cultivate organic paddy in 2500 acres of wet land in the panchayat areas and they realized a productivity of 6.25 tonnes per hectare, which is on par with international standards".

The general impression one gets from the media is that the rural sector is a somnolent, sleepy area where nothing much happens: they are in the news for farmers' suicides. This book provides ample evidence to show that rural community is vibrant and there is resurgence triggered by several factors, including NRI – donors. Our policy – makers should identify these innovations and try to harness the energies of the masses for the mainstream development.

Finally, the book also makes a subtle point about the end objectives of development. In Delhi President Kalam was told that the tsunamis had engulfed many parents and rendered children orphans. President Kalam asked the Nicobar tribal leaders "When I visited Andaman I saw three orphanages, constructed after the tsunami. What about Nicobar?" President Kalam was told that there were no orphans there. "The children who have been left without surviving parents, after the tsunami, are indeed children of every home. We don't need orphanages. Our own homes are taking care of these children. After all, we are one big family on this island" Not long ago Mahatma Gandhi exhorted us to evolve a value-based compassionate society. Nicobar leaders should be congratulated for having achieved this goal. There are no orphans in a compassionate society.

The book is encyclopedic in its coverage of poverty, agricultural growth and rural development and researchers will find a wealth of data and information on these issues. An adequate appreciation of this rural resurgence is critical to understanding of the contemporary rural growth process. But the question is: To what extent has, academic research, particularly that segment which seeks to provide policy inputs, taken into account these recent developments? Not much, perhaps because macro level analytical framework finds it difficult to capture the thousands of flowers referred to above. For instance, take the recent scholarly article by a team of distinguished experts including Bhupat M. Desai and John W. Mellor "Agricultural Policy, Strategy, Instruments and Implementation. A Review and the Road Ahead" (Economic and Political Weekly, December 31, 2011). The study advocates "a location-specific new technology based on integrated farming". The study goes on to elaborate: "Realising the potential of the advocated strategy would require a big increase in public expenditure on agricultural research, education and extension: irrigation and flood control, watershed development and rural infrastructure such as soil-testing laboratories, roads, electricity and so on. It is also needed for inputs such

as seeds, breeds, fertilisers, organic manure, cattle feed and modern small implements and equipment are we not treading on familiar ground? In terms of policy inputs there is very little value addition. Perhaps the issue is more prosaic. Incorporating effectively the several innovations including zero-cost solutions, which this book has so painstakingly documented, into the blue-prints of area-state- and district-specific development plans can alone lift us above text-book punditry.

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*Agrarian Distress in India: Problems and Remedies*, Edited by B.C. Barah and Smita Sirohi, Concept Publishing Company Pvt. Ltd., New Delhi, 2011. Pp. xii+284. Rs.700.00.

Structural changes in the Indian economy in terms of relative contribution of different sectors towards gross domestic product notwithstanding, agriculture still continues to provide livelihoods to two-thirds of the country's population. The performance of agricultural sector, therefore, has direct implications towards the well-being of a preponderant majority of rural households. A review of agricultural performance during the preceding two-three decades shows that while it recorded a reasonable growth rate of 3.52 per cent per annum during 1981-82 to 1990-91 and 3.66 per cent during 1990-91 to 1996-97, the rate of growth decelerated to 2.50 per cent per annum during Ninth Five Year Plan and further to 2.29 per cent during the Tenth Plan period. According to other estimates, the growth of agricultural sector decelerated from 3.5 per cent per annum during 1981-82 to 1996-97 to only around 2 per cent during 1997-98 to 2004-05. The growth rate in the Eleventh Five Year Plan is expected to be about 3 per cent which is higher than that realised in the Tenth Five Year Plan but lower compared to the targeted rate of 4 per cent per annum. The deceleration in growth rates of agricultural sector has led to agrarian crisis, manifested, among other things, in huge disparities in per worker productivity between agriculture and non-agriculture sectors, and, in the ultimate analysis, increasing the number of farmers' suicides in different regions of the country. A plethora of studies diagnosing the genesis, magnitude, causes and effect of agrarian crisis are available in the literature. There is a near consensus that at the macro level, factors like persistent neglect of agricultural sector in terms of declining plan outlay, declining public sector capital formation, decrease in credit supply, neglect of agricultural research and extension, technology fatigue manifested in deceleration/stagnation in the yields of major crops and escalation in the cost of production leading to erosion of farm income/profitability have been primarily responsible for the sordid state of affairs. However, the contribution of each of these factors towards agrarian crisis varies from region to region depending upon, *inter alia*, agro-climatic conditions, cropping pattern, input and output prices and the availability of infrastructural facilities. The present volume, an outcome of the

national colloquium on agrarian crisis organised by National Centre for Agricultural Economics and Policy Research in collaboration with Indian Society of Agricultural Economics puts together macro and micro studies from different regions/states of the country diagnosing region-specific causes of agrarian crisis and outlining appropriate policy measures to mitigate agrarian crisis and revive growth in the agricultural sector. The volume comprises fourteen chapters which have been organised under five broad themes, i.e., problems in Indian agriculture and causes of agrarian distress, intensity of agrarian crisis, opportunities for alleviating agrarian distress, strategies to harness opportunities and policy imperatives.

The editors in the introductory chapter discuss the manifestation of agrarian crisis in terms of different indicators like declining agricultural output and decelerating growth, declining per capita availability of food, eroding farm profitability, high incidence of debt, widening gap between the average productivity per worker between agricultural and non-agricultural sectors and high incidence of poverty among farming households as compared to the overall rural poverty. The chapter highlights the role of different factors that lead to agrarian crisis like inequitable penetration of agricultural technology in different regions of the country, ongoing process of marginalisation of holdings, sub-optimal use of inputs, institutional rigidities and inefficiencies in the delivery system, ineffective pricing policy and growing agricultural risk and outlines the remedial measures that are required to be taken to alleviate agrarian crisis. The chapters in Section I focus on issues like regional differences in farm profitability, functioning of lease market and options available for smallholders, changing pattern of risk and labour market dilemmas in agriculture. C. Ramasamy and Suresh Kumar (Chapter 2) attribute regional variations in farm profitability to factors like variations in resources, technology and institutions, variations in the growth rates of production and productivity in different crops like rice, sugarcane, cotton, groundnut and red gram. The authors conclude that (i) differences in crop yields, prices of inputs and outputs and cost of cultivation across different regions of the country have been primarily responsible for variations in farm profitability and that (ii) higher variations in farm profitability in comparison to those in yield and cost of production arise because of variations in prices of output. Sharma (Chapter 3) using NSS data shows, *inter alia*, a huge increase in the proportion of households not operating land in most of the states which is yet another manifestation of agrarian crisis that could mainly be attributed to non-viability of farm business. The author argues that in today's context the liberalisation of lease market could help mitigating agrarian distress by fostering agricultural growth through facilitating land transfers from less productive uses to more productive uses, encouraging rural households to take up non-farm jobs, which is the ultimate solution to many of the ills inflicting the agricultural sector, without the fear of losing their land and increasing investment incentives such that those who make investment enjoy benefits even if they are not in a position to use the land themselves. B.C. Barah (Chapter 4) analyses the extent of risk in rice production and the contribution of bio-

physical and socio-economic factors towards total risk across the spatio-temporal dimensions. Inasmuch as rice is the most important food crop and a source of livelihood to more than two-thirds of the population, the fluctuations in its production and productivity have serious implications towards their livelihood security. The analysis further shows that though price component is a dominant source of income risk in irrigated areas, it is the yield component which dominates in the rainfed areas. It also shows that both yield and price risks are spreading in space and over time posing a major threat to the food security of a majority of the population who has rice as its staple food. The author, therefore, recommends strong public support system and interventions like introduction of crop insurance, effective input output and knowledge delivery system to minimise/mitigate the risk. Reddy and Reddy (Chapter 5) trace the genesis of agrarian crisis in terms of changing viability of agriculture and relative shares of farmers and agricultural labourers. Using cost of cultivation data for five major crops, namely, paddy, wheat, sugarcane, groundnut and cotton, the authors show that while net returns were highly fluctuating and quite low in most of the cases, the real wages of agricultural labourers recorded a positive trend over the last three decades for all the selected crops. In fact, an increase in the real wages over the period compensated for stagnating/declining number of employment days per hectare as was evident from an increase in the real wage income of labourers over time in all the cases. The study thus shows that while the levels of living of the cultivating class in terms of their disposable income are deteriorating, real income of agricultural labourers is registering a rising trend. This trend was corroborated by an increase in the relative factor shares of labour, capital and land coupled with a substantial decline in the share (profits) of farmers in most of the cases. The findings of the study clearly imply that farmers should switch over to labour saving technology to minimise labour cost paving the way for capitalist agriculture. It is, however, argued that in today's context labour saving technology options are neither suitable nor sustainable in the absence of adequate and productive alternative employment avenues for rural labour.

Section II includes two studies on the extent and causes of agrarian distress for Karnataka and Andhra Pradesh which are among those states that have been worst affected by agrarian crisis. The study by Deshpande and Gowda (Chapter 6) gives an insight into the socio-psychological traits of the distressed farmers committing suicides and analyses the genesis of high incidence of indebtedness which has been one of the main economic reasons of distress and suicides. A field survey in the distressed states like Punjab and Karnataka revealed that social factors like family problem, old age and illness and drinking and gambling habits have been mainly responsible for farmers' suicides. The decaying social support system, disintegration of the joint family tradition and other village level institutions over time has further aggravated the problem. The evidence gathered from the field survey supported Durkheim's proposition that growing alienation of an individual from the family, society and religion prompts him to take the extreme step of committing suicides. The mounting incidence of indebtedness in the state has been explained in terms of

reduced flow of credit to the agricultural sector, particularly in the agriculturally backward and drought prone districts. Inasmuch as agriculturally backward districts experience recurring droughts, the farmers in these districts are not in a position to repay their old debt making them ineligible to get fresh advances from the banks. Again, while many of the primary agricultural co-operatives do not have sufficient funds to meet farmers' credit needs, the borrowing from commercial banks and regional rural banks entails higher interest rates and cumbersome documentation procedure. The farmers are, therefore, obliged to borrow from informal sources at a huge cost meeting nearly half of their credit needs in 2003 pushing them into a never ending debt trap. Also, the lack of availability of technical guidance and other supporting services from institutional sources compel them to enter into exploitative arrangements with input dealers who not only provide inputs on credit but also succeed in selling spurious inputs. The bottlenecks in the availability of market infrastructure and functioning of markets further aggravate distress of the farmers by reducing their share in consumers' rupee. The chapter also outlines the steps taken by the state government to mitigate distress of the farmers which include, among other things, implementation of health insurance scheme, reduction in rates of interest on loans from co-operative banks, review of compensation policy and establishment of Rayat Samaparak Kendras to provide internet access and telephone facilities. Finally, the authors emphasise the need for using available policy instruments to strengthen five important sub-systems, viz., production sub-system, input sub-system, welfare sub-system, support sub-system and social sub-system to alleviate the agrarian crisis. The study on Andhra Pradesh by Galab and Revathi (Chapter 7) using secondary data supplemented with the field observations attribute agrarian distress in the state to factors like marginalisation of holdings coupled with very high incidence of tenancy, stagnating production and productivity of major crops like rice and groundnut, unstable irrigation, high cost of credit and declining profitability of crops like paddy and cotton over cost C2. The attempt of the farmers to diversify their cropping pattern towards non-food crops like Bt cotton, a process that has been described as 'catching up process', in the hope of augmenting their income in many cases has resulted in indebtedness and, ultimately, in farmers' suicides. Further, the study shows that though both co-variant and idiosyncratic risks influence the incidence of suicide, the latter types of risks were more fatal. The results of probit analysis further show that while factors such as expenditure on social events, failure of non-food crops to yield returns and volatility of crop input and output prices have positive effect on the probability of committing suicides, other factors like a large investment on groundwater infrastructure, large proportion of credit from formal institutions, and diversified sources of household income reduce the probability of a farmer committing suicide. The chapter also elaborates the measures initiated by the state government to reduce distress of the farmers like relief package, launching of crop insurance, launching of poverty reduction programmes like Indira Kranti Patham



(IKP) and the response of the civil society, institutional interventions, and responses of the market and those of the distressed farmers.

Section III of the volume, which has three chapters, brings out the opportunities that are available to smallholders to come out of the low return trap by switching over to the cultivation of high value cash crops and participating in new institutional arrangements including rural non-farm sector and the enabling institutional and policy environment required for harnessing them. Birthal and Rao (Chapter 8) examine, among other things, the extent of participation of smallholders in the production of high value commodities and show how the new institutional innovations/arrangements like milk co-operatives, co-operatives in horticulture, growers' associations like SAFAL and contract farming have ensured higher returns to small farmers through improved access to markets. Insofar as the participation of smallholders in these new institutional innovations is concerned, the evidence is mixed. For example, while in case of contract farming in crops like spinach and gherkin more than half of the farmers were smallholders, their participation in case of broilers and crop production was reportedly very low. The implementation of model marketing act, which has provisions, *inter alia*, for compulsory registration of all contract farming sponsors, establishment of markets by the private sector shall promote public-private partnership in the management of agricultural markets which, according to the authors, shall benefit smallholders under the changing market scenario. Chengappa and Dega (Chapter 9) examine the different facets of food retail chain including pattern in the rise of supermarkets in India, factors influencing their diffusion, procurement system of supermarkets and, more importantly, impact of the procurement system on producers' resource use pattern and income. The authors find that the existing food retail chains have not established the backward linkages for procurement directly from the farmers and continue to depend on traditional marketing channels where traditional wholesalers continue to play an important role in the procurement of foodgrains including fresh fruits and vegetables (FFV). However, Spencer, one of the food retail chains, is a notable exception that has established an innovative mechanism of backward linkages with farmers for direct procurement of fresh fruits and vegetables. The Hoskote consolidation centre established by Spencer near Bangalore procures FFV directly from the farmers through registered farmer vendors. This institutional arrangement has benefited the farmers in many ways like improvement in farming skills and lowering of transaction cost which has made perceptible difference in the net returns in crops like cauliflower, tomato, cabbage and carrot. The results of the logit analysis further show that ownership of bore well followed by education of the farmers and size of holdings were the most important factors encouraging farmers to participate in the marketing arrangements adopted by the Spencer. Thus notwithstanding limited participation of the farmers, especially of small farmers, in the marketing arrangements adopted by the Spencer, the model offers a ray of hope to the millions of small farmers growing fruits and vegetables to enhance returns from agriculture. Thus there is an urgent need

for creating an enabling environment by adopting model APMC Act to facilitate rationalisation of procurement and outsourcing of wholesale distribution by food retail chains. As alluded to above, the panacea for most of the problems in the agricultural sector lies in lessening the extreme dependence of rural population on agricultural sector by increasing employment opportunities in the non-farm sector. The next chapter in this section by Jha (Chapter 10) addresses issues related to the growth of rural non-farm sector. In light of the slow growth of rural non-farm employment during the nineties, the author discusses the policy options that are available to augment employment opportunities in rural areas. Since there is a huge scope to increase the production of unmanufactured or semi-manufactured items which are labour intensive like traditional crafts by rural artisans, the author reviews the functioning of institutions like Khadi and Village Industries Commission (KVIC) including schemes like reservation for small scale industries and cluster programme that have been launched to promote rural industrialisation. The involvement of private sector and NGOs in the development of village industries for optimal utilisation and technology and skill upgradation including improving finance and infrastructural facilities have been suggested to accelerate the process of rural industrialisation for availing opportunities that are available in today's liberalised business environment.

Section IV deals with the strategies to alleviate agrarian crisis and revive growth in the agricultural sector by revamping the agricultural R&D policy and rural credit delivery system. In the literature, technology fatigue manifested in terms of deceleration/stagnation of productivity of major crops has been cited as one of the important reasons for agrarian crisis. It in this context, that Kumar *et al.*, (Chapter 11) take stock of the organisational set of agricultural R & D in the country, allocation of financial resources, manpower resources, allocation of resources across commodity groups and regions and status of potential agricultural technologies that are available to boost agricultural production and productivity. The authors underline need for the adoption of new approach to technology dissemination using information and communication technology which should include, among other things, educating farmers on aspects like genetically modified farm products, legal aspects of IPR and farmers and breeders rights, quality requirements under sanitary and phytosanitary measures, agricultural trade, etc. Pandey and Vickers (Chapter 12) argue that the growth of food processing industry by promoting backward and forward linkages would integrate the farmers with the market and ensure better price for their produce. In today's context, the food processing sector has huge opportunities for its growth, *inter alia*, because of changing lifestyles of the people, rising disposable income, growing urbanisation, nuclearisation of families, increasing number of working couples and huge global demand. Further, the availability of myriad of agro-climatic conditions in the country with a potential to cultivate a large range of agricultural commodities is an added advantage for the growth of the industry. The growth of the food processing industry is, however, constrained because of factors like high cost

and low quality agricultural products, lack of comprehensive cold chain network and infrastructural facilities for preservation of raw products. The measures like promoting public-private partnership, setting up of high-tech farms to improve the supply of quality raw material, strengthening infrastructural facilities, ensuring adequate and timely credit, adoption of efficient processing technologies, improving marketing and distribution, rationalisation of taxes, promoting consumer awareness about the processed food products and boosting exports are suggested to remove these constraints and accelerate the growth of the food processing industry. As is well known, lack of access to institutional credit, especially to the marginal and small ones, oblige farmer households to borrow from high cost non-institutional sources like money lenders. Puhazhendhi (Chapter 13) addresses issues related to the extent of credit exclusion in different regions of the country and also across different categories of farmer households. The credit exclusion has been primarily attributed to factors like concern for branch viability, increased cost of transaction, poor monitoring of borrowers, lack of exclusive staff in branches, cautious attitude, low suitability of loan products, lack of non-financial services, small subsistence farming and lack of infrastructure facilities. The author reviews the progress of recent initiatives that have been launched by the government, the Reserve Bank of India and NABARD to revamp delivery of rural credit. In particular, the effect of SHG-bank linkage programme, Rythu Mitra Groups, Micro Finance Institutions, Joint Liability Group Approach, Watershed Development Approach and Tribal Development Programme through Wadi (small orchard) approach and Kisan Credit Card in improving the access of credit to rural households has been reviewed. The measures like integration of domestic and global markets, diversification of agriculture, improving institutional arrangements at the grassroots level, launching of innovative financial products and revival of cooperatives have been suggested to improve financial inclusion through credit.

Section V of the volume synthesises the major policy initiatives that have been suggested in different chapters to alleviate agrarian crisis and revive growth in the agricultural sector. The policy initiatives have been presented under seven broad themes, namely, enhancing total factor productivity through increasing investment on R & D and streamlining input delivery mechanism, infrastructural development, risk management, provision of financial services, institutional reforms, social support mechanism, non-farm employment and human development. Each of these policy initiatives needs to be implemented effectively to accelerate the rate of growth of agriculture and protect the livelihoods of a preponderant majority of the rural households who are directly or indirectly depending on agriculture. It has been rightly argued that measures like loan waiver scheme may bring temporary relief to farmers but may not be of much help unless measures are taken to raise agricultural output and ensuring remunerative prices to the farmers for their produce.

On the whole, the volume is a valuable addition to the literature available on different aspects of agrarian crisis in the country. The policy makers, scholars,

students and NGOs who are concerned with agricultural development in particular and rural development in general would find it useful in understanding the genesis of agrarian crisis and policy measures that are needed to mitigate it.

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*Employment Guarantee Programme and Pro-poor Growth: The Study of a Village in Gujarat*, Indira Hirway, M.R. Saluja and Bhupesh Yadav, Academic Foundation, Delhi, 2010, Pp.225. Rs.795.00.

A serious developmental concern in the country is the delayed transition of workforce from agriculture to non-agricultural sectors, despite a rapid decline in the share of output from agriculture in GDP. As in several developing countries with liberalisation and globalisation, the overall employment situation deteriorated in India. The decade of the nineties was marked by “jobless growth” accompanied by increasing casualisation of workforce. Declining employment elasticity noted since the mid-1980s and fluctuations in agricultural output particularly in rainfed tracts, largely an outcome of neglect in agricultural investments, were the further causes for concern. Agricultural growth is becoming increasingly volatile on account of several factors. This has adversely affected the income and livelihood security of the poor farmers and the disadvantaged, especially in marginalised environments. While the overall economy grew at 8-9 per cent, agricultural growth rate was 2 per cent per annum in the Ninth Plan and 1.7 per cent in the Tenth Plan. The promise of Employment Guarantee Act was considered widely to be the major reason for re-election of UPA government in the general elections of 2009. In a ‘redistributive growth strategy’ implicit is enhanced incomes to the poor leading to greater demand for labour-intensive production and thus more employment. India’s “wage goods” model was considered politically impractical to adopt for effecting significant redistribution of income (Papola, 2011). However, utilising employment in public works as a means to reduce poverty particularly in rural areas re-emerged as a concept during the 1970s. The introduction of nationwide NREG programme has given the concept a new dimension by making it instrumental for “right to work”.

National Rural Employment Guarantee Act (NREGA) enacted by legislation in 2006 provides legal guarantee for 100 days of employment to adult members of rural households willing to do unskilled manual labour on public work sites. From April 2009 to March 2010, 52 million households were provided with employment and 2.8 billion days of work were generated. In financial year 2010-11, Central Government outlay for this scheme was Rs. 40,000 crore. NREGA is seen as an initiative to operationalise the concept of right to work enshrined in the Constitution under the Directive Principles of State Policy. It is a measure of legally ensuring that those

wanting but not getting remunerative work would be provided with such work under certain conditions. The Act is seen to not only supplement incomes of poor households, curb distress migration but also help in creation of productive infrastructure, thus enabling conditions of poverty alleviation on a permanent basis. The act is a culmination of a long series of employment related programmes. The basic frame of reference was drawn from Maharashtra Employment Guarantee Act (MEGS), 1977 that guaranteed provision of work to every adult in rural Maharashtra for any number of days demanded. In order to avoid heavy administrative burden on implementers of the programme in terms of identification of poor households, the programme is open for all but built into it is a mechanism of self-selection.

Several researchers have noted that application of minimum wages under NREGS has diverted labour from other productive activities, chiefly agricultural operations and has often replaced the existing rather than creating additional employment. The programme has nonetheless exerted an upward pressure on agricultural wages impacting rural incomes. NREGA also offers unique opportunity for rural labourers to organise that is essential condition for success of the scheme. It thereby encourages participatory planning by villagers and articulation of their developmental priorities rather than merely employment creation (Reetika, 2008). Apart from its immediate aim of being a social security measure by providing rural poor local employment, NREGA's role in participative planning stems from its potential of activating gram sabhas, empowering women thereby promoting overall development in rural areas. This book has primarily focused on these issues, i.e., the potential of NREGA in enhancing opportunities for women workers in paid work and spread of village development initiated by natural resource management activities that lead to multiplier effects.

The first chapter of the book provides a detailed commentary on the question of deterioration in quality of employment faced by developing countries in the neo-liberal era. There is an elaboration on what should be the critical components of a full employment strategy in a labour surplus economy. It underscores the role of employment guarantee programme (EGP) in achieving full employment by promoting labour-intensive sectors through infrastructure development and natural resources management. There is a strong case for an EGP geared on promoting livelihood interventions through enhancement of vegetative cover, soil conservation and water harvesting. Land development along with growth of horticulture and dairy development in dry land areas can set off powerful economic multipliers. The spin-offs of such measures would be enhanced crop productivity supporting year round food security and increase in the household incomes.

The experience of Maharashtra EGS has shown that the design of interventions and implementation are crucial in effecting decentralised development through a universal right to work programme. But the bulk of literature on the subject suggests that NREGA falls short of these expectations. Selection, design and execution of projects, together with involvement and commitment of stakeholders and the poor are

quite inadequate. The need for decentralisation of activities and extending public works to private properties is also noted, apart from selection of short-yielding projects for expanding productive capacity that could additionally create durable employment (Bhaduri, 2005). The second chapter quantifies the employment challenge in India, problems faced by the rural economy and need for large scale wage employment programme that would significantly enable growth of labour-intensive sectors. The authors reiterate some recurrent concerns, "...an employment guarantee programme is expected to create short term and long term employment for those people who are under-employed or unemployed in the labour market....This approach, however, does not address unpaid drudgery of the poor, and particularly, poor women...there is a need to expand the purview of employment guarantee programmes to include unpaid workers engaged in unpaid SNA and non-SNA work to release them for accessing better opportunities in the labour market." (Pp. 57-58). It is further pointed out that "...its role of generating productive assets in the economy ... is not yet taken seriously enough. There is a need to appreciate this role and use NREGS to achieve the long-term goals of the Indian economy" (p. 64). Rural infrastructure creation has other beneficial side-effects such as growth of service sector activities and reduced urban-ward migration. Curiously the book is silent on this aspect.

An empirical study is presented to highlight role of NREGS in promoting labour-intensive pro-poor growth. The village selected for this is Nana Kotda- a mid-sized tribal village belonging to Sabarkantha district, one of India's 200 most backward districts. The economy of Nana Kotda is dominated by rainfed agriculture that leads to severe under-employment. A single *kharif* crop is cultivated and there is absence of diversified employment opportunities with agriculture and other agriculture related labour use being the dominant occupations. There are gaps in basic amenities and facilities in the village, foremost being absence of dependable water supply, drainage and internal roads. Educational and health infrastructure are inadequate. Agricultural labour households are marked by high incidence of poverty. Low income and consumption levels, undeveloped agriculture and lack of adequate diversified job avenues have pushed several households into indebtedness that enhances vulnerability of such households. As such not only is there potential for NREGS jobs, but works that are geared towards enhancing water availability have potential for human development and invigorating jobs in agriculture and in non-agriculture sectors. If the works are selected judiciously the economic profile of the village suggests that implementation of NREGS would have high economic multipliers.

Chapter 4 constructs a village social accounting matrix (SAM) for Nana Kotda. A SAM generally represents flows of all economic transactions within an economy. Computable General Equilibrium (CGE) models, it may be mentioned, are commonly enshrined as approach of the World Bank for development analysis and as a presentational device. Database for CGE models comprise tables of transaction values and presented as an input-output table or as a social accounting matrix. These

models are widely used to empirically estimate the effect of change in a part of an economy upon the rest. Comparative static models are used to show reaction of the economy to external shocks at one point of time. These also form a backbone for empirical multiplier models. However one should take note of the fact that the intensity of multipliers are constricted by effective demand and ability of the economy to produce the goods and services demanded. CGE models and SAM have been used to quantify the cascading effects of public works programmes. The present study estimates impact of NREGS by using multiplier analysis treating NREGS works as external shocks to the village SAM. Output, employment and household income multipliers are indicated resulting from de-silting of 6 village checkdams. The authors conclude that "...by putting cash in the hands of people, NREGS triggers a process of growth in the economy by increasing the effective demand that pushes production of the wage goods in the economy". This "accelerates investment creating a virtual cycle of multiplier –accelerator of NREGS investments" (p. 64).

The NREGS works being implemented in Nana Kotda and their design were not focused on reducing unpaid women's work (p.135). The discussion in Chapter 5 pertains to the potential of reducing this work in Nana Kotda village and its impact on the village economy. The authors use the "time use pattern" of the village population that predictably reveal that "women work much harder than men, and women's work is predominantly unpaid in nature" (p.140), severely depleting their opportunities for development and their participation in the productive market oriented work. They believe that the scheme like NREGS can reduce this work by constructing appropriate assets/infrastructure "...that will bring unpaid work into public domain, and this will have positive impact in multiple ways....NREGS has the potential for empowering women, and engendering the mainstream development process." (pp.150-151). Chapter 6 deals with the implementation and performance of NREGS in Nana Kotda. Survey and focus group discussions revealed that entitlements were not granted and the right of work on demand was not really fulfilled. One of the outcomes was that poorest households preferred to migrate out of the village. Exogenous demand side shocks can have multiplier effects, in other words, a linkage effect may amplify or multiply a direct effect. NREGA assets (in the nature of de-silting checkdams) are treated as external shocks on the village SAM that have income and employment multiplier impacts (p. 181). A valuable contribution of the study is seen from the following statement: "...it will be highly desirable to increase the value of these multipliers by selecting the assets well. Assets that promote equitable and labour-intensive growth, will raise the values of the multipliers. Systematic planning of works...will give maximum results in terms of: (1) economic growth., (2) reduction in unpaid work/drudgery, and (3) engenderment of the development." (p.214). The last chapter highlights the implications for modifying NREGS design.

The NREGS activities through its impact on water resources reduce the vulnerability of agricultural production, thereby reducing dependency of livelihoods

to uncertain rainfall, water scarcity and poor soil fertility. Further, it is also widely known that NREGA implementation is low in participatory planning and entails poor quality of works. However few researches have systematically identified the potentials of NREGA in enhancing livelihoods in rainfed areas, through well-designed interventions for natural resource management that induce growth multipliers. The contribution of the present book lies in substantiating a methodology for doing just that for a local economy in order to increase efficacy of NREGA spending. However there are several aspects of NREGS's functioning that also require attention and could have been delved at some depth by the authors, such as, capacity building of the stakeholders, use of social audits and strengthening of Panchayati Raj Institutions for enabling decentralised participatory planning. Social audits have been hailed as a revolution in the sphere of public administration and governance and can significantly strengthen democratic processes. The discussion in the book is also inadequate in many other ways. An attention towards concerns regarding financing and execution of projects would have made the discussion richer. Finally, whose responsibility would it be to monitor the public works undertaken- the government or those who benefit? The aspects of accountability are largely left untouched in the book. Overall the book is a significant and timely contribution to the literature in the realm of employment guarantee.

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Over the last fifteen years, agricultural biotechnology has been adopted rapidly at the global level, including in several developing countries. This trend has been most apparent for Genetically Modified (GM) crops. One estimate puts the area under biotech crops increased from 1.7 million hectares in 1996 to 160 million hectares in 2011 and the number of countries growing biotech crops has increased from 6 in 1996, the first year of commercialisation, to 29 in 2011. Introduction of Bt cotton in India like in many other countries led to an intense scientific debate and public



controversy surrounding yield advantage, multinational control of seeds, human health, environmental risk and ethics. This book is an effort to understand the impact of this technology in Indian agriculture mainly through two field surveys conducted in the cotton farms in four districts of Andhra Pradesh in 2004-05 and in 2006-07.

The book is organised into nine parts and the first section discusses the design of the field study for selection of respondent farmers and hypotheses tested. The samples were drawn from four out of five agro-climatic zones in Andhra Pradesh where cotton is predominantly cultivated. The second section discusses some of the issues related to biotechnology based on literature review. These issues include comparison of biotechnology with green revolution technologies, potential of biotechnology in raising crop yields, risks in biotechnology, market failures in harnessing biotechnology, changing locus of agricultural research, neglect of agricultural public goods etc.,. Though this section provides lot of information, some of the issues like market failure in harnessing technology, provision of public good etc. lack clarity and analytical insights into how these issues are linked with the context of biotechnology in agriculture. The third section on 'Commercialisation of Transgenics' is a compilation of facts and data related to coverage of transgenic crops across countries, description of boll guard technology and its performance across countries. Sections 4-8 describe the results of the field study conducted in Andhra Pradesh. The general characteristics of the cotton growers and rainfall distribution in the study area are analysed in the fourth section. Cost and returns were compared for 'Bt and non Bt' and 'before and after Bt' in Section 5. Production function estimates and cost and returns data of Bt cotton would serve as valuable information for researchers and students. The estimates on costs and returns are disaggregated further in Section 6 across different categories like social groups, farm size classes, production environments, districts, etc. provides a wealth of information. The authors could have thrown some light on the varieties and hybrids cultivated in the region as there is significant yield difference between varieties and hybrids and also within varieties and hybrids. Bt is a plant protection technology against bollworms but yield is significantly influenced by hybrid/variety characteristics and as such varietal information is essential to know if the counterfactuals are appropriate. Section 7 on 'Employment and Perception of Growers' describes in detail the utilisation of different categories of labour in Bt and non-Bt cotton cultivation, gender and social groups-wise employment generation and variation in employment in different agro-climatic regions. In the last section the authors conclude that the debate on agricultural biotechnology in India largely focused on environmental and biosafety issues neglecting the issues related to harnessing this technology for poverty alleviation and employment generation.

Overall the book has contributed to the existing literature on the impact of Bt technology in India and specifically at disaggregated level in Andhra Pradesh. There are some minor errors which could have been avoided, for example - bio-fertilisers and bio-pesticides are not biotechnological tools (p.42), and pest resistance is not an

agronomic property (p.43). Though the authors have collected panel data for two years, estimations were done separately for the two years. The results would have been more robust if panel data regression models were used because these models take into account the heterogeneity over time and suited to study the dynamics of change, especially in the context of the impact of Bt technology. Also, as the authors admit, the book does not cover issues related to environmental, biosafety and regulatory issues involved in the Bt technology. Nonetheless the book is a valuable addition to the growing literature on the socio-economic impact of biotechnology in agriculture and would be of interest to students and researchers.

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