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Editorial

National Initiatives on Skills Development

In recent years the Indian economy has shown a remarkable acceleration in economic growth. However, as the Indian industry grows and competes internationally, it is faced with the realization that the availability of requisite skills – in terms of nature, quality and numbers – is beginning to emerge as a major constraint. Same is true in case of agriculture. Our base of skilled and knowledge workers is particularly narrow. It has been noted at the highest levels that, in order to sustain a high level of economic growth, it is essential to have a reservoir of skilled and trained workforce.

Skills and knowledge are driving forces of economic growth and social development of any country. Countries with higher and better levels of skills adjust more effectively to the challenges and opportunities of globalization. Shortages have already emerged in a number of sectors. Large scale skill development is an imminent imperative. Recognising this, a National Mission on Skill Development has already been announced.

There is a growing sense that past strategies of skill development are inadequate to deal with the new challenges which the economy faces. Hence, there has to be a paradigm shift in the national policy on skill development. The challenge is not merely of producing more skilled persons needed by the economy. It is also of ensuring, simultaneously, that skill development initiatives also address the needs of the huge population, by providing them with skills that make them employable and help them secure 'decent work'. Skill development of persons working in agriculture and unorganized sector is a key strategy in that direction.

Government of India is rolling out an ambitious action plan in association with industry on the Principle of "Public-Private Partnership" model to develop skilled workers as per the needs of future. While this is a welcome and positive move, it has to be ensured that needs of agricultural and rural sector are taken care of by this initiative.

A K Garg
Honorary Editor

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Opportunities for the Private Sector in Soil and Water Conservation Programs in Rainfed Areas

Suhas P. Wani, Bekele Shiferaw and T.K. Sreedevi

Rainfed areas are threatened by problems of high population, poverty, land degradation and drought. Water is a key factor increasing the risks for investments by the farmers as well as private entrepreneurs. However, integrated watershed management has shown that productivity could be doubled and incomes increased substantially in rainfed areas. Investments in soil and water conservation measures catalyze the regional development. Vast untapped potential of 94 million ha rainfed areas could be harnessed to achieve food security, reduce poverty and also to fuel the targeted 8 percent growth in India's GDP. Watershed programs in the country are silently revolutionalising the rainfed areas, however, large investments are needed to tap the full potential. Once water security for the crop growth is achieved, private investments from the farmers and industries come along. There is an urgent need for a paradigm shift in thinking of the industries for investments in soil and water conservation programs in rainfed areas not only with profit motive but also as a corporate social responsibility. Rainfed areas development opens up new opportunities for industries to provide backward and forward linkages and increase business through diversified opportunities.

Introduction

Rainfed agriculture is very important globally as it covers 80 percent of the cultivated area and contributes about 55-60 percent food. Ninety five per cent of the projected population growth in the world is expected to be in the tropical developing countries. Most of the hungry people are in Asia, Particularly India (221 million) and China (142 million). These two economies are also developing rapidly and are expected to be the powerhouse of the global development in near future. Rainfed agriculture in India occupies an important place in development initiatives as 66 percent of 142 m ha arable land is rainfed, and productivity is low (» 1 t ha-1) although potential is quite high (Wani *et al.* 2004). This region has to take urgent steps to meet the millennium development goal of halving the number of hungry people by 2015. Eighty percent of the hungry people are in rural areas, 50 percent are small land holders, 22 percent are landless and 8 percent are pastoralists and forest dwellers (Sanchez et al. 2005). Further, the task force on hunger of the Millennium Project recommended increasing agricultural productivity of food-insecure farmers through improving soil health, improved and expanded small-scale water management, improved access to better seeds, diversified farm enterprises, and establishing effective extension services (Sanchez *et al.* 2005). From water for food perspective as well as poverty, hunger, equity, development, and growth perspective, a hotspot emerges, namely the drought prone arid, semi-arid and dry sub-humid (rainfed) areas in India, where rapid population growth, resource poor rural communities, hosted in landscapes subject to serious human induced land degradation coincide. In order to achieve the projected growth of 8 percent in the country agriculture has to grow at 4 percent and rainfed agriculture will play a major role in this growth Moreover, crop yields in these areas are around 1 t per ha and vast potential to double the productivity on large area is quite possible. There is an urgent need to increase investments in rainfed areas substantially for achieving overall

development in the country. This paper showcase the potential as well as substantial opportunities for developing and building public-private partnerships in rainfed agriculture for harnessing the existing potential through win-win propositions.

Water Management - a Key Driver

Ever-growing human population, increasing incomes and improved lifestyles along with industrial development in the country has resulted in the competing demand for the finite water resources. Growing awareness for environmental protection and recreational needs are further compounding water demands. Agriculture is a major consumer (80 percent) of fresh water withdrawals in the world. In most developing countries agriculture is the engine of social and economic development. In India, currently 70 percent of the population depends directly on agriculture for their livelihoods. It is anticipated that by 2030, worldwide 20 percent area under irrigation (40 m ha) will be added. In India, even after achieving the full irrigation potential, around 50 percent of the agriculture will be rainfed.

Green revolution drove away the food scarcity from the country but still number of food insecure people in the country is quite large (350 million) and Green Revolution areas are showing signs of yield fatigue and unsustainability. It is estimated that by 2025 one third of the population in the developing world will be facing physical scarcity of fresh water.

Under these circumstances for achieving food and fodder security along with tackling the water scarcity for the country, untapped potential of rainfed agriculture will have to be harnessed. Efficient use of the rainwater for increasing food production must be achieved. Currently rainwater use efficiency for crop production is only 35 to 45 percent and rest of the rainwater is lost in the system through runoff, deep drainage, and evaporation without productive use. With the inherent global warming and the associated climate change will bring in more variation in the rainfall and also increase the frequency of occurrence of drought in the tropics. Investments in rainfed areas are lower due to associated risks for assured crop yields due to insecure crop growing period due to frequent occurrence of drought. Private investments generally follow the path of minimum risk and after the public investments in infrastructure.

Watershed Management as an Entry Point for Improving Livelihoods

There is a strong nexus between the water scarcity during the crop growing period or drought, associated land degradation due to poor land cover and soil erosion accompanied by nutrient depletion and poverty (Fig 1). This unholy nexus between drought, land degradation and poverty has to be broken for improving the livelihoods of millions of rural poor residing in rainfed areas. Rainwater management is the key issue for enhancing the productivity of rainfed systems. Most suitable entry point to break this nexus is to manage water and land resources sustainably for improving livelihoods.

These regions, generally defined as "drylands" which cover vast areas in the country, are of particular concern in terms of their environmental vulnerability, due to high incidence of human induced land degradation, or desertification, the importance of which was manifested through the creation of the UN Convention on Desertification (UNEP, 1999). These are regions where rainfed agriculture dominates. The Government of India (GoI) has undertaken strategic investments through watershed approach for development of rainfed areas in the country for sustainable management of natural resources in the region. India is in unique position as the country has reached self-sufficiency for food through the Green Revolution. However, to

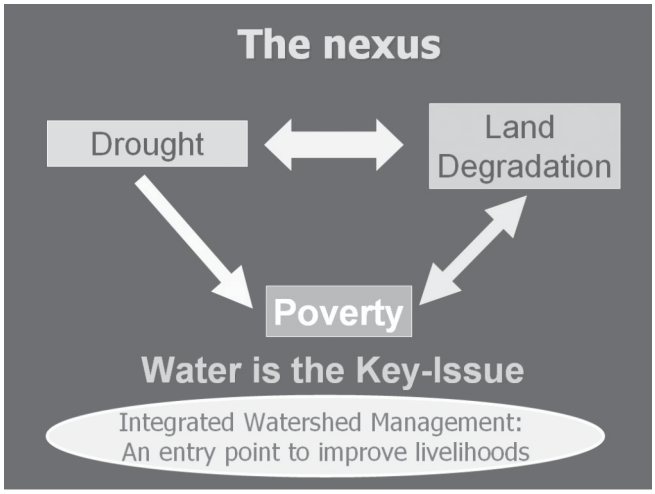

Figure 1: Nexus between drought, land degradation and poverty

achieve food security and reduce poverty, second Green Revolution in India is urgently needed. Now Grey to Green revolution through development of rainfed agriculture could provide necessary solutions. Moreover, integrated watershed management programs have shown the potential of doubling the productivity of rainfed areas while sustaining the natural resource base (Wani *et al.* 2002 and 2003).

Watershed programs are recognized as a potential engine for agricultural growth and development in fragile and marginal rainfed areas. Since the Seventh Five-year plan, the GoI accorded high priority to rainfed areas after realizing that the impacts of the green revolution in irrigated areas was gradually diminishing. Approximately US $ 7 billion have already been invested for watershed development till 10th plan.

Evolution of Watershed Programs in India

A close look through watershed programs in India from the beginning reveals that the approach has evolved over time from compartmental towards integrated and holistic approach for managing the natural resources. The issues of enhancing productivity, sustainability, gender mainstreaming, capacity building and equity concerns have become important. The journey through watershed approach evolved in India is depicted in Figure 2. In the beginning, watershed programmes went through structure-driven approach for soil conservation and rainwater harvesting, aiming at only some productivity enhancements. Soil conservation programmes became synonymous with contour bunding and water conservation with check-dams. This was a compartmental and top-down contractual approach. This led to less transparency and inequitable benefits among the community members. The rich who could invest in a bore-well have harnessed the benefits of the augmented water sources. On the other hand, small and poor landholders comprising of about 80% of the community could not get any tangible and equitable benefit from the conservation measures. Small landholders always looked at these interventions as employment opportunities during the project period and people's participation was not adequate. Also, most of the projects lacked technical backstopping.

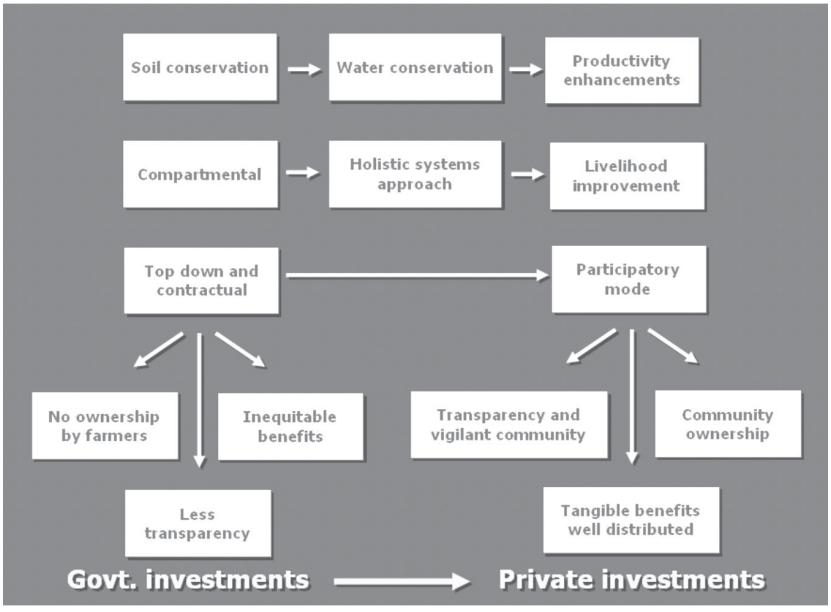

Figure 2: Journey through watershed approach in India

Watershed programs were initiated more than four decades ago, however, the activities have become more vigorous since 1990s. The watershed programs covered different agro-ecological regions of the country and their nature and scope were continuously modified.

ICRISAT and IWMI have assessed the performance of watershed programs by employing meta-analysis (Joshi *et al* 2005). Based on an exhaustive review of 311 case studies on watershed programs in India, their study attempted to document efficiency, equity and sustainability benefits. It was noted that the mean benefit-cost ratio of watershed programs in the country was quite modest at 2.14 (Table 1 and Fig. 3). The internal rate of return was 22 percent, which is comparable with many rural developmental programs. The watershed programs generated enormous employment opportunities, augmented irrigated area and cropping intensity and conserved soil and water resources. Performance of watershed program was best in rainfall ranging between 700-1000 mm, jointly implemented by state and central governments, targeted in low and medium income regions, and had effective people's participation. The study concluded that the watershed program is silently rejuvenating and revolutionizing the rainfed areas. It was noted that lack of appropriate institutional support is impeding the tapping of potential benefits associated with these programs (Table 2).

Table 1 Summary of benefits from the sample watershed studies

Indicator	Particulars	Unit	No. of studies	Mean	Mode	Median	Min	Max	t- value
Efficiency	B/C ratio	Ratio	128	2.14	1.70	1.81	0.82	7.06	21.25
	IRR	Percent	40	22.04	19.00	16.90	1.68	94.00	6.54
Equity	Employment	Person days/ha/yr	39	181.50	75.00	127.00	11.00	900.00	6.74
Sustainability	Irrigated area	Percent	97	33.56	52.00	26.00	1.37	156.03	11.77
	Cropping intensity	Percent	115	63.51	80.00	41.00	10.00	200.00	12.65
	Rate of runoff	Percent	36	-13.00	-33.00	-11.00	-1.30	-50.00	6.78
	Soil loss	Tons/ha/yr	51	0.82	-0.91	-0.88	-0.11	-0.99	39.29

Source: Derived from various studies (Joshi et al. 2005)

Table 2 : Returns from watersheds were higher in medium (2000-4000 Rs. Ag GDP) and low (<2000 Rs. Ag GDP) income state.

Indicator	Particular	Unit	Per capita income of the region		
			High	Medium	Low
Efficiency	B/C ratio	Ratio	1.98 (16.86)	2.21 (12.28)	2.46 (7.73)
Equity	Employment	Person days/ha/year	132.01 (4.14)	161.44 (5.29)	175.00 (4.66)
Sustainability	Irrigated area	Percent	40.34 (9.73)	23.01 (6.24)	36.88 (4.19)
	Cropping intensity	Percent	77.91 (8.67)	36.92 (11.99)	86.11 (7.64)
	Rate of runoff reduced	Percent	12.38 (5.31)	15.82 (3.39)	15.43 (6.01)
	Soil loss reduced	Tons/ha/year	0.82 (40.32)	0.88 (37.55)	0.69 (4.60)
Extent of people's participation			High	High	Low

Note: Figures in parentheses are the t-values ; Source: Joshi et al. 2005

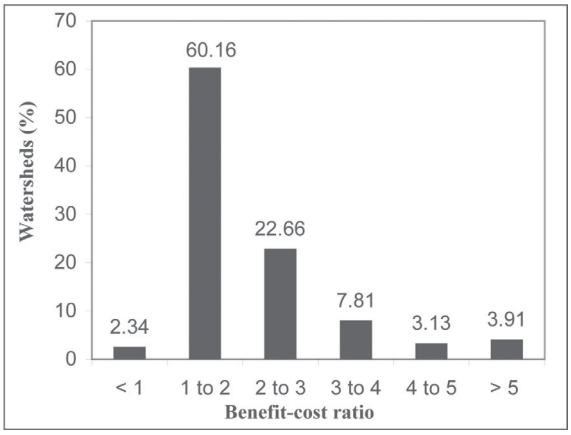

Figure 3 : Distribution (percent) of watersheds in India according to benefit : cost ratio

There is a change now and models are developed giving priority to the empowerment of the community and the stakeholders so that programs are operating not as a supply-driven project but as a demand-driven project (Joshi et al. 2004). Earlier experiences from the various watershed projects have indicated that a straightjacket approach did not yield desired results and mix up of individual and community-based

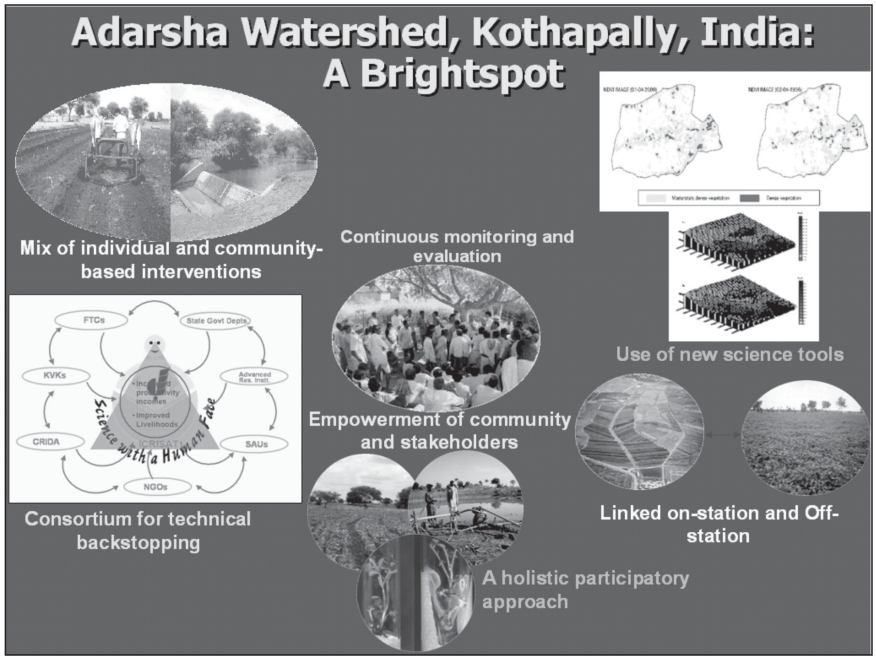

Figure 4 :
An innovative consortium model for integrated watershed management

interventions are essential. Multi-disciplinary teams are involved to provide the technical expertise to solve the problems at community level. The benefits are transparent and distributed well among the community members including women resulting in higher participation. In this approach, it is ensured that good participation is there and watershed is considered as an entry point for improving the livelihoods of the people. As evident from the results of meta analysis few bright spot watersheds are there in India and lot many watersheds need to be improved in terms of impact, equitable economic benefits, efficient and sustainable use of conserved natural resources, and most importantly people's participation. ICRISAT undertook a detailed study in India to assess past experiences and future research needs with a special emphasis on socioeconomic and policy research on watershed management for enhancing impact of such development programs Joshi et al 2004).

An Innovative Farmers Participatory Consortium Approach for Integrated Watershed Management

Based on detailed studies synthesiszing the results, impacts, shortcomings, learnings from large number of watershed programs and on-farm experiences gained, ICRISAT-led consortium developed an innovative farmers' participatory consortium model for integrated watershed management (Wani et al, 2004). Important components of the new watershed consortium model, which are different from earlier models are:

Collective action by farmers and participation from beginning through cooperative and collegiate mode in place of contractual mode.

A consortium of international, national, governmental, non-governmental organizations (NGOs), and community-base organizations (CBOs) to provide technical backstopping to community watershed programs (Fig. 4). Private entrepreneurs in the consortium to provide forward and backward linkages.

Figure 4. An innovative consortium model for integrated watershed management

Knowledge-based entry point to build rapport with community and enhanced participation of farmers and landless people through empowerment.

Tangible economic benefits to individuals through on-farm interventions enhancing efficiency of conserved soil and water resources.

No free inputs for farm-based interventions on private/individual land, where as for community-based interventions it is largely government/ project invests with only 10-30 percent contributions from beneficiaries.

Low-cost and environment-friendly soil and water conservation measures through out the toposequence for more equitable benefits to larger number of farmers.

Holistic system approach through convergence for improving livelihoods as against traditional compartmental approach such as soil and water conservation.

Empowerment of communities, individuals and strengthening of village institutions is achieved through concerted efforts to foment sustainable development.

Continuous monitoring and participatory evaluation by all stake holders for enhancing impact as well as sustainability.

Involvement of youth, women, and landless people through income-generating micro-enterprises within watershed projects.

What is Achieved through Consortium Model

During last six years rainfall in Adarsha Watershed at Kothapally in Ranga Reddy district of Andhra Pradesh varied significantly. For example, rainfall received in 1998 and 2000 was 36 and 47 percent more than normal, and in the other years deficit ranged from 24 percent to 36 percent. In spite of such a large rainfall variation, following benefits are harnessed by the community.

Increased productivity

Farmers evaluated improved soil, water, crop, nutrient, and pest management options with researchers. Improved crop management technologies and cultivars increased crop yields significantly, maize has increased by 2.2 to 2.5 times, while sorghum has increased by 2.3 to 3.0 times, intercropped pigeon pea has increased by 4 to 5 times (Wani *et al.* 2003 and Sreedevi *et al.* 2007).

In Andhra Pradesh with different crops in five districts through amendment with micro-nutrients which were found deficient in soils and best-bet soil, water, and crop management options crop yields increased substantially along with net income also (Table 3 & 4).

Such increased productivity resulted in marketable surplus and opportunities for market development emerged. For example, in Kothapally with increased maize productivity and production through increased adoption of improved management options and area traders/vendors come to village and sign contract with individual farmers to buy standing maize crop and they undertake harvesting also.

Increased commercialization of crops

Improved water availability in the watershed not only resulted in increased crop productivity but significant shift in area took place towards high-value cereals (29.4 vs. 22.2 percent), cash crops (66.2 vs. 56.5 percent), vegetables, flowers, and fruits and areas under low-value cereals such as sorghum declined (26.4 percent from 33.3 percent).

Watershed development resulted in increased number of farmers growing more commercial crops and high-value crops as compared to the farmers from the surrounding non-watershed villages (Fig. 5).

Currently 100 farmers collectively send 10 t fresh vegetables daily directly to retail vendors in Hyderabad and get Rs 2000 more per tone than the prevailing wholesale price. Farmers in the developed watershed marketed more quantity as well as earned more income through sale of surplus produce (Fig. 6). Watershed development benefited farmers not only during normal rainfall year but also benefited during drought year. In fact during drought year such as 2002, total amount as well as value (15500 Rs) of produce marketed was significantly higher as compared to the non-project village (9500 Rs) (Fig. 7).

Table 3: Micronutrient amendments increased crop productivity in 50 watersheds in three districts of Andhra Pradesh, 2002

Crop	*Average grain yield (kg ha^{-1}) control*	*Average grain yield (kg ha^{-1}) MN treatment** controlgrain	% increase
Maize	2800	4560	79
Greengram	770	1110	51
Castor	470	760	61
Groundnut pod	1430	1825	28

** Micronutrients applied: Boron (0.5 kg ha^{-1}), Sulphur (30 kg ha^{-1}) and Zinc (10 kg ha^{-1})*

Table 4: Micronutrient amendments along with recommended macro-nutrients doses increased crop productivity in 50 watersheds in three districts of Andhra Pradesh, 2003

Crop	Treatment Yield (kg ha^{-1}) Control(C)	Sulphur (S)	Boron(B)	Zinc(Zn)	C+SBZn	C+NP +SBZn
Maize	2790	3510 (26)*	3710 (33)	3710 (33)	4140 (49)	4890(75)
Groundnut	830	930 (12)	1000 (20)	1060 (27)	1230 (48)	1490(78)
Mungbean	900	1210 (33)	1130 (24)	1320 (46)	1390 (54)	1540(70)
Sorghum	900	1190 (32)	1160 (29)	1330 (47)	1460 (62)	1970(119)

(% increase over control)

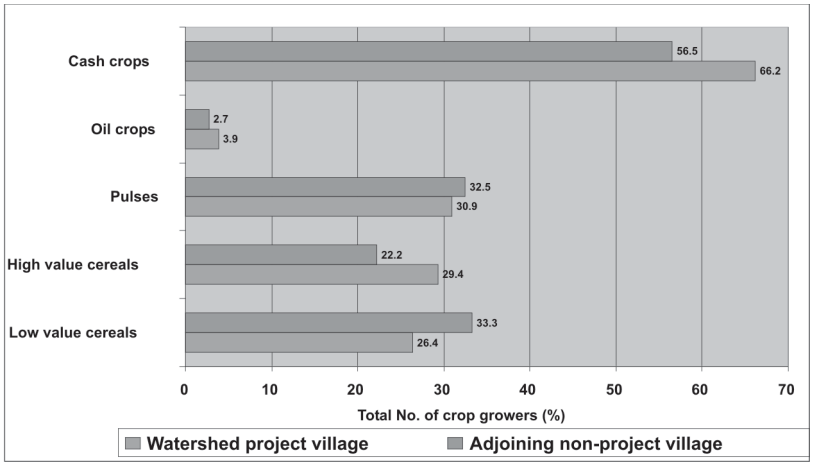

Figure 5 : Effect of watershed management on commercialization of production, Kothapally, AP, India

electric and diesel pumpsets as well as irrigation equipments such as pipes and sprinklers were observed (Table - 5).

Table 5: Increased groundwater development in Rajasamadhiyala watershed in Gujarat

Description	No. of wells	
	1995	2003
Open wells	255	308
Bore wells	102	200
Pumping hr/day	5.25	10.4

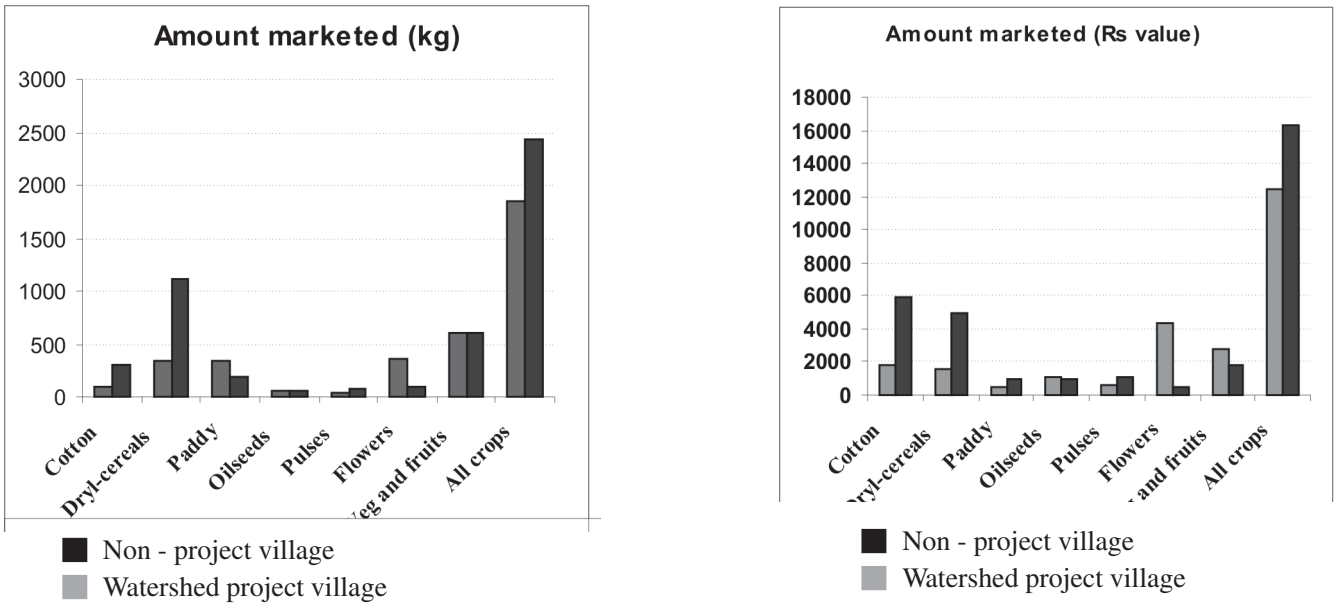

Figure 6: Effect of watershed management on crop commercialization, Kothapally, 2001-2002

Improved groundwater and reduced soil loss and runoff

There was a significant improvement in water yields of most wells and with additional groundwater recharge in Kothapally, a total of 200 ha were irrigated in post-rainy season and 100 ha in post-rabi season, mostly vegetables. Significant reduction (45 percent) in soil loss and 29 percent reduction in run-off volume was recorded than the untreated area (Wani et al. 2004). Improved groundwater in the watersheds resulted in increased private investments from the farmers. In a case study of Rajasamadhiyala watershed in Gujarat showed substantial private investments in digging of open and bore wells, However, such large scale investments could result in over exploitation of groundwater resources and there is an urgent need to develop groundwater policies for sustainable development.

Increased household incomes

Detailed census and household survey of 308 families in watershed and 825

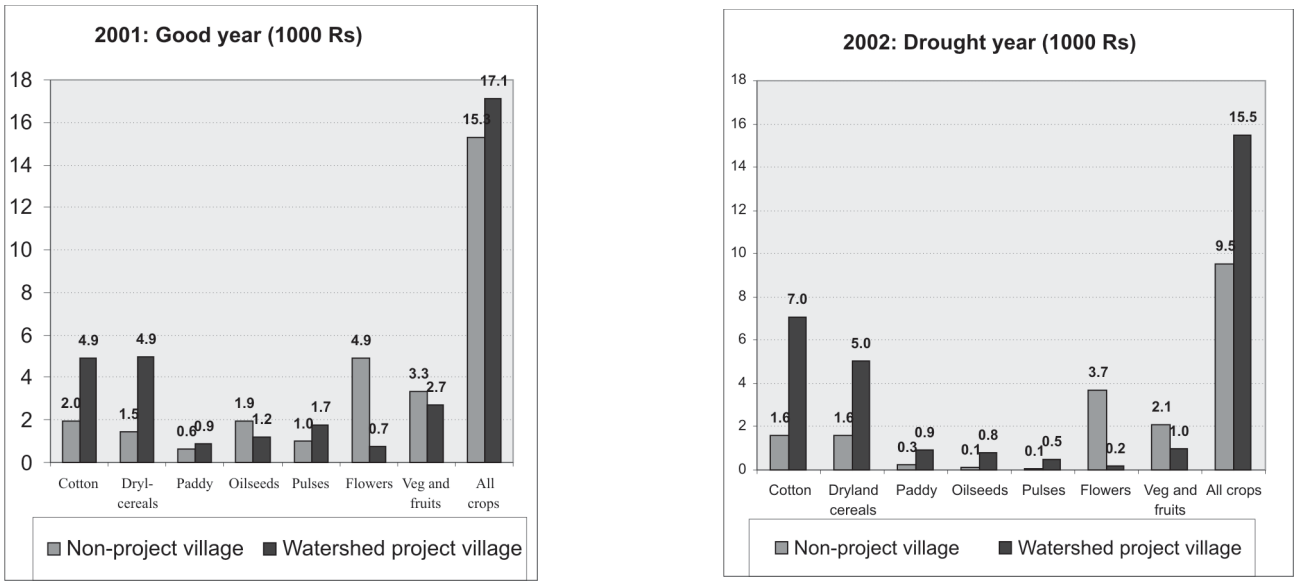

Figure 7: Effect of watershed management on amount marketed and value in good and drought year Kothapally

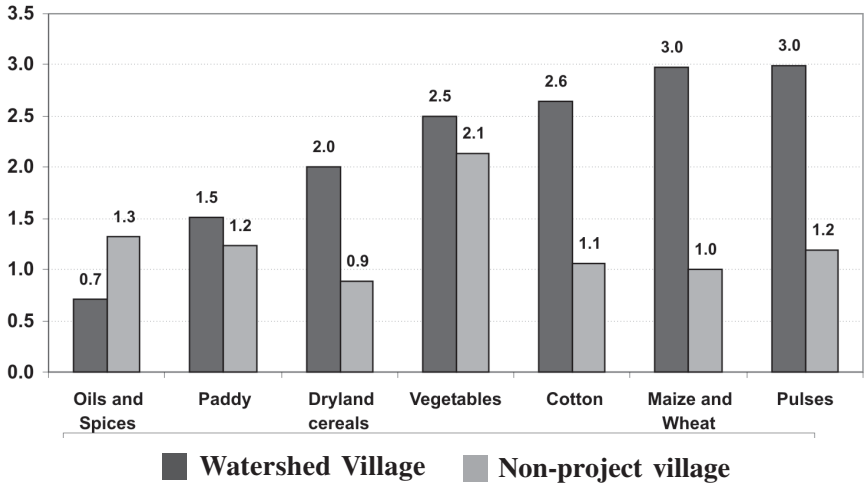

Figure 8 : Effect of average household crop income, Kothapally, AP, India, 2001 (Rs. 1000)

families in non-watershed surrounding villages revealed that for cereals, the returns to family labour and land (net income) are 45 percent higher even with irrigation, while the net returns on rainfed cereal crops have more than doubled. Similarly for pulses also income in the watershed is more than doubled mainly because of watershed development approach based on integrated genetic and natural resource management (IGNRM). Income from all the crops except oil seeds and spices was higher in Adarsha Watershed as compared to income from crops in non-project villages (Fig. 8)

Analysis of household income reveled striking differences in household income from crop production, within watershed crop income was Rs. 15400 as compared to Rs.12700 in non-project villages. The respective per capita income is Rs.3400 in Adarsha watershed as against per capita income of Rs.1900 in non-project villages.

Development of watershed not only increased income from crops and total income but also provided stability and resilience for income even during drought year such as 2002. Total household income during drought year was reduced by 29.4 percent to Rs. 29000 from Rs. 42500 in a normal year. In non-project villages reduction in income during drought year was 26 percent to Rs.20200 from Rs.29000 in normal year of 2001. Drastic impact of drought on crop income was observed in non-project villages as the share of crop income in total household income decreased to 12 percent in drought year from 44 percent in a normal year. In watershed village share of crop income in total income during drought year was 37 as compared to 36

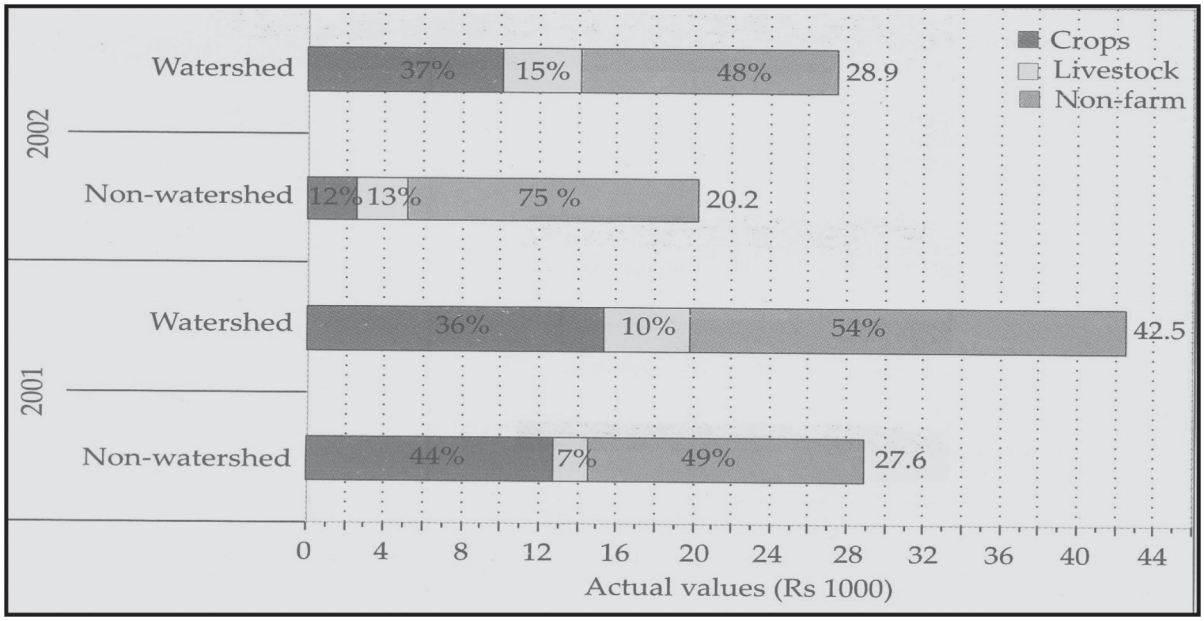

Figure 9: Income stability and resilience effects during drought year (2002) in Adarsha watershed, Kothapally, AP, India

percent in normal year (Fig. 9) Similarly, non-project villagers had to earn income from non-farm activities mainly through migration as share of non-farm income in total income increased to 75 percent as compared to 49 percent in normal year. In watershed village share of non-farm income was reduced to 48 percent in drought year as compared to 54 percent in normal year.

Micro-enterprises and diversified livelihood opportunities

Through new consortium approach with empowerment landless people as well as women and youth groups are involved in micro-enterprises such as livestock rearing, biodiesel plantations, oil extraction, biopesticide production, vermicomposting, nursery raising, value addition through processing for e.g. dhal making from pulses etc. These activities resulted in extra income for families, improved livelihoods, reduced migration, and put extra disposable income in families' hands.

Opportunities for private investments

Watershed development secures crop growing period and increase farmers' incomes from crops enhancing farmers' capacity to invest in improved management options such as nutrient management, seeds of high-yielding cultivars and high-value crops, pest and disease management options, etc. Increased opportunities exist for providing backward and forward linkages for increasing productivity in rural areas. Already there are good examples of public and private partnerships in rainfed areas are emerging several projects in the area of natural resource management and improving livelihoods are supported by Sir Dorabji Tata Trust (SDTT), Mumbai in rainfed areas in India. The consortium approach provides very good opportunity for industries to join developmental efforts as new business opportunities come up. For example, in the area of medicinal and aromatic plants (MAPs) in Andhra Pradesh private entrepreneur (Mak Royale) has joined ICRISAT-led watershed consortium to provide seeds and seedlings of MAPs and also to buy back the processed products. ICRISAT and other research institutions provide technical support to the farmers and Government of Andhra Pradesh supports financially watershed development. It is a win-win-win proposition for all the stakeholders. In Madhya Pradesh, ITC has capitalized on the consortium approach for increasing production and productivity of soybean which is a raw material for their industries. Bharatiya Agro-Industries Foundation (BAIF) a reputed national NGO working with ICRISAT for last 10 years in Madhya Pradesh joined hands with ITC. The ITC provides inputs, information and knowledge through E- Choupal as well as buys back the produce from farmers through decentralized purchase points, BAIF provides social support at village levels

ensuring better farmers participation and also improved soil, water, and nutrient management options based on their learnings from the ICRISAT-led consortium. ICRISAT provides technical support and guidance to BAIF and in the process farmers contribute significantly in development initiatives and also improve their livelihood and incomes. New partnership at national level with Morarji Borax is in offing with ICRISAT-led watershed consortium for increasing productivity of rainfed systems through amendments with micr-nutrients which are severely deficient in farmers' fields. Moraji Borax will ensure decentralized availability of boron and other micro-nutrient formulations, ICRISAT-led consortium provides technical backstopping to the watershed programs of GOI and state governments in selected states and farmers will implement productivity enhancement initiatives by adopting improved soil, water, crop, and nutrient management options and contribute to development of the nation.

Conclusion

In conclusion, there are lots of opportunities emerging for the industries to join development of rainfed agriculture in the country. It is well established that once watershed development assures improved water availability, lot of private investments from individual farmers come and also from the industries. Along with the business and profit motives, industries also need to take concrete steps to join research and development for rainfed areas as Corporate Social Responsibility. To achieve the target of 8 percent growth in India's GDP, concerted efforts of private industries along with public investments in rainfed areas are must. Large untapped potential of rainfed agriculture could be tapped through win-win pro-poor-public-private-partnerships (5Ps). There are number of successful case studies of PPPs in rainfed areas and scaling-up and scaling-out of such initiatives is needed.

Acknowledgement

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References

Joshi, P.K., Vasudha Pangare, Shiferaw, B, Wani, S.P., Bouma, J. and Scott, C. 2004. Socioeconomic and policy research in watershed management in India: Synthesis of past experience and needs for future research. Global Theme on Agroecosystems, Report no. 7. Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. 88 pp.

Joshi, P.K., Jha, A.K., Wani, S.P., Laxmi Tewari and Shiyani, R.L. 2005. Meta-Analysis to Assess Impact of Watershed Program and People's Participation. Comprehensive Assessment Research Report 8. Colombo, Sri Lanka: Comprehensive Assessment Secretariat.

Sanchez, P., Swaminatha, M.S., Dobie, P. and Yuksel N. 2005. Halving hunger: it can be done. Summary version of the report of the Task Force on Hunger. The Earth Institute at Columbia University, New York. USA.

Sreedevi TK, Suhas P Wani and P. Pathak. 2007. Harnessing Gender Power and Collective Action through Integrated Watershed Management for Minimizing Land Degradation and Sustainable Development. Paper submitted to Journal "Financing Agriculture".

UNEP 1999. Global Environment Outlook - 2000. United Nations Environment Programme. Earthscan

Publications, London. 20 pp.

Wani,S.P, Pathak, P., Tam H.M., Ramakrishna, A., Singh, P., and Sreedevi, T.K. 2002. Integrated watershed management for minimizing land degradation and sustaining productivity in Asia. Pp207-230 in Integrated land management in dry areas:proceedings of a Joint UNU-CAS International Workshop, 8-13, September 2001, Beijing, China.

Wani, S.P., Singh, H.P., Sreedevi, T.K., Pathak, P., Rego, T. J., Shiferaw, B., Shailaja Rama Iyer. 2003. Farmer-Participatory Integrated Watershed Management: Adarsha watershed, Kothapally India, An Innovative and Upscalable Approach. A Case Study. In Research towards Integrated Natural Resources Management: Examples of research problems, approaches and partnerships in action in the CGIAR. (eds. R.R. Harwood and A.H. Kassam) Interim Science Council, Consultative Group on International Agricultural Research. Washington, DC, USA: pp. 123-147.

Wani, S.P., Balloli, S.S., Kesava Rao, A.V.R. and Sreedevi, T.K. 2004. Combating drought through integrated watershed management for sustainable dryland agriculture. Regional Workshop on Agricultural Drought Monitoring and Assessment using Space Technology on 4 May 2004, National Remote Sensing Agency, Hyderabad, India. pp. 39-48.

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Monitoring and Evaluation of World Bank Assisted Sodic Land Reclamation – Project II

J P Lall

Uttar Pradesh is bestowed with rich natural resources of soil, water and plant species. It is very necessary to maintain and improve upon these natural resources. But much attention has not been paid to this aspect and due to injudicious and improper management of various types of soils, about 1-3 million hectares of land in the Indo-Gangetic plains have suffered from acute problem of salinisation and alkalization. This problem further aggravated owing to formation of hardpan of indurate calcium carbonate and *"kankars"* at varying depth of 60-120 cm because of poor drainage, impeding downward movement of salt below root zones. The leaching of salt at some places with high ground water table within critical limits is also adversely affected. As a result, huge part of land affected with sodicity has remained uncultivable over many years.

Considering the magnitude of the problem, a massive programme of reclamation of sodic land (pH 8.5 and above) was taken up with funding from The World Bank, European Union and Indo-Dutch external agencies in the past. An integrated and sustainable approach through fostering community participation was adopted under these programmes and Phase – I of the programme to reclaim sodic land was completed in March 1999.

Phase-II of Uttar Pradesh Sodic Land Reclamation Project-II was launched in the month of April 1999 in 11 districts with an aim to reclaim about 1,50,000 ha sodic lands, which was left to be reclaimed in first phase, in five reclamation phases over a period of 7 years. However, with effect from year 2001-2002, the project has been extended to formerly 6 EU districts and extended area of Allhabad unit in Jaunpur district. The EU districts were Allahabad, Azamgarh, Bulandshahr, Jaunpur, Kanpur Nagar, Kanpur Dehat and Unnao. The responsibility to implement the programme was given to Uttar Pradesh Bhumi Sudhar Nigam Limited (UPBSN). The purpose of programme was to reclaim sodic land with sustainable management of the natural resources through fostering effective and strong participation of the beneficiary farmers in selected districts of U.P.

The Agricultural Finance Corporation Limited (AFC) was associated as an external Monitoring and Evaluation (M & E) agency for the above six districts w.e.f. July 2002. The main task of AFC was to carry out concurrent monitoring and evaluation of programme through Project Implementation Progress (PIP) and Agricultural and Socio Economic Impact Assessment (ASEIA). Under PIP in seven-selected districts of U.P., AFC has monitored the progress of implementation of programme through field visits to assess the timelines, relevance and quality of various activities undertaken for reclamation process. In addition, periodic visits of experts were undertaken to apprise UPBSN with the constraints of the programmes to enable it to take remedial measures. The Agricultural and Socio Economic Impact Assessment (ASEIA) aimed to capture and analyse the impact of project implementation in selected villages. To carry out ASEIA the survey approach and PRA approach were adopted. Under Survey approach contact was made with sample beneficiaries and under PRA approach the whole village approach was followed. Surveys at Pre-reclamation and Post reclamation stages enabled capturing of changes in socio economic status of sample beneficiaries, by comparing the pre and post project phases.

To ensure people's participation in the project, Water Users Groups (WUGs), Men Self Help Groups (MSHGs) and Women Self Help Groups (WSHGs) were formed in every village covered under the project. The WUGs were formed with an aim to effect economic development and effective people participation in reclamation process. Under WSHGs, mostly homogenous socio-economic groups were formed. These groups organize promotion of literacy amongst the members, generate funds from monthly savings for inter loaning and for taking up

income generation activities. Managing emergent financial needs of women were also one of the purposes of forming WSHGs.

A Site Implementation Committee (SIC) was also formed in every village to monitor the progress of implementation process. The members of WUG, MSHG and WSHG were supposed to participate in the monthly SIC meetings to discuss the problems and their solutions, which were being encountered by them during the implementation of usar land reclamation project. Under PIP visits the members of AFC expert team covered 518 villages during the whole project period. Two visits to every village were made during a year. Most visits of AFC monitoring team were on the day of SIC meetings so to have a better assessment of progress of implementation process and to provide on the spot solutions to the problems.

A total of 14,167 farmers benefitted during the stages of pre and post reclamation. Out of this, a total number of 5584 beneficiaries were surveyed by AFC in pre reclamation stage and 8583 numbers at the post reclamation stage.

Major findings on the key performance indicators were the following:

- Increase in crop yield i.e. 3.5 tonnes/ha in respect of paddy and 2.7 tonnes/ha in case of wheat ; cropping intensity of 200 percent in reclaimed areas;
- Four fold rise in market value of land;
- Most of the members of the target groups specially small and marginal farmers, crossed the poverty line;
- Improved community participation;
- Sharp increase in employment for the labour force;
- Substantial increase in per capita income of farmers and labourers;
- Attitudinal change of farmers and their better receptivity to innovations;
- Substantial improvement in the conditions of the village community compared to the pre-reclamation situation;
- The project was very much effective in reclamation of sodic land and in preventing further increase in sodicity.
- Evidence of the project becoming self-sustaining.

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The best sites for dams are taken, numerous groundwater reservoirs already are overtapped. Existing dams and river diversions have wiped out vital habitat, decimating fish populations and pushing numerous aquatic species to the brink of extinction. Reservoirs are filling with silt. Fertile soils are slowly being poisoned by salt. Tensions are rising among nations that share common rivers, as they realize there is not enough water to satisfy all their demands. Bloated, inefficient bureaucracies have managed irrigation systems poorly, and have often allowed schemes to benefit rich and politically powerful farmers more than the poor. Large subsidies for irrigation have not only worsened government budget deficits, they have encouraged wasteful water practices that are flagrant anachronisms in today's world of scarcity.

- Sandra Postel
Pillar of Sand

Indian Floriculture Industry - Present Status and Future Scope

Kiran Kumar P and Jayasheela

Indian floriculture industry has been shifting from traditional flowers to cut flowers for export purposes. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export oriented floriculture units under controlled climatic conditions. In India, Maharashtra, Karnataka, Andhra Pradesh and Haryana have emerged as major floriculture centers in recent times.States with good flower harvest should be committed to providing the farmers with financial and technical support for establishing greenhouses, storage and transportation facilities, market information and linkages.

Introduction

The liberalization of the country's economy has given a boost to agri-business, particularly floriculture. Owing to steady increase in demand of flower, floriculture has become one of the important commercial trades in Agriculture. Hence commercial floriculture has emerged as hi-tech activity-taking place under controlled climatic conditions inside greenhouse. Floriculture in India is being viewed as a high growth industry.

Commercial floriculture is becoming important from the export angle. The liberalization of industrial and trade policies paved the way for development of export oriented production of cut flowers. The new seed policy had already made it feasible to import planting material of international varieties. The major cities in the country have seen tremendous growth of Floriculture in the last decade.

Floriculture products mainly consist of cut flowers, pot plants, cut foliage, seeds bulbs, tubers, rooted cuttings and dried flowers or leaves. The important floricultural crops in the international cut flower trade are rose, carnation, chrysanthemum, gerbera, gladiolus, gypsophila, orchids, anthurium, tulip, lilies etc.

The total business of floriculture products in India in 2005 was Rs.8174 Lakh while it increased to Rs.10117 Lakh by April, in 2006. There were more than 300 export-oriented units in India. More than 50 percent of the floriculture units are based in South zone mainly in Karnataka, Andhra Pradesh and Tamil Nadu. West Bengal, Maharashtra, Rajasthan also have larger areas under floriculture. The domestic flower production goes on increasing annually. Technical collaborations with foreign companies have been approved for India, in order to increase total share in the floriculture world trade.

Conducive Conditions

India is endowed with diverse agro-climatic conditions like good quality soils, suitable climate, abundant water

Table 1- Area and Production of Flowers in India (1993-1994 to 2004-2005)

Year	Area(in '000 ha)	Production	
		Loose flowers (in '000 M T)	Cut flowers (In million No.)
1993-94	53	233	555
1994-95	60	261	519
1995-96	82	334	537
1996-97	71	366	615
1997-98	74	366	622
1998-99	74	419	643
1999-00	89	509	681
2000-01	98	556	804
2001-02	106	535	2565
2002-03	70	735	2060
2003-04	101	580	1793
2004-05	116	655	1952

Source: Compiled from the data of DGCI&S, "Monthly Statistics of India's Foreign Trade. Exports & Re-Exports", March 2002, 2003, 2004 and 2005 Issues, Kolkata.

supply, low labour cost, proximity to market in Japan, Russia, South-East Asia, Middle-East Countries. The Government allows subsidy on airfreight for export of cut flowers and tissue-cultured plants. Direct subsidy up to 50 percent of the pre-cooling and cold storage units is available, as well as subsidy for using improved packaging material is given by APEDA. Eleven-model floriculture centre units and two large centers, 20 tissue culture units have been established by Ministry of Agriculture. Refinance assistance is available from NABARD to a number of hi-tech units at reasonable interest rate.

Indian Flower Export

Commercial Floriculture industry in India is export oriented. Even though the Indian floriculture industry is in an infant state, there has been a significant rise in floricultural exports.

Indian floriculture industry has been shifting from traditional flowers to cut flowers for export purposes. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export oriented floriculture units under controlled climatic conditions. In India, Maharashtra, Karnataka, Andhra Pradesh and Haryana have emerged as major floriculture centers in recent times.

Export of floriculture products was valued at Rs.817 million. There has been an impressive growth in the export of cut flowers from Rs.817 million to Rs.10117 million in the previous years. More than 300 export-oriented units (EOU) have been approved in the sector out of which 155 units are operational. But many of them operate at less than 50 percent of their capacity.

USA continues to be the largest market, having a share of 21.65 percent in 2003-04 (Table - 2) made a quantum jump from Rs.25.81 crore in 2001-02 to Rs.47.40 crore in the subsequent year and then to Rs.71.10 crore in 2003-04, registering a phenomenal growth of 54.21 percent over the previous year. The other countries witnessing a similar trend during the period include Italy (175.67 percent), Australia (145.71 percent), Germany (153.63 percent) and France (21.86 percent). On the contrary, UAE showed a negative growth of 38.53 percent.

Tariff Import and Flower Market

Cut flowers from India face a higher import duty in Europe during the non-peak market months that is May-October. During November to April, when Europe requires imported flowers, the tariff is lowered by five to six per cent. The real rate could work out to nearly 17 percent in non-peak months if one reckons with the fact that tariffs are worked out on FOB plus freight basis.

This has prevented Indian floricultural products from having market access during the crucial months in Europe. Given the fact that the prices of the cut roses in Dutch auctions have been falling since 1994, and more so in the May-October period, a higher import tariff during low price seasons will severely constrain our efforts as establishing a steady annual market in Europe across seasons.

Export Constraints

In spite of an abundant and varied production base, India's export of floricultural product is not encouraging but is catching up. The low performance is attributed to many constraints like non-availability of air space in major airlines, since most of the airline operators prefer heavy consignments. The existing number of flights during the peak seasons is not sufficient for export purpose. Exporters for infra-structural problems like bad interior road, inadequate refrigerated transport and storage facilities. Lack of professional backup of delivery and supporting companies, which resort into high cost of technology for Indian entrepreneurs.

Initiatives for boosting Flower Export

- The Government of India is working hard at getting the European Community (EC) to reduce the high rate of import duty on Indian Cut Flowers. According to the Commerce Ministry, the current rate of import duty is fixed at 20 percent and 15 percent according to season.

- Setting up of cold storage units at International Airports

- To further promote Floriculture, the Commerce Ministry is contemplating duty exemption on the import of materials for Green House and Tissue Culture Labs considering the huge capital inputs

- The Government is also working out a scheme to impart training to Farmers and Entrepreneurs.

- The Government is working for an air freight subsidy for export of Cut Flowers and exemption of export oriented units from requirement of customs bonding.

- APEDA is planning to step up Flower exports to West Asia and make an entry into the market in Australia and New Zealand.

Future Strategy

● The Government should tackle the very important issues of duty charged for Indian flowers i.e., 12 percent during season and 17 per cent during

Table - 2 India's Exports of Floricultural Products to the Major Markets during 2001-02 to 2003-04

Country	2001-02	2002-03	2003-04	Percent change in 2003-04 over 2002-03
USA	25.81	47.40	73.10	54.21
UK	13.37	14.14	28.09	98.66
Netherlands	23.35	25.70	26.98	4.98
Japan	12.78	23.16	25.28	9.15
Germany	12.41	13.91	21.37	153.63
Italy	6.01	4.48	12.35	175.67
France	7.74	6.68	8.14	21.86
Australia	2.26	2.10	5.16	145.71
UAE	2.70	4.58	3.54	(-) 22.71
Total(all India)	127.43	180.79	250.45	38.53

Source: Compiled from the data of DGCI&S, 'Monthly Statistics of India's Foreign Trade: Exports &Re-Exports', March 2002, 2003, 2004 and 2005 Issues, Kolkata.

off-season, which is not imposed on other countries like Sri Lanka and African countries.

- In the financing of floricultural projects the prohibitive high initial cost coupled with delays in approval of loan requests for finance are two major constraints faced today.

- Growers should also diversity in products and items within a particular product and seek newer markets. Marketing of dry flowers and plants, floral oils and concentrates, bulbs and tubers as well as products like floral extracts and flower seeds are other avenues that have good scope in the coming years.

- India should strengthen the R & D for breeding new cultivars of international standards as the cost of importing the variety and planting material accounts for nearly 50 per cent of the project cost.

Conclusion

States with good flower harvest should be committed to providing the farmers with financial and technical support for establishing greenhouses, storage and transportation facilities, market information and linkages.

Instead of the bulk of the export-flowers leaving the country from Delhi, they should be exported from the closest international airport like Mumbai or Bangalore, thereby reducing traveling time to the consumer. However, as with many other potential export industries, there is lack of awareness and timely implementation of commitments right from the producer to the policy level. Perhaps a national level benchmarking of export-quality flowers should be initiated emphasizing post-harvest care, handling, packaging and temperature regulation. Such initiatives will not only benefit the producer but will also strengthen India's position on the global floriculture map.

References

Gandhi (2005). "Opportunities Galore for Floricultural Exports", Facts For You, 25 (8), pp 11 -15.

Malini, Karthikeyan and Sivalingaselvi (2006). "Floriculture: Promising Potentials", Kisan World, 33 (8), pp.28-29.

Satya Sundaram (1995), "Floriculture: Spreading Sweet Smell", Facts For You, 16(12), pp 71-73. www.eximbankagro.com www.msamb.com

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Flowers ... are a proud assertion that a ray of beauty outvalues all the utilities of the world.

- Ralph Waldo Emerson

Producer Company Model – Current Status and Future Outlook : Opportunities for Bank Finance

E V Murray

The structure of agricultural markets as they exist today involves a number of intermediaries and therefore, the producers share in the consumer rupee is small and the same pattern exist in all agricultural commodities. Value addition in agricultural commodities happen only post production and since in the Indian context the farmer disposes off his produce in unprocessed form, there is no plough back of surpluses from value addition to the farmer. Can something be done to address this dichotomy? Producer Companies look to be one plausible solution.

Introduction

In recent times, almost every major business house of the country is venturing in a big way into the agri-business sector, especially with regulations allowing corporates to now directly have contractual arrangements with farmers. One of the triggers for this newfound interest in agribusiness by the corporates is the change occurring in the retail markets, where consumers are making dramatic shift from purchasing at neighbourhood kirana stores to shopping at supermarkets, malls and food plazas, enabling development of food supply chains from the farms to consumers.

Ironically, at this very time we get news that between 1995 and 2005, one and a half lakh farmers committed suicide across the country. A Situation of Farmers study undertaken by the National Sample Survey Organisation (NSSO) of the Government of India indicates that forty percent of farmers, given a choice wish to get out of agriculture. How is it that when the capitalists are rushing into agriculture in droves, the farmers are rushing to get out of it?

With a population of over one billion and rising disposable income, the demand for food is only growing. Why then are the farmers in distress? Is there an explanation to this dilemma? One explanation for this is that value addition in agricultural commodities happen only post production. And since in the Indian context the farmer disposes off his produce in unprocessed form, there is no plough back of surpluses from value addition to the farmer. Can something be done to address this dichotomy? Producer Companies look to be one plausible solution.

Expectation of Farmers from Agriculture

The expectation of farmers while carrying on agricultural activities is, beyond meeting his consumption needs, to be able to get a reasonable return on the time and money invested by him. Also his desire is to increase his share in the consumer rupee. The structure of agricultural markets as they exist today involves a number of intermediaries and therefore, the producers share in the consumer rupee is small as can be see from Table-1, which is illustrative for a few vegetables and fruit but the same pattern exists in all agricultural commodities. Further, it is only when the commodity is processed and branded that value addition occurs. As the farmer exits from the scene after transacting in the primary market, he has no part in the surpluses that emerge post production. Only when agriculture as an enterprise in the long term generates surpluses or the farmer perceives deriving benefit would he make efforts to put back some of the surplus generated into the agricultural enterprise, creating further capital formation in agriculture. If not, he would divert the cash flows to other activities which he perceives to be more remunerative than his present

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Table 1: Inequity in farmers remuneration

	Tomato	Potato	Cabbage	Cauliflower	Banana
Price paid by end consumer (Rs. per kg)	8.20	12.00	9.00	9.50	12.00
Price received by farmer (Rs. per kg)	2.00	6.60	5.00	5.50	4.00
Price realization by farmer as % of end consumer price	24	55	56	58	33
Percentage markup (price paid by end consumer to the price received by farmer)	310	82	80	73	200

Source: Field Study by Profs. S Ragunath & D Ashok, IIM Bangalore

engagement. As the farming community sees the general progress and all-round prosperity of the country through sustained growth of the economy at 7-8 percent, they also aspire for themselves and their future generations, improvement in their standard of living.

Expectation of Agri-business Enterprises

Agri-business enterprises after making substantial investment in capital infrastructure for building the supply chain look for consistent continuous and adequate supplies of produce on an ongoing basis. In the existing market mechanisms of agricultural mandies, there is no premium for quality, nor are there long term relationships. Agribusiness enterprises are therefore increasingly looking for direct tie-up with farmers to source the agricultural produce required by them. As these enterprises do not have the capacity or intend to deal with individual farmers, they are looking for aggregators or intermediary institutions that can pool produce in adequate quantity and help them to deal with a large number of small landholding farmers.

The Cooperative Option

Cooperatives are one form of organization that enables farmers to organise themselves as collectives and move up the value chain by ownership and operation of their own processing units and sometimes extend the chain upto the retail level. India has a large number of cooperative institutions in a vast range of enterprise sectors, but there have been few successes that can be talked about. Infact, the only stars are in the cooperative dairy sector and that too limited to a few states. The cooperative experience in our country has not been a very pleasant one, as cooperatives have largely been state promoted, with a focus on welfare rather than to do business on commercial lines. The cooperative institutions are controlled by the State through the Registrar of Cooperative Societies whose overriding powers to direct and regulate cooperatives on his terms whenever the Government deems necessary has throttled the growth of the very institutions they were mandated to nurture.

Thus, cooperatives have never emerged as successful business enterprises but only as extended arms of the State. The reasons for this are many and have been analysed at length by several expert committees from time to time.

The Mutually Aided Cooperative Societies (MACS) Act to a certain extent has been an attempt to remedy the malady, but it is has been accepted in only a few states, and even there, not many commodity cooperatives have migrated to the MACS Act.

Producer Companies

The concept of producer companies was introduced in 2002 by incorporating a new Part IXA into the Companies Act based on the recommendations of an expert committee led by noted economist, Y. K. Alagh, that was given the mandate to frame a legislation that would enable incorporation of cooperatives as companies and conversion of existing cooperatives into companies, while ensuring the unique elements of cooperative business with a regulatory framework similar to that of companies.

Salient Provisions of Companies Act relating to Producer Companies

In a 'Producer Company', only persons engaged in an activity connected with, or related to, primary produce can participate in the ownership. The members have necessarily to be 'primary producers.'

Primary produce has been defined as a produce of farmers arising from

agriculture including animal husbandry, horticulture, floriculture, pisciculture, viticulture, forestry, forest products, re-vegetation, bee raising and farming plantation products: produce of persons engaged in handloom, handicraft and other cottage industries: by - products of such products; and products arising out of ancillary industries.

Formation

Any ten or more individuals, each of them being a producer, that is, any person engaged in any activity connected with primary produce, any two or more producer institutions, that is, producer companies or any other institution having only producers or producer companies as its members or a combination of ten or more individuals and producer institutions, can get incorporated as a producer company.

The companies shall be termed as limited and the liability of the members will be limited to the amount, if any, unpaid on the shares. On registration, the producer company shall become as if it is a private limited company with the difference that a minimum of two persons cannot get them registered, the provision relating to a minimum paid-up capital of Rs. 1 lakh will not apply and the maximum number of members can also exceed 50. Members' equity cannot be publicly traded but only transferred.

Objects

The objects of producer companies shall include one or more of the eleven items specified in the Act, the more important of these being:

(i) Production, harvesting, procurement, grading, pooling, handling, marketing, selling, export of primary produce of members or import of goods or services for their benefit;

(ii) Processing including preserving, drying, distilling, brewing, venting, canning and packaging of produce of its members; and

(iii) Manufacture, sale or supply of machinery, equipment or consumables mainly to its members.

The other objects include rendering technical or consultancy services, insurance, generation, transmission and distribution of power and revitalisation of land and water resources; promoting techniques of mutuality and mutual assistance; welfare measures and providing education on mutual assistance principles.

Management

Every producer company is to have at least five and not more than 15 directors. A full time chief executive is to be appointed by the board. He shall be an ex-officio director and will not be liable to retire by rotation and shall be entrusted with substantial powers of management as the board may determine.

Members' Benefits

Members will initially receive only such value for the produce or products pooled and supplied as the directors may determine. The withheld amount may be disbursed later either in cash or in kind or by allotment of equity shares. Members will be eligible to receive bonus shares.

There is a provision is for the distribution of patronage bonus (akin to dividend) after the annual accounts are approved — patronage bonus means payment out of surplus income to members in proportion to their respective patronage (not shareholding). Patronage, in turn, is defined as the use of services offered by producer companies to their members by participation in their business activities.

Reserves

Every producer company has to maintain a general reserve in every financial year and in case there are not sufficient funds in any year for such transfer, the shortfall has to be made up by members' contribution in proportion to their patronage in the business.

Dispute Resolution

Dispute relating to producers companies are to be settled by conciliation or arbitration under the Arbitration and Conciliation Act, 1996 as if the parties to the dispute have consented in writing to such procedure.

Inter-State Cooperative Societies

Inter-State Cooperative Societies not confined to one State can also make an application to the Registrar for recognition as producer companies. The statute also provides for re-conversion of such producer companies to their former status as inter-State cooperative societies subject to the approval of High Court.

Further, "all the limitations, restrictions and provision of the Act, (other than those specified in Part IXA), applicable to a private limited company, shall apply to a producer company, as if it is a private limited company.

In other words, a producer company is a hybrid between a private limited company and a cooperative society. It combines the goodness of a cooperative enterprise and the vibrancy and efficiency of a company. It accommodates the unique elements of cooperative business with a

Table - 2: Cooperative and Producer Company - Key Differentiators

Features	Producer Cooperative	Producer Company
Registration	Cooperative Societies Act	Companies Act
Membership	Open only to individuals and cooperatives	Only those who participate in the activity
Relationship with other corporates/ business houses /NGOs	Transaction based	Producers and corporate entity can together float a producer company
Shares	Not tradable	Not tradable but transferable
Voting Rights	One person, one vote, but Government and RCS holds veto powers	One person one vote. Those not having transactions with company can't vote
Reserves	Created if there are profits	Mandatory to create every year
Role of Registering authority	Significant	Minimal
Administrative control	Overbearing	None
Borrowing Power	Restricted	More freedom and alternatives
Dispute Settlement	Through mechanism	By Arbitration

regulatory framework similar to that of a private limited company.

Table - 2 gives a comparative picture of the main features differentiating a producer company from a conventional producer's cooperative

International Experience

The United States of America, New Zealand and Denmark have provisions for cooperatives and producer enterprises to register and operate under the same laws as govern companies. While at the back end, these are producer owned enterprises, at the front end, they look and function like any other corporate enterprise.

Indian Experience

Although no comprehensive data base on the number of Producer Companies established in the country and their performance exists, estimates are that there would be fewer than hundred such companies as on date. Following is a listing of some Indian Producer Companies and their activities and performance:

Kerala

Indian Organic Farmers Producer Company Ltd. - The first farmers' producer company

The Indian Organic Farmer Producer Company Ltd. is an Aluva (Kerala) company of farmers producing organic products. Only producers with organic certification are eligible for membership of the company, where patronage for one share is fixed at Rs.40,000. Thus, the holder of one share can market his/her own organic products worth a maximum of Rs.40,000 through the company. An individual can purchase more than one share, but will have only one vote, irrespective of the number of shares held.

The company provides advice to farmers on mapping and assessing resources (mainly soil and water), sustainable resource utilisation and scientific production methods. The company markets organic products after branding. 'Healthy People, Wealthy Farmer, Healthy and Wealthy Nation' is the motto of the company. One of the company's future plans is attracting environmental funds from farmer-friendly groups abroad who are interested in supporting fair trade. (*The HINDU,* Sep 23, 2004)

Vanilla India Producer Company Ltd (VANILCO) / Banana India Producer Company Ltd (BIPCL)

Vanilla India Producer Company Ltd (VANILCO) has been promoted by Kerala based Indian Farmers Movement (Infarm), a charitable society with over one lakh farmer members for catering to the long-term interests of the vanilla farmers. VANILCO works in tandem with vanilla growers to produce and market the best and choosy vanilla beans and extracts. The company procures processes and markets the members' produce in the most professional manner to ensure handsome dividends and bonuses for its shareholders as also intervening in the market through pool procurement.

Banana India Producer Company Ltd (BIPCL) has also been formed by Infarm with a broader objective of "building brand equity for the 25 varieties Indian bananas cultivated in different parts of India at the international level. The company plans

to promote each variety of banana as exotic varieties of "India Banana". The sole owners of BIPCL are the primary producers (farmers) of the country.

Infarm has been working towards value addition of agricultural produce for the last six years and has launched branded rice, honey, coffee, tea, coconut oil etc in the market. The NGO has set up retail outlets in several parts of Kerala and in cities like Delhi. (FnBnews.com, November 12, 2005)

Evangelical Social Action Forum (ESAF)

ESAF Swasraya Producers Company Limited (ESPCL), Thrissur promoted in 2006 by ESAF (Evangelical Social Action Forum), a premier NGO and leading MFI having 13100 women SHGs & 2.2 lakh members. The Producer Company has three areas of activity (1) Handicrafts, (2) Herbal & Agriculture, (3) Food, and Dairy & Meat. The Handicrafts & Herbal divisions could benefit 1000 Handicraft artisan families for production worth Rs 22.6 lakh and market Rs 23.5 lakh worth products during 2007-2008. In the herbal area, Rs 20.7 lakh worth raw herbal drugs were traded.

ESAF has also incorporated a Retail Company also called ESAF Retail (P) Limited to support the Producer Company through forward & backward linkages and also run the eight retail stores which had a total turnover of Rs 2.5 Crore in 2007-2008.

Madhya Pradesh

The Government of Madhya Pradesh under District Poverty Initiatives Programme (DPIP) has promoted a large number of Producer Companies in various parts of the state, the details of which are given in Table - 3 . These companies have a total membership of 44,800 share holders and have generated a turn over of Rs.4.84 crore. The World Bank India office in the Newsletter of March 2008 has reported that the formation of producer companies has stimulated introduction of horticulture crops like

Table - 3: Producers Companies Promoted by Government of Madhya Pradesh under District Poverty Initiatives Project

S. No.	Name of the Company	Location	Commodities Dealt
1	Hardol Agriculture Marketing & Producers Company Private Limited	Shivpuri	Seed, grain
2	Lavkush Crop Producer & Marketing Company Private Limited	Raisen	Seed, grain
3	Khujner Agriculture Producer Company Private Limited	Rajgarh	Seed, grain
4	Churhut Agriculture Producer Company Private Limited	Sidhi	Rice, tomato
5	Rewa Crop Producer & Marketing Company Private Limited	Rewa	Seed, grain, chili
6	Nowgong Crop Producer Company Private Ltd	Chhatarpur	Seed, grain, chili
7	Khajuraho Crop Producer Company Private Limited	Chhatarpur	Seed, grain, chili
8	Narsingh Farmers Producer Company Private Limited	Narsinghpur	Seed, grain, peas, sugarcane, turmeric
9	Ram Raja Crop Producer Company Private Limited	Tikamgarh	Seed, grain, ginger, chili
10	Mahila Murgi Utpadak Company Limited	Tikamgarh	Poultry
11	Govind Seeds and Crop Producer Company Private Limited	Damoh	Seed, grain, potato
12	Neshkala Crop Producer Company Private Limited	Guna	Seed, grain, coriander
13	Sironj Crop Producer Company Limited	Vidisha	Seed, grain
14	Sagar Samridhi Crop Producer Company Limited	Sagar	Seed, grain
15	Sagar Shri Mahila Dugdh Utpadak Company Limited	Sagar and processing	Milk production
16	Karnavati Producer Company Limited	Panna	Seed, grain
17	Samarth Kishan Producer Company Limited	Shajapur	Seed, grain, bio fertilizer

Source: Panchayat Raj & Rural Development Department, Government of Madhya Pradesh

tomato, spinach and chili and has helped farmers to raise their incomes substantially. Local level value addition has provided 30 to 40 percent higher realizations on agricultural produce to participating farmers. It is reported that agricultural income level of participating farmers increased by 66 percent and savings of households have gone up by 183 percent. It has also enabled farmers to talk with companies like Reliance Fresh and ITC to do dedicated farming.

The Government of Madhya Pradesh has been supporting the emergence of producer companies through policy measures and financial support, the details of which are summarized in Table - 4.

Gujarat

At Dari in Amreli District, a producer company has been formed with ten watershed development groups from ten villages who are working in agricultural input supplies and provision of technology under the guidance of Development Support Centre, Ahmedabad. The objectives of the company are to carry on the business of production, harvesting, procurement, grading, pooling, handling, marketing, selling, export of primary produce e.g. groundnuts, oilseeds, grains, and other agro products of the members or import goods or services for their benefit, to provide for mutual assistance and technical consultancy services, to provide for insurance cover and credit facilities to the farmers in a profitable manner and to provide for welfare measures or facilities for the benefit of members.

The Junagarh Dairy which was in losses has been reconstituted as a producer company and now operates in over 130 villages and covers 5000 producers. The Dairy is able to give a better price for the milk than alternate channels and thus farmers are experiencing prosperity and investing in more buffaloes.

Amul

The Gujarat Cooperative Milk Marketing Federation popularly known as AMUL, the largest and most successful producer owned cooperative enterprise in the country, was as reported in the press in May 2006, planning to convert into a producer company. That it has not converted so far indicates probably that it is doing re-think on the idea.

Assam

In Assam, the Spices Board under the Ministry of Commerce, Government of India has promoted two producer companies, the Coinonya Farm Producer Company Limited for turmeric and Karbi Farms Producer Company Limited for ginger and chilly in Karbi Anglong District of Assam under organic cultivation for processing and export. The spices board has put in Rs. 1 crore as equity in each of the companies, while the rest of the equity is held by tribal farmers, 600 in Coinonya and 400 in Karbi.

Producer Companies of Artisans and Craftsmen

Rangsutra

Rangsutra, a Producer Company registered in 2004, comprises 1000 odd weavers, artisans and craftsmen from Rajasthan, Assam and Uttaranchal. Promoted by Sumita Ghose, the company's main object is to systematically develop the market for the produce of artisans, weavers and craftsmen. Combining the power of organization with the dynamism of a commercially viable outfit, the company plans to, "substantially increase the income of their members so they can send their children to school, improve their health and food intake," things that most people take for granted.

Masuta Producer Company

The NGO Pradhan has promoted Masuta Producer Company Ltd. comprising a group of 2000 tasar yarn weavers and spinners in Jharkhand. The company could generate a turnover of Rs.7 crores and a profit of Rs.38 lakh during 2006-07, inspite of tough competition

Table - 4: Government of Madhya Pradesh's Policy for Strengthening Producer Companies

Key Features
➢ Focus on Poor
➢ Modular Structure
➢ Insulation from political/ administrative control
Support and Benefits
➢ Cost of organizing producer organization and hand holding support for three years provided
➢ Debt linked Start-up support based on business plan
➢ Viability gap support for establishment costs
➢ Treating on par with Coops/industries
➢ Performance linked – Back ended interest-subsidy
➢ Support – price preference, infrastructure development

Source: Anish Kumar, PRADHAN presentation at Workshop on Producer Companies

from Chinese tasar which is 40% cheaper.

Fab India

Fab India, a company which exclusively markets produce of rural artisans and craftsmen through a chain of retail outlets spread across the country has decided to promote 35 producer companies in different states covering about 20000 weavers almost entirely from muslim, dalit and other backward classes to enable them to aggregate their fragmented production and increase volumes and returns. One of the companies floated by Fab India with weavers in Rajasthan has declared a 50% dividend in the current year. Fab India with 80 retail stores and plans to increase this number to 250 by 2010 sees the potential for having similar producer companies in about 350 districts of the country. The credit requirements of these producer companies are to be met from commercial banks, through a model devised by Fab India in association with ICICI Bank. (See Figure -1)

Banks financing Producer Companies

As can be seen from the aforementioned case studies, so far most of the producer companies are still in a nascent stage and most are operating as providers of technical know how or facilitating marketing. It is probably for this reason that there has not been any significant demand for bank finance by producer companies and consequently not many examples of bank finance to producer companies are available.

One interesting experience is that of Bank of Maharashtra who has financed Panchakroshi Pashusam-vardhan Producer Company Limited in Satara District for stall-fed goat rearing by small farmers. In this project, bank finance of Rs. 50,000 per farmer is directly extended to 100 farmers who are members of the producer company. The producer company has been promoted by two reputed NGOs with long years of field experience in the sector, Maharashtra Goat and Sheep Research Development Institute MGSRD) and the Animal Husbandry Division of Nimbalkar Agricultural Research Institute (NARI). The main role of the producer company is envisaged to be provision of backward and forward linkages such as technical assistance and market access to the producer members to profitably rear goats. The company plans in the long term are to have a slaughter facility when the total number of goats available to the company reaches around 20,000. The experience of the bank with this project is being studied by other banks who are venturing into financing producer companies.

Challenges in Financing Producer Companies

As Producer Companies take stronger roots, they will require capital in large quantities from the banking system which will be a major challenge for banks, as the companies may not have much else than the producer member equity to leverage borrowings. Banks will thus be faced with the dilemma of what are the assets to back their loans and in what manner the company will be able to raise the margin money required to mobilize the loan.

Unconventional approaches would be required where credibility and reputation and the principles on which the company operates may be the only tangible assets, not physical assets. Similarly, guarantees and undertakings from the promoter institutions and purchase orders / agreements may have to be relied upon to extend finance. As the model is in the stage of evolution, banks will also require to act as incubators, and in some cases even go beyond the conventional banking role and provide professional and commercial support to these companies.

Spanner in the Works

Just when the potential that Producer Company model can offer in empowering the primary producer and link with terminal markets is being recognized by the government and the corporate sector and its capabilities tested, the whole concept came under question and is being challenged. A committee under the chairmanship of Dr. J J Irani to review the Companies Act which is in the process of being re-written has suggested that the "Special dispensations for Producer Companies need not be provided through the Companies Act, and if need be, a separate legislation may be considered for such entities." The committee probably was not aware of the long years of struggle and efforts made by cooperators like Dr. Kurien who often had to battle the cooperative bureaucracy in the government, seeing this as a model to insulate cooperatives from the stranglehold of the government and to professionalise them. There is now increasing appreciation among policy makers of the need to provide such an option to blend the best of the cooperative principles with commercial operations.

Future Outlook

As can be seen from the experience so far, most of the companies that are emerging in the producer companies' space are start-ups rather than existing cooperatives transforming into producer companies. Further, almost all of them have been promoted by a sponsor

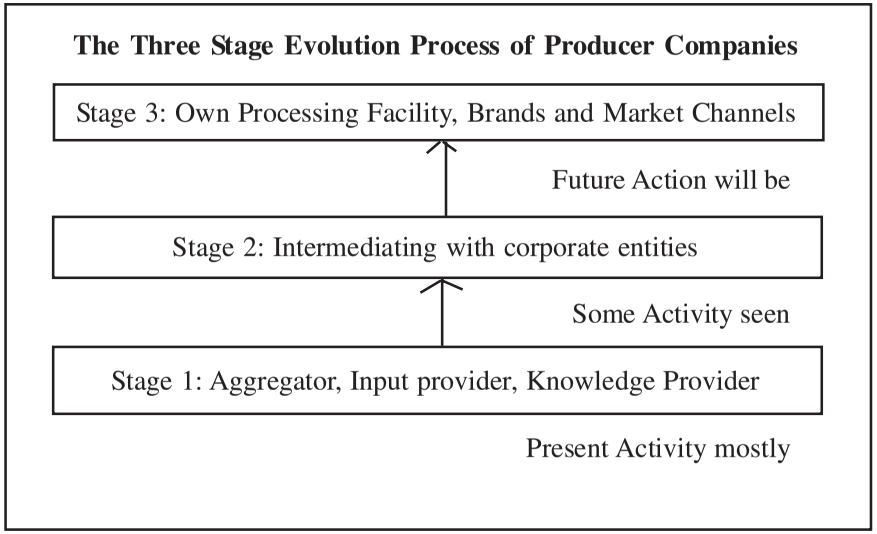
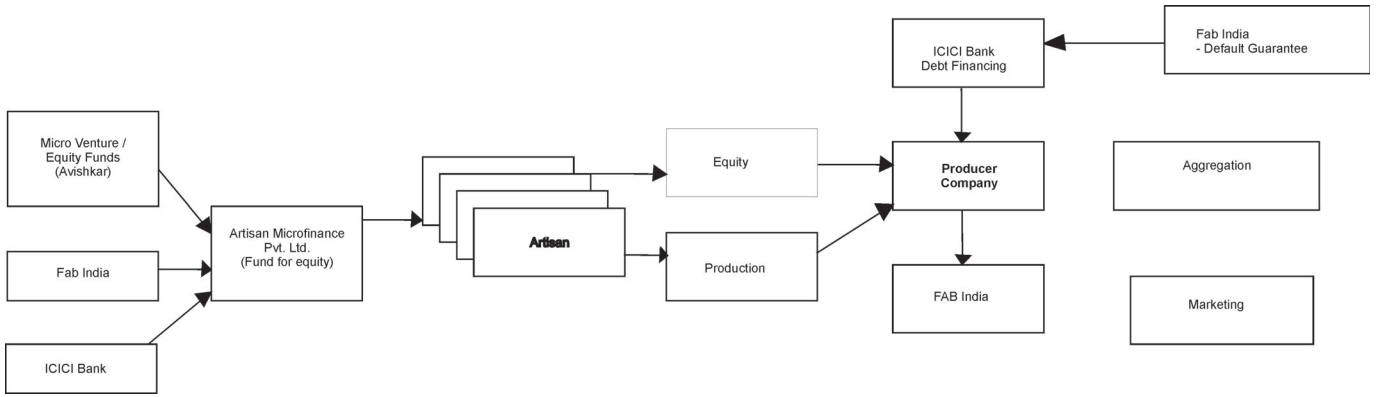


Figure - 1 : Structure and Operations of a Typical Artisans Producer Company promoted by FAB India



Based on information obtained from presentations made by Puneet Gupta of IFMR Trust at CAB

institution like a development agency or an NGO. Most of them are performing the function of providing technical services and inputs to farmers or pooling produce for collective marketing. This is the first stage of evolution.

In the second stage, more activity will be seen in the emergence of producer companies like that promoted by Fab India, where corporates come together with farmers to share prosperity with the farming community through commercial farmer corporate/ retailer partnerships.

Producer Companies having their own processing infrastructure, and developing their own identity, brands and supply chain will be the third stage. Only then will the producers be able to directly connect with and have command over the markets and thus a greater share in the retail pie.

If through initiatives like producer companies, farming becomes more remunerative and the lot of farmers improves, the whole agricultural portfolio of banks would become robust. It is hoped that banks especially those that have their heart in rural India will support the emergence of a large number of producer companies in various commodity segments which will set off a wildfire that will bring back the glow of pride in the lives of the farming community.

Select References

1. Proceedings of the Pradhan Workshop on Producer Companies (available at http://www.pradan.net index.php? option =com_content & task=view & id=122 & Itemid=1)

2. Yoginder K. Alagh, Indian Express online edition May 26, 2006

3. The Hindu online edition June 30, 2003 and September 23, 2004

4. The Economic Times, Mumbai, May 6, 2008

5. Business Standard, Mumbai, December 25, 2007

6. khabarexpress.com, June 24, 2007

7. Financing Agriculture, March 2007, Volume 39 No. 2

8. P S Nair of ESAF communication on solutionsexchange on May 15, 2008

9. Lead District Manager, Bank of India, Satara, communication to CAB dated March 3, 2008

10. www. vanilco.com

11. World Bank India Newsletter, March, 2008

12. moneycontrol.com, 16 May, 2006

13. Puneet Gupta, COO IFMR Trust, presentation made at CAB on 20 September, 2007

14. Deepti Priya Mehrotra, The New Crafts Company, November 13, 2005 (http://www.boloji.com/wfs4/wfs487.htm)

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Year-long Crop Loan access to Farmers

The Reserve Bank India has introduced a new loan scheme for farmers which ensures access to credit throughout the year. Under the scheme, a farmer can get 80 per cent of the loan amount as short term production loan and the balance 20 per cent as an overdraft facility. The farmer can repay 20 per cent of the loan as and when he has the funds. He can also get another loan to the extent of 20 per cent. In a notice issued on Thursday, the RBI has asked banks to introduce the product in rain-fed areas, on a pilot basis, as per the recommendations of the Radhakrishna Expert Group. "Liquidity constraints of farmers in rain-fed areas should be mitigated through a cyclical credit system of treating crop loan as a weather cycle- long intervention rather than an annual feature," the RBI said.As per RBI guidelines, a bank can give 80 per cent of the crop loan as a fixed component, which may be released through a short term production loan in conformity with the present norms. The remaining 20 per cent, representing the 'core component' (expenses for land preparation, pre-sowing operations etc. besides self labour/ consumption), may be sanctioned as a 'clean credit limit' to ensure year round liquidity.Asset classification norms as applicable to non-agricultural cash credit/overdraft accounts would apply to this clean credit limit, RBI said.

(Source: The Hindu Business Line, 29 August 2008)

Marketing Channels and Price Spread of Grapes - A Study of District Nashik, Maharashtra

Anil M. Ahire and S. R. Bhonde

The cultivation of grapes has acquired a place of pride in the economy of western Maharashtra. Grape Cultivation has been picking up fast in Nashik district. The efforts are made to raise managerial ability in the field of both production and marketing and to examine the marketing channels and price spread in the marketing of grapes in Nashik district. Grapes are harvested early or late to get higher returns. Six marketing channels were identified. Channel V, Producer - Wholesaler - Retailer - Consumer, was the most common one, through which 46.59 per cent quantity was disposed. The per quintal net average price received in Channel VI was Rs. 4367.44. Nearly 34-40 per cent share was galloped by the various market intermediaries. The price premiums received per quintal for different grades, markets and marketing agencies and sell during different months were found considerably high.

Introduction

The production of grapes in India during 1995-96 was about 15.25 lakhs tones from an area of 45000 ha. The acreage under grapes in Maharashtra has reached to 40000 hectares with production of about 11.25 lakh tonnes (2004-05). Grape cultivation is concentrated in districts like Nashik, Sangli, Pune and Solapur which are very famous for quality production, productivity as well as for the efficiency of cultivation and for the marketing efficiency with which the produce is handled in marketing.

Grape growers received higher returns by selling produce to retailers in suburban area because of savings in commission and market charges. Tasgaon farmers in Sangli district sold more than 95 percent of their grapes through pre-harvest contractors and wholesalers (Deshmukh, 1990). Deshpande *et al.* (1992) identified four marketing channels. (i) Producer - Aditya-Retailer- Consumer (ii) Producer - wholesaler - Retailer - Consumer. (iii) Producer - retailer - Retailer - Consumer and (iv) Producer - Consumer. Dangat et al. (1997) pointed out that co-operative marketing societies not only give technical guidance to members but also arrange transport and sale of grapes so it helps grape growers to sell their produce in different markets.

An efficient marketing system is one, which maximizes producer's total returns from the given transaction. Grape marketing has a direct bearing on the prosperity of cultivator. The grapes growers, in the absence of market intellgence and information, many times face problems in the marketing.

A study was undertaken in Dindori tahsil of Nashik district of Maharashtra, with the objectives: i) to find out the price spread in marketing of grapes; ii) price realization in marketing of grapes. Dindori tahsil was purposively selected for the study, as it alone occupies more than 40 per cent of the toal area under grape in Nashik district. Ten villages, having maximum area under grape were selected and from each village, 12 grape growers were selected purposively who market their grapes in various markets viz. local, within state, outside state and export markets. The selected farmers were categorized in to three different size groups as :

i) Small - upto 2 ha
ii) Medium - 2.01 to 4 ha
iii) Large - above 4 ha

From each size 40 farmers were selected. Thus total 120 farmers were selected for the study. The data on relevant aspects such as area under grape, marketing channels, marketing cost, marketing margin in grape marketing were collected by survey method by conducting personal interviews with the help of specially designed questionaire.

Price spread and price realized in marketing of grapes were studied by the data obtained from grape growers

and analysed in view of the objectives. The results of analysis are elaborated in subsequent paragraphs.

Price spread in different Marketing Channels

Price spread refers to the difference between the price paid by the consumer and price received by the producer. This includes marketing cost and margins of the intermediaries. The cost and margin of each agency in different channels were worked out and the details are presented in table 1.

It is revealed from Table 1 that the per quintal received by the grape grower ranged from Rs. 1126.97 to Rs. 4367.44 in different channels. The higher price was received in the channel VI. The producer's share in the consumer's rupee was the highest (98.5 per cent) in channel I (Producer - Consumer) and the lowest (34.10 per cent) in channel VI (Producer - Exporter - Commission agent - Wholesaler - Retailer - Consumer). The fewer shares in the channel VI were due to higher marketing cost and commission on intermediaries (65.90 per cent). The per quintal consumer's price ranged from Rs. 1732.73 to 12807.74. The lowest consumer's price was observed in channel III (Producer - Commission agent - Retailer- Consumer). This was due to less marketing cost. The highest total marketing cost and commission of intermediaries was observed in Channel VI (Producer-Exporter-Commission agent - Wholesaler - Retailer- Consumer) was Rs. 8440.30, while the lowest was Rs. 34.72 per quintal in channel I (Producer - Consumer) which was because of involvement of less number of intermediaries.

Prices received for grapes in different markets

As regards the per quintal prices received for the grapes, it can be seen that in out side state markets nearly all the grape growers from various size groups, received more than thousand five hundred rupees per quintal for the produce. At the overall level, the highest price Rs. 4367.44/qtls. was received in export market followed by outside state markets Rs. 1674.99 per quintal and within state markets (Rs. 1451.64 per quintal) and local market (Rs. 1158.88 per quintal).

The grape growers from small size group received the highest price per quintal in export market (Rs. 3546.71 per quintal) and local market (Rs. 1127.15 per quintal). In medium size group, the grape growers received the highest price in export market (Rs. 4314.33 per quintal) followed by outside state markets (Rs. 1734.52 per quintal), within state markets (Rs. 1492.38 per quintal) and local market (Rs. 1206.24 per quintal). The grape growers from large size group also received the highest price per quintal in export market (Rs. 5241.28 per quintal) followed by outside state markets (Rs. 1638.17 per quintal), within state market (Rs. 1451.64 per quintal) and local market (Rs. 1158.88 per quintal). It can be said that the export and outside state markets are better for getting higher prices.

Prices received for grapes sold through different marketing agencies

The grape growers received varying prices for their produce. At overall level, it is observed that per quintal price received for the produce sold through commission agents from distant markets was Rs. 1126.97. While the per quintal price received by small, medium and large size farmers were Rs. 1085.17, Rs. 1152.49 and Rs. 1143.26 respectively. In the case of pre-harvest contractors, at the overall level, per quintal price received was Rs. 1408.16 and the per quintal price received by small, medium and large size groups were Rs. 1318.52, Rs. 1442.68 and Rs. 1463.28 respectively. The grape growers from the medium size group and large size group sold their produce through wholesalers and received the price of Rs. 2336.18 and Rs. 2376.47 per quintal, respectively. In the case of retailers, at an overall level, per quintal price received was Rs. 1697.16. The per quintal price received by small, medium and large size group was Rs. 1606.65, Rs. 1835.22 and Rs. 1649.61 per quintal, respectively. In case of commission agent from foreign market at an overall level, per quintal price received was Rs. 4367.44. The per quintal price received by small, medium and large size groups was Rs. 3546.71, Rs. 4314.33 and Rs. 5241.28 respectively.

It indicates that, the grape growers received highest prices when grapes were sold through commission agents from foreign markets followed by wholesalers, commission agents from distant market, pre-harvest contractors and retailers in domestic markets.

The average per quintal price received by the producer ranged from Rs. 1126.97 to Rs. 4367.44 through different marketing channels. The per quintal average price received for the grapes sold through exporter was the highest (Rs. 4367.44) followed by channel V (Producer -Wholesaler-Retailer-Consumer) Rs. 2306.43, Channel I (Producer-Consumer)

Table 1: Price spread in different marketing channels.

(Rs./quintal)

Particulars	Marketing Channels					
	I	II	III	IV	V	VI
Producer						
Price received	1780.72	1770.17	1216.38	1529.81	2538.81	5283.19
	(100.00)	(66.92)	(70.20)	(67.78)	(67.95)	(41.25)
Cost incurred	34.72	73.00	89.41	121.65	232.40	915.75
	(1.95)	(2.76)	(5.16)	(5.39)	(6.22)	(7.15)
Net price received	1746.00	1697.16	1126.97	1408.16	2306.43	4367.44
	(98.05)	(64.16)	(65.04)	(62.39)	(61.73)	(34.10)
Exporter						
Price received	-	-	-	-	-	8024.05
						(62.65)
Cost incurred	-	-	-	-	-	1200.08
						(9.37)
Margin	-	-	-	-	-	1540.77
						(12.03)
Pre-harvest contractor						
Price received	-	-	-	1842.64	-	-
				81.64)		
Cost incurred	-	-	-	87.12	-	-
				(3.86)		
Margin	-	-	-	225.70	-	-
				(10.00)		
Commission agent						
Price received	-	-	1390.52	-	-	8664.44
			(80.25)			(67.65)
Cost incurred	-	-	-	-	-	-
Margin	-	-	174.14	-	-	640.39
			(10.05)			(5.00)
Wholesaler						
Price received	-	-	-	-	3059.67	10342.25
					(81.89)	(80.75)
Cost incurred	-	-	-	-	91.91	341.97
					(2.46)	(2.67)
Margin	-	-	-	-	428.93	1335.85
					(11.48)	(10.43)
Retailer						
Price received	-	2645.20	1732.73	2257.03	3736.32	12807.74
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Cost incurred	-	140.46	86.46	123.01	117.69	527.68
		(5.31)	(4.99)	(5.45)	(3.15)	(4.12)
Margin	-	734.57	255.75	291.38	558.95	1937.78
		(27.77)	(14.76)	(12.91)	(14.96)	(15.13)
Consumer's price	1780.72	2645.20	1732.73	2257.03	3736.32	12807.74
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Market cost + Commission of	34.72	948.04	605.76	848.87	1429.89	8440.30
intermediaries	(1.95)	(35.84)	(34.96)	(37.61)	(38.27)	(65.90)

Rs. 1746.00 and channel II (Producer - Retailer - Consumer) Rs. 1696.16. The producer's share in consumer's rupee was highest in channel I (Producer - Consumer) 98.05 per cent and lowest in VI (34.10 per cent). From producer's point of view the channel V (Producer - Wholesaler-Retailer-Consumer) was the last most popular channel for marketing of grapes. Within state market 17.78 per cent quantity of produce was sold and average per quintal prices received was Rs. 1451.64. While 48.93 per cent quantity was sold in the outside state markets for which average per quintal price received was Rs. 1674.99. In local market, 12.43 per cent of grape was sold and the per quintal price received was Rs. 1158.88. In export market 20.86 per cent of grape was sold and per quintal price received was Rs. 4367.43.

The grapes were sold through commission agents, pre harvest contractors, wholesalers and retailers. The grapes sold through commission agent from local market fetched average per quintal price of Rs. 1126.97 and commission agent from foreign market Rs. 4367.44. The quantity sold through commission agent from local and foreign market was 15.67 and 21.01 per cent respectively. Quantity of produce sold through pre harvest contractors was 11.67 per cent and average per quintal price received was Rs. 1408.16. Through wholesalers 46.91 per cent of produce was sold with Rs. 2306.43 per quintal while very less quantity of produce was sold through retailers (4.74 per cent). Based on the findings of the study, the following specific conclusions are drawn.

As regard the various domestic markets, outsid state markets and export market earned better returns for the grape growers.

The maximum per quintal was received by the grape growers for grade I quality produce (Rs. 3900.73), export markets (Rs. 4367.44) and sale of produce through commission agent from local market (Rs. 1126.97). Maximum price for sale of produce was received in the month of April (Rs. 3477.70).

Reference

Dangat S. B., Kasar D.V, and Yadav D.B. (1997), "Marketing of grapes through co-operatives in Pune district." Ind. Jour. Agril.Econ 52(3): 642-643.

Deshmukh I.D., (1990), "Marketing of grapes in Sangli district". M.Sc.(Agri.), thesis submitted to MPKV, Rahuri (Maharashtra).

Deshpande B.S, Deole C.D., and Borle J. N., (1992), "Price spread in different channels of marketing of grapes in Latur district". Maharashtra Jour. Agri. Econ. 4(1): 27-28

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Sustainable Development

'Green' development is not about the way the environment is managed, but about who has the power to decide how it is managed. Its focus is the capacity of the poor to exist on their own terms. At its heart, therefore, 'greening' development involves not just a pursuit of ecological guidelines and new planning structures, but an attempt to redirect change to maintain or enhance the power of the poor to survive without hindrance and to direct their own lives. 'Sustainable development' is the beginning of a process, not the end.

- W. M. Adams
Green Development-
Environment and Sustainability in the Third World

Development Scan: II

AFC Research Bureau

This compilation is the second in the series of important development information that might interest our readers. Most of the entries relate to the themes of agricultural development and sustainable livelihoods. The sources are duly acknowledged.

Second Green Revolution Through Water Management

India's agriculture sector faces major constraints due to low investment and dilapidated irrigation infrastructure. Coupled with India's recent high economic growth that is likely to increase demand for water from industry, less water will be available for agriculture. In order to face this challenge, India needs to make significant and sustained investments in agricultural research, agricultural and general infrastructure in rural areas such as irrigation, roads, transport, and power. In addition, investments in rural finance and access to markets and technology are also critical to revive and sustain agriculture productivity. Addressing Global Agro Industries Forum in New Delhi on April 10, 2008, Prime Minister Manmohan Singh said, "*We need a Second Green Revolution. We need new technologies, new organizational structures, new institutional responses and, above all, a new compact between farmers, technologists, scientists, administrators, businessmen, bankers and consumers. The global community and global agencies must fashion a collective response that leads to a quantum leap in agricultural productivity and output so that the specter of food shortages is banished from the horizon once again.*"

Any significant growth in agriculture depends on increasing the efficiency and productive use of water. India is a water stressed country, 45 percent of all available water is utilized for agriculture with ground water accounting for about 70 percent. A World Bank study estimates that by 2020, India's demand for water will exceed all sources of supply. It is imperative that India strengthens its irrigation structure and improved agriculture practices.

Farmers in Tamil Nadu under the World Bank assisted Tamil Nadu - Irrigated Agriculture Modernization and Water-Bodies Restoration and Management Project) are showing the way by using less water and fewer seeds to grow more rice. This new way of cultivating rice is raising hopes that rice yield could increase, without draining the country of scarce water and resources. Tamil Nadu is one of the driest states in India, with only 925 millimeters of rainfall a year. The per capita availability of water resources is 900 cubic meters a year, as compared to India's average of 2,200 cubic meters. Agriculture consumes 75 percent of the state's water. So, in order for Tamil Nadu to increase agriculture growth in a sustainable manner, it is necessary to adopt alternative and eco-friendly methods of cultivation.

One of the successful components of this project is the **System of Rice Intensification** or SRI. It is an emerging alternative to the conventional way of flooded rice cultivation and is already addressing the problems of water scarcity, high energy usage, and environmental degradation. According to V.K. Ravichandran, Professor of Agronomy, Tamil Nadu Agricultural University, farmers *are using younger seedlings of 14 days old as compared to 25-30 days old as in the case of conventional plantings. So the young vigor of the seedlings can be exploited.* SRI is a combination of five important management techniques. "*It encompasses transplanting of 14-day young seedlings at wider spacing with only one seedling per hill, water management that keeps the soil moist but not continuously flooded — alternate wetting and drying, mechanical weeding through a rotary weeder, and higher use of organic compost as fertilizer*," SRI produces higher yields (40-80 per cent) with less seed (85 per cent) and water use (32 per cent saving).

Singadavardan, a farmer in Villupuram district, said the SRI system requires far fewer seeds, which saves him money. "*In the normal way of planting, I would use about 30 kg of seeds per acre, but with this method, I've used only 3 kg per acre and on*

top of that, the labor is also cheaper," said Singadavardan.

(Adapted from www. enrap.org.in, the information sharing website of IFAD)

Strategies for Sustained Growth and Inclusive Development

"The Growth Report: Strategies for Sustained Growth and Inclusive Development" released by the Commission on Growth and Development, looks at how developing countries can achieve rapid, sustained, and equitable growth. The Growth Report identifies some of the distinctive characteristics of high-growth countries and highlights the importance of leadership and governance, economic security, competition, sound fiscal and monetary policy, and public investment in health and education. It also looks at income inequality and labor migration.

(*Source: World Bank Poverty Newsletter*)

Interventions for Improving Livelihoods

FAO and IFAD have recently produced a report entitled "Water and the Rural Poor". The report makes a case for well-targeted, local interventions in water that can contribute to the rapid improvement in the livelihoods of the rural poor in Sub-Saharan Africa (SSA). These interventions can help attain the Millennium Development Goal of eradicating extreme poverty and hunger. The report points to opportunities for new investments in water but their success depends on the development of new models of interventions, centered on enhancing the diversity of livelihood conditions of rural populations.

Investments in water infrastructure alone do not suffice to improve agricultural productivity unless matched by improving water management in rain-fed agriculture. Large-scale irrigation schemes are not always required, though there is a need to improve those already existing ones which are used below capacity and are poorly maintained. Also needed are clear policies that allow equitable access to water by poor farmers and favorable market linkages for them, secure access to inputs including fertilizer, better seeds, and credit. The report focuses on small-scale on-farm improvements, structures that are easy to operate and maintain locally and that target mainly smallholders.

Climate change represents an additional challenge to rural people and is a further reason for investment in water control. In view of their limited adaptive capacity, resource poor farmers, pastoralists and artisans are among the most vulnerable to the impact of climate change -its negative effects of increased temperature on yields and vulnerability to extreme events. For them, enhanced control of water will become critical in building resilience to increased climate variability.

(Source: World Bank Poverty Newsletter)

Rivers Vanish in Uttarakhand

Tapping of all its major rivers and tributaries for hydropower is making rivers in Uttarakhand vanish, according to a report in One World South Asia newsletter. The rivers are made to pass through numerous underground tunnels that run up to 30-35 kilometers at a stretch cutting through mountains, making them hollow and susceptible to subsidence. There are plans for 220 power projects aiming to generate 24,876 MW of power. The website of the Uttarakhand Jal Vidyut Nigam Limited, lists a many as 169 small, medium and big hydroelectric power projects to be built by 2012. Apart from central public sector undertakings, there are also many private sector companies that have joined the bandwagon of development. These include: Jaiprakash Power Ventures Ltd., GVK Industries Ltd., Reliance Energy, GMR Energy and Krishna Knitwear and Vishal Exports.

Forests are being cleared to make way for these projects, channelising of river water into 700-kilometre long tunnels is obstructing the natural path of the rivers. Going by the estimates of Himalayi Paryavaran Shiksha Sansthan, about 2.2 million people, more than a quarter of the total population of the state, will be directly or indirectly affected by these projects. Houses will sink, forests will be acquired, water resources will dry up, and arable lands submerge.

According to Radha Bhatt of Gandhi Peace Foundation, no proper environmental impact assessments were carried out and people were not consulted. The area falls in seismic zone IV and V, which make it highly prone to earthquakes. According to the Dehradun based People's Science Institute, in some villages people are complaining that their houses are already caving in.

The reservoir of the Tehri dam, built on the confluence of the Bhagirathi and Bhilangana rivers and spread over an area of 42 square kilometers, had submerged thousands of hectares of land, affecting hundreds of villages, even submerging a few of them including the old Tehri town and displacing more than 100,000 people. The project was approved in 1972

and the construction started in 1978 and became fully operational in March 2007. If the 260.5 meter high Tehri dam breaks, the water released from it will drown Devprayag, Rishikesh and Haridwar. Even Meerut and Delhi will not be spared!

People are once again waking up to the hazards of such projects. People of Dikoli and Jaspur are already sitting in protest. 95% of their agricultural land had been acquired for Maneri Bhali Phase II project. Not a single person has got alternative employment promised by government. Their houses have developed cracks. In the immediate past a tunnel for the Vishnu Gaad hydropower project in Chamoli district had made the land subside in Chayeen village. Homes of about 30 families had been badly damaged then. Such reports of land subsidence have also been reported from many places including Pala village, near Loharinag-Pala and Pala-Maneri hydropower projects in Uttarkashi district.

In January this year several concerned citizens and social activists set out on a padyatra (foot march) to mobilise local people against anti-river policies of the state. All along the march in more than a dozen river valleys they held public meetings and discussions with local communities and collected signatures. Prof. Gurudas Agrawal, a noted scientist and environmentalist and once part of the technical team that built the Maneri Bhali I project, has commenced a Gandhian form of protest to save the Bhagirathi.

(Based on *Rajender Singh Negi, on 9th June in One World South Asia* Newsletter)

Managing Asian Cities – A Report by ADB

In an address to the World Cities Summit at Singapore, the President of the ADB stated that a major rethink is needed on how cities manage growth because the current approach is no longer economically, environmentally or socially sustainable. Asian cities are growing by over 100,000 people a day. Providing jobs and services for the 1.1 billion people who will move to cities in Asia over the next 20 years is a task of "magnitude never before attempted by humanity." Cities in Asia have populations and economies the size of nation states. "For most major cities in Asia, growth rates are too rapid for their infrastructure to keep up. Each year, there is a $30 billion shortfall in urban infrastructure investments, leading to greater deterioration of existing infrastructure and worsening urban environments." A new report published by ADB, **Managing Asian Cities**, outlines how the region's cities can meet the enormous challenges they face. It says that the technology, money and skills necessary are available, but the current institutional structures needed for coordination, financing and capacity development are inadequate.

Disasters, Food Insecurity, Undernutrition

On August 20, floods triggered by heavy monsoon rains left some 50,000 people homeless in **India's remote northeast.** Floodwaters swamped some 100 villages in Assam state, destroying homes and croplands and forcing thousands of people to the safety of high grounds. Officials set up temporary shelters for the homeless in school and government buildings, and used wooden boats to rescue those marooned. Many camped on highways under plastic sheets with what little they had salvaged of their belongings.

(Reuters)

According to the World Food Programme, more than 300,000 people in nine hill districts of far western and mid-western **Nepal** face a precarious food situation after the crops failed this year due to drought. Although the Himalayan nation is largely dependent on food imported from neighboring India, the local grain output provides vital reserves in many food-deficit districts. However, the crop yield this year has been so poor it has left many without coping mechanisms.

An estimated 46 percent of families in **Myanmar's** Ayeyarwady delta have less than two days' worth of food, according to an initial post-disaster assessment. The news underscores the urgent need to bring more food into the region almost eight weeks after Cyclone Nargis ravaged the area, leaving 138,000 people dead or missing. The discovery of significant household food shortages is just one of the crucial early findings of an ongoing assessment of the disaster relief effort by the UN, Association of South East Asian Nations (ASEAN) and Myanmar government, released on June 24.

(IRIN)

The UN World Food Program (WFP) has called for urgent assistance to ease the food crisis in the hills and mountains of **Nepal's** far- and mid-west regions. "We urge the international donor community and private sector donors to act now and commit USD 70 million that WFP needs to prevent these vulnerable populations from further malnutrition and hunger," deputy country representative Dominique Hyde said. Rising food and fuel prices, drought, hyperinflation and the lingering effects of the decade-long conflict (1996-2006) have pushed 2.5 million people to the edge of survival in Nepal,

he explained. *(IRIN)*

In Bangladesh, hundreds of families living along the banks of the Padma and other rivers have to uproot themselves as the powerful waters erode their homes and land from almost under their feet. In Shariatpur, about 145 miles south of the capital, Dhaka, villagers were seen on June 23 fleeing their homes on the banks of Padma, one of dozens of major rivers that meander through the country to the Bay of Bengal. Rivers that offer millions of Bangladeshis a living as fishermen and merchandise carriers also pose a great danger, especially during the monsoon season and the onrush of floodwaters from their source, upstream in India.

(Reuters)

The confirmation of a new polio case, this time in the vast southwestern province of Balochistan in **Pakistan** raised concerns about the current anti-polio campaign. The latest case appeared in a village near the town of Chaman, Killa Abdullah District, along the province's western border with Afghanistan. Afghanistan, like Pakistan, is one of the world's four remaining polio endemic countries, and health officials in Pakistan have complained of transmission of the virus across the border. The National Institute of Health (NIH) in Islamabad confirmed that a two-year-old boy had been infected. *(IRIN)*

Typhoon Fengshen moved out of the **Philippines** on June 23 towards China, leaving at least 224 dead, hundreds missing and thousands homeless, according to the Philippine National Red Cross and Office of Civil Defense. The number of fatalities excludes the passengers and crew of the MV Princess of Stars, which sank off Romblon Island in the Visayas. The ferry, bound for Cebu Island, Central Visayas, was carrying more than 800 people. Four bodies were washed ashore, while about 30 survivors were found. The rest remain unaccounted for, according to National Disaster Coordinating Council (NDCC) spokesman Anthony Golez. *(IRIN)*

Sri Lanka has been grappling with high rates of under-nutrition among children younger than five for more than 20 years. According to a UNICEF survey one in every three children under five is underweight, leading to stunting and wasting. According to the World Health Organization (WHO), more than 14 percent of under-fives suffer from acute malnutrition. In areas affected by the long-running war, the figure could be as high as 26-30 percent. The increase has been partially triggered by rapidly rising food prices. *(IRIN)*

New Zeland: Forest Land for Maori Tribes

In a historic settlement, the New Zealand government has signed over huge tracts of forest land to the ownership of seven Maori tribes. The USD 319 million agreement transfers ownership of nine forests – covering 435,000 acres of land – in the central North Island. Hundreds of Maori, some in traditional dress, thronged parliament to witness the signing of the accord. The settlement – the largest single deal between the government and Maori tribes – seeks to address grievances dating back to the Waitangi Treaty of 1840. *(BBC)*

Tackling Climate Change: Japan's Proposal

If Japan has its way in the upcoming international conference on climate change, key developing countries with a sizable economy will have to do more to cut emissions than others with smaller economies. Tokyo plans to make the proposal at a working group meeting of the UN Framework Convention on Climate Change scheduled to open in the Ghanaian capital of Accra. The Convention aims to tackle global warming issues after the expiration in 2012 of the current Kyoto Protocol. Japan has called for halving the emission of carbon dioxide and other global warming gases by 2050. *(Kyodo)*

Dr Joseph Viruthiyel,
Deputy General Manager,
AFC, Mumbai

We should be on our guard not to overestimate science and scientific methods when it is a question of human problems.

- Albert Einstein

जनजातीय क्षेत्रों में कृषि विपणन

सुबह सिंह यादव

जनजातीय क्षेत्रों में भू-भाग (Terrain) उनकी आदतें, सामाजिक प्रणाली, आर्थिक स्तर तथा राजनैतिक संबंध देश के अन्दर एक स्थान से दूसरे स्थान पर भिन्न-भिन्न हैं । उनका व्यावसायिक कौशल, संसाधन उपलब्धता तथा आधारिक संरचना की आवश्यकताओं को ध्यान में रखते हुए नीति-निर्माताओं ने उनके लिए उपयुक्त परियोजनाएं बनाई गई । जनजातीय विकास परियोजनाओं के मुख्यत : 6 पहलू हैं :-

1. कृषि एवं सम्बध्द क्षेत्र
2. वन सेवाएं
3. स्वास्थय सेवाएं
4. इन्जीनियरिंग सेवाएं
5. उद्योग तथा
6. रोजगार

सामाजिक परिवेश (Socioeconomic Environment)

यह नि:संदेह कहा जा सकता है कि लगभग देश के सभी भागों में जनजातीय लोग अपनी जीविका, आवास तथा मनोरंजन के लिए आसपास के प्राकृतिक संसाधनों पर ही निर्भर करते हैं । इस प्रकार आस-पडौस के उपलब्ध संसाधनों पर निर्भर करते हुए विभिन्न राज्यों के जनजातीय लोगों को स्तर काफी भिन्न दिखाई देता है । सामान्यत: जनजातीय लोगों के तीन प्रमुख व्यवसाय है :-

1. कृषि
2. वन उपज का संग्रहण
3. दैनिक मजदूरी करना

देश के अधिकांश भागों में, ये तीनों संभाग व्यक्तिगत अथवा सामूहिक रुप से जनजातीय जनसंख्या को वर्ष-भर रोजगार प्रदान करते हैं । निस्संदेह ये रोजगार साधन प्रकृति से जीवन निर्वाहक मात्र हैं तथा जनजातीय अर्थव्यवस्था इनसे इतनी अधिक प्रभावित नहीं होती । इस स्थिति के कुछ अपवाद केवल हिमाचल प्रदेश के कुछ भागों, जम्मू कश्मीर तथा उत्तरी -पूर्वी राज्यों के कुछ भागों में देखने को मिलते हैं । उपरोक्त वर्णित तीन व्यवसायों में से भारत में जनजातीय लोख अधिकांशत: कृषि पर निर्भर है तथा उनकी जनशक्ति एवं अधिकांश मानव दिवस कृषि तथा सम्बध्द गतिविधियों में क्रियाशील होते हैं । इसके बाद संभावित रोजगार का दूसरा साधन वन उपज का संग्रहण है । अत: यह आवश्यक है कि सम्पूर्ण जनजातीय विकास के लिए कृषि विकास को बढावा दिया जाए ।

जनजातीय क्षेत्रों में कृषि अन्य क्षेत्र से काफी भिन्न है । कृषि इनपुटों के निम्न प्रयोग के अतिरिक्त के बारे में नवप्रवर्तक तथा उत्साही नहीं है । इसका प्रमुख कारण जनजातीय क्षेत्रों में ठोस नीति एवं विस्तार का अभाव रहा है । विस्तार तकनीक के लिए आधारिक संरचना भी जनजातीय अंचलो में बहुत निम्न स्तर की रही है । उन क्षेत्रों की बात ही क्या जहां पहुंचा नहीं जा सकता, उन क्षेत्रों में भी जहां पहुंच आसान है, ज्ञान का प्रसार जनजातीय समुदाय पर उत्कृष्ट प्रदर्शन ला सकता है, जिसके द्वारा बाद में दूरस्थ क्षेत्रों में भी इस प्रयोग को काम में लाया जा सकात हैं ।

कृषि परिदृश्य

विभिन्न राज्यों के जनजातीय क्षेत्रों में कृषि परिदृश्य इंगित करता हैं कि इन क्षेत्रों को मूलभूत आधारिक संरचना सुविधाएं नीतिगत एवं विस्तार सहायता अभी भी दी जानी हैं । कई स्थानों पर तो कृषिगत दृष्टि से विकसित क्षेत्र भी आर्थिक उत्थान का अनुभव प्राप्त नहीं कर रहे हैं; इसका कारण हमें पुन: जनजातीय समुदाय के सामाजिक एवं धार्मिक कारकों में ढूंढना होगा । फिर भी कृषि की दृष्टि से सक्रिय तथा विकसित समाज की परिधि में रहने वाली जनजाति की संख्या भी काफी हो गई हैं । ये लोग समाज की मुख्य धारा से जुड गये हैं । इस प्रकार जनजाति पर वांछित प्रभाव देखने के लिए हमें कृषि विकास को बढावा देना होगा । आज कृषि का केवल अनाजों, दालों तथा सब्जियों इत्यादि का उगाना ही नहीं है, बल्कि पशुपालन, मछली पालन, रेशम के कीडे पालन, मुर्गीपालन, दुग्धपालन, बागवानी इत्यादि से भी है । जनजातीय लोगों के विकास के लिए कई संस्थाएं अस्तित्व में आई हैं । इनमें से अधिकांश का कार्य इन गरीब लोगों को आधारभूत सुविधा प्रदान करना, उनके कौशल में सुधार लाना तथा इन जनजातीय लोगों को समूह (सहकारिताएं) में संगठित करके उत्पादक गतिविधियों की तरफ मोडना है ।

कृषि विपणन की आकस्मिक प्रकृति
(Casual Nature of Agri-Marketing)

जनजातीय क्षेत्रों में कृषि उत्पाद की चार प्रमुख विशेषताएं हैं :-

1. कम उपज
2. घटिया किस्म
3. गैर आर्थिक मात्रा
4. प्रतिबंधित मांग

ऐसी उपज जनजातीय लोगों द्वारा विक्रय स्थानों पर बहुत कम इकाई कीमत पर लाई जाती है । बहुत से आदिवासी लोग तो अपनी उपज को विक्रय स्थल पर लाते ही नहीं है तथा उसे अपने गांव में ही बेचकर खुश हो लेते हैं । उनके पास अपनी उपज के वाणिज्यीकरण करने, भावी

व्यावसायिक अथवा सामाजिक विकास की योजना की समझ ही नहीं हैं । इस प्रकार एक ओर आदिवासी उपज को लाभदायक कीमत दिलाने तथा दूसरी ओर आदिवासियों में भविष्य के लिए बचत करने की आदत डालने के व्यापक प्रयास करने होंगे । जनजातीय क्षेत्रों में विकास की स्वयं स्फूर्त अवस्था लाने में सामाजिक उपरिव्यय, शिक्षा तथा स्वास्थ्य सेवाएं महत्वपूर्ण भूमिका अदा करती है ।

आदिवासियों की कृषि उपज को वास्तविक मूल्य प्रदान करने हेतु विभिन्न विपणन एजेंसियों द्वारा अनेक प्रयास किये गये हैं । मूलत: जनजातिय क्षेत्रों में कृषि विपणन व्यवहारों को विकसित करने हेतु देश में 'राज्य कृषि विपणन बोर्डों' द्वारा प्रदान की गई सहायता / सेवाएं उल्लेखनीय हैं । जनजातीय बाजार अधिकांश सावधिक हाट ही होती हैं । हाट ऐसे अनौपचारिक बाजार स्थान होते हैं जहां आदिवासी अपनी उपज अथवा उत्पादन के विक्रय हेतु एकत्रित होते हैं तथा रोजमर्रा की आवश्यकतांएं प्राप्त करते हैं जो उन्हें समान्तर रुप से मनोरंजन एवं सामाजिक विनिमय भी प्रदान करते हैं । ठीक इसी परिप्रेक्ष्य में इन सभी प्रावधानों के साथ जनजातीय बाजारों को विकसत करना होगा ।

कृषि विपणन कं संस्थागत ढॉचे की भूमिका (Role of Institutional Structural in Agri-Marketing)

कृषि विपणन प्रणाली द्वारा अर्थव्यवस्था में अदा की जाने वाली उत्प्रेरक भूमिका को विकसित क्षेत्रों के क्षितिज के बाहर दृष्टिगत करना होगा । विपणन में ऐसे लोगों की जीवन दशाओं को सुधारने में अपनी जीवन्त भूमिका अदा करनी चाहिए जो बहुत ही जंगली अवस्था में जीवनयापन करते हैं तथा जो अपनी आदिम अर्थव्यवस्था एवं स्वयं के सांस्कृतिक प्रारुप के साथ देश के दूरदराज जनजातीय करते हैं । कृषि विपणन का एक सुसंगठित संस्थागत ढांचा ऐसे लोगों के लिये बहुत कुछ अर्थों में महत्वपूर्ण सिध्द हो सकते हैं, जैसे -

1. उपज हस्तान्तरण के लिए सुगम माध्यम प्रदान करना
2. उपज हस्तान्तपण को भौतिक सहायता प्रदान करना
3. अधिकांश जनजातीय परिवारों को उनके बिखरे हुए तथा लघु वन उपज के लिए आसान नगदी सहायता देना तथा
4. किसानों के बीच विपणन उन्मुखता सृजित करना ।

उत्पादन रणनीति के प्रति जनजातीय लोगों का आकस्मिक दृष्टिकोण विपणन योग्य आधिक्य को बढाने में किसी भी प्रकार से सहायता नहीं देता हैं । यही नहीं, जो भी कुछ उत्पादित किया जाता हैं, वह सुदृढ विपणन वातावरण के अभाव में, स्तव: कुछ भी वांछित परिणाम नहीं ला सकता । किसानों के दरवाजों पर आरंभ हुई कृषि विपणन रणनीतियां अपर्याप्तता के चक्र को उल्टा कर देती हैं (समाप्त कर देती हैं), क्योंकि ऐसी नीतियों से जनजातीय किसानों को अच्छी कीमतें मिलती हैं और जीवन निर्वाह के स्तर से ऊँचा उठता है । लघु एवं सीमान्त कृषक तथा भूमिहीन कृषक भी आर्थिक अपर्याप्तता के चक्र में फंसे रहते हैं । इन परिस्थितियों में एवं सुसन्वित विपणन से इस बात की चेता जागृत होती है कि अभी तक उनकी क्या कमियां रही, जिनको अतिरेकउपज को एकत्रित करते तथा इसे संगठनों के माध्यम से बेचकर ताकत में परिवर्तित किया जा सकता था ।

कृषि विपणन के अपर्याप्त प्रावधान (Inadequate Provisions of Agri-Marketing)

भारत में जनजातीय लोगों के संदर्भ में विपणन की रणनीति अतिरेक के सृजन से उत्पन्न होती हैं जिसके फलस्वरुप उत्पादकों से उपभोक्ताओं तक आगे वस्तुओं का चलन होता हैं । जनजातीय अर्थव्यवस्था का कृषि परिदृश्य सम्पूर्ण रुप से विकसित स्थायी बाजार पोषित करने के लिए सूचालनक नहीं है; यह अभी परम्पराओं से बंध हुआ दिखाई देता हैं । कृषि विपणन की समस्या कृषि से निम्न विकास से संबंधित हैं । जनजातीय क्षेत्रों में कृषि उपज के लिए विपणन प्रावधान पर्याप्त नहीं हैं । यहां पर आर्थिक रुप से व्यवहार्य बाजारों का एकमात्र रुप परम्परागत एवं अविकसित हैं और इनमें से कुछ तो १०० वर्षो से भी अधिक समय से कार्य कर रहे हैं । यह भी अनुभव किया गया है कि ९०% किया गया अतिरेक इन ग्रामीण हाटों में बेचा जाता है जो कि जनजातीय गांवो के समूहों की आवश्यकताओं की पूर्ति करने के लिए किसी एक केन्द्रीय स्थित जगह पर सप्ताह में एक बार कुछ घण्टों के लिए लगायी जाती है । शेष १०% भाग मण्डियों में बेचा जाता है ।

व्यापारियों की काफी बडी संख्या तथा उनके एजेन्ट जनजातीय वस्तुओं की विशाल किस्मों की खरीद एवं बिक्री हेतु रातोंरात काफी दूरी तय करके एक बाजार से दूसरे बाजार तक जाते हैं । ग्रामीण हाटों में बिक्री किये गये अतिरेक के उच्च अनुपात के ५ प्रमुख कारण हैं :-

1. ग्रामीण साहूकार से लिये गये सशर्त ऋण
2. मण्डियों से गांवो की अधिक दूरी
3. अपर्याप्त यातायात के साधन
4. बिक्री किये गये अतिरेक का अनार्थिक आकार तथा
5. नियमित बाजारों के लाभों से अनभिज्ञता

मुद्रीकरण के निम्न आकार के कारण जनजातीय लोग उपज के एक भाग को वस्तु विनिमिय प्रणाली के द्वारा बेचने को बाध्य होते हैं । ग्रामीण हाटों में अधिक बिक्री की प्रणाली किसानों को नुकसानप्रद स्थिति में लागर खडा कर देती हैं, क्योंकि ऐसी स्थिति में उन्हें अपनी उपज का गैर प्रतिफलदायक मूल्य ही प्राप्त हो पाता हैं । शायद जनजातीय लोग इस स्थिति की गहनता को समझ पाने में असमर्थ रहे हैं कि बाध्यकारी बिक्री के कारण उन्हें काफी अधिक नुकसान उठाना पड रहा हैं । बिक्री योग आधिक्य अभी भी किसानों के लिये एक मृगतृष्णा बना हुआ है ।

कुछ प्रतिबंध (Some Constraints)

1. जनजातीय उपज का विपणन लघु स्तर पर सम्पन्न होता है; जनजातीय लोग केवल उतनी ही मात्रा उपज की बिक्री स्थान पर लाते हैं जो उनकी दृष्टि में वस्तु विनिमय प्रणाली द्वारा उनकी

आवश्यकता की वस्तुए खरीदने के लिए पर्याप्त होती हैं । दूसरी ओर व्यापारी यह बखूवी जानता है कि पिछडेपन के कारण जनजातीय लोगों के पास इतना पैसा नहीं हैं कि वे केन्द्रीय गांवो में लगने वाले सावधिक बाजारों से अपनी दैनिक आवश्यकताओं की वस्तुए खरीद सकें । ऐसी स्थिति में जनजातीय लोगों का शोषण आसान हो जाता हैं, क्योंकि उनके पास बाध्यकारी बिक्री के अतिरिक्त अब कोई दूसरा रास्ता ही नहीं बचा है । इस कष्टप्रद स्थिति में जनजातीय समुदाय द्वारा अविश्वसनीय व्यापारियों द्वारा निर्धारित अनुचित मूल्यों पर अपनी दैनिक, आवश्यकता की वस्तुओं को खरीदने तथा अपनी उपज को बेचने के लिए बाध्य होना पडता है । वे किसी व्यापारी विशेष से किसी न किसी तरीके से बंधे रहते हैं । सम्पूर्ण जनजातीय मध्यस्थों अथवा छोटे व्यापारियों के नियत्रंण में हैं ।अत: निजी व्यापारी विपणन सौदों की इस तरह से हेराफेरी करते हैं कि जनजातीय किसान खरीदते समय और बेचते समय दोनों छोरों पर नुकसान में रहते हैं । यही नहीं, कई बार तो ऐसी स्थितियां देखी गई हें जब छोटे व्यापारी किसानों की कृषि उपज को बाजारों तक भी नहीं पहुंचने देते तथा रास्ते में ही इसे हडप जाते हैं । यदि किसी तरह किसान बाजार तक पहुंच भी जाता है तो वहां भी उसे सौदों को बाध्यता के अन्तर्गत ही सम्पन्न करने होते हैं । इस तरह से उसके शोषण का कोई अन्त ही दिखाई नहीं दे रहा है । उन्हें ऐसे प्रतिबन्धित परम्परागत तरीकों से शोषित किया जाता है जो स्वभावत: आपत्तिजनक है, जैसे; गलत तौल माप का प्रयोग, अनावश्यक कटौतियों तथा बिक्री प्राप्तियों का भुगतान न करना ।

2.जनजातीय क्षेत्रों में कृषि विपणन का एक बडा प्रतिबंध यह है कि यह सडकों से अच्छी तरह से जुडा हुआ नहीं है तथा इन दुर्गम्य स्थानों पर जनजातीय लोग व्यापारियों की दया ही निर्भर हैं । ऐसी स्थिति में विपणन उनके लिए एक दूर का सपना बन जाता हैं । यद्यपि समय के साथ जनजातीय लोग अपनी कृषि का योजनाबध्द विकास करने लगे हैं, लेकिन बहुत से मामलों में पर्याप्त ऋण सुविधाओं के अभाव में वे फसल कटने से पूर्व से अवस्था में ही फसल को किसी स्वदेशी साहूकार के हवाले कर देते हैं । अत: ऐसे मध्यस्थ को समाप्त करना, जो साप्ताहिक बाजार पर प्रभुत्व रखता है, अभी भी कठिन कार्य बना हुआ है ।

विपणन व्यूह-रचना (Marketing Strategy)

भारत सरकार ने इस वर्षो पुरानी शोषण व्यवस्था के प्रभाव को अचछी तरह से पहचाना है तथा इसे समाप्त करने के लिए सरकार द्वारा जनजातीय क्षेत्रों में संस्थागत ढांचे को सुदृढ करने हेतु आर्थिक कार्यक्रमों की एक श्रृंखला के क्रियान्वयन पर जोर दिया है । योजनाबध्द विपणन संरचना जो जनजातीय उपज के क्षैतिज पर पांचवी योजना ने वास्तविक उत्प्रेरणा प्रदान की तथा जनजातीय लोगों को एक समेकित साख एवं विपणन सहायता प्रदान करने का मार्ग प्रशस्त किया । परिणामस्वरुप काफी मात्रा में संगठित संस्थाएं अस्तित्व में आई, जो मूलत: जनजातीय वन उपज के तथा दूसरी कृषि उपज को जनजातीय किसानों से प्रतिफलदायक मूल्यों पर प्राप्त करने के उद्देश्य से ओतप्रोत थी । इसके साथ ही इन संस्थाओं ने विपणन कार्य को अपने हाथों में लिया । ऐसा करते समय इनका उद्देश्य न केवल जनजातीय उत्पादकों तथा गैर परम्परागत उपभोक्ताओं के बीच मूल्य फैलाव को कम करना था, बल्कि जनजातीय अर्थव्यवस्था से व्यापारी एव कमीशन एजेंटों के शोषणात्मक एवं गैर कार्यात्मक मार्जिन को समाप्त करने का प्रयत्न भी करना था । जनजातीय लोगों की विपणन एवं साख आवश्यकताओं को अब आधारभूत स्तर पर कार्यरत समितियों के नेटवर्क जिसमें से अधिकांश मध्यप्रदेश, छत्तीसगढ, बिहार, झारखण्ड, महाराष्ट्र, राजस्थान एवं उडीसा में कार्यरत हैं, द्वारा पूरा किया जाता है ।

1. जनजातीय क्षेत्रों के लिए विपणन की व्यूहरचना में जनजातीय लोगों को विपणन वित्त प्रदान वाले गैर संगठित क्षेत्र की भूमिका पर प्रभावी नियंत्रण के तरीके को अवश्यमेव सम्मिलित किया जाना चाहिए ताकि इस क्षेत्र द्वारा जनजातीय लोगों के साथ किये जाने वाले उनके अनुचित व्यापार सौदों को समाप्त किया जा सके । यह तभी संभव है जब जनजातीय लोगों को विभिन्न विपणन क्रियाओं के लिए पर्याप्त संस्थागत वित्त प्रदान किया जाए तथा उन्हें इस बात के लिए भी प्रोत्साहित किया जाए कि वे अपनी अतिरेक कृषि उपज को सही समय पर विद्यामान विपणन ढांचे के माध्यम से अधिकतम उपलब्ध कीमत पर बेचें । इस परिप्रेक्ष्य में जनजातीय समुदाय को उचित कीमत पर तथा एक उचित मशीनरी के माध्यम से दैनिक आवश्यकताओं की वस्तुओं की आपूर्ति करने की आवश्यकता सुस्पष्ट रुप से स्थापित हो जाती है । आधारभूत स्तर पर कार्य करने वाली समितीयां जो इस ओर अधिक ध्यान संकेन्द्रित नहीं कर रही हैं, उन्हें समुचित रुप से सुदृढ करना होगा ।

2. जनजातीय युवकों को रोजगार मुहैया करवाने में सहायता देने हेतु लघुस्तरीय प्रशोधन इकाइयों की स्थापना की गुजांइश भी दिखाई दे रही है । इन प्रशोधन इकाइयों को केन्द्रीय स्थानों पर स्थापित किया जाना चाहिए ताकि संग्रहक केन्द्र आसानी से इन नाभि बिन्दुओं को उपज हस्तान्तरित कर सकें । उत्पाद के प्रशोधन से पूर्व एवं बाद में अत्यधिक सावधानी बरती जानी चाहिए, इससे मुद्रा की कीमत में वृध्दि होती है । प्रशोधित किये गये उत्पाद का भण्डारण कार्य और भी अधिक महत्वपूर्ण है क्योंकि यहां पर उत्पाद की गुणवत्ता को बनाये रखने के लिए एक सम्पूर्ण पैकेंजिंग का अपना समान महत्व है। निम्न स्तर की सामग्री में पैकेजिंग करने से उत्पाद की श्रेणी गिरावट आती है तो अन्तत: बाजार में साख को विपरीत रुप से प्रभावित करता है । जनजातीय लोगों को भी उत्पाद संग्रहण में प्रशिक्षित करना होगा ।

3. जनजातीय क्षेत्रों में न्यूनतम समर्थन मूल्य को प्रारंभ करना चाहिए तथा निजी व्यापारियों को

कृषि उपज एवं लघु वन उपज को प्रतिस्पर्धी मूल्यों पर खरीदने की अनुमति दी जानी चाहिए । ऐसे प्रावधानों से जनजातीय किसानों को खरीददार को चयन करने का अवसर मिलेगा तथा प्रतिस्पर्धा के कारण वे अच्छी कीमतें प्राप्त कर सकेंगे । इस क्षेत्र में इन लोगों की सहयता करें तथा उनकी उपज का तुरन्त भुगतान करके अथवा आवश्यकता पडने पर उन्हें ऋण देकर महाजनों से उनकी रक्षा करें । ऐसा करने से जनजातीय लोगों का इन संस्थाओं में विश्वास सृजित होगा ।

4. जनजातीय लोगों को यह बताने की ज्वलंत आवश्यकता है कि उनकी उपज की कटाई का सही समय क्या है तथा उनकी उपज का कितना मूल्य है । इसके साथ ही उन्हें भण्डारण, भण्डारण हेतु उपयुक्त स्थान से उत्पादन बिंदु से प्रशोधन बिंदु तक उपज को आसानी से हस्तान्तरित करने की विधियों से भी अवगत कराना होगा ।

5. जनजातीय क्षेत्र में नियमित ग्रामीण हाटों की श्रृंखला सृजित करने की महती आवश्यकता है। इससे खुली नीलामी व्यवस्था सुविधाजनक बन सकेगी तथा जनजातीय लोगों को बेहतर कीमतें मिल सकेंगी । फलस्वरुप अविश्वसनीय व्यापारियों के कुव्यवहसरों की समाप्ति भी संभव हो सकेगी ।

6. एक सुसमन्वित परिवहन प्रणाली तथा संचार व्यवस्था द्वारा सामान के त्वरित परिवहन एवं सूचना का तीव्रगामी प्रसार करके विपणन प्रणाली में विसतार के साथ-साथ उत्पाद की गुणवत्ता भी संभव होती हैं । वस्तुत: ये दोनों बुनियादी सुविधाएं अच्छी विपणन प्रणाली की पूर्व आवश्यकताएं बन चुकी हैं । व्यक्ति तथा सामान की आसान गतिशीलता हेतु जनजातीय क्षेत्रों में विश्वस्त सार्वजनक परिवहन अपरिहार्य है । आरंभिक अवस्था में इसे सभी मौसमों वाले सडक नेटवर्क से जोडा जाना चाहिए ताकि इसके द्वारा जनजातीय क्षेत्रों से निकटवर्ती के साथ-साथ विस्तार सेवाओं, संस्थागत क्षेत्रों में कृषि उपज का प्रवाह संभव हो सके ।

7. उपज, उपज की उपलब्धता तथा जनजातीय उपज के विशिष्ट उपयोग पर एक ठोस आंकडा आधार सृजित करना होगा । यद्यपि हमारे पास अगणित वन उपज हैं, लेकिन दुर्भाग्य से उनमें से बहुत-सी उपजों का सामान्य व्यक्ति को ज्ञान ही नहीं है । अत: समाज के विभिन्न वर्गों के लाभ हेतु सूचना परिस्रवण प्रणाली विकसित की जानी चाहिए । इसके पूरक के रुप में इन उपजों के विपणन के प्रति एक व्यावसायिक दृष्टिकोण विकसित किया जा सकता है ।

8. ऐसे क्षेत्र जो भारी वर्षा के कारण अलग-थलग पडे हैं तथाजहां उपरोक्त कार्यनीति एक कठिन कार्य है, वहां पर विद्रूपताओं से निपटने के लिए सहकारी समितियां सर्वोत्तम माध्यम हैं। कुछ सहकारिताओं का निष्पादन तो उल्लेखनीय रहा है, विशेषकर गैर-ईमानदार व्यपारियों के हाथों से शोषण को रोकने में । खेत के उत्पाद के विपणन के अतिरिक्त ये सहकारिताएं अपने सदस्यों की सीमित उपज को खरीद कर उनका पूल बना सकती हैं तथा उन्हें एकल ढेर के रुप में बेच सकती हैं । इन सहकारियाताओं के मार्ग में आने वाली कुछ समस्याओं का निराकरण राष्ट्रीय स्तर पर कार्यत 'जनजातीय विपणान विकास संघ' जैसे नये विचार का परीक्षण करना चाहिए जहां किसान असंगठित हैं तथा बिक्री योग्य आधिक्य बहुत कम हैं । इसके अन्तर्गत छोटे ढेरों को एक साथ इकट्ठा किया जा सकता है और उससे एक ऐसे उपयुक्त आकार के ढेर का निर्माण हो जायेगा जिसे खुली नीलामी के माध्यम से बेचा जा सकता है ।

9. भविष्य में जनजातीय उपज विपणन उसी स्थिति में संभव हो सकता है जब हमारे पास सभी संसाधन एवं तकनीक उपलब्ध हैं । यह भी महसूस किया गया है कि जनजातीय विकास की रणनीति तभी संभव होगी जब सभी वैज्ञानिक दृष्टिकोणों को समाजिक दृष्टिकोण से जोडा जाए तथा समन्वित किया जाए और यह समन्वय निश्चित इच्छा शक्ति के साथ-साथ उत्साह से युक्त हो ।

कुछ विचारणीय बिन्दु (Some issues to be considered / pondered upon)

अखिल भारतीय जनजातीय परिदृष्य तथा वहां कृषि विपणन व्यवस्था का परीक्षण करने पर यह ज्ञात होता है कि अधिकांश राज्यों में जनजातीय उपज के लिए अच्छी कृषि विपणन प्रणाली को विकसित करने की आवश्यकता बनी हुई है । ध्यान रहे यह प्रणाली मात्रात्मक रुप से सीमित हो, लेकिन गुणात्मक दृष्टि से उत्कृष्ट होना आवश्यक नहीं हैं । फिर भी जनजातीय समुदाय के आर्थिक विकास के लिए उपज महत्वपूर्ण है । इसलिए जनजातीय उपज को वातविक मूल्य प्राप्त करने हेतु प्राप्ति, प्रशोधित एवं पैकिंग करके एक ऐसी कीमत पर बेचा जाना चाहिए जो एक ओर बाजार में पर्याप्त मांग सृजित कर सके तथा दूसरी ओर कीमत हस्तक्षेप प्रक्रिया को बनाये रख सके । जनजातीय क्षेत्रों में विपणन कार्य कुशलता से कर सकें, इस हेतु निम्न क्षेत्रों में संस्थागत सहायता आवश्यक है ।

आधारिक संरचना सुविधाएं जैसे, जनजातीय हाटों में क्रय एवं विक्रय परिचालनों को प्रोन्नत करने हेतु ढके हुए स्थान आवश्यक है ।

सुबह सिंह यादव,
मुख्य प्रबंन्धक, कृषी एवं ग्रामीण बेंकीग,
बैंक ऑफ बरोडा,
बरोडा कॉपरेट सेंटर, मुंबई

पहले हर अच्छी बात का मजाक बनता है, फिर उसका विरोध होता है और अंत में उसको स्वीकार कर लिया जाता है ।

स्वामी विवेकानंद

Modified crops 'silence' insect pests - forever

Genetically modified plants that can kill just about any insect pest without harming beneficial insects or the environment may soon pop up in farmer's fields.

The plants exploit a mechanism called RNA interference (RNAi), which organisms naturally use to switch genes off. To to this, the orgamism produces a double stranded piece of RNA (dsRNA) whose sequence matches part of the gene to be silenced. Adding just a few of these to a cell shuts down the target gene. The dsRNA produced by these modified plants targets genes specific to certain insect pests. When the pest feeds on the plant, the dsRNA it ingests shuts down some of its genes, killing it.

Recently two teams annouced that they have independently created crops that act in the way. One team in China primed plants to make dsRNA that kills the larvae of the cotton bollworth moth, which cause $1 billion of damage to cotton crops each year in China alone.

Xiao-Ya Chen and his colleagues at the Shanghai Institutes for Biological Sciences engineered tobacco and thale cress to make dsRNA that targets a gene called *CYP6AE14* in the bollworm larvae. This gene usually allows the moth larvae to withstand cotton's natural defence, a toxic chemical called gossypol. In lab tests, the larvae were first fed on the modified plants, and then munched on cotton leaves laced with gossypol (*Nature Biotechnology,* DOI: 10.1038/nbt1352). "They died within two days," Chen told *New Scientist.* "Now we're introducing the same RNA into cotton plants."

Meanwhile, Jim Roberts and his colleagues at biotech giant Monsanto in Chesterfield, Missouri, have created maize plants that produce dsRNA which protects against beetle larvae, including southern corn rootworm, the Colorado potato beetle and the western corn rootworm-"called the 'billion-dollar bug' because of all the damage it does", says Roberts. Roberts and his team were able to modify maize to be resistant to specific species of beetle by producing dsRNA that targets particular variants on the same gene in each species (*Nature Biotechnology,* DOI: 10.1038/nbt1359).

Both teams speculate that the dsRNA enters the insects by infecting the cells in the lining of the gut. The dsRNA infection ends up spreading to cells throughout the insects' bodies. "If the effect translates from the lab into the field, then it really could be the dawn of a new approach to pest resistance," says Peter Waterhouse of CSIRO Plant Industry, a Canberra-based agricultural branch of the Australian government's research organisation.

Using this RNAi technique yields two clear benefits. Plants can be grown that kill specific pest species, ensuring that other beneficial species of insect - and human consumers of a crop - are unaffected. The technique could also be used to bolster other methods of killing pests. For example, Monsanto proposes adding the production of dsRNA to maize plants already modified to produce the Bt toxin - a substance usually produced by the bacterium *Bacillus thuringiensis* which is lethal to wide range of insects. *Andy Coghlan - New Scientist 10, November 2007*

Genetic Engineering

Traditional farming has always been based on genetic engineering. Every major crop plant and farm animal has been genetically engineered by selective breeding until it barely resembles the wild species from which it originated. Genetic engineering as the basis of the world economy is nothing new. What is new is the speed of development. Traditional genetic engineering took centuries or millennia to produce the improved plants and animals that fed the world until a hundred years ago. Modern genetic engineering, based on detailed understanding of the genome, will be able to make radical improvements within a few years. That is why I look to the genome, together with the sun and the internet, as tools with which to build a brighter future for mankind.

-Freeman Dyson,
The Sun, the Genome & the Internet

Portal on Rural Livelihoods - www.indg.in

For the village population of the country, all the information critical to their livelihood is just a click-away now. Recently the government of launched a multi-lingual portal, **www.indg.in,** which disseminates information on the rural livelihoods, including agriculture, primary education, health, rural energy and e-governance. Developed by the Centre for Development of Advanced Computing (C-DAC), the India Development Gateway portal hosts content in Hindi, Tamil, Telugu, Marathi and Bengali, besides English. Since the local language interface makes the portal more user-friendly to rural folks, plans have been drawn up to include other languages for wider relevance and acceptance. The portal is divided under five broad sections – primary education, e-governance, health, agriculture and rural energy. And the subjects covered include child rights and education, e-governance across utilities and judiciary, nutrition and health, hygiene, debt waiver and debt relief scheme, crop insurance, rural innovations, bio-fuels and so on. In addition, there is a multimedia gallery which comprises icons, pictures and even audio/video presentations. According to M.S. Swaminathan, Chairman of the India Development Gateway Initiative, the portal marks a new architecture of growth based on social inclusion, knowledge revolution and national development. In that sense, it is a great byte forward on the country's rural front.

CyberNews, Business India, 10 August 2008

Rural Touch - www.ruralrelations.com

Way back in 1991, a young graduate, Pradeep Lokhande embarked upon a journey of rural India with a mission which was to last next five years. Pradeep, who had given up a marketing job at Johnson & Johnson and a small trading outfit in Pune, wanted to create a database on rural India based on his first-hand knowledge and experiences. He traveled across more than 5000 villages collecting information and building profiles. These comprised information on shops, schools, post offices, number of TVs and telephones, Bazaar days, penetration of consumer products, etc. In 1996, Pradeep bagged his first customers – Tata Tea and Parle – who were interested in the data he had collated. Today his clients include several leading multi-national and domestic companies who use the database to successfully market their products. Pradeep has also launched **www.ruralrelations.com** which highlights part of his efforts. An interesting section on the site is 'happening places' where videos are uploaded to provide a peek into rural life. These videos are shot by the local village youth, who are helped by Pradeep to buy camcorders and trained as 'village developers' to spread the message of development. Another section 'rural barometer' hosts a subscription based information service comprising videos on rural responses to various FMGGs. Then, there are sections on changing villages, village developers, photo gallery, education, and so on. While more and more companies are likely to tap Pradeep's enviable wealth of rural information, the site itself is a visual window to rural India.

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