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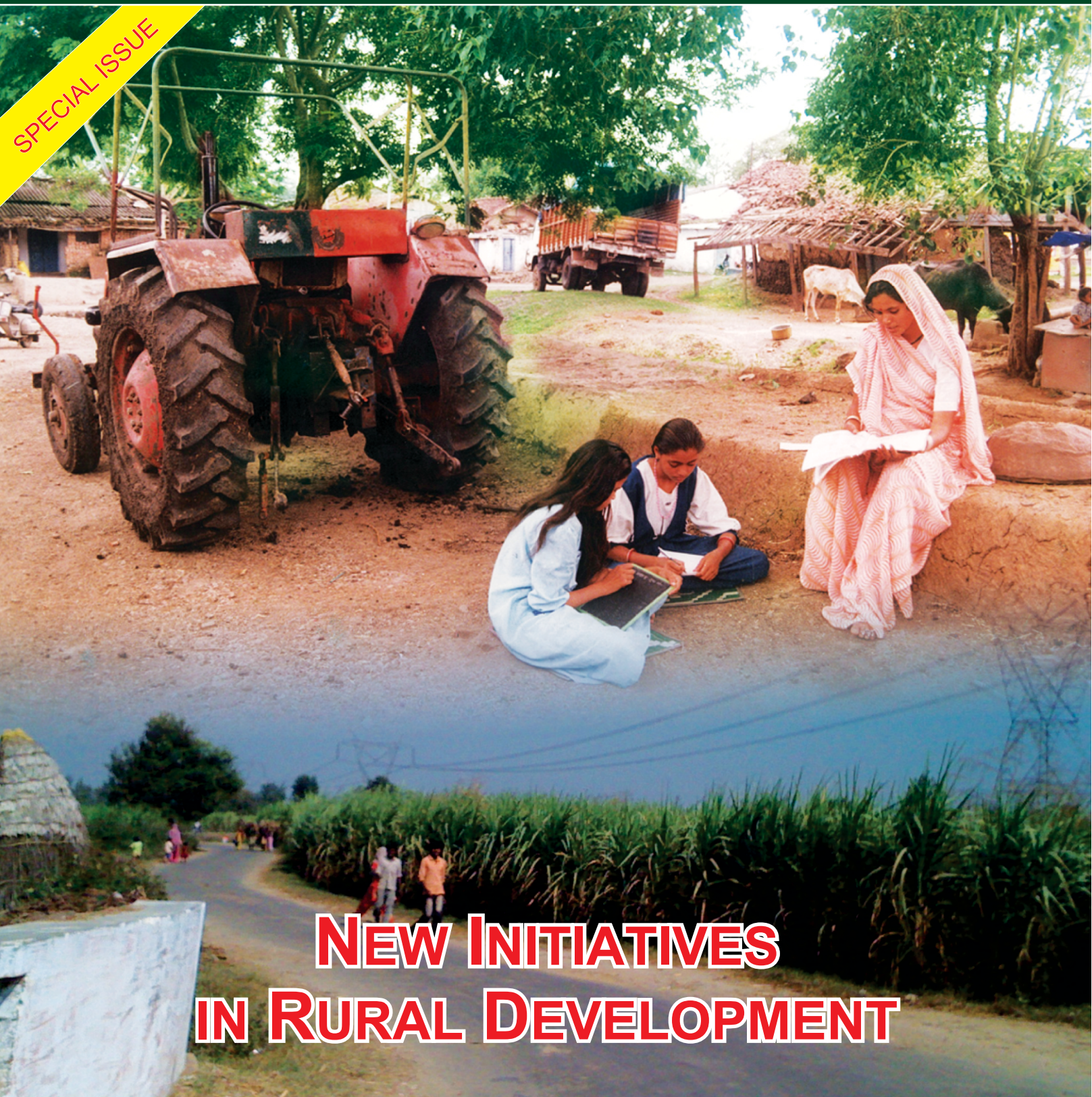
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**NEW INITIATIVES
IN RURAL DEVELOPMENT**



CHIEF EDITOR
RINA SONOWAL KOULI

EDITOR
KAPIL KUMAR

JOINT DIRECTOR
VINOD KUMAR MEENA

COVER DESIGN
RAJAT NAIK

EDITORIAL OFFICE
ROOM NO. 661, NIRMAN BHAVAN
A-WING (GATE NO.5),
MINISTRY OF RURAL DEVELOPMENT,
NEW DELHI-110011
TEL. : 23061014, 23061952
FAX : 011-23061014
E-MAIL : kurupage@yahoo.co.in
FOR SUBSCRIPTION ENQUIRIES,
RENEWALS AND AGENCY INFORMATION
PLEASE CONTACT:

Business Manager
EAST BLOCK-IV, LEVEL-VII, R.K. PURAM,
NEW DELHI-110066
TEL. : 26105590, 26100207
FAX : 26175516
E-MAIL : pdjucir_jcm@yahoo.co.in
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INSIDE

India's rural landscape is changing with rising income levels, penetration of technology and a new hope on the horizon. There is optimism that things will finally improve for those living in rural India. Though the GDP in agriculture has been falling since the 1990's, the rural market looks attractive for future investments as it is the new engine which will drive consumption, and demand at a time when the world is witnessing shrinking spending.

Agricultural practices are changing and the farmers are experimenting crop diversification in sync with the changing food flavor of the consumers. Broadly, the initiatives taken by the individual and the government has rolled a new way of thinking in rural India. In this issue, we discuss all these initiatives which promise to change rural India.

Technology will bypass many layers of bureaucracy which impede the distribution of gains and subsidies to the needy in rural India. We will discuss how this will happen, bringing new hope for rural India, where majority of the population lives.

Improved rural infrastructure and technology have all contributed to rural growth, but their impact has been varied by settings. Government expenditure on roads help in poverty reduction directly. It is also established that spending on education has a positive impact on poverty and productivity. We will discuss in this issue the role of Rural Universities.

A new seed of hope is sprouting in rural India where more and more people are buying automobiles, and mobiles and their dreams. Rural India is the next big market, not only for India but for the world.

Coupled with efforts to bring inclusive growth closer to rural India, the government has introduced a Bill in Parliament which seeks to address rehabilitation and resettlement by providing safeguards for both landowners and livelihood losers. The main beneficiary of the Bill is likely to be the farmer.

NEW INITIATIVES IN AGRICULTURE

Yashbir Singh Shivay and Anshu Rahal

Agriculture is a State subject, therefore the primary responsibility for increasing agricultural production, enhancing productivity, and exploring the vast untapped potential of the sector rests with the State Governments. Though, the Central Government supplements the efforts of the State Governments through a number of centrally sponsored and central sector schemes. The major schemes/programmes which have been implemented recently by the Central Government to boost the agricultural growth in the rural areas are National Mission for Sustainable Agriculture (NMSA), Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), and National Food Security Mission (NFSM), The Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM), National Horticulture Mission (NHM), and Technology Mission for Integrated Development of Horticulture in North Eastern States, Sikkim, Jammu and Kashmir, Himachal Pradesh, and Uttarakhand. These central schemes have created lot of opportunities to the rural population for increased their livelihood on a sustainable basis.

National Mission for Sustainable Agriculture While agricultural productivity is adversely affected by climate change, agricultural activity itself contributes to global warming. The adoption of '**ecological agriculture**',

which integrates natural regenerative processes, minimizes non-renewable inputs, and fosters biological diversity, has tremendous scope for reducing emissions and enhancing soil carbon sequestration. At the same time, many ecological



agricultural practices also constitute effective strategies for adapting to climate change, which is a priority for developing countries. This calls for more investment and policy support to be devoted to this productive and sustainable form of farming. Recognizing the challenge of climate change to Indian agriculture, the National Mission for Sustainable Agriculture (NMSA), which is one of the eight Missions under the National Action Plan on Climate Change (NAPCC) has been conceptualized. (PIT IT IN BOX) It seeks to address issues regarding **'sustainable agriculture'** in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for ensuring food security, enhancing livelihood opportunities, and contributing to economic stability at national level.

While promotion of dry-land agriculture would receive prime importance by way of developing suitable drought and pest resistant crop varieties and ensuring adequacy of institutional support, the Mission would also expand its coverage to rainfed areas for integrating farming systems with livestock and fisheries, so that agriculture continues to grow in a sustainable manner. The Mission identifies ten key dimensions for promoting sustainable agricultural practices, which will be realized by implementing a programme of action. The Mission also emphasizes the need to harness traditional knowledge and agricultural heritage for in-situ conservation of genetic resources.

The programme of action would be operationalized by mainstreaming adaptation and mitigation strategies in ongoing research and development (R&D) programmes and in flagship schemes including the Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), and National Food Security Mission (NFSM) through a process of selective upscaling and course correction measures. This would further be supplemented by introduction of new programmatic interventions and by seeking convergence with other National Missions and collaborations with key Ministries/

Departments for institutionalizing linkages in order to address cross-sectoral issues.

Macro Management of Agriculture

The Macro Management of Agriculture (MMA) scheme was revised in 2008 to improve its efficacy in supplementing / complementing the efforts of the States towards enhancement of agricultural production and productivity and provide opportunity to draw upon their agricultural development programmes relating to crop production and natural resource management, with the flexibility to use 20 per cent of resources for innovative components. The revised MMA Scheme has formula-based allocation criteria and provides assistance in the form of grants to the States/UTs on 90:10 basis except in case of the north-eastern States and Union Territories where the Central share is 100 per cent. MMA assistance during 2010-11 has been used to treat 3.02 lakh ha of land under the National Watershed Development Project for Rainfed Areas (NWDPR) and 1.94 lakh ha under River Valley Projects (RVP) sub-schemes and for financing acquisition of 10,208 tractors and 5,766 power-tillers among other farm machinery.

The National Food Security Mission (NFSM)

The NFSM was launched in *rabi* 2007-08 with a view to enhancing the production of rice, wheat, and pulses by 10 million tonnes, 8 million tonnes, and 2 million tonnes respectively by the end of the Eleventh Plan. The Mission aims to increase production through an area expansion and productivity; create employment opportunities; and enhance the farm-level economy to restore confidence of farmers. The NFSM is presently being implemented in 476 identified districts of 17 States of the country. Besides, a series of activities for more vigorous promotion of pulse crops has been adopted under the NFSM to intensify the pulse production programme from 2010-11. These are:

- (i) Merging of the pulse component of the Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) with the NFSM so as to increase the scope and area coverage of the pulses programme. Jharkhand and Assam have also been included under the programme

since there is immense potential for pulse promotion in rice fallows.

- (ii) Through a new programme under the NFSM called the Accelerated Pulses Production Programme, 1,000 block demonstrations of technology have been launched from 2010-11. This programme will essentially promote plant nutrients and plant protection-centric technologies in compact blocks of 1,000 ha each for five major pulse crops, namely, tur, mungbean, urdbean, chickpea, and lentil.

Focused and target-oriented technological intervention under the NFSM has made significant impact since its inception, reflected in the increase in production of rice and wheat in 2008-09 and 2009-10. From 2010-11, as a new initiative, the Accelerated Pulses Production Programme has been launched as a part of NFSM Pulses. Under the Accelerated Pulses Production Programme, one million ha of potential pulses area, covering tur, urdbean, mungbean, chickpea, and lentil, has been taken up for large-scale demonstration of technology in compact blocks. A total of 600 Accelerated Pulses Production Programme, units of tur, urdbean, mungbean, chickpea, and lentil have been proposed for 2010-11. For organizing Accelerated Pulses Production Programme, units at the farmers' fields, an amount of Rs. 54.66 lakh per unit has been proposed.

Further, an amount of Rs. 300 crore has been provided in the Union Budget 2010-11 for promoting dry-land farming in 60,000 pulses and oilseeds villages in rainfed areas. These funds have been provided as additional Central assistance under the ongoing RKVY to the States of Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh.

Another programme, namely Bringing Green Revolution in the Eastern States is operational in seven states—Uttar Pradesh, Jharkhand, Bihar, West Bengal, Assam, Orissa, and Chhattisgarh. The Rice Development and Organizing Pulses and Oilseeds Villages are another programme, beside the pulses promotion strategies and other initiatives

undertaken to boost agricultural productivity in these states.

The progress reports received from the States indicate significant achievements under the NFSM during the course of its implementation in the last four years, i.e. during 2007-08 to 2010-11 (till date i.e. August, 2011). New farm practices have been encouraged through 3.24 lakh demonstrations of improved package of practices. As many as 63,273 demonstrations of the system of rice intensification (SRI), and 32,344 demonstrations of hybrid rice have been conducted. Nearly, 96.84 lakh quintals of high yielding variety seeds of rice, wheat, and pulses and hybrid rice have been distributed. About 72.27 lakh ha of area has been treated with soil ameliorants, such as gypsum/lime/micro nutrients to restore soil fertility for higher productivity. An area of about 29.25 lakh ha has been treated under Integrated Pest Management (IPM). Further, nearly 21.27 lakh improved farm machineries, including water-saving devices have been distributed. As a capacity-building initiative, 33,205 farmers' field school (FFS) – level trainings have so far been held. In addition, about 353 (3.53 lakh ha) block demonstrations have been conducted during the 2010 *kharif* under the Accelerated Pulses Production Programme.

The Rashtriya Krishi Vikas Yojana (RKVY)

The RKVY was launched in 2007-08 with an outlay of Rs. 25,000 crore for the Eleventh Plan to incentivize States to enhance public investment so as to achieve a 4 per cent growth rate in agriculture and allied sectors during the Plan. During the three year period 2007-10, an amount of Rs. 7,895.12 crore was released under the RKVY. Out of the budget provision of Rs. 6,722 crore for implementation of the RKVY in the States, an amount of Rs. 3,986.76 crore has been released as on 25 November 2010. Specific allocation has to be made for the following three new initiatives introduced under the RKVY in 2010-11:

- (i) Extending the Green Revolution to the eastern region of the country, covering the States of Assam, Bihar, Chhattisgarh, Jharkhand,

Orissa, eastern UP, and West Bengal, with the objective of increasing the crop productivity of the region by intensive cultivation through recommended agricultural technologies and package of practices

- (ii) Special initiatives for pulses and oilseeds in dry-land areas by organizing 60,000 pulses and oilseeds villages in identified watersheds where pulse and oilseed farmers are provided farm machinery and equipment on custom hiring basis. These initiatives dovetail with other schemes of the Government of India having components for promotion of oilseeds and pulses production.
- (iii) Implementation of the National Mission on Saffron–Economic Revival of Jammu & Kashmir Saffron Sector during 2010-11.

The RKVY has linked 50 per cent of Central assistance to the percentage of State Plan expenditure on agriculture and allied sectors. This has incentivized States to step up allocation to agriculture and allied sectors, which was 5.11 per cent of total State Plan Expenditure in 2006-07, to 6.29 per cent in 2009-10. The RKVY has emerged as the principal instrument in financing development of agriculture and allied sectors in the country. Its convergence with other schemes like the Mahatma Gandhi National Rural Employment Scheme (MGNREGA) is expected to boost development of the agrarian economy. The States will take up projects under the RKVY primarily from amongst those that appear in their District and State Agriculture Plans. There will be increased synergy between agricultural planning and implementation of schemes in the coming years, which will play a crucial role in promoting holistic development of agriculture and allied sectors in the rural areas.

The Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)

The ISOPM is being implemented in 14 major States for oilseeds and pulses, 15 for maize, and 10 for oil palm. The pulses component has been merged with the NFSM with effect from 1 April

2010. The Scheme provides flexibility to the States in implementation based on a regionally differentiated approach to promoting crop diversification. Under the Scheme, assistance is provided for purchase of breeder seed, production of foundation seed, production and distribution of certified seed, distribution of seed mini-kits, plant protection chemicals, plant protection equipment, weedicides, gypsum/ pyrite/ liming/ dolomite, sprinkler sets, and water carrying pipes, supply of *Rhizobium* culture/ phosphate solubilizing bacteria and improved farm implements, publicity, etc. The Oil Palm Development Programme under the ISOPOM is being implemented in the States of Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat, Goa, Orissa, Kerala, Tripura, Assam, and Mizoram. Its Maize Development Programme is under implementation in 15 States, viz. Andhra Pradesh, Bihar, Chhattisgarh, Himachal Pradesh, Jammu and Kashmir, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

The National Horticulture Mission (NHM)

The Ministry of Agriculture has been implementing the centrally sponsored National Horticulture Mission (NHM) for the holistic development of the horticulture sector since 2005-06, duly ensuring forward and backward linkages, and with the active participation of all the stakeholders. All the States and the three Union Territories of Andaman and Nicobar Islands, Lakshadweep, and Puducherry are covered under the Mission except the eight north-eastern States including Sikkim and the States of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand. The latter are covered under the Horticulture Mission for the North East and Himalayan States (HMNEH). The scheme is being implemented in 372 districts in the country. During 2005-06 to 2009-10, an additional 16.57 lakh ha of identified horticulture crops has been covered. Apart from establishment of 2,192 nurseries for production of quality planting materials, 2.78 lakh ha has been covered under rejuvenation of old and senile orchards. Organic cultivation of horticultural crops has been adopted in an area of 1.37 lakh ha.

With the implementation of the NHM and other schemes, the production of horticulture crops has increased from 170.8 million tonnes in 2004-05 to 214.7 million tonnes in 2008-09. The per capita availability of fruits and vegetables has increased from 391 gram/day in 2004-05 to 466 gram/day in 2008-09.

Technology Mission for Integrated Development of Horticulture in North Eastern States, Sikkim, Jammu and Kashmir, Himachal Pradesh, and Uttarakhand

The Technology Mission for Integrated Development of Horticulture was launched in 2001-02 to address issues related to production and productivity, post harvest handling, marketing, and processing of horticultural crops in the north-eastern States. The Mission was extended to the three Himalayan States, namely Himachal Pradesh, Jammu and Kashmir, and Uttarakhand in 2003-04. It covers the entire spectrum of horticulture development right from production to consumption through backward and forward linkages. During the course of its implementation, it was realized that some additional components need to be introduced to achieve the objective of holistic growth of the horticulture sector. Accordingly, some new components such as high density planting, vegetable seed production, and horticulture mechanization have been included in the Mission. This has now been renamed the Horticulture Mission for North East and Himalayan States (HMNEH) along with revision of the cost norms so as to incentivize investment and supplement income generation for the beneficiaries.

The implementation of the Mission has helped to bring an additional 5.13 lakh ha under various horticulture crops (fruits, vegetables, spices, plantation crops, medicinal plants, aromatic plants, root, and tuber crops) in these States. In addition, 26,571 ha of senile and unproductive orchards have been rejuvenated to increase their productivity. The Mission has succeeded in bringing 54,938 ha under organic farming. Major infrastructure which has come up under the

Mission includes 974 nurseries, 10,979 community tanks, and 12,758 tube wells. Drip irrigation has been extended to 16,303 ha. Twenty-five model floriculture centres, fifty-nine herbal gardens, twenty-five tissue culture units, and twenty-two disease forecasting units have also been set up. The Mission gave special thrust to protected cultivation of high-value crops like tomato, coloured capsicum, strawberry, and flowers to ensure quality production. Special attention has been given to promoting and popularizing mechanization in horticulture. So far 5,785 power tillers, 4,64,595 manually operated machines, 12,542 power operated implements, and 12,887 diesel engines have been distributed among the farmers of the region. To strengthen the hands of women farmers, self-help groups (SHGs) have been promoted. Till now 8,527 SHGs have been formed that are involved in the promotion of floriculture and in exports. For proper handling and marketing of horticultural produce, 47 wholesale markets, 344 rural primary/Apni Mandies, 35 cold storages, and 64 processing units have been set up. Under the Mission 2,65,435 persons, including 53,276 women, have so far been trained.

We would like to conclude with the remark that increasing agriculture production and productivity through these above-mentioned central sponsored schemes are necessary not only for ensuring national food security, livelihood security, and nutritional security but also for providing job opportunities and development for the rural population in India under the current scenario.

(The first author is Principal Scientist, Division of Agronomy, Indian Agricultural Research Institute, New Delhi 110 012, e-mail: ysshivay@hotmail.com; ysshivay@iari.res.in; Second author is an Assistant Professor, Department of Animal Nutrition, College of Veterinary and Animal Sciences, G. B. Pant University of Agriculture & Technology, Pantnagar 263 145, Uttarakhand, e-mail: anshurahal@rediffmail.com)



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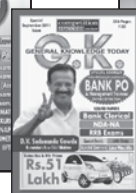
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Transforming Rural India: Emerging Issues and Challenges

Anupam Hazra

An analysis of National Sample Survey Organisation data shows that poverty in rural India has reduced from 37.3% to 28.3% during the period of 1993-94 to 2004-2005. As far as the state of food security is concerned, the calorie consumption of the 26 bottom most quartile of per capita expenditure in rural India has consistently declined from 1683 kcal in 1987-88 to 1624 kcal.

The success of achieving the goal of sustainable development for this country lies at the heart of empowering rural India where 68.84% of its population reside. Realising the significance of rural development-since independence, India has adopted a number of innovative strategies and approaches for ensuring the basic rights of the rural population. Rural development in India has witnessed several changes over the years in its emphasis, approaches, strategies and programmes but in last two decades, the strategy of rural development

has mainly focussed on poverty alleviation, promoting educational access in rural India, ensuring a better livelihood opportunities for rural poor, making provision for basic amenities and infrastructural facilities through innovative programmes of wage and self-employment. As far as the development of rural India is concerned, the three-tier *PanchayatiRaj* system remains the backbone with its 28,18,290 elected people's representatives, which is the largest number for any country in the world. Through this three-tier *PanchyatiRaj* system, the Government



is implementing a number of programmes aimed at ensuring a sustainable and holistic development for rural areas and the thrust of these programmes remain on all round economic and social transformation in rural India, through a multi-pronged strategy, aiming to reach out to the most disadvantaged sections of the society.

The Recent Pro-Rural Landmark Initiatives

For intensifying the efforts towards empowering rural India, the government has shown some innovations in its intervention by introducing some revolutionary initiatives in recent years. **The Right to Education Act** which came into force on 1 April 2010 for ensuring comprehensive elementary schooling - has provided a major boost towards the progress of rural education. **Mahatma Gandhi National Rural Employment Guarantee Scheme** (MGNREGS) introduced in 2005, which is providing at least 100 days of demand-driven guaranteed wage employment in a financial year to every rural household whose adult members volunteer to do unskilled manual work - has given a new direction to rural decentralization. It is the largest employment-generating scheme in the world so far, offering a bottom-up architecture with radical provisions for people-centred planning, implementation, social audit and possibilities of creating durable assets in priority activities leading to sustainable rural livelihood generation. The **National Rural Health Mission** (NRHM) initiated in 2005, has put rural health care services on the right track with need-based institutional changes within the existing rural health care system. To build the rural infrastructure, the government launched time-bound action plan called **Bharat Nirman** in 2005. Under Bharat Nirman, comprehensive and specific action plan have been framed with an aim to promote Water Supply, Housing, Telecommunication and Information Technology, Roads, Electrification and Irrigation with a special attention to rural India. On the other hand, for tackling the challenge of food insecurity and hunger which is widely prevalent in rural India – an ambitious and revolutionary '**Food Security**

Bill' is being drafted by the newly set up National Advisory Council (NAC). In its recent meeting in the month of October in 2010, it has suggested that legal entitlements to subsidised food grains to be extended upto at least 75 per cent of the population — 90 per cent in rural areas and 50 per cent in urban areas. The **Right to Information (RTI) Act** of 2005, by ensuring a system of proactive disclosure of information, provision for Monitoring and Vigilance by citizens, beneficiaries, civil society organizations etc. - has been playing a key role in ensuring transparency in the operation of most of the rural development programmes and the schemes. At the same time, India has developed a number of applications to automate the processes of information generation and strengthening its **e-governance** initiatives. Portal of Ministry of Rural Development i.e. www.rural.nic.in – is providing details of various schemes of Ministry of Rural Development like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Indira Aawas Yojana (IAY), Swarnajayanti Gram Swarajgar Yojana (SGSY), Pradhan Mantri Gram Sadak Yojana (PMGSY), Accelerated Rural Water Supply Program (ARWSP), Total Sanitation Campaign (TSC), and Integrated Watershed Management Programme (IWMP). Information regarding the physical and financial progress, sanction orders, etc of various schemes are also available on the same website.

Progress made so far in Rural India: Some Reflections

An analysis of National Sample Survey Organisation data shows that poverty in rural India has reduced from 37.3% to 28.3% during the period of 1993-94 to 2004-2005. As far as the state of food security is concerned, the calorie consumption of the 26 bottommost quartile of per capita expenditure in rural India has consistently declined from 1683 kcal in 1987-88 to 1624 kcal in 2004-05 as revealed by National Sample Survey Organisation. The total of calorie intake of the top quartile of the rural population has similarly declined from 2863 kcal in 1987-88 to 2521 kcal in 2004-05. The Midday Meal scheme has benefited children from an estimated 22.8% of rural households in 2004-05,

the Integrated Child Development Scheme (ICDS) has covered 5.7% of rural households, the Food-for-Work Scheme - only 2.7%, and the Annapoorna scheme for the elderly rural poor has a coverage of 0.9%.

Some Issues of Concern Jeopardising the Rural Growth

Although concerted efforts have been initiated by the Government of India through several plans and measures for meeting the needs and requirements of rural India, but the basic issues of healthcare, sanitation, comparable quality of education, employment and overall quality of life still causes concern for rural India. Significant funds have been allocated for poverty alleviation and rural development, yet there has not been a corresponding improvement in the relative rank of India in the Human Development Index. Being placed at 119th position among 169 countries in the 2010 Human Development Index - India even lags behind its neighbors like Pakistan and Bangladesh, on human development indices like life expectancy at birth and mean or average years of schooling. India still falls in the medium human development category and this raises questions about the relationship between outlays and outcomes of rural development initiatives of this country. Studies and statistics across the country show that India's performance has been low and progress remains slow with regard to rural poverty reduction and tackling malnutrition and undernourishment particularly in rural India. In the absence of inclusive and effective rural governance - the people at the grassroots, who are the intended beneficiaries of different rural development initiatives, are left dependent on a bureaucratic service delivery mechanism - a system, which is bearing a 'cancer' in sustainable development process i.e. corruption; and this fact is very much evident when we look into the

Corruption Perceptions Index 2010 - where India has slipped three places in global rankings of most corrupt countries, from 84 in 2009 to 87 in 2010. On the ranking based on the scale from 0 (perceived to be highly corrupt) to 10 (low level of corruption), India scored 3.3 to grab 87th position.

The problems of widespread poverty, growing inequality, rapid population growth and rising unemployment all find their origins in the stagnation of economic life in rural areas. Despite more than six decades of planned economic development, a large part of the population, particularly segments like women, landless agricultural labourers, marginal farmers, SCs, STs,

and OBCs, suffers from social and financial exclusion. Even though participation of women in PanchayatiRaj system has been facilitated by the 73rd Constitutional Amendment Act, 1992 which mandated one-third reservation of seats at all three tiers of Panchayats for women; but a significant number of women in rural India still face disparities in access and control over resources.

These disparities get reflected in important social development indicators such as health, nutrition, literacy, educational attainments, skill levels, occupational status etc. In addition, there are a number of gender specific barriers that prevent women from gaining access to their rightful share in the flow of public goods and services. Unless these gender requirements and their felt needs are incorporated and mainstreamed in the planning and development process of the country, it is likely that the benefits of economic growth will completely bypass a significant section of the country's population. So, capacities of locally elected representatives have to be enhanced to democratise governance and excluded groups particularly women, need to be empowered to participate effectively in decision making processes of rural India.

The problems of widespread poverty, growing inequality, rapid population growth and rising unemployment all find their origins in the stagnation of economic life in rural areas.

The high levels of poverty and hunger still persist in rural India because of lack of secure livelihoods for the marginalized rural poor, lack of adequate non-farm rural employment opportunities, declining public investment in agriculture and rural development, lack of participatory decision-making and the inability of rural producers to take advantage of the new opportunities created by the liberalisation and globalisation of agricultural trade. Studies and researches suggest that factors contributing to poor performance in the delivery of public services include lack of political and administrative accountability at *PanchayatRaj* Institution, inflated reporting and absence of performance appraisal for the staff of Block Development office and *Gram Panchayats*, high absenteeism among *Panchayat* staff, stagnant agricultural production, fiscal bankruptcy of the states with under-investment, changing centre-state fiscal relations (where the centre does not control staff and states do not control either funds or the nature of scheme), and poor management information system (MIS) at *PanchayatiRaj* Institution about the different rural development schemes and programs which are under operation.

Tackling The Current Challenges: The Way Forward

There is need for more synergy between public and private sectors and civil society organizations in decentralized, participatory approaches for sustainable agriculture and rural development. Corruption needs to be tackled at earliest by establishing good governance at *PanchayatRaj* Institution in every possible way. India's *Panchayati Raj* institutions can be a model for strengthening self-management capacities of community-level associations of the rural poor and improving their access to livelihood resources and

services. To deepen democracy and avoid villagers' autonomous rights been illegally captured, the state should create effective mechanisms to safeguard the democratic rights of villagers, and provide an institutional platform for villagers' autonomous activities. Further, there is a need to reconstruct the rural community in the direction of democratization, and develop the democratic capacity of rural society. Propagation of schemes for rural development is slow and there is a lacking in wider participation of different stakeholders. So, rural poor need policies, legislation and

institutional capacity building support to enable their effective participation in decision-making and planning at local level and in implementation of sustainable rural development programs; there is also a felt-need for gender-sensitive policies and targeted programmes for vulnerable section of the rural population. The advantages of community-based local level decision making are often ignored given the convenience

and precedence of centralized development administration. Despite the existence of *Gram Panchayats* and *Grama Sabhas*, little effort is made to strengthen the hands of these local level socially responsible decision-makers with need-based knowledge and technology. Empowering these grassroot-level people's institutions through need-based capacity-building should be treated as an utmost priority for rural India. So, innovation and modernization of approaches and strategies in pro-poor policies based on the felt-need of rural population - has a significant role to play in national, state and local level rural development initiatives - right from planning and policy formulation to choice of policy instruments, in order to transform rural India.

(The author is Assistant Professor, Dept. Of Social Work, Assam (Central) University, Silchar – 788 001, Assam, e-mail : anupam688@yahoo.co.in)

There is need for more synergy between public and private sectors and civil society organizations in decentralized, participatory approaches for sustainable agriculture and rural development.

Six Hundred Thousand Villages: Policy, Planning and Praxis of Rural Development

A.K. Jain

The increasing injustice, inequalities and unemployment in the rural areas have serious ramifications on India's socio-economic and political balance. The marginalization of rural areas which have been subservient to the urban system is reflected by simmering rebellion in many rural and tribal areas in India.

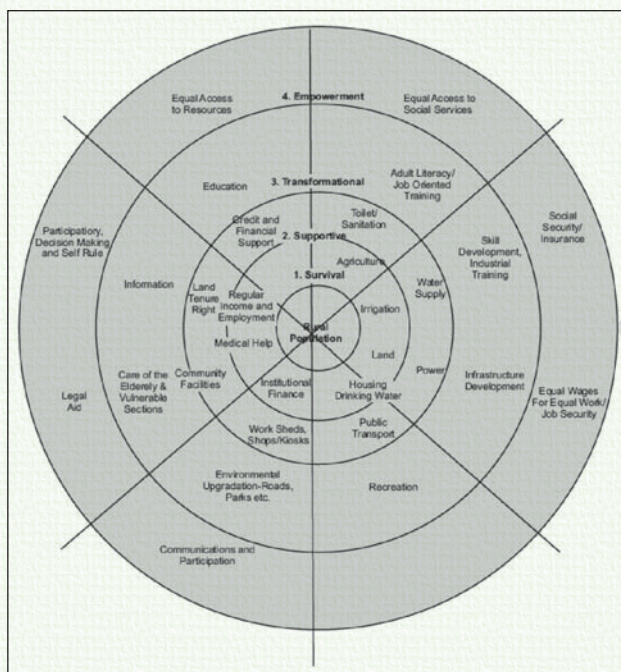
About 69 per cent of India lives in its six hundred thousand odd villages. These villages manifest poverty, oppression, disease, inequality and feudalism. Recent Bhatta Parsaul (UP) agitation symbolize the plight of the farmers, authoritarian acquisition of agricultural land for real estate and police brutalities. It is time for the policy planners to look beyond 'development' and come to grips with the basic issues- social oppressions, inequalities, colonial governance, corruption and exclusion. The increasing injustice, inequalities and unemployment in the rural areas have serious

ramifications on India's socio-economic and political balance. The marginalization of rural areas which have been subservient to the urban system is reflected by simmering rebellion in many rural and tribal areas in India.

In spite of the 73rd Constitutional Amendment which envisages self- governance, power is still concentrated in the hands of few and the village administration is by and large urban-controlled. The concepts of citizen empowerment, participatory governance and decentralization are confined



to the academics. The decision making is often piecemeal, ad-hoc and motivated. A lion's share of funding is eaten up by the establishment structure and their salaries. The programs invariably exceed the time and financial allocations. The rural schemes often suffer from lack of linkages with livelihood, health, ecology and poverty alleviation. The spatial dimension of the rural programs and their convergence at regional, district and local/village levels are often missing. The process of rural development in the country often starts with a well worked out policy framework, which is followed up by the plans, programs and projects. At the stage of implementation the projects encounter several hurdle-like local politics, vested interests, corruption, lack of local capacity, outdated procedures, societal oppressions, etc. These result into a wide gap between the plans and implementation.



Diagrammatic Presentation of Needs of the Rural Population

Taking the clues from Amartya Sen's idea of 'Development as Freedom', the issues of rural development can be presented in the following inter-connected areas:

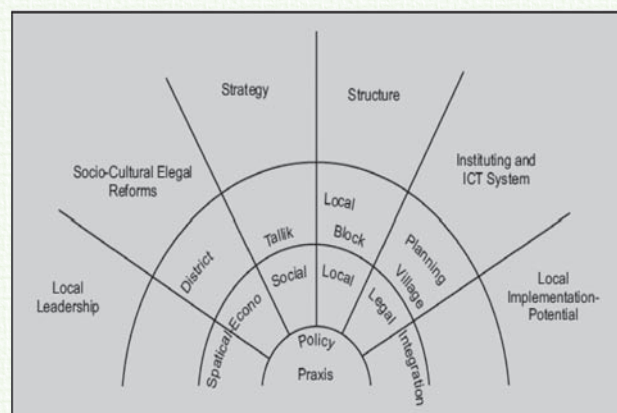
1. Eliminating widespread oppressive social practices.

2. Transparency guarantee.
3. Spatial enablement
4. Water, sanitation and environment.

Understanding these frameworks provides the clues to the gaps between the rural policies, plans, programs and their implementation.

Four critical areas, viz. empowerment, community action, governance reforms and communications are vital for inclusive transformation of the rural areas. The aspects of inclusion are (a) financial inclusion-enhanced productivity, employment generation, (b) social inclusion- connectivity, communication, education, healthcare, gender equity, empowerment, human rights, etc. (c) democratic inclusion- governance, participation, decentralization and localisation (d) ecological inclusion- and (e) transparency and service delivery. This involves (i) political, legal, election and governance reforms (ii) social change from oppressions to opportunities, (iii) district and local planning, spatial enablement, and (iv) coordinated and inclusive implementation.

With the globalization and rapid economic development, the village infrastructure needs are multiplying. These have to keep pace with the demands of economic development and should be state of the art, sustainable and forward looking. 'Low cost' may not be critical, as finance is not the issue, but its mobilization by leveraging and partnerships.



Successful policy implementation is largely contingent upon economic, social and legal integration. This can be achieved by district and local development planning and governance reforms

The MG NREGA Scheme after 6 years of implementation should now embrace an enlarged paradigm. Moving from the traditional model of projects, programs and financial allocations, it should combine the wider dimensions of sustainability, spatial integration and human rights.

The rural program, such as MG NREGA should harmonise with the emerging aspirations of the rural folks and third generation reforms, such as transparency guarantee, self-governance, local autonomy and new technology (such as solar energy, bio-gas production, wastewater recycling, systems building, etc.)

Breaking the Barriers of Rural Development

At present the MG NREGA and other rural development schemes are government driven and publically financed. In the long run, it is necessary to incentivise the private sector to invest in the rural areas. For this, it would be worthwhile to consider channelizing about 50 per cent of the central government funds for rural development for PPP projects. To widen the base and scope of rural employment, the expansion of non-farm sector, development of Rural Business Hubs, and social entrepreneurship can be the focus areas. The widening of the rural self-sufficiency needs a series of intertwined enablements:

- Financial and Institutional Enablement.
- Spatial Enablement
- Social Enablement
- Technology Enablement

No plan or program can be successful unless it is tied up with community empowerment and addresses to the oppressive traditions, customs and practices. This means evolving a strategy based on equity and social reforms. Accordingly,

the governance system needs to change towards an effective delivery of human rights and equity in access to resources, which enable the transformation of the prevailing images of backwardness, inferiority, oppressions, depressions and poverty.

Rural Development Planning

The 73rd Constitutional Amendment Act, 1992, is a watershed in rural development and self governance. This has made it mandatory for State Governments to constitute District Planning Committees (DPCs) which have to consolidate plans prepared by panchayats and municipalities. The preparation of development plans requires exploring the potential of the districts, priority of various plans and schemes, financial resources mobilisation, environmental sustainability and specific projects for achieving integrated planning and inclusive growth of urban and rural settlements as a composite district development.

The development of rural area depends on location of various economic and social activities, their integration and proper linkages within a larger district framework. Development activities and organizational framework at different levels affect the economy and form of the village settlements. As such the development plans of Districts, Taluka, Tehsil, Block and Panchayats need to be prepared

and merge together for a balanced development.

Community Development

The concept of community development aims to capture the positive aspects of collective living and the village ambience. A variety of housing typologies can be developed through community and cooperative efforts where people of similar vocations/faith or lineage live together. The architects and public authorities facilitate them to design and build their house as per their particular needs, resources and living pattern. Each cluster will have common space for the community, and for

The development of rural area depends on location of various economic and social activities, their integration and proper linkages within a larger district framework

common services, work area and venue for religious and cultural functions. The layout of housing will attempt recreating traditional values of community living in the following ways:

- Housing cluster approach (comprising minimum of 8 houses) in place of individual shelter/structure.
- Integrated development together with employment generation, economic activities, and community facilities.
- Ample green areas, parks, tot-lots play/ sports fields and rain water harvesting ponds.
- Chowks and squares at cluster level to recreate traditional community living.
- An attractive and cohesive picture.
- Housing integrated with self-employment opportunities and artisan workshop,
- Modular system of housing development.

- Gradual augmentation of services, innovative decentralised systems of solar/wind energy, sewerage, solid waste disposal and drainage.
- Rural Building Center to evolve and apply traditional construction skill, interface with modern construction technology.

This requires reviewing the ongoing Indira Awas Yojana, which like urban housing is individual family centric. This is far from the traditional joint family in a wider context of rural ambience of community living. This will greatly help in reshaping the rural geography of India together with inclusive growth.

(The author is an architect – town planner, and is also a member of the UN Habitat Research Advisory Committee. As Commissioner (Planning), he worked on the Master Plan for Delhi-2021, National Urban Housing Policy (2007) and National Urban Transport Policy (2006). e-mail : ak.jain6@gmail.com)



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Legislation on Land Acquisition-Will Farmers Benefit?

R.C. Rajamani

The meek shall inherit the earth. So says the holy book. But a question mark has appeared over whether India's meek farmer will inherit enough from the small piece of earth he owns on account of a much publicised legislation that is now before parliament. Land acquisition from and the consequent rehabilitation of the landowner has been in public discourse for a number of years now. Attempts in the past several years at an effective legislative measure in this regard are yet to bear fruit.

The Land Acquisition, Relief and Rehabilitation Bill 2011 tabled in the Lok Sabha on the last day of the recent monsoon session is the result of four years of intense polemics in and outside parliament. The Bill has since been sent to the parliamentary standing committee for its scrutiny.

The Bill was anxiously awaited with the hope that it would be a substantial improvement over the 2007 Bills that never saw the light of passage in parliament to find a place in the statute book. No doubt, it has some good features. However, by all accounts, the 2011 Bill has left much to be desired.

This is clearly the view of most experts and critics on the subject.

Rehabilitation & Resettlement

The Bill aims to address rehabilitation and resettlement by providing safeguards for both landowners and livelihood losers and clearly defines the "public purpose" for which land can be acquired by the government. It has been modified to include suggestions from political parties, farmers' organizations, industry lobbies and civil society groups.

The government will convene a meeting of the National Development Council, of which the state chief ministers are also members, on 15-16 October to discuss the Bill. The standing committee is expected to submit its report during the winter session of Parliament.

A "retrospective effect" clause has been incorporated in the Bill. The clause, when the Bill is passed, will apply to all cases of land acquisition where "the award has not been made under the 1894 land acquisition Act" or "where the possession



of land has not been taken, regardless of whether the award has been made”.

While the initial draft prohibited acquisition of multi-crop, irrigated land, the final version allows acquisition of up to 5%—subject to certain conditions. It also says if the land acquired is not used for the stated purpose, it will not be returned to the original owner, but go to the state land authority.

The final version of the Bill proposes that the compensation in rural areas won't be less than four times the original market value, as against the six times initially proposed. However, in urban areas, the compensation will be twice that of the market value determined.

Another significant modification includes the definition of public purpose. It now clearly distinguishes between land acquisition by government for its own use and for transfer to private firms for a public purpose project.

The draft Bill permits land acquisition under three broad categories—when the government acquires land for its own use; when it acquires to ultimately transfer to private companies for a given public purpose, and immediate and declared use by private firms for public purpose.

In the original draft, it was proposed that the latter two kinds of acquisitions can take place only after the consent of 80% of the families was obtained. In addition to the existing public purposes when acquired by government for its own use, it has been added that the state will also not need the 80% consent if it acquires land for railways, highways, ports, power and irrigation purposes.

The Bill focuses on the need for a combined acquisition and R&R law, the first ever national law addressing R&R of families affected and displaced as a result of land acquisition.

Once passed, the Bill will replace the archaic land acquisition act of 1894 and will supersede all specialized legislations on land acquisition, including those for special economic zones and railways.

The introduction of the Bill was preceded by prolonged politicking over its provisions, not the least by West Bengal Chief Minister Ms Mamata Banerjee, who had had serious reservations on the Bill. While going along with the Central government at last, she has made it clear that the state government will

“not acquire any land except for security purposes or when there is a national disaster”.

Land acquisition is today a hot issue that has led to violent protests by farmers against unfair compensation and forcible acquisition of their property. The popular upsurge created by the issue is credited to have displaced the three-decade-old Left rule in West Bengal. It now threatens to become a major poll issue in Uttar Pradesh where assembly elections are due before the middle of 2012.

At Variation with the Draft

A reading of the Bill shows some points of variation with the draft circulated before for public comments. No doubt, Rural Development minister Jairam Ramesh worked hard on the draft of the new Bill with welcome changes that included commendable features such as mandatory public discussion and enhanced compensation. Nevertheless, experts have pointed out that it also suffers from “shortcomings such as a dubious definition of ‘public purpose.’”

There has been a ‘dilution’ of provisions that would have otherwise benefited farmers. The ‘unkindest cut’, as it were, is the reduction in the quantum of compensation money. Experts attribute this shortcoming to “poor management of land records and the undervaluing of properties.” The draft Bill had recommended increasing the registered value of a property six-fold in rural areas and two-fold in urban areas. Sadly, the Bill, now before Parliament, has chopped it by one-third in rural areas, but left untouched the compensation amount in urban areas.

By all accounts, the draft was more equitable. It not only sought to compensate landowners, but also proposed to extend the resettlement and rehabilitation benefits to all the tenants and agricultural labourers dependent on the land. But the Bill before Parliament restricts the benefits to those who have been living or working in the place for more than three years prior to acquisition. Observers argue that such a cut-off date is arbitrary and may keep a substantial number of people out. They also point out to several “practical difficulties”. The draft sought to protect fertile, irrigated multi-crop lands and prohibited their acquisition — but the Bill permits that. Such acquisition may be limited to a maximum of five per cent of the total irrigated multi-cropped area in that district, but in reality “this could get damagingly large”, particularly in the

bigger districts. Besides, fertile lands can be acquired for private companies using this provision.

Critics also argue that the Bill seems to have been designed by a desire to facilitate easier acquisition for industrialisation and urbanisation. Stating various instances to buttress their argument they say the Bill rules out the acquisition, not of all irrigated agricultural land, but of multi-cropped irrigated agricultural land.

Social Impact

The principles of 'no forced displacement' and 'free, informed prior consent' are not mentioned. The condition of consent by 80 per cent of the land-owners applies only to land-acquisition by the government for companies including PPP (Public-Private Partnership) cases, and not to governmental acquisition for itself. No doubt, there are a number of good provisions relating to displacement (SIA, review of SIA by an Expert Committee, consideration of 'less displacing alternative', public hearing, etc.), but the final decision is that of the bureaucracy. They are also critical of the acquisition of land by government for private companies. They argue that they fail to see any reason "why the state should use its sovereign power to acquire land for private companies which are primarily in business for profit and not for conferring benefits on the public."

The 2007 Bills had sought to reduce the extent of land acquisition by the state for a company to 30 per cent, if the company purchases 70 per cent of the land needed by negotiation. The present Bill does away with the 70:30 formula, but provides for 'partial' acquisition by the state for a company if a company so requests. "Presumably 'partial' acquisition could go up to near-full acquisition by the state. This seems a retrograde step," the critics argue.

There is also the issue of transfer of agricultural land to non-agricultural use and the implications for food security. By and large, the answer to the question of minimising transfers of agricultural land to non-agricultural use may well lie in policies supportive of agriculture rather than in control or regulation over land transactions, it is being pointed out.

The Bill also speaks about loss of primary livelihoods but links it to the acquisition of land. The term 'livelihoods' is illustrated by a reference to the gathering of forest produce, hunting, fishing, etc; there is no reference to sellers of goods and services to the people in the project area, who will lose their livelihoods when the people whom they serve move

away to resettlement areas. It is not clear whether they will be regarded as project-affected persons.

On Social Impact Assessment (SIA) the Bill is an improvement on the 2007 Bill, but the idea of SIA still falls short: it does not cover the disappearance of a whole way of life; the dispersal of close-knit communities; the loss of a centuries-old relationship with nature; the loss of roots; and so on.

The rehabilitation package is distinctly inferior to the packages already established in certain projects. The principle of 'land for land' has been abandoned. It figures only in the case of irrigation projects, and there the Bill envisages one acre per family instead of two acres as in the Sardar Sarovar Project.

It is not clear why displacement by natural calamities should be brought within the purview of this Bill. There is a vital difference between unavoidable displacement caused by nature and deliberate displacement caused by human decisions.

Critics warn that if the government presses ahead with "these dilutions", the inescapable conclusion would be that "all the rhetoric and posturing in Bhatta Parsaul and Singur were only for opportunist political gain". They also strongly push for the restoration of "the well conceived" provisions of the earlier draft if the government "is serious about enacting just and defensible land acquisition legislation."

That the land-owning peasant deserves a far better deal can be easily seen if one looks at the booming real estate scenario in the past two decades. Large tracts of land, farm land included, have been developed as plots for large individual houses or multi-story apartments in big cities and towns across the country as well as for industries. The payment to the land-owners have never been more than modest or minimum. However, within a few years of construction of houses or office complexes, one has witnessed the value of these buildings go up many times over. But the poor peasant is left with the modest money, not multiplying but eroding in value on account of rising cost of index and galloping inflation.

This is an unacceptable situation in a country that professes to usher in 'inclusive growth' through reforms with 'a human face'. The author is a Senior Freelance Journalist based in Delhi, e-mail : rajamanirc@gmail.com)



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The possibilities of the Aadhaar number

Nandan Nilekani

The objective of the UIDAI, to issue a unique identity number for every resident in the country, goes to the heart of ensuring greater opportunity. The role of the Aadhaar number is that of an enabler – a number that helps governments design better welfare programs, enables residents in both urban and rural India to access resources more easily, and allows agencies to deliver services more effectively and transparently.

Economic growth is not an end in itself; its power lies in the ability it gives us, the financial wherewithal to address the many problems that a developing country faces. Governments in India have accordingly, with economic growth, implemented new social programs and safety nets that tackle our poverty, health and education challenges. The ambitions of these programs however, have been marred by challenges in execution, and a significant one has been the lack of clear identification and targeting of individual beneficiaries.

The problems of identification bog down millions of people in India across communities and in different situations. Rural women for example, face difficulties in accessing social benefits and employment, especially if they are not part of a household; most benefits and programs, as well as identity mechanisms are linked to households, and single women or widows are excluded as a result. Backward communities and tribal groups similarly find themselves caught in a cycle of exclusion, where the lack of one service cuts off identification documents



and consequently access to other services, such as when the inability to get a ration card also means difficulty in opening a bank account.

The urgency of the challenge

Addressing fundamental problems of exclusion has become especially urgent for us today. Thanks to development, millions of Indians today are getting a realistic shot at improving their incomes, and having a life much better than the one their parents had. But access to economic opportunity in India so far has been highly inequitable – India's urban, middle-class and elite residents have seen the most significant gains from growth, thanks to the easy access they have to our infrastructure and institutions, such as in education, health and finance. For these residents, the fruits of growth have been tangible: employment opportunities on completion of college, or from training in IT skills and English; access to finance instruments that enable entrepreneurship, savings and investment; access to infrastructure such as telecom, internet, roads, rail and air connectivity that have helped improve productivity and incomes. Such opportunity on the other hand, has been harder to come by for the poor in rural India and in our cities and towns.

The objective of the UIDAI, to issue a unique identity number for every resident in the country, goes to the heart of ensuring greater opportunity. The role of the Aadhaar number is that of an enabler – a number that helps governments design better welfare programs, enables residents in both urban and rural India to access resources more easily, and allows agencies to deliver services more effectively and transparently.

An individual, recognized identity

We've made substantial progress in India over the last few years, in how we approach and tackle poverty. For one, we view poverty less as a monolithic experience; we have acknowledged that disadvantaged individuals face different kinds of shortages, and need varied interventions at different points in their life to move out of poverty, and access the opportunities India's growth offers. A child of a Below Poverty Line (BPL) family for instance,

requires effective investments in school education, and immunizations, which will give him the skills and ability to be employable as an adult. Adults who are in the BPL category need investments in re-skilling programs, safety nets to protect them during periods of unemployment, and financial access that will enable them to save and invest. And finally, the impoverished elderly require protections such as a regular, reliable pension.

This recognition means that the individual is the real target of social programs, and not the household. The government has accordingly launched a gamut of programs aimed at addressing the varied requirements of people in poverty: the Janani Suraksha Yojana effort is targeted to the health of pregnant women and their infants; the Sarva Shiksha Abhiyan program focuses strongly on keeping children in school; the Rashtriya Swasthya Bima Yojana provides health insurance for adults and children; the National Rural Employment Guarantee Scheme guarantees hundred days of work for the rural unemployed, and is a cushion for lean, hard times.

Even as we tailor our approach to welfare and social protections however, fundamental issues of identification remain. Our programs for instance, have remained focused on household-based identification, and the coverage of such identification is program-based and not universal.

The Aadhaar number is a powerful tool as governments move to more individual-oriented programs. It is an identification infrastructure available to every resident in India, including infants.

A technology based infrastructure

The Aadhaar number represents a sharp transition from paper-based to IT-enabled identity systems. These numbers, which will be linked to biometric and demographic information to ensure their uniqueness, will be stored in a secure central database. The database can be contacted for identity authentication from anywhere in the country. The resident could verify their identity online and in real-

time, by providing his/her demographic or biometric information or other information. Such an IT-enabled infrastructure would also support the remote verification of identity, creating possibilities for the remote delivery of services across the country. It provides a plug and play identification mechanism for public authorities and service providers across the country, which can use the Aadhaar number rather than building their own identification mechanisms from scratch.

Technology-enabled identity systems like the Aadhaar number are critical when the country's banking systems, trading markets, and service delivery are ramping up their technology capabilities and enabling remote delivery of services. The public investment in the Aadhaar infrastructure is necessary to ensure that impoverished and disadvantaged groups in the population are not excluded from such technology infrastructure, and are able to access and leverage them for their benefit. For example, while mobile telephony has become widely available, only a small segment of the population can use such phones to buy products and services remotely, due to the difficulties in remote identity authentication. Aadhaar-linked remote authentication would enable poor residents to access such services easily.

Accountability through clear identification

The biometric aspect of Aadhaar is in my view, a particularly powerful feature of the number, and will play a significant role in increasing accountability for service providers and to broaden access. Biometric-linked authentication to access benefits would make it easy for service providers to limit leakages of resources and benefits to those who are not entitled to it.

Biometric authentication along with other factors of authentication also makes it easier to deliver public resources and services through a variety of agencies – public, private, and non-profit. The two-way approach in delivering entitlements and services – delivery followed by confirmation through authentication – increases the accountability of public and private service providers to the resident,

since the resident's relationship with the agency is far more direct, and confirmation bypasses all intermediaries.

Seamlessness in service delivery

In India, a narrative has long existed on the divide between urban and rural India. While urban India survived and even prospered, the rural country, 'Bharat', was left behind, history's victims, to be provided for and rescued from their circumstances. This divide was not merely one of perception – there were real, vast economic distances between the urban and rural country in the absence of effective infrastructure linkages, and markets largely limited to urban cities and towns. In governance as well, we approached these regions differently, with separate ministries for urban and rural development, and separate regulatory institutions in banking, insurance and other services. Welfare programs have also been tailored individually – the National Rural Health Mission for example, targets health services in rural India while the Urban Health Mission was planned for India's cities and towns; the JNNURM is focused specifically on urban renewal, while the BRGF funds infrastructure in backward, rural regions.

The Aadhaar infrastructure would enable us to incorporate these changes into our policies and our economic approach, by powering up applications that address the infrastructure challenges in rural regions, and deliver services seamlessly to both urban and rural India. Service providers can for example, verify identity remotely through Aadhaar-linked technology systems and then deliver services, reducing the investments required to provide services in rural and sparsely populated regions, increasing competition, and providing choice to the consumer.

For instance today urban residents are able to use ATMs to access their bank accounts and withdraw money – such access is rarely more than a short distance away. For the rural community however, banking services are difficult to access; bank branches are some distance away...

An Aadhaar-linked banking solution however, could create local networks of business correspondents who enable residents in both rural and urban India to verify themselves using the Aadhaar number, and make transactions, remotely, through a mobile device. This would pave the way for the equalization of access, and cheaper services.

It would also give rural India the opportunity of self-service. Just as remote connectivity to markets through mobile phones have helped eliminate middlemen and allowed farmers in some areas to negotiate crop prices directly with the mandis, remote Aadhaar authentication allows the rural customer to employ the same self-service models urban residents now access, in not just banking transactions but also in buying stocks, retail goods, and accessing a multitude of information services through their mobile phone.

A reliable identity infrastructure like the Aadhaar number can help establish widespread trust relationships with poor residents since credit and other history of residents become mobile. Agencies would no longer have to carry out their own KYC (Know Your Customer) procedures before they service customers – Aadhaar KYR (Know Your Resident) could be used before an insurance company issues a new policy, or before a bank opens a new account.

This clarity and ease in identity verification represents a significant growth opportunity for public and private agencies in India. It would lower organizational risk, and empower agencies in banking, insurance and other consumer industries to offer more services, expand their modes of delivery, and include larger numbers of impoverished residents within their ambit.

Such seamlessness in service delivery will become possible not only between urban and rural India, but also within markets. The resident would also be able to switch service providers with less information loss.

The Aadhaar number would be the first time the government is implementing a universal infrastructure solely for establishing the identity

of the individual. We shouldn't underestimate the effect of such identity recognition by the state. Identities of people are inevitably in part social and political constructions, and individual recognition by the government makes possible public programs that take into account a resident's unique needs, aspirations, and circumstances. It paves the way for a formal acknowledgement of the resident which is independent of the household and community he/she belongs to.

Capturing the spirit

In the last few years, we have witnessed a widespread rethinking on how we view the mechanisms through which people can access development and opportunities for growth. From thinking purely in terms of the funding of welfare schemes and public services, we have begun to consider how these efforts can empower and provide individuals with effective tools to come out of poverty.

The Aadhaar number strengthens our ability to respond to these calls, and imbue our policies with the principles of empowerment for the resident. We have the opportunity to move to an environment where residents in India are given choice and power in exercising benefits, and in interacting with responsive, accessible governments and service providers. These gains could go down to the last person in the line: to the most impoverished, the marginalized and the destitute.

The Aadhaar number is a powerful tool as governments move to more individual-oriented programs. It is an identification infrastructure available to every resident in India, including infants.

(The author is Chairman of the Unique Identification Authority of India and former Co-Chairman of the Board of Directors of Infosys Technologies Limited., e-mail : nandan.nilekani@nic.in)

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Poverty Reduction: Towards Cash Transfers in lieu of Subsidies

P. N. Sankaran

Though the Latin American experience makes a strong case for CCTs elsewhere, according to Narayanan, it is critical to understand the larger context of their success (which may be highly relevant to assess the scope of their adoption in the Indian context)

Over the years of planned development, India has introduced a wide range of anti-poverty schemes targeting the weaker sections and marginalized communities. Most of the schemes envisaged generation of massive employment, subsidized distribution of food grains, essential goods, fuel, fertilizer etc to the poor. Besides the mounting fiscal burden they laid on the economy, there has also been growing chorus of opinion that such redistributive programmes have been relatively ineffective, are

plagued by leakages and that their benefits do not reach the poor. Hence, the case for introducing other forms of social assistance, not tried so far extensively, gained acceptance among the academics and policy makers. During the last two decades, India has introduced a number of Cash Transfer (CT) programmes, apart from social transfers launched by progressive states in South India, to address issues in education, health, nutrition etc and poverty in general. In view of the increasing popularity of cash transfer schemes in



a number of countries and our own experience with few such schemes so far, the Union Budget for 2011-12 announced that Conditional Cash Transfers (CCTs) will replace the popular subsidy-based poverty alleviation schemes (food, fuel, fertilizer etc) by 2012.

In the above backdrop, operational issues in implementation of CCTs, their impact, constraints and challenges in the Indian context are widely discussed. The Approach Paper to the 12th FYP (2012-17) is set to outline a comprehensive roadmap for CT of food, fertilizer and fuel subsidies using Aadhar-based identification and 'smart' cards with recharging facilities. The Government has constituted a Task Force headed by Nandan Nilekani to evolve a suitable mechanism for direct subsidies to individuals/families that are entitled to kerosene, LPG and fertilizer. The Task Force will also evolve a model of direct transfer of subsidies on these items by re-engineering existing systems, processes and procedures in the implementation process. An official press release said the Task Force would also undertake designing appropriate IT systems and aligning these with the issuance of UID numbers, and bringing about changes in the administration and supply chain management. The paper has been conceived in the above background. It is structured as follows. Section 2 presents the concept and impacts of CCT; the rationale, challenges and prospects of CCT in the poverty scenario of India is explored in Section 3. Concluding observations are presented in Section 4.

Conditional Cash Transfers: Concept and Impact

Conditional Cash Transfers provide money to poor families contingent upon certain verifiable actions, generally minimum investments in schooling of children, preventive healthcare etc.

They, therefore, hold promise for addressing the intergenerational transmission of poverty and fostering social inclusion by explicitly targeting the poor, focusing on children, delivering transfers to women, and changing social accountability relationships between beneficiaries, service providers and governments (Briere and Rawlings, 2006:15). Since the mid-1990's demand side programmes linking cash to behavior have been widely adopted in a number of countries (like *Oportunidades*, Mexico, 2002, integrating interventions in health, education and nutrition; *Bolsa Familia*, Brazil, 2003, with focus on child labour; *Programme Keluarga Harapan*, Indonesia, 2007, benefitting pregnant women, and children; *Food for Education Programme*, Bangladesh, 1993; Child Support Grant, S. Africa, 1998; *Familias en Accion*, Colombia, 2000; Chile, Ecuador, Jamaica, and Turkey also initiated CCT programmes in the recent past). In the last few decades, different models of transfers (cash; in-kind; and cash-assisted kind) have emerged worldwide, as outlined in Chart 1. Investing in poor people's human capital is seen as a way to promote the virtuous cycle between social protection and human development (World Bank, 2005).

CCTs epitomize the new thinking through their focus on both short-term relief and long-term redistribution. Education and health/nutrition are the two common components in CCTs. The education component consists of a cash grant on an individual per-student basis targeted to primary/secondary school age children and is conditional on enrollment and regular attendance. The grant covers direct costs (school fees and supplies, transportation etc) as well as opportunity costs derived from the income lost as a result of sending children to school rather than to work. Health and nutrition transfers consist of a cash grant usually

Since the mid-1990's demand side programmes linking cash to behavior have been widely adopted in a number of countries (like Oportunidades, Mexico, 2002, integrating interventions in health, education and nutrition

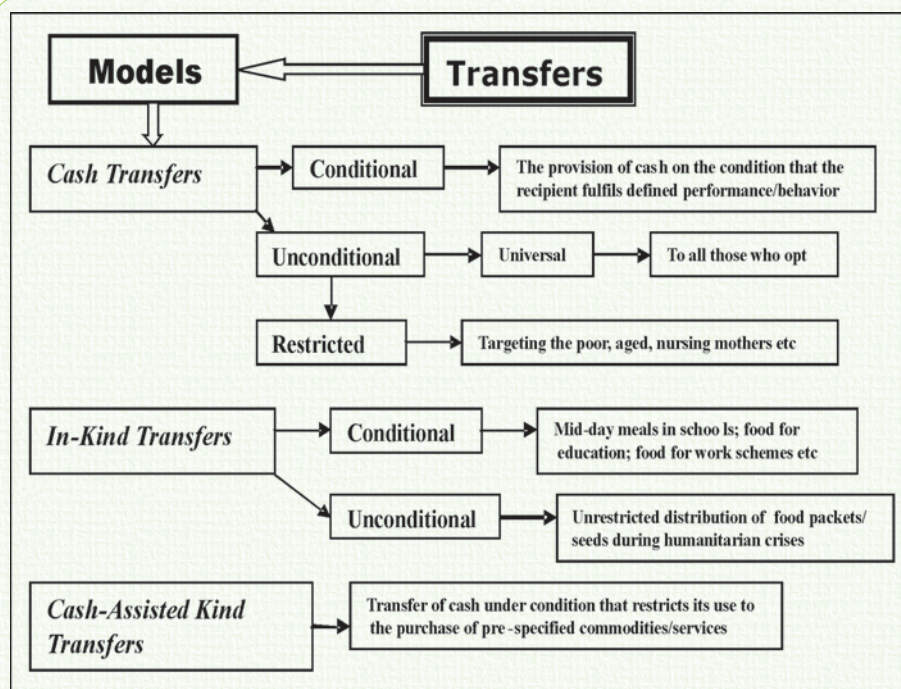


Chart 1: Models of Cash, In-Kind, and Cash-Assisted Kind Transfers

targeted to pre-school children and pregnant/lactating women. The cash is generally granted to families (not individuals) for food consumption, conditional on household members complying with preventive basic and reproductive health visits. In some countries, CCT programmes go beyond the demand-side incentives and also strengthen the supply of health and education infrastructure. Central to CCT's approach is a new focus on "co-responsibilities" between the state and citizens where the state lessens its paternalistic role, time limits are placed on benefits and beneficiaries are required to comply with certain requirements. This relationship is re-enforced through the provision of cash directly to beneficiaries, which allows the national government to forge a one-to-one relationship with poor households (Briere and Rawlings, 2006:15). Perhaps more than any other types of social programmes, CCTs have incorporated gender dimensions into their operations as a strategy for promoting higher investments in children's human capital and for redressing the legacies of gender-based discrimination. Acknowledging the finding that women tend to invest more in children, CCTs provide grants to mothers, in a much-noted departure from the traditional social

assistance schemes that focus on the household head. CCT programmes are at the forefront of a new thinking on social protection; by providing incentives to parents to invest in the long-term human capital development of their children, they promise for addressing issues of deep-seated exclusion and inter-generational transmission of poverty (Briere and Rawlings, 2006:22). CCT programmes have been evaluated by a number of agencies. The main results of the evaluations are the following:

- *Income inequality and poverty*-- CCTs contribute to reduction in poverty/acute distress and increase consumption levels;
- *Education, health and nutrition*--CCTs have positive impact on school attendance; facilitate transition from primary to secondary education; however, learning outcomes are limited/inconclusive; impact on reduction of child labour is marked; facilitated more regular health check-ups; more encouraging impact on food security;
- *Impact on Social Inclusion*--they empower marginalized communities (increased consumption of merit goods), and are sensitive to gender dimensions; and
- *Impact on Governance*-- they have enabled the forging of the much needed horizontal coordination and strengthening of synergies across government departments through institutional coordination (UNDP, 2009: 15-19).

Empirical evidence on the success of the different models of CCTs also leaves a mixed picture as indicated below.

- In the case of food and nutrition, in-kind transfers do better than cash transfers (Narayanan, 2011: 42). Unconditional transfers are known to improve dietary diversity; a combination of the two works better. Conditional in-kind transfers such as mid-day meals in government schools in India are examples of successful in-kind schemes.
- In the context of health interventions, there are several situations where in-kind transfers are most appropriate (Das et. al, 2005:43).
- In general, unconditional transfers work well for social security pensions, and the like.

A UNDP study raises the following constraints and challenges of CCT schemes:

- Policy dilemmas in design (small benefits; time frame; cost of implementation etc);
- Limited impact; neglect of opportunity cost; short duration and exit strategy; and
- Capacity constraints (UNDP, 2009: 20-21).

Rationale, Challenges and Prospects of CCT in India

Until a few years ago, cash transfers (CT) was nowhere in the public discourse in India (EPW, 2011:9). But, there has been experimentation with few CT schemes in the past, as outlined in Box 1. There has been growing chorus of opinion in India that redistributive programmes of the government have been relatively ineffective, leakages and subsidy bills are quiet high, that the benefits do not reach the poor, and that there is a case for introducing other forms of social assistance that have so far not been tried extensively (Kapur., Mukhopadhyaya and Subramanian, 2008; Prahalad et al, 2009; and Prabhu, 2009). The government spends approximately Rs. 73,637 crore a year on fuel and fertilizer subsidies. The case has been made that like other emerging market economies India too should seriously consider this form of social assistance (Mehrotra, 2010). Mehrotra advances the following reasons for the immediate introduction of CCTs in India:

- ❖ Despite a long history of redistributive poverty reduction interventions, hardly any programmes exist that provide direct cash assistance to the needy;
- ❖ Insignificant reduction in the number of the poor over the years is an indictment of the effectiveness of those programmes;
- ❖ The need for social assistance is amplified because of the fact that the vast majority of the workforce (92%) continues with highly volatile income in the unorganized sector (NCEUS, 2008). They deserve some form of social assistance in cash;
- ❖ Since today India is more exposed and vulnerable to external shocks and structural changes as a more globally integrated economy, instruments of insulation are inevitable;
- ❖ International development experience also weighs in favour of an increase in social transfers (health, education, social security); and
- ❖ Despite reported failure of poverty reduction programmes, India is an exception among emerging market economies who have decades of experience with CCTs for the poor.

In the above backdrop, Mehrotra (2010) has proposed five CCTs for India as follows:

- CT for Universal Minimum Income Guarantee with cash benefit of Rs. 250 per month and the condition that household must save half of the cash transfer;
- CT for Conditional Maternity Benefit with cash benefit of Rs. 4,500 (500 per month for 3 months preceding delivery and Rs.1,000 per month for 3 months post delivery) and the condition that the mother should attend ANC, TT vaccine, PNC & child to be immunized;
- CT for SNP of ICDS with cash benefit of Rs. 362;
- CT for TPDS with cash benefit of Rs. 8.5 per Kg of grain and the condition of purchase of food grains from market/PDS; and

Box 1: Major Cash Transfer Programmes in India *

Programme	Objectives	Services	Eligibility	Conditions
General Scheme				
1. National Old Age Pension Scheme (NOAPS) (1995) @	Financial assistance to old/poor destitute	Rs. 75 per month	Poor/Destitute of 65/65 +	Destitute/Poor of 65/65 +
CTs to change societal behavior towards girl children				
2. Indira Gandhi Matritva Sahayog Yojana (IGMSY) (2010)	Help pregnant women's nutritional needs	Rs 4,000 over a period of six months	Pregnant and lactating women	--Registration of pregnancy -- Fixed number of check-ups
3. Balika Samridhi Yojana (BSY) (1997)	-- Improve enrollment/retention of girls in schools --Increase the age of marriage --Assist income generation activities	Post-delivery grant of Rs 500; annual scholarship in the range of Rs 300 -1,000	Girls in BPL families	--Only for two girl children per household; -- Girls to be unmarried & alive till 18 years. --Family to be BPL
4. Kasturba Gandhi Balika Vidyalaya Scheme (2004)	--Reduction of dropout --Better enrollment in secondary schools	--Provision of Residential schools for SCs/STs/OBCs & minorities -- Rs 3,000 as one time deposit	--SCs/STs/OBCs & minorities -- All Grade VIII pass & enter Grade IX	--Retention till 18 years --To be unmarried for availing benefits
5. Janani Suraksha Yojana (JSY) (2005)	Reduction of maternal and neonatal mortality	-- Rs 1,000 in urban areas and Rs 1,400 in rural areas	-- Universal -- In non-focus areas limited to BPL	-- No conditions in focus areas -- In non-focus areas limited to BPL
6. Dhanalakshmi Yojana (2008)	--Incentives for school attendance -- Reduction of female feticides	--Cash to the family -- Rs 1 lakh insurance if single at 18	Universal in 11 educationally backward blocks across 7 states	--Birth & registration of the child; immunization; enrollment & retention in school
7. National Programme for Education of Girls at Elementary level under SSA (2003)	--Retention of out-of-school/poor/over-age girls --Working girls, girls from marginalized social groups	-- Free books, uniforms, stationery -- Rs. 150 per child per annum	Out-of-school/over—age/poor/working girls/ those with low attendance/ achievement	No conditions

* There are 34 odd CT schemes involving Rs 5,000-8,000 crore a year. In the 11th FYP alone, a provision of Rs 9,000 crore has been made for improving health, nutrition and education outcomes through CCTs. In addition to the national CT schemes, there are state level CTs also (like Ladli schme, Delhi; Shishu Shiksha Kamasuchi, West Bengal; Muthulakshmi, Tamil Nadu etc).

- CT for Skill Development of Youth with the cash benefit of ITI fees and the condition that the youth must be trained in ITI.

The three minimum requirements for their introduction are: a new methodology for identifying

the poor should be finalized soon; introduction of a biometric identification system for the BPL; and all BPL households should have post office or bank account.

In response to the emerging perspective, the

Indian Budget 2011-12 announced that the current subsidies on kerosene, fertilizers and, most important, food, would soon be given in some form of cash rather than be embedded in a subsidized price. Nilekani Task Force has recommended phased introduction of CTs for LPG, kerosene and fertilizer through pilot projects in seven States to provide inputs for a final blue print by year end. The beneficiaries would be able to get cash through banks, ATMs and even mobile banks when the project takes place. In its interim report submitted to the government on 6 July 2011 the Committee has suggested the creation of an IT-drive 'Core Subsidy Management System (CSMS)' which will be able to detect fraud and diversions. The government will transfer through the CSMS the cash component of the subsidy directly and in real-time into the bank account of the beneficiaries. The report has recommended a three-phase approach for subsidy transfer in the case of LPG and fertilizer. For kerosene, it suggested wider consultation with states (Mehdudia, 2011).

Though the Latin American experience makes a strong case for CCTs elsewhere, according to Narayanan, it is critical to understand the larger context of their success (which may be highly relevant to assess the scope of their adoption in the Indian context):

- First, CCTs have typically complemented state provision (thereby making the overall impact attributable to the two);
- Targeting and identification of beneficiaries for CCTs are significant problems; and
- The relative efficiency of cash transfers is highly context-specific (Narayanan, 2011:44-46).

It is observed that "the nature of the discourse in the country on CT/CCTs, that it is better if the State distributes the cash and leaves it to the market to provide the required goods and services, suggests that it is indeed an abdication of responsibility that is driving the impetus for the planned shift. India's anti-poverty programmes do need a radical overhaul. But that overhaul cannot be one in which the State withdraws from building social infrastructure and does no more than hand out cash to the deprived" (EPW,

2011:9). According to Ghosh (2011), CTs cannot and should not replace the public provision of essential goods and services, but rather supplement them. First, there is no mechanism to fully compensate for any price increase, and secondly there are problems in targeting. The Aadhaar technology cannot determine who is actually poor and which farmers deserve the cash subsidy for fertilizer. In the case of CCT in replacement of fertilizer and kerosene subsidies it is held that 'unless discussions on transfers are part and parcel of a broader strategy they will simply amount to tactical differences and not address long-term challenges' (Kapur, 2011: 84).

Concluding Observations

Though the international experience on CT as an instrument for poverty reduction and accumulation of human capital holds attraction for countries like India, the apprehensions aired on total abdication of state's responsibility in the subsidized distribution of essential goods to the poor point to the need for continuation of state provision, complemented by CCTs till the economy can manage sustainably demand and supply dimensions of the intervention. Before venturing into a full-fledged CT regime, replacing the current subsidy system, we have to address the supply-side bottlenecks, concerns of high inflation, gaps in the methods of identification of the poor, issues in financial inclusion, apprehensions on the technology implications of the unique identification mechanism, etc. A section of the poor consuming public seems to prefer the PDS to cash receipt for fear of inflation, artificially steered supply constraints, and possible neglect that they may have to face in the process of open market purchase. While the task force may bring the technology solution, better management of the market-dependent macro economy holds the key to successful introduction of cash transfers in lieu of subsidies in India. However, global experience on CCT and leakages in the subsidized provision of essentials in India makes a definite case for its introduction in the near future.

(The author is a Development Economist, 102, L.G. Manor, 12th Cross, Sadashiva Temple Rd, R.S. Palya, M.S. Nagar P.O, Bangalore-33. e-mail: pn_sankaran2004@yahoo.co.in)

TAPPING THE HUGE POTENTIAL OF FOOD PROCESSING SECTOR

Rakesh Kacker

Food grain production has registered a record growth in the country in recent years. India also ranks high among fruit, vegetable, milk, poultry and meat producing countries of the world. This has led to remarkably improvement in the earning capacity of population engaged in agriculture and allied sectors. However, due to lack of efficient supply chains and processing infrastructure, the processing levels in the country are quite low. This results in considerable amount of wastage of agricultural and horticultural produce. As per a study conducted by the Central Institute for Post-Harvest Engineering and Technology, post-harvest losses in 2009 were to the tune of Rs. 44,000 crore.

To harness the full potential of the food sector, the Ministry of Food Processing Industries launched new schemes in the 11th Plan, which are at different stages of implementation. The focus of these schemes

is on creation of modern infrastructure to facilitate growth of food processing and cold chain system for handling perishable produce. More specifically, these schemes relate to the setting up of mega food parks, integrated cold chains, value addition and preservation of infrastructure, and modernization of abattoirs.

Mega Food Parks Scheme

The Mega Food Parks Scheme (MFPS), a flagship programme in the food processing sector, facilitates establishment of a strong infrastructure backed by an efficient supply chain. The Mega Food Parks have farm proximate facilities such as primary processing centres, collection centres and a central processing centre. The food processing units within a Mega Food Park use common infrastructure required for processing, packaging, quality control



labs, trade facilitation centre etc, based on their needs. This cluster approach makes food processing more economically viable. The state-of-the art processing infrastructure gives them the required technical edge.

Mega Food Parks have the potential to revive the agriculture in the surrounding areas by increasing returns for farmers, besides creating large employment opportunities in rural areas.

Each Mega Food Park is envisaged to catalyse an investment of Rs. 250 crore, leading to annual turnover of about Rs. 400 – 500 crore. The scheme provides for a capital grant of 50 percent of the project cost (excluding the cost of land) subject to a maximum of Rs. 50 crore. In difficult and ITDP notified areas, the grant is even higher at 75 percent of project cost (excluding the cost of land) with a ceiling of Rs. 50 crore. The grant is utilized towards creation of common infrastructure in the Mega Food Park and also setting up of Primary Processing and Collection Centres.

Out of 30 proposed Mega Food Parks, 15 projects have been taken up so far. Of this, final approval has been accorded to 8 Mega Food Parks in Andhra Pradesh, Punjab, Jharkhand, Assam, West Bengal, Uttarakhand, Tamil Nadu and Karnataka. The cumulative project cost of these Parks is Rs. 930 crore. This includes grant of Rs. 400 crore.

In-principle approval has been accorded to the remaining 7 projects. 15 new Mega Food Parks are in the process of Government approval.

Scheme for Cold Chain, Value Addition and Preservation Infrastructure

The Scheme for Cold Chain, Value Addition and Preservation Infrastructure intends to address the shortage of cold storage capacity. Huge gap of 9 to 10 million tonnes of cold storage capacity was identified in the country by the Task Force on Cold Chains. The scheme aims at providing integrated and complete cold chain, value addition and preservation infrastructure facilities without any break, for perishables from the farm gate to the consumer. The assistance under the scheme includes financial assistance (grant-in-aid) of 50% of total cost of plant and machinery and technical/ civil works in general

areas and 75% for North East region and difficult areas, subject to a maximum of Rs. 10 Crore.

Initially, 10 integrated cold chain projects are under implementation in different parts of the country. Out of these projects, 8 have started commercial production. Concurrent evaluation of projects reveals substantive value addition, reduction in wastage and enhancement in farmers' income.

In the second phase, 39 proposals have been approved. The approved proposals envisage a total investment of about Rs. 850 crore which would be creating cold chain capacity of about 1.60 lakh tonne.

Taking note of the high demand for and the gap in the availability of cold storage, processing, preservation and cold logistics facilities in India, the Ministry is planning to upscale the Scheme and the Planning Commission has accorded 'in-principle' approval for the same.

A number of other initiatives have been taken in the last few years to upgrade the food processing capacities in different areas. As part of it, in the 1st phase 10 projects have been approved for modernization of abattoirs which are progressing well. Two projects have already been completed

Research, education and training in the food processing sector are being supported by the Indian Institute of Crop Processing Technology. The National Meat and Poultry Processing Board is engaged in promotion of meat industry. Grape processing is being supported by the Indian Grape Processing Board to cater to the needs of fast-growing wine industry.

The food processing sector is progressing well. The average growth has doubled from 7% in 2004 to 14% in 2010. The Vision 2015 Document has set the goal of tripling the size of the processed food sector. A number of schemes are already under operation in the sector and some more are in the pipeline to achieve the goal. These schemes, coupled with other flagship programmes in agriculture and allied sectors, are bound to change the face of rural India and add prosperity to the life of the common man.

(The author is Secretary, Ministry of Food Processing Industries)

(Courtesy PIB)



जन-गण-मन अधिनायक, जय हे
भारत-भाग्य विधाता।

पंजाब-सिंध-गुजरात-मराठा-
द्राविड़ उत्कल बंग

विंध्य-हिमाचल-यमुना-गंगा
उच्छल-जलाधि तरंग

तव शुभ नामे जागे,
तव शुभ आशिष मांगे,

गाहे तव जय गाथा

जन-गण-मंगलदायक जय हे
भारत-भाग्य विधाता।

जय हे, जय हे, जय हे,
जय जय जय जय हे॥



सत्यमेव जयते

Ministry of Information and Broadcasting
Government of India

Independence



davp 22202/13/0039/112

NATIONAL RURAL LIVELIHOODS MISSION

G.Srinivasan

Under NRLM there has been a major shift in strategy too for training and capacity building of key stakeholders. Thus, it is proposed to develop Community Resource Persons and Community Professionals as grassroots trainers. Besides, it is also proposed to develop villages and blocks as resource centres which not are more effective but would also reduce the pressure on State/district level training centres.

The Ministry of Rural Development has multi-purpose mandate to bring about a measure of relief to the rural masses across the country through purposeful schemes and programmes over the years. Among the major objectives of this vital Ministry in the development strategy of the country, mention must be made of a few momentous ones. These include, among others, bridging the rural-urban divide by ensuring rapid development of the former through budgetary backing to implement the slew of rural development schemes, guaranteeing wage employment and ensuring food security and to render the rural people the arbiter of their own destiny and to provide plausible resources for their

economic uplift and weal through promotion of self-employment. This article deals at length the schemes that were in vogue to tap rural entrepreneurial impulses and the headway they had made down the years in transforming or hoping to transform the otherwise dreary existence of legions of rural people who find difficult to make both ends meet in these days of economic liberalization and sway of market forces in allocating resources for efficiency in their use.

SGSY

Although several rural employment schemes or self-employment opportunities were fostered



by the authorities before the advent of economic liberalization when the State was preponderantly devoting resources for public programmes, it was in 1999 a holistic programme encompassing all facets of self-employment, organization of rural poor into Self-Help Groups (SGHs) and their capacity building, training, planning of activity clusters, infrastructure development, financial assistance through bank credit, subsidy and marketing support was conceived. Titled Swarnjayanti Gram Swarozgar Yojana, SGSY was fashioned after restructuring the Integrated Rural Development Programme (IRDP). Launched in April 1, 1999, the funds for SGSY were shared between the Centre and State in the ratio of 75:25, except in the case of North Eastern States where it is on 90:10 basis. The target groups of the SGSY consist of rural poor families living below poverty line.

The cornerstone of the SGSY strategy was that the poor need to be organized and their capacities built up systematically so that they can access self-employment opportunities. In the last 10 years of implementing SGSY, there has developed a universal acceptance in the country of the need for poor to be organized into SGHs as a prerequisite for their poverty alleviation. Subsequently, comprehensive reviews of SGSY had brought into sharp focus several shortcomings like vast regional variations in mobilization of rural poor, insufficient capacity building of beneficiaries, inadequate investments for building community institutions and weak linkages with banks, leading to low credit marshalling and repeat financing. Moreover, several States have not been able to fully avail of the funds obtained under SGSY owing to lack of dedicated human resources with matching delivery systems. In the absence of aggregate institutions of the poor such as the SHG federations, the poor households could not access higher order support services for productivity improvement, marketing linkage and risk management.

A high-powered Committee under the Chairmanship of a very eminent economist Prof. P. Radhakrishna was set up to look into credit and other related issues of SGSY. Its and other earlier evaluations of the then extant programmes conclusively revealed that for all poor households to come out of poverty, they need continuous support for at least 6-8 years and this support should be through their own organizations and their continuous

capacity building and nurturing. At least a minimum assistance of one lakh rupees per family in repeat doses should be given.

Restructuring

It was in this regard that the Government had approved the restructuring of SGSY as the National Rural Livelihoods Mission (NRLM) to be implemented in a mission mode across the country by building on the core strengths of the SGSY and incorporating the important components from large-scale experiences in the country. The salient features of the NRLM cover, inter alia, (i) Universal social mobilization of rural below-poverty-line (BPL) families and formation of SHGs and their federations at various levels to ensure that at least one member of each rural BPL family household, preferably a woman member of the household is brought under the SHG net; (ii) universal financial inclusion of the rural BPL households; (iii) training and capacity building and skill building of the beneficiaries; (iv) provision of revolving fund, capital subsidy and interest subsidy; (v) Support for infrastructure creation and marketing of products of the beneficiaries; (vi) skills and placements projects for providing skilled wage employment to rural BPL youth; (vii) flexibility to States to develop their own action plan for poverty reduction under NRLM; (viii) setting up of dedicated, sensitive support infrastructure from the national to sub-district level; (ix) convergence with other central and state government programmes and (x) monitoring, evaluation and transparency.

Funding

In order to be eligible for funding under NRLM the States are required to fulfill three conditions which include, (i) State level agencies and the district-sub-district level units are set up; (ii) professional staff has been trained and placed; and (iii) State level poverty reduction strategy has been formulated. The Minister of Rural Development Mr. Jairam Ramesh has told the Rajya Sabha in a written reply on August 9 that NRLM will aim at universal social mobilization and bring all seven crore or 70 million rural BPL families under the SHG network in a phased manner over a span of next ten years. Besides, Rural Self-Employment Training Institute (RSETIs) would be set up in each district in the country and the objectives of these institutes would be to impart short-term

skills training to rural BPL youth for taking up self-employment or skilled wage employment.

Under NRLM there has been a major shift in strategy too for training and capacity building of key stakeholders. Thus, it is proposed to develop Community Resource Persons and Community Professionals as grassroots trainers. Besides, it is also proposed to develop villages and blocks as resource centres which not are more effective but would also reduce the pressure on State/district level training centres. NRLM plans to partner with major training institutes and professional bodies for improving the quality of training inculcated to be beneficiaries. Plans are also afoot to beef up the National Institute of Rural Development, State Institutes of Rural Development, Extension Training Centres and other available training infrastructure in the nation.

As inadequate flow of bank credit bedevils all rural development programmes up till now, NRLM proposes to work on both the demand and the supply side of the problem. On the demand side, NRLM would invest heavily in improving the quality of SHGs, building robust and sustainable federations, improving the account and book keeping of the SHGs, tracking their repayment record which is likely to build the confidence of the bankers in their ability to repay loans. This would also be duly supported by information technology infrastructure for close monitoring and appraisal. On the supply front, the bankers would be sensitized through field visits and exposure to best practices. Making rural households the preferred clients of the banking system and mobilizing bank credit is core to the NRLM financial inclusion and investment strategy. The Ministry of Rural Development would work in close concert and coordination with the Department of Financial Services of the Ministry of Finance to facilitate setting up of dedicated financial institutions which would lend exclusively to women SHGs and SHG federations. In addition, in those States where SHF federations at block and district level exist and have established themselves as strong, self-reliant bodies, the Ministry of Rural Development would work on enabling them to become community-owned financial institutions to serve the financial needs of their member organizations. In the eventual analysis, the merit of the new and restructured NRLM is predicated on three pillars—enhancing and expanding existing livelihoods options of the

poor; building skills for the job market outside; and nurturing self-employed and entrepreneurs.

Mission Mode

As the implementation of the NRLM is in a mission mode, this enables a shift from the existing allocation based strategy to a demand-driven strategy enabling the States to evolve their own livelihoods-based poverty reduction action plans, besides focusing on targets, outcomes and time-bound delivery. This strategy also vests the States with the requisite flexibility to foster their livelihoods-based perspective plans and annual action plans for poverty reduction. The other major dimension of demand-driven strategy is that ultimately the poor would drive the agenda, through participatory planning at grassroots level, implementation of their own plans, reviewing and generating further plans based on their experiences. NRLM has set out with an ambitious bid to reach out, mobilize and bolster seven crore BPL households across 600 districts, 6000 blocks, 2.5 lakh grampanchayats in six lakh villages into their self-managed SHGs and their federal bodies and livelihood collectives. While NRLM's long-term dedicated sensitive backing would be with them and extend facilitation support in all their endeavors to get out of poverty, the poor would also be enabled to achieve augmented access to their rights, entitlements and public services, diversified risk and better social indicators of empowerment.

A silent and unobtrusive revolution would be visible in the coming years if all the stakeholders including State governments show the mettle to make the scheme a success for the worthy cause of bringing some light into the lives of millions of poor people all over the country. It is time most of them pulled the socks to establish State Rural Livelihood Mission (SRLM) as an autonomous body or designate an existing society as SRLM, appoint a State Mission Director, plan for inducting multi-disciplinary professional staff at State and District levels and submit State Perspective and Implementation Plan (SPIP) to Ministry of Rural Development for appraisal and approval so that the Central portion of funds meant for this massive welfare-improving scheme would keep flowing to States in the coming months.

(The author is Senior Journalist, based in New Delhi., e-mail geeyes34@gmail.com)

Access to ICTs and ICT Enabled Services for Persons with Disabilities in Rural India

Archana.G.Gulati

'To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems...'

-Article 9 of the U.N Convention on the Rights of Persons with Disabilities

India is home to one of the largest disabled population in the world. As per census 2001, 21.9 million Indians suffer from some form of disability. **Seventy five per cent of persons with**

disabilities ("PwDs") live in rural areas. A good percentage of these would either be unemployed and/or illiterate. Inclusive and sustainable development demands that Government policies



and resources aimed at this section of the population reach rural areas where the majority of PwDs reside. Particularly in rural India 'poverty and disability form a vicious circle. Poverty, many a times becomes a cause of disability, like, due to malnutrition, lack of clean drinking water, disease, lack of access to medical help. The family would make all efforts to get the best treatment, rehabilitation, school, training, mobility aid, other assistive aid, transport, etc., which would be a drain on the family's resources. The disabled member often remains a non-earning member of the family due to lack of opportunities. Moreover, it is also possible, that one or more people from the family are required to be with the disabled member at all times, and are therefore, not able to move out for earning. The disabled in rural India face many barriers to inclusion. To begin with they may find it difficult to communicate (as in case of a speech or hearing impaired individual) and to lead lives of self-reliance and dignity. If at all they and their families are aware of assistive devices/ technologies and if at all these are available, the cost may be prohibitive. In the absence of the same, they are often deprived of the ability to communicate effectively, to access to information and education and they miss out on many of the services and opportunities that normal people enjoy, due to their disability. They are unable to obtain employment and participate fully in and contribute to society. Their disability brings about isolation and marginalization. The position of disabled women is particularly poignant and they are a particularly vulnerable segment of the rural population.

There is another segment of the population which has similar needs. 'According to the Eleventh Five Year Plan document, the number of elderly persons in the Indian population is expected to increase from 71 million in 2001 to 173 million in 2026. A majority (80%) of the elderly population in the country live in the rural areas, thus making service delivery to them a challenge. Many of

the elderly develop disability of various kinds with age and require specific medical attention, aids and assistive devices, social security, and the reassurance that they are cared for in our country. After contributing actively to the nation's development, elderly people often get isolated into four walls completely dependent on family members for basic day-to-day activities. Even simple arthritis could restrict a person from going to the inaccessible bank, market place, post office, cinema house, garden, restaurant, and so on. Many elderly people also require psychiatric or psychological intervention.' It has been said that, "We must therefore stop relying totally on our family and social safety net to care for the elder, as we are doing now, and start working towards developing formal support and care-giving systems, using multi-sectoral approaches... Failure to do so with a sense of urgency will lead to an epidemic of unmanaged disability among the elderly, with its attendant ramifications" Finally the substantial illiterate/semi-literate populations of rural India face many of the challenges that the disabled face and many solutions would apply equally to aid in their inclusion into the socio-economic and political mainstream.

The Constitution of India guarantees equality, freedom, justice and dignity of all individuals and implicitly mandates an inclusive society for all including the persons with disabilities. Suitable policies and programmes have been laid down/ initiated by various Ministries and Departments of the Government of India to address the needs of PwDs, with the Ministry of Social Justice and Empowerment being the nodal ministry.

Role of ICTs

Information and Communication Technologies ("ICTs") can play an important role in facilitating the socio-economic and political inclusion and mainstreaming of PwDs as ICTs can enable them to access various services (health, education, government services etc),

information, employment opportunities etc and most importantly, to communicate effectively in spite of their particular disability. However for ICTs to play this role, the ICT services must be available, affordable and be truly “accessible”. ‘[A]ccessibility is a measure of the extent to which a product or service can be used by a person with a disability as effectively as it can be used by a person without that disability.

In recognition of the significance of ICTs, the United Nations Convention on the Rights of Persons with Disabilities (“UNCRPD” or “Convention”), has stressed The Convention was adopted by the United Nations General Assembly on December 13, 2006 and has been signed by 146 countries as of September, 2010, of which 90 have ratified it, making it an enforceable legal instrument since May 5, 2008 (when the 20th ratification occurred). India ratified the Convention on 1.10.08. Article 9 of the Convention defines ICT accessibility as an integral part of Accessibility Rights. Article 21 on Freedom of expression, opinion, and access to information specifically states that ‘States Parties shall take all appropriate measures to ensure that persons with disabilities can exercise the right to freedom of expression and opinion, including the freedom to seek, receive and impart information and ideas on an equal basis with others and through all forms of communication of their choice....’ Communication is defined by the Convention as including all possible means of interaction that may eliminate barriers. Communication “includes languages, display of text, Braille, tactile communication, large print, accessible multimedia, as well as written, audio, plain language, human reader and augmentative and alternative modes; means and formats of communication include accessible information and communication technology”. ICT accessibility is in fact included in all sector-specific accessibility accommodation and both Articles 9 and 21 state that even private entities

need to take accessibility into account when providing products and services.

Role of USOF

The Universal Service Obligation Fund of India (“USOF”) came into being with effect from 1.4.02 with the passing of the Indian Telegraph (Amendment) Act 2003 in December 2003. The Fund which is headed by the USOF Administrator has a mandate of providing access to Telegraph (Telecommunications) services to people in rural and remote areas at reasonable and affordable prices. The Fund has initiated a large number of schemes aimed at promoting public and individual access to telephony and broadband services in rural India.

Ensuring that PwDs in rural India are able to effectively access telecommunications services is an important facet of bridging the digital divide. Given its mandate, USOF appreciates that special initiatives and schemes are required to this end. In fact USOF is aware that addressing the need of individual and public access to telecommunications services by PwDs in rural India will also benefit the significant proportion of rural Indians who are aged or illiterate and need assistive technologies (“ATs”) to enable meaningful ICT access. For example, speech to text ATs would benefit both PwDs and illiterate/semi-literate to communicate and could facilitate them to perform ICT enabled/related jobs. Keeping this in view, it has been decided to launch a scheme of pilot projects for enabling PwDs in rural areas to access ICTs and ICT enabled services.

Scheme Description

In keeping with its mandate of Universal service and in recognition of the vital role that ICTs can play in facilitating the daily lives of PwDs, enhancing their well being and productivity and enabling their active participation in society, it has been decided to launch a scheme of Pilot Projects

for access to ICT facilities combined with ATs for PwDs in rural India. These projects would address accessibility in terms of hardware, software and human interface. The projects are envisaged to cover persons with various forms of disability including inter alia sensory (including vision and hearing), cognitive and motor disability. In this initiative, USOF will enlist the assistance of various stakeholders including inter alia telecom service providers, telecom equipment manufacturers, mobile and internet/broadband content providers, NGOs, Ministry of Social Justice & Empowerment etc.

Objectives

This scheme seeks to provide PwDs in rural India with meaningful access to telecommunications facilities and through telecommunications facilities, to enable them to access public services, information, educational and employment opportunities. To this end, USOF intends to undertake a variety of pilot projects to facilitate access to ICTs for PwDs. This would take the form of facilitation with regard to provision of appropriate ATs by way of telecommunications infrastructure (mobile phones and computers/servers), assistive software and content (including real time information and data bank of books and other printed matters relevant to PwDs). The projects would also cover the aspect of training of both facilitators and PwDs in the use of ATs. It is hoped that these pilot projects would effectively demonstrate and highlight the utility and positive impact of AT enabled ICT access for PwDs and this would encourage service providers and other stakeholders to take up such initiatives on a larger scale in order to address the needs of PwDs.

Project Categories

The following project categories are envisaged so far. However other project types may also be considered.

A. Setting up of ICT centres equipped with

appropriate ATs for PwDs in educational/rehabilitation/vocational training institutions in rural areas.

B. Provision of special handsets with/without access to bundled content for PwDs in rural areas.

C. Public access to ICT facilities with ATs in villages or in/near rural institutions dealing with PwDs.

Benefits/Anticipated Outcomes

Through this initiative it is primarily hoped to enrich the lives of the PwDs who are provided with ICT enabled access to information, skills and employment opportunities under the scheme. The scheme is expected to result in enhancement of self-reliance of PwDs covered and in their integration with and mainstreaming into society. The pilot projects would thus be expected to contribute to the social, political and economic empowerment of PwDs. It is also envisaged that the success of these pilots will effectively demonstrate the utility and benefits of AT enabled ICTs to the Persons with Disabilities and their families in rural India and to institutions/organizations dealing with PwDs, on the demand side, and to service providers, equipment manufacturers and content providers etc, on the supply side. This scheme is expected to provide an impetus to the development of ATs and relevant content in accessible formats in regional languages. Finally, it is expected that the success of these projects will lead to scaling up of such initiatives to the national level under both commercial and CSR agendas of service providers/telecom manufacturers/content providers.

(The author belongs to the 1989 batch of the Indian P&T Accounts and Finance Service. She has held posts as Internal Financial Advisor in the Department of Telecommunications (DOT), BSNL and MTNL. At present, she is posted as Joint Administrator (Finance) USOF, DOT HQ, New Delhi, e-mail : jafusof@gmail.com)

RURAL TELEPHONY

Dr. P. Kameswari

Information is critical to the social & economic activities that comprise the development process. Telecommunications, as a means of sharing information, is not simply a connection between people, but a link in the chain of the development process itself." [Hudson 1995]



Fig-I: Rural Connectivity despite Remoteness

India achieved substantial socio-economic development since independence. Unfortunately this development has not been shared equitably by all. Some sections of the society have been left out and some areas, like rural, tribal and remote areas, could not keep pace with urban areas in development. If vast sections of society and areas are left out, it breeds unrest and is not conducive to a sustainable development of the country.

The Government has initiated several schemes to correct these anomalies: to restore equitability by reducing the rural-urban divide, to eradicate poverty and hunger from the rural landscape, to assure basic needs for the villagers, to improve their gainful employment, to improve the socio-economic infrastructure in the rural areas and to safeguard and improve the fertility

of land and other natural resources. Improvement of the socio-economic infrastructure in the rural areas for ensuring integrated development includes attention to roads, irrigation, housing, water supply, electricity, sanitation, natural resources development and Information and Communication Technology (I.C.T.).

Indian telecom sector is more than 165 years old. The entire evolution of the telecom industry can be classified into three distinct phases.

- Phase I- Pre-Liberalization Era (1980-89)
- Phase II- Post Liberalization Era (1990-99)
- Phase III- Post 2000

Telecommunications in Phase-I was a heavily government-controlled and small-sized market. As a result of the Government policies in Phase-II, the Indian telecom market has become one of the most liberalized in the world with private participation in almost all of its segments. The New Telecom Policy, 1999 (NTP-99) has played a pivotal role in the growth of this industry.

Rural connectivity holds key to rural development through strategies, like:

- ◆ Distributing locally relevant information
- ◆ Targeting disadvantaged & marginalized groups
- ◆ Promoting local entrepreneurship
- ◆ Improving poor people's health
- ◆ Strengthening education
- ◆ Promoting trade and e-commerce
- ◆ Supporting good governance
- ◆ Building capacity and capability
- ◆ Enriching culture

- ◆ Supporting agriculture
- ◆ Creating employment opportunities
- ◆ Reinforcing social mobilization

EFFORTS FOR IMPROVEMENT OF RURAL TELEPHONY

Telecom connectivity constitutes an important part of the effort to upgrade the rural infrastructure. Under the Bharat Nirman Programme (BNP), Rural Teledensity (Table-I) of at least 40% by 2014, Broadband Coverage (Table-II) of all 2,50,000 village panchayats and setting up Common Service Centers at panchayat level by 2012 are proposed to be achieved.

Main Objectives of the National Telecom Policy, 1999 (NTP-99) include:

- ❖ Access to telecommunications (at the core of its vision and goal);
- ❖ Balance between the provision of universal service to all and the provision of high-level services capable of meeting the needs of the country's economy;
- ❖ Encourage development of telecom facilities in remote, hilly and tribal areas;
- ❖ A greater competitive environment in both urban and rural areas of Telecom Sector

Table-I: Rural Teledensity for February 2011 under Bharat Nirman II

S. No.	Circle/State	Percentage of Rural Teledensity (as on 31-03-2009)	Percentage of Rural Teledensity (as on 28-02-2011)
1	ANDAMAN & NICOBAR	16.57	31.75
2	ANDHRA PRADESH	15.22	33.19
3	ASSAM	9.36	23.36
4	BIHAR	9.17	26.41
5	CHHATTISGARH	1.81	2.77
6	GUJARAT	25.21	45.81
7	HARYANA	28.10	51.36
8	HIMACHAL PRADESH	40.47	68.68
9	JAMMU & KASHMIR	16.72	29.13
10	JHARKHAND	1.44	2.35
11	KARNATAKA	14.36	34.26
12	KERALA	35.43	52.65
13	MADHYA PRADESH	11.07	28.95
14	MAHARASHTRA (including Goa)	21.70	45.25
15	NORTH-EAST- I (comprising Meghalaya, Mizoram & Tripura)	14.67	50.34
16	NORTH-EAST- II (comprising Arunachal Pradesh, Manipur & Nagaland)	3.69	7.78
17	ORISSA	12.55	28.07
18	PUNJAB	33.11	55.45
19	RAJASTHAN	16.71	38.14
20	TAMIL NADU	25.62	47.53
21	UTTARAKHAND	6.04	9.46
22	UTTAR PRADESH - [East]	10.24	26.47
23	UTTAR PRADESH - [West]		
24	WEST BENGAL (including Sikkim)	13.50	35.22
25	KOLKATA	-	-
26	CHENNAI	-	-
27	DELHI	-	-
28	MUMBAI	-	-
	ALL INDIA	15.11	32.99

providing equal opportunities and level playing field for all players;

Recent Policy Initiatives in Telecom Sector:

- ❖ All villages shall receive telecom facilities.
- ❖ National Long Distance Service (NLD): open for unrestricted entry.
- ❖ The International Long Distance Services (ILDS): open to competition.
- ❖ The basic services: open to competition.
- ❖ 4th cellular operator (over existing 3, 1 each in 4 metros & 13 circles) permitted.
- ❖ Policies allowing private participation in several new services: Global Mobile Personal Communication by Satellite (GMPCS), digital Public Mobile Radio Trunked Service (PMRTS) and Voice Mail/ Audiotext/ Unified Messaging.
- ❖ WLL for telephone connections in urban, semi-urban and rural areas.
- ❖ Disinvestment of 2 public sector telecom undertakings, VSNL and HTL.
- ❖ Steps to fulfill Universal Service Obligation (USO) funding and administration.
- ❖ A decision to permit Community Phone Service for each panchayat.
- ❖ Multiple Fixed Service Providers (FSPs) licensing guidelines announced.
- ❖ Internet Service Providers (ISPs) allowed to set up International Internet Gateways & both satellite & landing stations for submarine optical fiber cables.
- ❖ Two categories of infrastructure providers have been allowed to provide end-to-end bandwidth and dark fiber, right of way, towers and duct space.
- ❖ Guidelines by the Govt. to open up Internet Telephony (IP).

GROWTH & REVENUE

The recent growth of Indian telecom has become a benchmark for other infrastructure

sectors in India. Government of India has initiated a flag ship programme, B.N.P., that has a component of Rural Telephony. It has the potential to transform rural India. The main aim is to bridge the rural-urban divide and vitalize the rural economy of India to participate in transforming its own future. The current extent and pattern of diffusion of telecommunication technology in India aims to perpetuate the top-down approach to development, keeping the disadvantaged out of the process.

India had the second largest network with 562.15 million telephone connections at the end of December 2009. It has grown very rapidly in the range of 40 per cent per annum, permitting the addition of nearly 300 million connections in the first 2 ½ years of the Eleventh Five Year Plan. It aims at bridging the digital divide between urban and rural areas and extending broadband connectivity as an integral part of the U.S.O. Policy executed through the USO Fund. Gross Budgetary Support (GBS) for the 11th Plan for Department of Telecommunications (DoT) was fixed at Rs 1,752 crore with an Internal and Extra-Budgetary Resources (IEBR) component of Rs 89,582 crore. The growth of telephony in India is led primarily by the wireless segment with over 10–12 million connections, on average, being added every month.

Rural areas in the country have experienced rapid growth in telecom services and the tele-density increased from 5.9 per cent in March 2009 to 21.16 per cent in December 2009. The total number of rural communications at the end of December 2009 was 174.53 million, compared to 47 million at the start of the 11th Plan. In November 2004, an agreement was signed with BSNL to provide public telephones under the B.N.P. to 66,822 uncovered villages, the roll-out period initially prescribed as 20, 30, and 40 % respectively over a 3 years ending at November 2007. This period has since been extended. As on December 2009, 61,186 village public telephones (98 per cent) had been provided. However, BSNL has informed DoT that 4,520 villages could not be provided public telephones due to various reasons,

like extremist threats, some villages de-populated, not traceable or submerged.

REALITY CHECK

Ever since the government has opened the telecom market for private players, rural India has been on the private operators' radars. Most private telecom operators claim that they are providing rural connectivity at its best, but they have not done enough. Service providers, though claiming to provide rural telephony in adjoining villages, have installed towers on highways and only those villages that come in the periphery are connected. That's the definition of rural telephony for private operators. But, they cannot alone be blamed. After paying huge license fees, it does not make sense for all operators to invest in areas where return on investment (RoI) would be minimal. Private operators are paying around Rs 5,000 crore per year as Access Deficit Charges (ADC) to Bharat Sanchar Nigam Limited (B.S.N.L.) on per call basis. Also, 5% of their annual growth rate (AGR) goes in the USO Fund that the government had created in 2002 to subsidize calls in rural areas. Since BSNL is the only operator in rural areas, it is the biggest beneficiary.

In the villages, it's the village public telephones (VPT) that address the basic requirements of the villagers. At least one VPT is required in every village. This was a mandatory requirement to be fulfilled by all the basic service operators as part of the license condition before Unified Licensing came into existence. BSNL is withdrawing from the USO fund kitty for extending support for operation and maintenance of VPTs, for replacement of Multi Access Rural Radio system (MARR) equipment, for providing Rural Community Phones (RCP) and for providing rural households direct exchange lines.

Also, since the Annual Revenue Per Unit (ARPU) of the rural masses is substantially lower compared to the urban customers, any private telecom operator choosing to enter this segment has to be very cautious because of huge investments to cover rural terrestrial spread for small yield per customer—a major chunk of which would come from

the voice business as data business is anyway in a nascent stage even in the urban areas.

Though the rural operations are currently unviable for any operator, subsidies, waiver of wireless charges, sharing of infrastructure and growing affluence of rural India could change this equation dramatically. Now, as the urban market is reaching saturation and ARPU therein is declining further, cellular service providers will have to move towards rural India. It's the government's turn to take the plunge and make rural telephony happen with the participation of private players.

TECHNOLOGY FOR THE RURAL SECTOR

The Telecom Research Centre (TRC) has suggested various techno-economic products for the rural sector:

- 1) **Optical Fibers:** Can be of use to rural communications wherein one can connect an intermediate station to the main highway by branch routes by drop and insert systems.
- 2) **Rural Cordless Telephone (RCT):** A simple and inexpensive equipment that can be put to use in some areas where the villages are very much dispersed and the terrain is difficult. One cordless telephone in each village will suffice and an appropriate number of trans-receivers should be provided at the base station (the telephone exchange).
- 3) **Radio Sharing System (RSS):** This is a radio frequency sharing system with two frequency pairs serving 15 V.Ts. The ratio of VT to Radio Channels is 7.5 (with built-in expandability to 16). All VTs connected to the RSS have individual line terminations in the telephone exchange.
- 4) **Line Sharing System (LSS):** A metallic pair passing through a number of villages can be used on "line sharing" basis, providing teleconnections to every village en route.

Multi Access Radio Relay (MARR): One of the main technologies for the rural sector because of the ease of maintenance, installation and future

expansion possibilities. The Wireless in Local Loop (**WLL**) technology will assist in more rapid installation of the network and is ideal for both urban and rural areas.

Very Small Aperture Terminal (**VSAT**) satellite systems and Low Earth Orbiting Systems (**LEOs**) are also being touted as technological solutions for rural ICT, but no single technology will satisfy the diverse needs. It is most likely that a mix of these technologies will provide the ultimate solution for each area.

RURAL CONNECTIVITY CHALLENGE

The targets put forward in the Policy Draft of the Government can not be achieved without the participation of the rural masses and the private operators. It is imperative for the government to come out with regulatory reforms that can make connectivity affordable in rural areas where majority of customers belong to the 'poor' community. It's clear that rural teledensity cannot be achieved without wireless roll out and the government needs to promote wireless technologies for rural areas at subsidized rates. The government should offer end terminal subsidy to telecom operators for rural customers. And once demand in the rural areas reaches its peak, it would be self sustaining and the subsidy could be withdrawn thereafter.

As the mobile phones have outnumbered the fixed-line connections in the country, the bias towards fixed line telephony should end and ADC and USO funds should be made open for all operators in a planned manner. And considering the fact that all fixed line phones are not wire line phones, subsidies should be extended to fixed wireless terminals (FWT). FWTs, handy & rolled out quickly, could trigger the growth of rural telephony.

For VPTs the government should take into account Telecom Regulatory Authority of India (TRAI) recommendation wherein it has asked for subsidy provisioning away from VPT and individual phones to the creation of infrastructure. Once this infrastructure is created, all new and existing infrastructures would be mandated to be shared

on reasonable terms, with adequate incentives for sharing put in place. This will ensure that no single operator, as owner of a large network, can exploit his monopoly position.

The Service Providers: The urban mass market can not boost the cellular operators' bottom-line any longer. Various initiatives like free incoming calls, massive cuts in long distance rates, declining voice revenues and value-added services have been tried to boost the flagging ARPU from this saturated mass market. The rural market is a good business proposition for cellular operators and handset manufacturers as mobile phone penetration is still very low in this area. Also, the entry cost of going mobile has dropped considerably. The added charm is their lowest churn rate. Their only cause of concern are the massive investment required and RoI.

USO Fund Utilization: USO fund shall hereafter be credited into a separate fund instead of a consolidated Government fund, as was done earlier. It would now be used to induct new technologies to speed up rural connectivity through various info-communication services. Subsidy out of the fund has been paid out on the basis of competitive bids from telecom service providers. The cost of infrastructure and the cost of last mile access have to be considered by the licensed operators before bidding. BSNL with its existing rural infrastructure built out of public funds has an advantage over the others. Sharing of passive infrastructure will reduce the cost of network for private operators. The incumbent operators would hereafter be asked to share the infrastructure. To meet the target for rural teledensity it is inevitable that the government also offer terminal subsidy for rural customers, who currently can't afford to buy high priced handsets and terminals. All operators should be persuaded to bid for difficult and non-remunerative rural areas too, as otherwise there will be a tendency to operate only in remunerative areas. To fulfill the real objectives of the USO it should be enforced on the operators to make plans for covering all the states,

provide services to any person desiring it throughout the country and not to choose subscribers only as per present plans.

The USO fund plans to support the setting up of High-speed Public Telecom and Information Centers (HPTICs) in selected areas on a pilot project basis. These centers will have a 256 kbps broadband connectivity and will provide certain e-governance services to people in rural areas. Also, the USO fund would support setting-up of shared infrastructure for extending cellular services to rural areas. The support from USO funds needs to be continued for individual connections as well as operation and maintenance of wired line networks, due to the inherent high cost for operation and maintenance. The merger of USO fund with ADC also makes sense as both are essentially serving the same objective of providing affordable services in rural areas. As the gross revenues of the telecom sector have been rising at a Consolidated Annual Growth Rate (CAGR) of 30%, the percentage share contributed by the private sector service providers to the USO fund should be lowered in a proportionate manner.

As far as infrastructure deployment is concerned, the current operating cost structure for serving rural customers is exorbitantly high, given the Wireless Planning and Coordination (WPC)-spectrum and backhaul charges. The Government should offer a moratorium to telecom players by virtue of a waiver of all these charges for some period; thereafter, these could be levied as in urban areas. The biggest handicap in spread of rural telephony is the non-availability of power in rural pockets. The passive infrastructure should include power back up (rectifiers and battery) and the Diesel Power Generation sets. The need of the hour is extensive telecom infrastructure creation in these areas to tap the vast rural market potential. It would be better if all operators join hands and either create and share, or the Government should persuade BSNL to share its infrastructure. The government should allow every operator to bid for the rural territories for passive infrastructure.

Infrastructure sharing should be made mandatory for any operator who is the first to enter this territory. The backbone infrastructure sharing should be made mandatory for all operators to backhaul traffic and ensure that BSNL provides the SDCA level interconnection to any operator who plans to serve villagers in that area. Rural mobile infrastructure should be funded by the USO. Those who access the fund, as a condition, should then share their infrastructure with anyone who wants it. The Government should offer subsidy for end terminals to telecom operators for a certain period of time, till demand becomes self-sustaining.

Conclusion

The major constraints for the low rural teledensity have been lack of investible resources, nonavailability of appropriate technology combined with difficult geographical terrain and continental size of the country. In the post-liberalization period various sectors were opened up for private competition. The public sector operators have also been corporatized in October, 2000. While these steps would encourage private investment, the social obligation of providing telecom facilities in the rural and un-economic areas requires certain incentives, like tax concessions, waiver of license fee & interconnection charges and financial support to attract private operators to the rural areas. The challenges posed by India's diversity of regions, incomes and demographic pattern are great. Optimum solutions have to be evolved with appropriate policy initiatives for funding, technologies, organizational structure and regulation. Achievement of India's rural telephony objectives needs to be approached in a holistic manner wherein not only due policy and regulatory glitches need to be ironed out, but also various procedural concerns also need to be addressed. Time has come to kick-start the initiatives as recommended by TRAI, with consensus among all operators and active participation by the rural folk.

(The author is Director & Professor, Anwarul Uloom College of Business Management, Hyderabad, e-mail :thuppal2000@yahoo.com)

Better Practices for Sustainable Agriculture Health and Environment

Dr. Harender Raj Gautam, Dr. M.L.Bhardwaj

Better agricultural practices are those which are safe to the environment, human beings and all other living beings on the earth and simultaneously also help in enhancing the agricultural production. Thus, such practices will certainly advocate the use of bio-resources. In India, better agricultural practices were part of our farming in traditional agriculture. Now, these practices are being adopted in different farming systems. These farming systems are sustainable agriculture, alternative agriculture, conservation agriculture and organic farming which all advocates the use of better agricultural practices

In India, Green Revolution in agriculture has made a significant contribution on aggregate supply of food grains, ensuring food security to the growing population. However, the momentum gained during the period of Green Revolution slowly declined. Now, agricultural growth faces a serious challenge in terms of sustainability. Today, the main problem in the agriculture pertains to sustainability of resource use and indiscriminate use of chemical fertilizers and pesticides. These problems have led to increasing awareness and a felt need for moving away from

the input intensive agriculture perused during the Green revolution phase, to sustainable farming in different parts of the world. Better agriculture practices are needed to bring sustainability in Indian Agriculture. Excessive use of chemical fertilizers, chemical pesticides and chemical herbicides has long lasting and deleterious effects on the soil health; on the quality of agricultural produce; health of farm workers, consumers of the agriculture produce and other terrestrial and aquatic life and environment. Our nature has provided us bountiful of resources



which can the requirement of various inputs required for sustainable farming. There is need to judiciously harness and use these bio-resources to make agriculture profitable, safe to the agricultural workers and to the consumers.

Better agricultural practices are those which are safe to the environment, human beings and all other living beings on the earth and simultaneously also help in enhancing the agricultural production. Thus, such practices will certainly advocate the use of bio-resources. In India, better agricultural practices were part of our farming in traditional agriculture. Now, these practices are being adopted in different farming systems. These farming systems are sustainable agriculture, alternative agriculture, conservation agriculture and organic farming which all advocates the use of better agricultural practices. Sustainable agricultural systems can be economically, environmentally and socially viable, and contribute positively to local livelihoods. The resource conservation practices conceived for this include minimum or zero tillage, letting crop residues get back into the soil instead of burning them, immaculate land leveling to ensure the even spread of water, and applying only need-based fertilizer and water to crops. The benefits of such practices are many, and somewhat obvious. They protect soil health to enhance its fertility, prevent the environmental pollution caused by burning of crop residues, save on the labour and energy required for repeated land tilling, and reduce the use of water in agriculture, sparing it for other purposes. The biggest advantage is that by letting biological residues get back into the soil, it transforms agriculture from a carbon emitter to a virtual carbon sequester by converting crop land into a carbon sink. Conservation agriculture is estimated to have spread globally to over 100 million hectares. In India, it is now practiced on about 2 million hectares and is proposed to be extended further to around 3.5 million hectares in the next two years.

Organic Farming

Organic farming is the other method of which advocate the use of better agricultural practices. It recommends the use of such agricultural practices which are biological in nature and eco-friendly. These agricultural practices preserve environment and biodiversity. Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems.

Organic farming has emerged as the only answer to bring sustainability in agriculture which

is good for the environment and also good for the human beings. Organic farming advocates for stopping the use of chemical fertilizers, chemical pesticides and all other inorganic puts in farming. Organic farming helps in creating an ecological balance and a micro-environment suitable for health and growth of soil micro-flora, plants, animals, farm workers and finally the vast population of consumers. Organic

Organic farming is practiced in more than 150 countries and 35 million hectares of agricultural land are managed organically. In India, about 528,171 hectare area is under organic farming

farming is practiced in more than 150 countries and 35 million hectares of agricultural land are managed organically. In India, about 528,171 hectare area is under organic farming (this includes certified and area under organic conversion) with 44,926 number of certified organic farms. This accounts for about 0.3 per cent of total agricultural land. Indian organic farming industry is estimated at US\$ 78 million and is almost entirely export oriented. According to Agricultural and Processed Food Products Export Development Authority (APEDA), a nodal agency involved in promoting Indian organic agriculture, about 585,970 tonnes of organic products worth of Rs 301 million are being exported from India. Growing awareness, increasing market demand, increasing inclination of farmers to go organic and growing institutional support have resulted in more than 200 per cent growth in certified area during the last two years. Central Government has set up

a National Institute of Organic Farming in October 2003 in Ghaziabad, Uttar Pradesh. The purpose of this institute is to formulate rules, regulations and certification of organic farm products in conformity with international standards. The major organic products sold in the global markets include dried fruits and nuts, cocoa, spices, herbs, oil crops, and derived products. Non-food items include cotton, cut flowers, livestock and potted plants.

Need for Better Agricultural Practices

Adverse effects of chemical pesticides have been reported on both the abiotic and biotic components of the environment. The former are exemplified by residues in soil, air, water, food etc. and the latter by phyto-toxicity, residues, vegetation changes etc. in plants and physiological deformities, diseases, mortality, population changes, genetic disorders etc. in mammals, avian, insects and other organisms. Entry of pesticides into the food chain coupled with their bioaccumulation and biomagnifications trigger effects of unforeseen consequences. Chemicals like methyl bromide, chlorofluorocarbons etc. are established culprits for depletion of the ozone layer. There are several reports of adverse effects of chemical pesticides on human beings from Punjab, Andhra Pradesh, Kerala and other parts of the country where excessive use in certain pockets of these states has led to higher incidence of cancer and other diseases. Recent example of pesticide toxicity is of Endosulphon in Kerala and Karnataka, where the Hon'ble Supreme Court has to intervene to stop its sale.

Simultaneously, indiscriminate use of fertilizers, particularly the nitrogenous, has led to substantial pollution of soil, air and water. Fertilizer contamination of ground waters has led to eutrophication of lake and river waters causing depletion of oxygen and even death of aquatic life, nitrate pollution, increased emissions of gaseous N and metal toxicities. The presence of nitrates in potable water has been blamed for health hazards such as birth defects, impaired nervous system,

cancer and methaemoglobinemia (the blue baby syndrome).

Options in Farming for Better Agricultural Practices

Sustainable agriculture or organic agriculture is the only answer for sustainable agricultural growth. There is need to promote organic farming practices in agriculture. The sustainable agriculture may be defined as any set of agronomic practices that are economically viable, environmentally safe, and socially acceptable. If a cropping system requires large inputs of fertilizer that leak from the system to pollute ground water, drinking supplies and distant coastal fisheries, the system may be sustainable economically as the long-term supply of fertilizer is stable and the economic cost of fertilizer is easily borne by larger grain production. But, this system is not sustainable environmentally or socially, since it does not cover the cost of environmental damage or social costs. In contrast, the organic agriculture focuses on "living soil", on optimizing the use of biological processes and on avoiding the

use of synthetic chemicals and fertilizers. Adoption of better agricultural practices and organic inputs will certainly reduce the use of chemical inputs. Thus better agricultural practices should focus on the following areas to achieve the goal of sustainability in agriculture.

- Agricultural practices should focus on reduced use of off-farm inputs with less harm to environment and consumers. Bio-fertilizers and bio-pesticides are the potential alternatives in the area.
- There should be more productive use of biological and genetic potential of plants and animals. Biotechnological tools can help us to create novel technologies which have higher potential.
- Efforts should be made to have a better match between cropping patterns and the physical capacity of lands. In India, there is vast scope

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away from the bowl of green revolution concentrated in Punjab, Haryana and Western Uttar Pradesh to harness the potential of land and the crops with better agricultural practices and harnessing the natural resources.

- There should be an improved emphasis on conservation of soil, water, energy and biological resources as excessive use of chemical inputs has resulted in degradation of our soil ecosystem.
- Water is a critical input of our agriculture which is crucial for agriculture growth in the future. Better water management is one of the important components of better agricultural practices. Emphasis should be given to adopt such irrigation practices like drip and sprinkler irrigation which reduces the wastage of water. Rainwater harvesting should be an important component of better agricultural practices to increase water availability and recharge our groundwater sources.
- There should be efforts at every level of farming for more thorough incorporation of natural processes. Because, natural processes always enrich our environment and biodiversity.

Scope for Farming Based on Better Agricultural Practices

There is vast scope for adoption and promotion of better agricultural practices. If we take into consideration organic farming into consideration, the scope is tremendous. Organic farming relies heavily on biopesticides and biofertilizers. The current global market for organically raised agricultural products is valued at around US\$ 30 billion with a growth rate of around 8 percent. Nearly 22 million hectares of land is now cultivated organically. The organic cultivation represents less than 1 percent of the world's conventional agricultural production and about 9 percent of the total agricultural area. This only highlights the tremendous potential in

the growth of biopesticides and biofertilizers. In view of their several advantages, the demand for natural pesticides and fertilizers has been rising steadily. It is estimated that the total global market for synthetic pesticides which was valued at US\$ 26.7 billion in 2005 will decline to US\$ 25.3 billion in 2010. On the other hand, the global market for biopesticides will increase from US\$ 672 million in 2005 to over US\$ 1 billion in 2010. While Europe, at an average annual growth rate (AAGR) of 15 percent, is projected to lead the growth in biopesticide use, Asia will be no far behind with an average AAGR of 12 percent. Worldwide data for biofertilizer market are not available though the sale volume is estimated to be US\$ 3 billion.

While the overall market for pesticides is showing a decline, the biopesticides market is growing rapidly, increasing from \$672 million in 2005 to over \$1 billion in 2010, at an AAGR of 9.9 per cent. These pesticides are seeing increased usage because they are environmentally friendly. Biopesticides include microbial pesticides, plant-incorporated protectants, and others, which include natural predators, entomopathogenic nematodes, and parasitoids.

Biopesticides represent only 2.89 per cent (as on 2005) of the overall pesticide market in India and is expected to exhibit an annual growth rate of about 2.3 per cent in the coming years. In India, so far only 12 types of biopesticides have been registered under the Insecticide Act, 1968. Neem based pesticides, *Bacillus thuringiensis*, NPV (viral insecticide) and *Trichoderma* (fungus) are the major biopesticides produced and used in India. Whereas, more than 190 synthetics are registered for use as chemical pesticides. Consumption of biopesticides has increased from 219 metric tons in 1996-97 to 683 metric tons in 2000-01, and about 85 per cent of the biopesticides used are neem based products. India has 18 million of neem trees and if full potential of the neem trees is harnessed, it can meet the total requirement of pesticides in Indian agriculture. Consumption of chemical

There is vast scope for adoption and promotion of better agricultural practices. If we take into consideration organic farming into consideration, the scope is tremendous.

pesticides has significantly fallen from 56,114 MT to 43,584 MT during the same period. The Indian Council of Agricultural Research (ICAR) has 31 bio-control production facilities while DBT supports another 22. The National Agriculture Technology Project (NATP) led IPM project during 1998 to 2005 also enhanced the use of biopesticides. States like Tamil Nadu and Andhra Pradesh already have 200 laboratories producing biopesticides. The National Centre for Integrated Pest Management (NCIPM) looks after plant protection needs in various agro-climatic zones of the country. Besides, it oversees the setting up and running of State Bio-control Labs (SBCLs). There are around 38 such SBCLs across the country, which are engaged in production and distribution of natural predators and parasites to farmers. The Insecticide Act of 1968 has been amended accordingly to simplify the process of registration to allow speedier development and production of biopesticides. The National Farmer Policy 2007 has strongly recommended the promotion of biopesticides for increasing agricultural production, sustaining the health of farmers and environment. To provide a boost to the organic products' exports, the government has decided to launch an awareness program amongst farmers and offer subsidies. APEDA (Agricultural and Processed Food Products Export Development Authority) will be launching a drive of 100 percent organic products exports from the current level of ₹530 crore per annum to ₹1,000 crore by 2012. APEDA is offering subsidies to encourage the marginal and poor farmers' community to undergo an extensive change from existing chemical farming to organic farming. Some of the other efforts towards promotion of organic exports include, attempts to collaborate with all the major organic products importing countries.

There are some good examples where countries have given explicit national support for

Cuba has a national policy for alternative agriculture; and Switzerland has three tiers of support for both types of sustainable agriculture and rural development. Austria, Denmark, Sweden and Finland have given explicit national support for organic agriculture, but this has not necessarily impacted upon conventional farmers.

sustainable agriculture. These countries are putting it at the centre of agricultural development policy and integrating policies accordingly. Cuba has a national policy for alternative agriculture; and Switzerland has three tiers of support for both types of sustainable agriculture and rural development. Austria, Denmark, Sweden and Finland have given explicit national support for organic agriculture, but this has not necessarily impacted upon conventional farmers. The impact of the new policy has already been remarkable. In Tamil Nadu, for example, farmers are experimenting with row planting, planting distance, biofertilizers (*Azospirillum*, *Azolla*), organic manures and basal fertilizer applications. With the increase in farmers' adoption of biocontrol agents (e.g. *Trichogramma*, neem), conventional pesticide use has fallen by 50 percent on average. Incomes of the farmers have increased by Rs 1 000-1 250/ha, and rice yields have increased by 250 kg/ha.

Thus, better agricultural practices will promote conservation agriculture, organic farming which will help in sustainable production in agriculture. As the input required in such farming practices will have to be produced locally, such agricultural practices will create more rural employment in agriculture. Such practices will also help in reducing the cost of production in agriculture. In the long run, such practices will give a sustainable growth to our agricultural production.

(The authors are working on better agricultural practices in cultivation of fruit and vegetables for the last 20 years. Dr. Harender Raj Gautam is Senior Scientist, Department of Mycology and Plant Pathology and Dr. M.L.Bhardwaj is Professor and Head, Department of Vegetable Science, Dr.Y.S.Parmar University of Horticulture and Forestry, Nauni, Solan-173230, Himachal Pradesh., e-mail: hrg_mpp@yahoo.com)

RURAL UNIVERSITIES AS CATALYSTS OF RURAL DEVELOPMENT

Dr. Raju Narayana Swamy

Education is not a tradable service with profit as its key objective. It shapes the very process of social and economic development. The majority of the rural people are deprived of adequate educational facilities. The study covers the necessity for the emergence of Rural University which will lead to the development in rural areas. It calls for combining an all-out assault on rural poverty, and presents a proposal of education for sustainable rural development. Rural universities can act as a powerful medium for strengthening the process of development in rural areas. India needs to maintain high quality and cost-effective education for a sustainable rural development.

Rural people represent the majority of the world population and make up over 70 percent or 840 million, of the World's poor (FAO, 2001). Lavinia Gasperini (2003) describes that rural people commonly suffer from unequal access to education, healthcare, infrastructure, technology, institutional support and markets. Although over the last decade international aid has rightly stressed the importance of

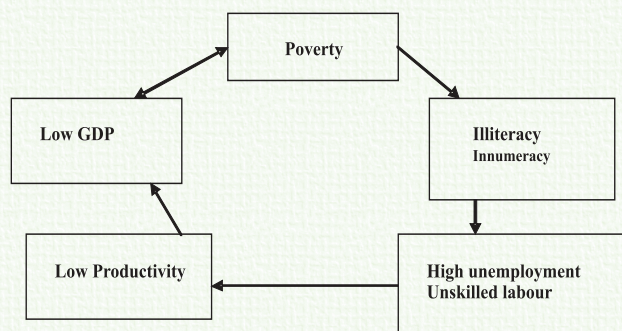
concentration over the poor, it has neglected rural areas and thus the majority of these people were deprived of those facilities including education. Basic education is a fundamental human right in itself and essential for reducing poverty and improving the living conditions of rural population. Since rural people have low political voice these areas have low national priority and lack access to adequate basic social



services. FAO (2006) says four main issues have been faced by rural areas.

The correlation between illiteracy, food security and poverty is high. Both hunger and lack of education are facets of extreme poverty. Hunger, malnutrition and food insecurity erode cognitive abilities and reduce school attendance. Conversely, lack of education reduces productivity and earning capacity, and increases vulnerability to hunger and extreme poverty (Gasparini, Lavinia, 2003, p.23.). The problem of poverty is first of all a problem of rural poverty and food security because in many poor countries rural areas have seen little or no economic development. There is a high correlation between poverty and illiteracy; illiteracy/innumeracy in turn lead to high rates of unemployment; unemployment results in lower productivity; and that, in turn produces a lower GDP. This is the vicious cycle that characterizes the rural condition (see the fig. below).

Fig. 1
The Static or Albatross Condition



Source: Mokubung, Nkomo, *Rural Based Universities in South Africa: Albatrosses or Potential Nodes for Sustainable Development?*, www.campus-ostenible.mty.itesm.mx, Accessed on 1st April 2011.

The chances of marginalization for poor countries are significantly enhanced by the fact that economic growth is becoming increasingly linked to a nation's ability to acquire and apply knowledge. The advent of the knowledge economy will clearly transform the pattern of the demand for labour throughout the world, with quite profound

implications for education (Habibullah Khan & Jeremy B. Williams (2006). Education is one of the most powerful weapons in the fight against rural poverty. Unfortunately this is also among the most deserted aspects of rural development. The transformation of the economy is not an easy task. Even an efficient utilization of the world market requires freedom to specification, need quality control and depends on an informed consciousness of the economic tasks involved. The economic success of the east Asian 'tigers', and more recently of China, has been based on a much higher level of literacy and basic education than India has. This is one of the 'cage' that incarcerates the Indian economy and society (Jean, Dreze & Amartya, Sen, (1996).

The number of poor people in India, according to the country's Eleventh National Development Plan, amounts to more than 300 million. Almost one third of the country's population, more than 1.1 billion continues to live below the poverty line, and a large proportion of poor people live in rural areas. Poverty remains a chronic condition for almost 30 per cent of India's rural population. Poverty is deepest among members of scheduled castes and tribes in the country's rural areas. In 2005 these groups accounted for 80 per cent of poor rural people, although their position in the total rural population is very small.

Rural development is a process of qualitative and quantitative changes to improve circumstances in rural regions. Such a process needs to be an integrated program where all aspects of rural life should be taken into account. The most essential one of these programs is to educate the rural poor to become literate and employable in better jobs.

Rethinking education for rural development

IRT Centre for Rural Education points out that rural areas are diverse and are in a state of change. The principal need, mostly ignored so

far, is to acclimatize, adjust and re-direct national educational priorities, strategies and resources to the specific conditions of diverse and changing rural communities. It is essential to turn the continuing and inevitable transition of rural areas, often with adverse consequences on the rural economy, environment and people's life, into an active and positive process of transformation of rural communities. Educational programs have to become a vital part of this transformation through committed partnership of the government, communities, business, and civil society as a whole (International Research and Training Centre for Rural Education, 2001, pp.16-17.). Hence education is very relevant for the rural poor in India.

In India there is disparity in various social indicators including literacy and primary education enrolment between the southern and western states, on the one hand, and the central region of the country, on the other. There is disparity within the country among different segments of the population, especially between the mainstream and various excluded groups characterized by high incidence of poverty and distinctive ethnic and cultural identity. The excluded groups are often disproportionately represented in rural populations. Gender discrimination introduces another dimension of disparity that cuts across other form of discrimination. Over 250 million people in India, for e.g., living mostly in rural areas, under the category of "scheduled castes" and backward classes, collectively called the dalits or the oppressed, are affected by different forms of ethnicity-and caste-based discrimination and exclusion. ((International Research and Training Centre for Rural Education, 2001, pp.41-48.).

Does rural India need post elementary education

Developing countries like India couldn't fulfil their goals with respect to primary education, unless secondary and higher education are

neglected. This assumption juxtaposes one level of education against another, and leads to the fragmented look at education sector. There are inter-linkages between different sub-sectors of education and all levels of education are important. Further, the government seems to be sharing the widely held belief that development of primary education, at best elementary education, is enough for development in India. Primary education is necessary for not only education development, but also social and economic development. At the same time the experience also demonstrates that primary education is not sufficient for economic growth and a sustainable development. (Jandhyala, B.G. Tilak(2004).

The study of Jandhyala (2005) on 'Education and Development: Learning and Livelihoods' shows that secondary and higher education enhances earnings of the individuals and contributes to economic development. But post-elementary education makes a significant contribution to reduction in absolute as well as relative poverty. Life expectancy is also positively related to post-elementary education. Societies that have concentrated rather exclusively on primary education and ignored secondary and higher education could not achieve high levels of economic growth. In short, it is not adequate for fast economic growth to neglect high education

Higher education in India

The development of higher education system in India has been messy and unplanned. There are many basic problems facing higher education in India today. Ensuring equitable access to quality higher education for students coming from rural families is a major challenge. India with an enrolment ratio of around 14 percent is still 'selected' in terms of higher education system. At the best it is moving towards a mass higher education system, in terms of absolute number of students. With wide variations between

rural and urban areas, higher education in India has very diverse characteristics.

The enrolment rate (GER) for higher education which has risen from 0.7 percent in 1950-51, 1.4 percent in 1960-61, and 8 percent in early 2000 is low (about 10 percent) compared to the world average of 23.2 percent and an average of 54.6 percent for developed countries, 36.3 percent for countries in transition, and 11.3 percent for developing countries (Higher Education in the World 2006: The Financing of Universities, 2011). While the GER is low for the overall population, there is large variation among the various categories of population based on urban or rural habitations.

The transition to higher education, which is particularly difficult and expensive, requires support. The confront of higher education for people is complex and requires determination and resources. However, the keys to achievement are becoming hard and hard. The growth of higher education in India has been largely guided by the serviceable prerequisite of the economy. After independence, the roles of the State in planning out a development path and also in building higher education institutions were guided by mutuality of purpose. Performance of higher education institutions is not satisfactory in terms of access, equity and quality. This is mainly because of the ambivalent attitude of the State (Sudha, Rao, K. & Mithilesh Kr Singh). Higher Education should no longer be perceived as an attainment of a degree but an opening to attain sufficient knowledge and skill so as to function as a productive element of society.

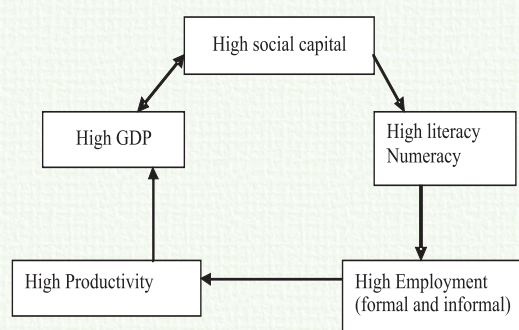
The overall literacy rate in India (Census 2001) has gone up by 10 percent during the last 10 years. The vision of SSA (Sarva Shiksha Abhyan) is to provide useful and relevant elementary education of satisfactory quality for all by 2010. More (8-10 percent) of this educated would search

for admission in colleges for higher education in the coming 10 to 12 years. For this we want to create an additional capacity of eight to 11.7 million college seats. The existing capacity is eleven million college seats created in the last 150 years. According to the report of the Committee on 'India Vision 2020 full development of India's enormous human potential will require a shift in national priorities, to commit a greater portion of the country's financial resources to the education sector. India currently invests 3.2 -4.4 per cent of GNP on education. This compares unfavourably with the UMI reference level of 4.9 per cent, especially with countries such as South Africa, which invests 7.9 per cent of GNP on education. A near doubling of investments in education is the soundest policy for quadrupling the country's GDP per capita (India Vision 2020, 2002, p.47).

Rural University

In the context of the current development paradigm, rural university, as an institution, is important. Rural-based Universities can play a critical role in raising the literacy rate and building social capital; which increases prospects of employability (including self employment); leading to high productivity and a higher GDP; leading to higher standards of living and an improved quality

Fig. 2
The Dynamic Catalytic Condition



Source: Mokubung, Nkomo, *Rural Based Universities in South Africa: Albatrosses or Potential Nodes for Sustainable Development?*, www.campus-ostenible.mty.itesm.mx, Accessed on 1st April 2011.

of life and social well being. By this it is immensely possible for the rural based Universities to be able to overcome their albatross condition (Mokubung, Nkomo). The vicious cycle illustrated (fig. 1) can be converted to a dynamic emancipatory culture (see fig. 2).

There should also be partnership among the community, university and government support structures for the community to encourage learning processes. The three partners should support each other in achieving the goals. The educational systems in these areas should make use of and build on the community's traditional knowledge and expertise validating, conserving and sharing it with all those for whom it is useful.

Initiatives for rural university

The role of higher education institutions in rural development is conceptualized and defined with local and State development plans. The University Education Commission report of Dr. Radhakrishnan (1949) included a subdivision on 'Rural University'. The report highlighted that the existing universities in India are focussing on cities and towns and not on villages, the whole educational system was devised to prepare personnel for Government jobs and not for social transformation. The report further states that India needed a distinct and independent institution to bring transformation in the Indian Rural society. In 1954 the Government of India appointed a committee under the chairmanship of Dr. K. L. Shrimali to look into higher rural education. Based on the recommendation of the Shrimali Committee the National Council for Rural Higher Education (NCRHE) was established in 1955. Ten institutions called 'rural institutes' which would be later developed into rural universities were identified namely:

1. Balwani Vidyapith (Bichpuri, Agra)
2. Gandhigram (Madurai)¹
3. Jamia Milia Islamia (New Delhi)

4. Lok Bharti (Sanosara, Saurashtra)
5. Mouni Vidhyapith (Gargoti, Kolhapur)
6. Ramakrishna Mission Vidyalaya (Coimbatore)
7. Shivaji Lok Vidyapith (Amravati)
8. Shri Niketan (West Bengal)
9. Toorki (Bihar)
10. Vidyabhawan (Udaipur)

In 1986 a new education policy was released which gave much prominence to the concept of 'rural university'. This gave importance to Gandhiji's ideas on basic education for the transformation of rural areas. It correlated the educational programmes to socially useful productive work, social service and academic study. A programme of action was drawn up by the ministry entitled 'New Education Policy 1986'. It advocated the following;

- a. Consolidation of the existing rural universities;
- b. Reorganization of the Rural Institutes established as a part of schemes of rural higher education launched in the II Five Year Plan;
- c. Encouraging other institutions to take up Rural Reconstruction;
- d. Strengthening Rural Development Educational Programmes in select institutions;
- e. Supporting the elementary, secondary and post basic institute based on 'Nai Talim';
- f. Strengthening the content of all these institutions with emphasis on science and technology; and,
- g. Setting up of National Rural Institutes Council to manage the affairs of Rural Institutes and Rural Universities (G.Palanithurai, 2009).

The 'New Education Policy' was modified in 1992 and National Council for Rural Institutions (NCRI) was established in 1995 by the Government of India. NCRI was shaped for beginning a new

education system to manage the rural development programmes. The idea behind its establishment was to set up a chain of rural institutions, strengthen their confederations, initiate their networking and set up a rural university (First Round Table Conference of NCRI, 2008). The objectives of NCRI are as follows:

- a. to promote rural higher education;
- b. to develop institutions engaged in programs based on the Gandhian philosophy of basic education and Nai-Talim and consolidate their net working;
- c. To encourage other educational institutions and voluntary agencies to develop in accordance with the Gandhian philosophy of education;
- d. To strengthen teacher training facilities for Gandhian basic education;
- e. To design a variety of courses at the tertiary level around emerging rural occupations;
- f. To strengthen the curriculum of all these institutions with emphasis on science and technology;
- g. To encourage field-oriented courses of rural institutes;
- h. To promote research as a tool for social and rural development;
- i. To promote extension services to those institutions through micro level planning;
- j. To advice Government of India on all matters pertaining to rural institutions as may be referred by it from time to time.

Rural institutional framework for development

The rural universities should function like catalyst to bring about needed changes in rural

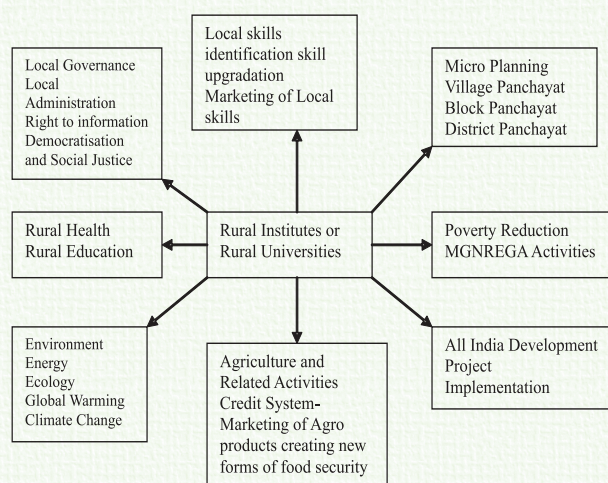
areas. The rural universities should be reorganized to meet the requirements of the community. For a country like India, where the majority of the population lives in villages, the socio-economic transformation should start with rural areas. Small enterprises should be started as a means of development. Gandhiji gave importance to two aspects namely, the individual would be functionally literate and training in skills should be made to ensure that the basic education is tailored to the needs of local micro-enterprises, thus, enabling a person to earn while learning (Fifth Round Table Programme, NCRI, 2008).

Rural renovation needs an entirely different governance system, organizational system, livelihood system and economic system for which a new education system is needed. For this to ensue there is need for a vigorous interface between the academy and the community. They should work together to take decisions, evolve policies, prepare strategies and allocate resources for all development activities. The available rural skills have to be improved. The skills through the universities have to be linked productively with the market system. A new support system can be developed through the universities to support farmers to face the agricultural crisis. A strong prominence on research and development is required to support the SHGs, Kudumbasree units and MGNREGA program planning. This can help in providing better living condition for the rural communities. Palanithurai (2009) has framed a blue print of new rural university which is given below:

Conclusion

The human Development Index (2009) ranked India 134, which is one of the lowest among the League of Nations. (Adult literacy rate and GDP per capita parameters- 120th and 128th position). This indicates that we require more educational institutions to address the problem of accessibility and also need

Fig. 4
Blueprint for a New Rural University



Source: Palanithurai, G.(2009), 'Rural Universities in the Era of Globalization', *University News*, 47(33), p.5.

to provide higher education at an affordable cost. There is a need for more access opportunities for deserving candidates belonging to economically backward people and areas. Rural higher Education has been a neglected subject in the overall agenda of Higher Education in India. Under the scheme of special development grants for colleges in backward area, the UGC plans to provide grants to establish 253 new colleges in districts where the GER was perceived to be dismal, but this scheme is yet to be implemented.

The confront of higher education for rural people is composite and requires persistence and resources. 'Rural Institute' concept is still under experiment in India. But these institutions are imperative in contributing to the regional development. Having understood the potential of rural institutes in contributing to the development of rural areas and helping in poverty alleviation programmes, they have to be functionally and structurally reoriented. There is a solemn need of public-private joint venture to start rural universities. We will do great service to our Nation if we spend energies on seeking excellent rural institutions. Only then can we really feel proud of producing excellent trained manpower.

Suggestions

- Make higher Education accessible for deserving students.
- There should be State-funded programs to monitor quality of higher education institutions.
- Appropriate administrative structures should be developed.
- Strengthen rural institutional aptitude to plan and administer education for rural development by supporting new partnerships at the national and global levels.
- The success of rural institutes depends on the understanding of rural issues by our policy makers, planners, educators and administrators. Hence they should provide a need-based, innovative and goal-oriented educational system.
- Community participation in the educational system should be ensured as many a time the ephemeral civil servant is unable to come out of the 'collector mode' which vitiates university atmosphere, stifles discourse and becomes the cause for clash and discard.
- Government should encourage public-private partnership in a hands-on way to facilitate retaining public interest. Invite and involve new stakeholders.
- Financing higher education has to remain a State responsibility shared with other stakeholders.
- Create a framework conducive to diversification of resources.
- Develop appropriate management information system. Address education for rural development systematically across all levels of education.

(The author is Secretary to Government of Kerala, Youth Affairs Department, e-mail : narayan5@ias.nic.in)

LAND RECORDS MODERNIZATION IN THE COUNTRY

Land and as an asset plays an important role both in rural and urban areas. In fact our people attach significant social and cultural values to it. Therefore, it is important that a landholder should have an authentic and tamper proof record of the land. In India since time immemorial, rulers have been mapping land for various purposes like collection of taxes, military purposes, demarcating political boundaries, settling disputes etc.

As the population increased, the land parcels became small & valuable, and different agencies like Panchayats, Consolidation Department, Survey Department, Revenue and Registration Department etc. came into existence. The manual system of land records maintenance was not able to cope up with this situation. There is growing demand for easy accessibility to up-to-date and accurate land records. The advent of computers in the country in the eighties provided a solution to this problem. As a follow up of the decision in the Conference of the State Revenue Ministers in 1985, the Government of India initiated

two Centrally-sponsored schemes – Strengthening of Revenue Administration & Updating of Land Records (SRA& ULR) and Computerization of Land Records (CLR).

The scheme of SRA& ULR was launched in the year 1987-88 to help the States and UTs in updating and maintaining the land records, setting up and strengthening of the survey and settlement organizations and the survey training infrastructure, modernization of the survey & settlement operations, and strengthening of the revenue machinery. The Scheme was approved by the Cabinet in the year 1987-88 for the States of Bihar and Orissa. This was subsequently extended to cover rest of the country. The funding pattern was 50: 50 between the Centre and the States and 100 % for UTs. The progress achieved under the scheme is as follows:

- Construction of 1466 land record rooms completed in 16 States/UTs



- Construction of 4311 office-cum-residences of Patwaris/Talathis/RIs completed in 15 States/UTs
- Strengthening of 64 revenue/survey training institutions by construction, renovation, up gradation, providing modern equipments etc. done by 20 States
- Survey/resurvey projects taken up by the States/UTs of Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Dadra & Nagar Haveli, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Tamil Nadu, Rajasthan, Uttar Pradesh and West Bengal.

Centrally sponsored scheme of Computerization of Land Records was started in 1988-89 with 100% central assistance as a pilot project in eight districts of the States such as Rangareddy in Andhra Pradesh, Sonitpur in Assam, Singhbhum in Bihar, Gandhinagar in Gujarat, Morena in Madhya Pradesh, Wardha in Maharashtra, Mayurbhanj in Orissa, and Dungarpur in Rajasthan. This was subsequently extended to cover the rest of the country. The main objectives of the scheme were:

- Computerization of ownership and plot-wise details for issue of timely and accurate copy of the Record of Rights (RoR) to the land owners.
- To store the records with the latest digital technology for long time.
- To provide fast and efficient retrieval of information both graphical and textual.
- To provide database for agricultural census.

The progress achieved under the scheme is as follows:

- States which have stopped manual issue of RoRs - 16
- States/UTs which have accorded legal sanctity to the computerized copies of RoRs - 21
- States/UTs which have placed RoR data on websites - 16

- States/UTs which have effected mutations using computers - 18
- States/UTs which have taken up digitization of cadastral maps - 26
- Computer Centers set up in 4434 Tehsils/taluks, 1045 Sub-Divisions, 392 Districts and Monitoring Cells in 17 State Hqs.

These two schemes have been merged and replaced with a modified Centrally-sponsored scheme of the National Land Records Modernization Programme (NLRMP) in the year 2008-2009. The ultimate aim of the scheme is to usher in the system of conclusive titles in the country replacing the presumptive titles system as is prevalent today. For this purpose, the Department has prepared a Model Land Titling Bill which has been circulated to the States/UTs for comments/suggestions.

District has been taken as a unit of implementation under the NLRMP and all the activities are supposed to converge in the district. Funds have been released to 26 States to cover 204 districts under the program until now. Further, 21 NLRMP Cells/Centers have been established in 18 States/UTs to provide comprehensive training on various components of the NLRMP.

The citizen is expected to benefit from the NLRMP in one or more of the following ways;

- i. Real-time land ownership records will be available to the citizen
- ii. Since the records will be placed on the websites with proper security IDs, property owners will have free access to their records without any compromise in regard to confidentiality of the information
- iii. Free accessibility to the records will reduce interface between the citizen and the Government functionaries
- iv. Public-private partnership (PPP) mode of service delivery will further reduce citizen

- interface with Govt. machinery, while adding to the convenience
- v. Abolition of stamp papers and payment of stamp duty and registration fees through banks, etc. will also reduce interface with the Registration machinery
 - vi. With the use of IT inter linkages; the time for obtaining RoRs, etc. will be drastically reduced
 - vii. The single-window service or the web-enabled "anytime-anywhere" access will save the citizen time and effort in obtaining RoRs, etc.
 - viii. Automatic and automated mutations will significantly reduce the scope of fraudulent property deals
 - ix. Conclusive titling will also significantly reduce litigation
 - x. These records will be tamper-proof
 - xi. This method will permit e-linkages to credit facilities
 - xii. Market value information will be available on the website to the citizen
 - xiii. Certificates based on land data (e.g., domicile, caste, income, etc.) will be available to the citizen through computers
 - xiv. Information on eligibility for Government programs will be available, based on the data
 - xv. Issuance of land passbooks with relevant information will be facilitated
- Some of the States like Gujarat, Haryana and West Bengal etc. have done considerable amount of work in the field of modernization of land records. Haryana has integrated its land records system and the registration systems resulting in real time and up-to-date land records. West Bengal has integrated textual and the spatial data of the RoRs. Gujarat has digitized all of its cadastral maps and has superimposed more than hundred GIS layers relating to various attributes e.g. wastelands, agriculture land, water bodies, power lines, roads etc. on these digitized maps. This is helping in comprehensive planning for various purposes.
- (Inputs from the Department of Land Resources)*

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CHANGING GEARS FOR RAINBOW REVOLUTION

Dr. S. Ayyappan

In view of the emerging challenges and threats to agriculture sector, vis-à-vis national food security, the Indian Council of Agricultural Research (ICAR) has developed a strategic framework to improve food security, enhance opportunities for inclusive growth, augment competitiveness of Indian agriculture and create adequate and quality human resources to address the concerns. Some of the major concerns include, natural resources degradation, increasing biotic and abiotic pressures, declining input use efficiency, post-harvest losses, decreasing profitability in farming, quality human resource and farm extension. To deal with the challenges effectively, ICAR is coordinating, guiding and managing research, education and extension in agriculture, including horticulture, fisheries and animal sciences, in the country. It has a vast network with 97 ICAR institutes, 54 state

agricultural universities; five deemed universities and one Central Agricultural University and 592 Krishi Vigyan Kendras (KVKs) spread across the country. The research programmes under umbrella of the ICAR are designed and undertaken for harnessing power of science that ensures food, nutrition and livelihood security for all.

The comprehensive initiatives taken by the Council have led to notable accomplishments in natural resource management, input use efficiency, climate resilience, secondary agriculture and economic transformation of farmers through technological interventions. The year 2010-11 has been agriculturally rewarding as we have observed record food grain production touching 242 million tonnes in farm season (July-June) according to the 4th advance estimates released recently. The food



grains comprise rice, coarse-cereals and pulses. The record output was largely because of a sharp rise in production of wheat to 86 million tonnes against 81 million tonnes in the year before. The record high oilseed production of 31 million tonnes is another notable accomplishment to cheer. Further, a high production in horticulture, 234.4 million tonnes could also be achieved through policy and technological support.

The bygone year has thrown many challenges also. These include perceptible climate change, as seen by the dry spells in the Eastern India, despite normal rainfalls across the country; degrading land and water environment; need for quality inputs; emerging problem of agricultural labour; and post-harvest losses across the commodities. It was here that the ICAR provided, both directions and solutions, in terms of crop varieties suitable for both drought and submergence; defined elements of fertilizer application, based on the nutrient deficiencies; farm mechanization for both field and horticultural crops; and developed clear estimates of post-harvest losses of various crops and commodities, as the basis for formulating future approaches. The paradigm shift from 'primary to secondary agriculture' was focused in our discussions and research process, as was demonstrated through the projects in the value chain component of the National Agricultural Innovation Project (NAIP); that is planned to be further enlarged in the coming years. A parallel development has been the establishment of agri-incubators, a new concept in the Indian agriculture; expected to develop entrepreneurship in a big way. In our efforts at institutionalizing the research extension continuum, the 'Farm Innovators' meet held during the year, the second in the series, added a new dimension to our approach of innovative agriculture.

Among new projects, a National Initiative on Climate Resilient Agriculture is a noteworthy one launched with the objective to assess impact of climate change on the agriculture and allied sectors, and for evolving cost-effective adaptation and mitigation strategies. The Project has a budget outlay of Rs 350 crore for XI Plan; out of which Rs 200 crore is allocated for 2010-11, and Rs 150 crore for 2011-12 on the research infrastructure, capacity-building and

on-farm demonstrations of available climate-resilient technologies.

During the year 2010-11, 60 varieties/hybrids of crops including major food crops of rice, wheat, maize, pearl millet and pulses were released/ recommended for cultivation in different agro-climatic regions of country. During the year, 629 tonnes of nucleus seed, 9,554 tonnes of breeder seed, 7,745 tonnes of foundation seed, 3,471 tonnes of certified seeds and 10,443 tonnes of truthfully labeled seed were produced for large scale multiplication to ensure timely supply of quality seeds to farmers.

To address the problem of decreasing soil and water productivity, the GIS based soil fertility maps, using soil-test data was prepared for 500 districts spread over 21 states of India. The data have revealed that soils of most of the districts have low to medium amount of nitrogen and phosphorus and medium to high amount of potassium. Existing ridge-and-furrow system of irrigation was modified for in-situ rain water harvesting (10% than the earlier 1% of rain), which increased castor yield by 30%. A decision support system was developed for facilitating location specific nutrient management.

With a view to enhance profitability and livelihood security, integrated farming is being promoted in all the ecological regions with the desired technological backstopping. An Integrated Farming System Component Selection Model is found useful for selection of the components of the integrated farming system based on the expected profit under the prevailing constraints, and also for suggesting beneficial components from profit as well as land and water productivity point of view.

To improve the quality and productivity of livestock population, artificial insemination is being standardized and adopted in field situations. Successful pregnancy from artificial insemination with extended semen is reported for the first time in Indian dromedary camels. The first mithun calf was born at farm-gate level through artificial insemination using cryo-preserved semen from genetically superior mithun bulls. Semen collection by 'Gloved Hand Method' and AI technique were standardized for pigs, and by using AI technology, highest litter size (15 piglets) at birth was recorded from a Ghungroo sow in the farm.

With repositioning of its approach towards entrepreneurship and livelihood security, the ICAR has made a strong commitment for socio-economic transformation of the Indian rural population. The research programmes, educational initiatives and extension activities have been reoriented to meet the objective. Efforts are being made to ensure free flow of knowledge, crossing all barriers on the way. The ICAR has adopted open-access policy for its highly-rated research journals and other literature of importance. The website (www.icar.org.in) has transformed into a treasure house of agricultural information and knowledge for various categories of stakeholders. On an average, more than 2, 00,000 visits are recorded per month from around 166 countries reflecting the global presence of Indian agriculture. Consortium for e-Resources in Agriculture (CeRA) is providing free online access to more than 2,900 international journals and 124 libraries of the National Agricultural Research System (NARS). During the year 2010-11, 64 patent applications were filed and 10 were granted making the total as 481 and 58 respectively.

As a special thrust to North-East region, Knowledge Information Repository in Agriculture for North-East has been launched by the ICAR with a mission to empower the agricultural production system of North-East region with right technology and methodology emphasizing innovative approach and solutions. It will act as a platform to foster linkages among partners and collaborate with public, private, state and regional organizations functioning in the region.

Partnerships grew at the national level and also across the globe with the projected Borlaug Institute for South Asia and enhanced Indo-African and India-Afghanistan Fellowships in Agricultural Universities. An ICAR-Industry meet was also convened in New Delhi in collaboration with Confederation of Indian Industry (CII) which received an overwhelming response from the private sector. Twenty-five new Units were added to the existing 220 Units in 49 universities to develop entrepreneurship skills among students. Niche Area of Excellence was also supported at 30 locations to achieve global competence in agricultural research and education.

Under the ICAR award scheme, two new prestigious awards have been instituted, namely ICAR Norman Borlaug Award and ICAR Challenge Award. The total numbers of awards to be given annually in specific categories have been increased from 13 to 22. Similarly the award money has also been enhanced in most of the categories.

The ICAR has repositioned its approach in the formulation of 12th five year plan to bring a demand driven and technology led revolution in the country. The Council will focus more on the commodities and the areas where private sector would be reluctant to venture. Secondary and specialty agriculture and the strength inter-departmental platforms will be harnessed to sustain the benefits of agricultural research and development. At national level, initiatives such as National Agricultural Education Project, National Agricultural Entrepreneurship Project, National Agricultural Science Foundation and National Agricultural Innovation Foundation have been envisaged to further strengthen and accelerate the process of transformation. However, in all these initiatives the Council is making a forward march with Farmers First approach.

The research and development programmes during the year have armed ICAR with preparedness to meet future challenges, especially of prospective global climate change vis-à-vis depleting and degrading natural resources. We envision that innovations in agriculture would transform existing slowdown in agriculture sector into a vibrant and competitive sector by harnessing untapped opportunities in domestic and global markets. The Council firmly believes that agricultural research and development would augment farmers' income, generate employment opportunities, conserve natural resources, restrict imports, promote exports and increase value addition for higher and inclusive agricultural growth.

Appropriately backed by frontier sciences and techniques, a surge in production and productivity of major commodities is on the way to realize the dream of rainbow revolution.

(The author is Secretary, Department of Agricultural Research and Education, and Director General, Indian Council of Agricultural Research)

HIMACHAL SOCIAL FORESTRY PROJECT FOR CARBON CREDIT TRADING

Rajnish Himachali

Himachal Pradesh Mid Himalayan watershed development project is the first pilot project for India and is the world's first carbon credit project that is linked to an ongoing watershed management programme

A multi-crore Himachal Pradesh Mid Himalayan Watershed Project has been registered for carbon trading scheme under United Nations Framework Convention on Climate Change (UNFCCC). The Project is expected to sequester the emission of 800 million tonnes of carbondioxide from 2006 to 2025 by promoting biodiversity through native species in remote areas.

This is first such project on public land to be registered for carbon trading in India in which 5000 families in the state will earn green money through

raising plantations on barren land. The project is the first experiment of its kind in getting community participation in the plantation, conservation and protection of environment.

Under the carbon trading scheme, a wholly new business has developed in the commodity markets in state in which the 5000 families from remote and backward villages will receive carbon revenue for next 20 years from world bank for providing green cover to 4000 hectare barren land area falling in 10 districts of the state. All these areas were classified as deforested before 1990.



The UN scheme has set a price of about 2500 per hectare per annum of carbon which will be measured depending on the growth of tree biomass. The biomass stocks will be periodically measured from permanent plots to estimate the carbon revenue. The bio mass measurement will be started within a year.

The project is estimated to generate carbon revenue of at least Rs. 20 crore to the communities and individual land holders for the first crediting period of 20 years, which is strong incentive to protect forest cover. The first payment is likely to be disbursed to the stakeholders in next two years said Shri R. K. Kapoor, Chief Project Director.

In a first experiment of its kind in getting participation of local people in the conservation and protection of environment, the villagers will be paid 90 per cent of the revenue the Government will get by selling to the World Banks the carbon credits resulting from sequestration of greenhouse gas carbon dioxide through afforestation.

The project will reduce 40,000 tonnes of carbondioxide per year for a 20 year crediting period beginning from the year 2006. The project is initially for 20 years which can be extended to total 60 years period.

Under the Emission Reductions Purchase Agreement, the bank will buy 3.5 lakh temporary certified emission reductions for plantations raised over 4003 hectares in the first phase covering the period 2006-2018 depending on

the growth of biomass. The programme would be implemented through the Joint Forest Management Committee, and so far around 400 such committees had been formed at the hamlet level. The entire process for joint forest management committee would be completed in three months time.

There was 75 per cent rate of survival of the plantations being done by the local people under this project and the process of measurement of the biomass will start within a year. CDM is an arrangement under the Kyoto Protocol on climate change in which the industrialised nations are

mandated to meet targets of reducing greenhouse gas emission responsible for causing global warming which was leading to climate change.

Besides reducing the emissions in their own country, they can also do it by buying financing green

projects (activities that reduce emission of greenhouse gases) in the developing countries that are not legally bound to meet such targets under the Kyoto Protocol.

Himachal Pradesh Mid Himalayan watershed development project is the first pilot project for India and is the world's first carbon credit project that is linked to an ongoing watershed management programme having broad objective to sequester greenhouse gases by expanding forestry plantations on mostly degraded lands apart from creating a carbon sink.

(Courtesy PIB)

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